

BACHELOR OF ARTS – B.A. ENGLISH LITERATURE
Scheme of Examination (CBCS Pattern)
For the Candidates admitted during the academic year 2018-2019 onwards
Common Scheme for UG - Language Papers [4 Semesters]

Part	Sub Code	Subject Title	Ins.Hrs/Week	Examination				
				Dur. Hrs.	CIA	CE	Total	Credit
SEMESTER I								
I	16LATA01 18LAH101 15LAMY01 15LAFR01	Language – I	5	3	30	70	100	3
II	16ENG001	English –I	5	3	30	70	100	3
III	18BAE101	Core 1- Prose	6	3	30	70	100	4
III	18BAE102	Core 2 -Fiction	6	3	30	70	100	4
III	18BAEID1	IDC 1- Social History of England	6	3	30	70	100	4
IV	18UFCA01	Foundation Course I : EVS #	2	2			50	2
		Total	30				550	20
SEMESTER II								
I	16LATA02 18LAH102 15LAMY02 15LAFR02	Language –II	5	3	30	70	100	3
II	16ENG002	English – II	5	3	30	70	100	3
III	18BAE201	Core 3- Poetry-I	6	3	30	70	100	4
III	18BAE202	Core 4- English Grammar and Usage	6	3	30	70	100	4
III	18BAEID2	IDC 2 –Literary Forms	6	3	30	70	100	4
IV	18UFCA02	Foundation Course II: Value Education	2	2	-	50	50	2
		Total	30				550	20
SEMESTER III								
I	16LATA03 18LAH103 15LAMY03 15LAFR03	Language – III Hindi-III Malayalam-III French-III	5	3	30	70	100	3
II	16ENG003	English – III	5	3	30	70	100	3
III	18BAE301	Core 5 -Poetry-II	5	3	30	70	100	4
III	18BAE302	Core 6- Drama	5	3	30	70	100	4
III	18BAEID3	IDC 3 – History of English Literature	5	3	30	70	100	4
IV	18BAEAO1/ 18BAEAO2	AOC I – Personality Development / Translation Tasks#	3	3	-	75	75	3
IV	16BTA001/ 16ATA001/ 18BAEED1	EDC 1:BT 1 / AT 1/PC Software @	2	2	-	50	50	2
		Total	30				625	23

SEMESTER IV								
I	16LATA04 18LAH104 15LAMY04 15LAFR04	Language –IV Hindi-IV Malayalam-IV French-IV	5	3	30	70	100	3
II	16ENG004	English – IV	5	3	30	70	100	3
III	18BAE401	Core 7 -Elements of Phonetics	5	3	30	70	100	4
III	18BAE402	Core 8 - Indian Writing in English	5	3	30	70	100	4
III	18BAEID4	IDC 4-Literary Criticism	5	3	30	70	100	4
IV	18BAEAO3/ 18BAEAO4	AOC II: - Developing Communicative Skills/Technical English	3	3	-	75	75	3
IV	15BTA002/ 15ATA002/ 15BAEED2	EDC 2 :BT 2/AT 2/ Introduction to Information security #	2	2	-	50	50	2
V	15NCC001/ 15NSS001/ 15SPT001 / 15EXT001	NCC/NSS/Sports /Extension Activities			50		50	2
Total			30				675	25
SEMESTER V								
III	18BAE501	Core 9-Shakespeare	5	3	30	70	100	4
III	18BAE502	Core 10- American Literature	5	3	30	70	100	4
III	18BAE503	Core 11-Children Literature in English	4	3	30	70	100	4
III	18BAE504	Core 12-New Literatures	4	3	30	70	100	4
III	18BAE505	Core 13- History of English Language	6	3	30	70	100	5
III	18BAEE01/ 16BAEE02/ 18BAEE03	Elective I :	6	3	30	70	100	5
Total			30				600	26
SEMESTER VI								
III	18BAE601	Core 14- Journalism & Mass Communication	5	3	30	70	100	4
III	18BAE602	Core 15- Ethics in English Literature	5	3	30	70	100	4
III	18BAE603	Core 16-World Literature in English Translation	6	3	30	70	100	4
III	19BAE604	Core 17- Project – Creative Writing	4	3	50	50	100	5
III	18BAEE04/ 18BAEE05/ 18BAEE06	Elective II :	6	3	30	70	100	5
III	18BAEE07/ 18BAEE08/ 18BAEE09	Elective III :	4	3	30	70	100	4
Total			30				600	26
Total							3600	140

No Continuous Internal Assessment (CIA) , only Comprehensive Examination (CE)

@ No Continuous Internal Assessment (CIA) and Comprehensive Examination (CE)

IDC- Inter disciplinary Course , EDC – Extra Disciplinary Course, AOC – Application Oriented course

List of Application Oriented Papers

Sem	Code	Subject Title	Max Marks
III	18BAEAO1	Personality Development	75
III	18BAEAO2	Translation Tasks	75
IV	18BAEAO3	Developing Communicative Skills	75
IV	18BAEAO4	Technical English	75

List of Elective Papers

	Subject Code	Subject Title
Elective I	18BAEE01	English for Specific Purpose
	16BAEE02	Introduction to MS Office and Internet Research Skills
	18BAEE03	Study of Indian Theatre
Elective II	18BAEE04	Comparative Literature
	18BAEE05	English for Competitive Exams
	18BAEE06	Creative Writing
Elective III	18BAEE07	Intensive Study of an Author- Rabindranath Tagore
	18BAEE08	Critical Approaches to Literature
	18BAEE09	Inspiring Speeches

List of Additional Credit Papers

Sem	Code	Subject Title	Credits
III	18BAEAC1	Professional Communication	2
IV	18BAEAC2	Writing for Corporate Secretaryship	2
V	18BAEAC3	Theatrical Arts	2

Summary

Part	No of Papers	Total Credits	Total Marks
I	4	12	400
II	4	12	400
III –Core	17	69	1700
III – Allied	4	16	400
III – Elective	3	15	300
IV –Foundation Course	2	4	100
IV – EDC	2	4	100
IV – Application Oriented Course	2	6	150
V –Extension Activities	-	2	50
Total	38	140	3600

REGULATIONS FOR BOARD OF ENGLISH

(Effective from the academic year 2018-2019 onwards)

1. Distribution of Internal Mark for Theory:

(No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6=30

Breakup for Attendance:

65%- 74 %	- 4 Marks
75% - 80%	- 6 Marks
81% - 90%	- 8 Marks
91% - 100%	- 10 Marks

Split of the marks for a seminar is as follows

Content	-10 Marks
Flow of the Presentation	-10 Marks
Stage Management and Body Language	-10 Marks

Total Marks

30 Marks

2. Question Paper Pattern

Time: 3 Hour

Max marks: 70

SECTION – A (10×1=10)

Answer All Questions

Each Question carries One Mark

(MULTIPLE CHOICE QUESTIONS)

SECTION – B (5×4=20)

Answer All Questions

Each question carries FOUR Marks

(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answer All Questions

Each question carries EIGHT Marks

(INTERNAL CHOICE)

3. Question Paper Pattern

Time: 3 Hour

Max marks: 75

SECTION – A (10×1=10)

Answer All Questions

Each Question carries One Mark

(MULTIPLE CHOICE QUESTIONS)

SECTION – B (5×5=25)

Answer All Questions

Each question carries FIVE Marks

(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answer All Questions

Each question carries EIGHT Marks

(INTERNAL CHOICE)

4. Question Paper Pattern

Time: 3 Hour

Max marks: 50

SECTION – A (10×1=10)

Answer All Questions

Each Question carries One Mark

(MULTIPLE CHOICE QUESTIONS)

SECTION – B (5×3=15)

Answer All Questions

Each question carries THREE Marks

(INTERNAL CHOICE)

SECTION – C (5×5=25)

Answer All Questions

Each question carries FIVE Marks

(INTERNAL CHOICE)

5. Internal Marks for project work

Internal-Two project Reviews	25
Report	25

	50

6. External Marks for Project Work (for courses where the External marks is 50)

Presentation	25
Viva- Voce	25

	50

NOTE:

1. The questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the unit in the syllabus in all the sections of the question paper.
3. While framing questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

Bachelor of Arts (English Literature) Degree Examination-Syllabus- for the Candidates admitted from the academic year 2018-2019 onwards

**FIRST SEMESTER
PART-III- CORE-1 PROSE**

Maximum CIA- 30
Maximum CE-70
Total Hours - 72

OBJECTIVES:

1. To expose the students to the prose writings over the centuries.
2. To familiarize the students with various rhetoric devices.

UNIT-I

FRANCIS BACON	Of Studies	(15 Hours)
FRANCIS BACON	Of Fame	
SIR RICHARD STEELE	The Trumpet Club	

UNIT – II

JOSEPH ADDISON	Sir Roger At The Theatre	(15 Hours)
OLIVER GOLDSMITH	The Man in Black	
DANIEL DEFOE	Description of a Quack Doctor	

UNIT-III

CHARLES LAMB	A Dissertation upon a Roasted Pig	(14 Hours)
CHARLES LAMB	Dream Children- A Reverie	
WILLIAM HAZLITT	The Fight	

UNIT -IV

ALDOUS HUXLEY	English Snobbery	(14 Hours)
G K CHESTERTON	The Worship of the Wealthy	
J B PRIESTLY	Travel by Train	

UNIT – V

A G GARDINER	A Fellow Traveller	(14 Hours)
A J CRONIN	The Best Investment I Ever Made	
PELE with RL FISH	Pele's Thousandth goal	

TEXT BOOKS:

1. MG Nayar, *A Galaxy of English Essayists*, Trinity, 2014.
2. Vimala Ramarao, *Current prose for Better Learning*, Macmillan, 2009.
3. DK.Sebastian and AG.Xavier, *Prose &Poetry for the Young Reader*, Trinity, 2014.
4. Dr.S.Sen, *Essays of Elia*, unique Publishers, 2014.

REFERENCE BOOKS:

1. S.L.Edwards, *An Anthology of English Prose : From Bede to R. L. Stevenson*, OUP, 2018.
- 2.Eesha Narang, *The New Expression: An anthology of Indian short prose in English* , Carvinowledge Press, 2017.

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**FIRST SEMRSTER
PART-III-CORE 2 FICTION**

Maximum CIA- 30
Maximum CE-70
Total Hours - 72

OBJECTIVES:

1. To make the students understand the fictional writings.
2. To teach them the methods of comprehension.

UNIT 1

JANE AUSTEN – Emma (15 Hours)

UNIT – II

GEORGE ELIOT – Mill on the Floss (15 Hours)

UNIT – III

CHARLES DICKENS – Great Expectations (14 Hours)

UNIT – IV

WILKIE COLLINS – The Moonstone (14 Hours)

UNIT – V

F. SCOTT FITZGERALD -The Great Gatsby (14 Hours)

TEXT BOOKS:

1. Austen, Jane. *Emma*, Fingerprint Publishing, 2014.
2. Eliot, George. *Mill on the Floss*, Maple Press, 2014.
3. Dickens, Charles. *Great Expectations*, Penguins Revised Edition, 2014.
4. Collins, Wilkie. *The Moonstone*, Maple Press, 2010.
5. Fitzgerald, Scott. *The Great Gatsby*, Fingerprint Publishing, 2014.

REFERENCE BOOKS:

1. Byrne, Paula, *Jane Austen's Emma: A Sourcebook*. Routledge ed. (2004).
2. Byatt, A.S. *Introduction to the Penguin Classics Edition*, 1985.
3. John Forster (1872–1874), *The Life of Charles Dickens*, London: J. M. Dent & Sons, edited by J. W. T. Ley, 1928.
4. Hall, Sharon K (1979). *Twentieth century literary criticism*. p.531. University of Michigan.
5. Randall, Mónica. *The Mansions of Long Island's Gold Coast*. Rizzoli., 2003.

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**FIRST SEMESTER
PART-III- IDC – 1 SOCIAL HISTORY OF ENGLAND**

Maximum CIA- 30
Maximum CE-70
Total Hours - 72

OBJECTIVES:

1. To introduce the historical and social background of England.
2. To make the students understand the impacts of the various events on English Literature.

UNIT – I	The Renaissance The Reformation The Tudor navy and Armada	(15 Hours)
UNIT – II	The East India Company Colonial Expansion Civil War and its social significance	(15 Hours)
UNIT – III	Puritanism Restoration in England The Origin & Growth of Political Parties in England	(14 Hours)
UNIT – IV	Age of Queen Anne Agrarian Revolution Industrial Revolution	(14 Hours)
UNIT – V	Effects of French Revolution The Victorian Age World wars & social security	(14 Hours)

TEXT BOOK:

1. Xavier.A.G. *Introduction to the Social History of England*, Viswanathan Printers and Publishers, 2009.

REFERENCE BOOKS:

1. Thailambal.P. *Social History of England*, Ennes Publications, 1996.
2. Johri.A.N. *A Social History of England*, Doaba House, 1994.
3. Traveylyon.G.M. *English Social History*, Surjeet Publications, 2011.

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**SECOND SEMESTER
PART-III-CORE 3 POETRY – I**

Maximum CIA- 30
Maximum CE-70
Total Hours - 72

OBJECTIVES:

1. To understand the aesthetic pleasures of Literature.
2. To make them learn the skills of poetry.

UNIT - I & II

EDMUND SPENSER	Prologue to the Faerie Queene	(28 Hours)
JOHN MILTON	Paradise Lost Book IX	

UNIT – III

JOHN DONNE	A Valediction: Forbidding Mourning	(14 Hours)
ANDREW MARVELL	To His Coy Mistress	
JOHN DRYDEN	Macflecknoe	

UNIT – IV

ALEXANDER POPE	From Essay on man	(15 Hours)
THOMAS GRAY	Elegy Written in a Country Churchyard	
OLIVER GOLDSMITH	The Village Schoolmaster	

UNIT – V

WILLIAM COLLINS	Ode To Evening	(15 Hours)
WILLIAM BLAKE	The Tyger	
DANTE GABRIEL ROSSETTI	The Blessed Damozel	

TEXT BOOKS:

1. Green David, *Winged Words*, Macmillan, India: 1997.
2. Milton John. *Paradise Lost Book IX*, Macmillan, India: 2013.

REFERENCE BOOK:

1. Blaney Justin, *Whispers Willow*, Inkliss, 2017.

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SECOND SEMESTER

PART-III-CORE 4 GRAMMAR AND USAGE

Maximum CIA- 30

Maximum CE-70

Total Hours - 72

OBJECTIVES:

1. To teach the fundamentals of Grammar and usage.
2. To train them for the effective writing.

UNIT – I

Part I. Grammar and Usage (15 Hours)

1. The Sentence-2. Parts of Speech-3. Nouns-I-4. Nouns-II-5. Adjectives-6. Comparison of Adjectives-7. Articles-8. Pronouns-9. Demonstrative, Indefinite, Interrogative, Distributive and Reciprocal Pronouns-10. Relative Pronouns-11. Verbs-12. Verbs -Mood and Tense-13. Concord or Agreement of the Verb with the Subject-14. Non-Finite Verbs 15. Strong and Weak Verbs-16. The Auxiliaries-17. Modal Auxiliaries-18. Anomalous Finites-19. Adverbs-20. Prepositions-21. Conjunctions-22. Interjections.

UNIT – II

(15 Hours)

Part II. Sentence Structure-A

23. Simple, Compound, Complex and Compound-Complex Sentences
24. Analysis of Simple Sentences- 25. Clauses-26. Analysis of Complex Sentences
27. Analysis of Compound Sentences and Compound-Complex Sentences.

UNIT – III

(15 Hours)

Part II. Sentence Structure-B

28. Synthesis of Sentences-29. Transformation of Sentences-I-30. Transformation of Sentences-II-31. Sequence of Tenses and Direct and Indirect Speech-32. Punctuation and Capitals.

UNIT – IV

(15 Hours)

Part III. Structures, Literary and Conversational

33. Verb Patterns and Structures-I-34. Verb Patterns and Structures-II-35. Verb Patterns and Structures-III-36. Verb Patterns and Structures (Mainly Conversational)

UNIT – V

(12 Hours)

Part IV. Vocabulary and Composition

37. Word-Formation-The Use of Prefixes-38. Word-Formation-The Use of Suffixes
39. Word-Formation-Compound Words-40. Synonyms and Antonyms
41. One-Word Substitutes for Phrases and Clauses-42. Words Often Confused
43. Words with Appropriate Prepositions-44 Writing Stories from Outlines

TEXT BOOK:

1. Green David. *Contemporary English Structure and Composition*, Trinity, 2015.

REFERENCE BOOK:

1. N. Krishnaswamy. *Modern English* (A book of Grammar Usage and Composition), Trinity, 2017.

18BAEID2

**Bachelor of Arts (English Literature) Degree Examination-Syllabus- for the Candidates
admitted from the academic year 2018-2019 onwards
SECOND SEMESTER
PART-III-IDC- 2 LITERARY FORMS**

Maximum CIA- 30
Maximum CE-70
Total Hours -72

OBJECTIVES:

1. To introduce the students to the various genres of Literature.
2. To make them understand the literary terms and movements down the ages.

UNIT – I	Subjective and Objective poetry Poetical types Stanza Forms- The Heroic Couplet, the Spenserian stanza	(15 Hours)
UNIT II	The Metaphysical School of Poets The Classical Movement The Romantic Revival	(14 Hours)
UNIT III	The Dramatic Art Dramatic Types Dramatic Devices	(14 Hours)
UNIT IV	Origin of the English Drama Origin of the English Theatre The Essay	(14 Hours)
UNIT V	The Novel The Short Story Biography and Autobiography	(15 Hours)

TEXT BOOK:

- 1 .Prasad.B *A Background to the Study of English Literature*, Macmillan, 2013.

REFERENCE BOOK:

1. Abrams M.H. *A Glossary of Literary Terms*, Cengage Learning .2015.

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**Third Semester
Part-III Core 5 Poetry-II**

Maximum CIA- 30
Maximum CE-70
Total Hours -60

Objective:

To familiarize learners about the diverse schools of poetry, trends, individual traits of poets and to identify poetic devices and strategies and how to interpret a poem.

Unit I		(12 Hours)
William Wordsworth	Resolution and Independence	
S.T.Coleridge	Kubla Khan	
P.B.Shelley	Ode to Skylark	
Unit II		(12 Hours)
John Keats	Ode on a Grecian Urn	
Lord Byron	Don Juan	
Sir Walter Scott	The Lay of the Last Minstrel	
Unit III		(12 Hours)
Alfred Lord Tennyson	Tithonus	
Alfred Lord Tennyson	Lotus Eaters	
Robert Browning	My Last Duchess	
Unit IV		(12 Hours)
Mathew Arnold	Scholar Gypsy	
W.B.Yeats	Easter 1916	
T.S.Eliot	The Hollow Men	
Unit V		(12 Hours)
W.H.Auden	The Shield of Achilles	
Wilfred Owen	Strange Meeting	
Lois Macniece	Prayer before Death	

Text Books:

1. Ed. Robert Burns. Spectrum of Verse, McMillan Publication, 1991.
2. Compiled by Prof. Lalitha Natarajan. English For Excellence Poetry, Anuradha Publications, Chennai, 2013.

Reference Book:

1. Green David. The Winged Word, Laxmi publications, 2002.

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**Third Semester
Part-III Core 6 - Drama**

Maximum CIA- 30
Maximum CE-70
Total Hours -60

Objective:

To enable the students to have knowledge about the dramatic devices used in the prescribed plays and facilitate the students to appreciate drama.

Unit – I (12 Hours)

Christopher Marlowe -Dr.Faustus

Unit – II (12 Hours)

John Dryden -All for Love

Unit – III (12 Hours)

Henrik Ibsen -Doll's House

Unit – IV (12 Hours)

George Bernard Shaw -Arms and the Man

Unit – V (12 Hours)

Oscar Wilde -The Importance of Being Earnest

Text Books:

1. Marlowe Christopher, *Doctor Faustus*. New Mermaids, Paperback, 2014.
2. Dryden John *All for Love*. New Mermaids, Paperback, 2014.
3. Ibsen Henrik, *Doll's House*, Dover Thrift Edition, Dover Publication, 2017.
4. Shaw Bernard, *Arms and the Man*. Maple Classics, 2013.
5. Wilde Oscar, *The Importance of Being Earnest*, Dover Thrift Edition, Dover Publication, 2016.

Reference Book:

1. George Bernard Shaw's – Arms and The Man, A Complete Study by Yash Rampal, Paramvir Publications

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Third Semester

Part-III IDC- 3 History of English Literature

Maximum CIA- 30
Maximum CE-70
Total Hours -60

Objective:

To make the students aware and understand growth and development of English literature.

Unit - I		(12 Hours)
	Age of Chaucer The Age of Elizabeth	
Unit- II		(12 Hours)
	The Puritan Age The Restoration Age	
Unit -III		(12 Hours)
	Augustan Age	
Unit - IV		(15 Hours)
	The Romantic Age The Victorian Age	
Unit - V		(12 Hours)
	20th Century Literature	

Text Book:

1. Hudson.W.H. *An Outline History of English Literature*, B.I.Publications.

Reference Books:

1. Shanmugakani.A. *History of English Literature*, Vasans Publications, 2006.
2. Albert, Edward. *History of English Literature*, Oxford UP, 1979.
- 3.Hudson.W.H. *An Introduction to the study of English Literatur*, Surjeet Publications.

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Third Semester

Part – IV AOC – I Personality Development

Maximum CE-75

Total Hours - 36

Objective:

To enhance the holistic development of students and improve their employability skills and personality.

Unit I

INTERPERSONAL SKILLS

(7 Hours)

Gratitude-Understanding the relationship between Leadership Networking & Team work-Interpersonal Skills Situation description of Interpersonal Skill-Necessity of Team Work Personally, Socially and Educationally.

Unit II

LEADERSHIP

(7 hours)

Skills for a good Leader, Assessment of Leadership Skills

Unit III

STRESS MANAGEMENT

(7 Hours)

Causes of Stress and its impact, how to manage & distress,

Circle of control, Stress Busters, Emotional Intelligence

What is Emotional Intelligence, emotional quotient why Emotional Intelligence matters, Emotion Scales. Managing Emotions.

Unit IV

CONFLICT RESOLUTION

(7 Hours)

Conflicts in Human Relations-Reasons Case Studies, Approaches to conflict resolution.

Unit V

DECISION MAKING

(8 Hours)

Importance and necessity of Decision Making, Process and

practical way of Decision Making, Weighing Positives & Negatives.

Technical Topic Presentation

Text book:

1. Soft Skills, Career Development Centre, Green Pearl Publications. 2015.

Reference Books:

1. Covey Sean, Seven Habit of Highly Effective Teens, New York, Fireside Publishers, 1998.
2. Carnegie Dale, How to win Friends and Influence People, New York: Simon & Schuster, 1998.
3. Thomas A Harris, I am ok, You are ok, New York, Harper and Row, 1972.
4. Daniel Coleman, Emotional Intelligence, Bantam Book, 2006.

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Third Semester

Part – IV AOC -2 Translation Task

**Maximum CE-75
Total Hours - 36**

Objective:

To familiarize students with administration terminologies in English and help them acquire a working knowledge in that field.

Unit I (7 Hours)

Word and Phrase Classification

Unit II (7 Hours)

Note terms, forms of endorsement

Unit III (7 Hours)

Note Order, Official Letters

Unit IV (7 Hours)

Circulars, Proceedings

Unit V (8 Hours)

Government Orders, Announcements, Advertisements in Newspapers, Official Notes.

Text Book:

1. Translation Tasks - ENNES Publications, 2010

Reference Books:

1. Mastering English Literature Gill Richard Palgrave Mc Millan 2006
2. Duff, A. (1981). The third language. Oxford: Pergamon Press.
3. Duff, A. (1989). Translation. Oxford: Oxford University Press.
4. Maley, A., & Duff, A. (1989). The Inward Ear: Poetry in the Language Classroom. Cambridge: Cambridge University Press.
5. Newmark, P. (1988a). Approaches to translation. London: Prentice Hall.
6. Porcaro, J. (1998). Japanese literary translation in an English language program. The Language Teacher.

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Third Semester

Part – IV – EDC I: PC Software

Maximum Marks: 50

Total Hours: 24

Objective:

To gain knowledge on Computer Basics and Pc Software Tools.

Unit I (4 Hours)

Introduction – Introduction to computers – Evolution – Generation of Computers – Computers Hierarchy – Applications of Computers – Number System – Binary, Hexa, Octal.

Unit II (5 hours)

Windows Basics – Introduction to word – Editing a document - Move and Copy text - Formatting text & Paragraph – Enhancing document – Columns, Tables and Other features.

Unit III (5 hours)

Introduction to worksheet and shell – getting started with Excel – Editing cell & using Commands and functions – Moving & Copying , Inserting & Deleting Rows & Columns - Printing work sheet.

Unit IV (5 hours)

Creating charts – Naming ranges and using statistical, math and financial functions, database in a worksheet – Additional formatting commands and drawing toolbar – other commands & functions – multiple worksheet and macros.

Unit V (5 Hours)

Overview of Power point – presenting shows for corporate and commercial using Power point – Introduction to Desktop publishing – Computer viruses – Introduction to Internet – Web features.

Text Books:

1. Computer Fundamentals – Raja Raman – Prentice Hall of India 2004.
2. PC Software for Windows 98' made simple – R.K.Taxali – Tata McGraw Hill Publishers, 2005.

Reference Book:

1. Digital Circuits & Design – S.Salivahanan, S.Arivazhagan – Vikas Publishing House Pvt Ltd, 2002.

18BAE401

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**Fourth Semester
Part-III Core-7 Elements of Phonetics**

Maximum CIA- 30
Maximum CE-70
Total Hours -60

Objective:

To enhance the students the broad areas of phonetics inclusive of Consonants, Vowel sounds, Phonology and use of language in context.

Unit I	Phonetics: The Articulation of Speech Sounds Classification of Speech Sounds Classification and Description of consonants Classification and Description of Vowels	(15 Hours)
Unit II	Phonology: Phonemes and Allophones The Syllable	(14 Hours)
Unit III	The Pure Vowels and Diphthongs of English The Consonants of English Consonant clusters in English	(14 Hours)
Unit IV	Word Accent in English Accent and Rhythm in Connected speech	(15 Hours)
Unit V	Intonation Assimilation and Elision	(14 Hours)

Text Book:

1. Balasubramanian.T, *A Textbook of English Phonetics for Indian Students*, Trinity Press, 2014.

Reference Book:

1. Roach, Peter. *Phonetics (Oxford Introduction to Language Study ELT)*, Oxford University Press India, 2012.

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Fourth Semester

Part-III Core-8 Indian Writing in English

Maximum CIA- 30

Maximum CE-70

Total Hours -60

Objective:

To acquaint the learners toward the various phases of evolution in Indian Writing in English.

Unit I PROSE (12 Hours)

Dr.S.Radhakrishnan	Character is Destiny
Dr.APJ.Abdul Kalam	My Visions for India
C.Rajagopalachari	The Tree Speaks

Unit II POETRY (12 Hours)

Toru Dutt	Our Casurina Tree
Nissim Ezekiel	Very Indian Poem in Indian English
Sarojini Naidu	Coromandel Fishers

Unit III DRAMA (12 Hours)

Badal Sircar	Evam Indrajit
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Unit IV FICTION (12 Hours)

Mulk Raj Anand	Coolie
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Unit V SHORT STORIES (12 Hours)

R.K.Narayan	Snake in the Grass
Manoj Das	A Substitute for the Sitar
Kushwant Singh	Karma

Text Books:

- 1.Compiled by Prof.Lalitha Natarajan. English For Excellence Pose, Anuradha Publications, Chennai, 2013.
2. Ed. Dr.S.Kanitha, An Anthology of English Verse by Women, Arivu Pathipagam, 2009.
3. Compiled by Prof. Lalitha Natarajan. English For Excellence Poetry, Anuradha Publications, Chennai, 2013
4. Vintage Wine, NCBH, 2007.
5. Evam Indrajit: Three-act Play Paperback , OUP, 9 Jan 1975.
6. Mulk Raj Anand : Coolie Unique Publisher (I) Pvt Ltd; 2 edition (2014)
7. Ed. Prof. K.G.Seshadri, Twelve Tales. Anuradha Publications, Chennai, 2015.

Reference Books:

1. Ed. By Dr.K.Gunasekaran. English Prose Selections, NCBH, 2011.
2. Dr. P.N.Ramani. Vignettes, NCBH, 2007.

B.A (English- Literature) Degree Examination-Syllabus- For the Candidates admitted from the academic year 2018-2019 onwards

Fourth Semester

Part-III-IDC 4- Literary Criticism

Maximum CIA- 30
Maximum CE-70
Total Hours -60

Objective:

To enhance the basic concepts and methods of criticism and the ability of understanding literature through it.

Unit I (12 Hours)

The Background of English Criticism
The Greek Masters – Plato, Aristotle
The Roman Classicists – Horace
Enter Romance –Longinus
The Emergence of the Vernacular – Dante

Unit II (12 Hours)

English Criticism
The Battle of Tastes – Sir Philip Sidney
The Triumph of Classicism – John Dryden

Unit III (12 Hours)

The Romantic Revolt
William Wordsworth
S.T.Coleridge

Unit IV (12 Hours)

The Victorian Compromise
Mathew Arnold
Walter Pater

Unit V (12 Hours)

The Age of the Interrogation
T.S.Eliot
I.A.Richards
F.R.Lewis

Text Book:

1. Prasad, Birjadish. An Introduction to English Criticism, Macmillan Publishers India Ltd., 2011

Reference Book:

1. Nagarajan.M.S English Literary Criticism and Theory Orient Blackswan, 2006

B.A (English- Literature) Degree Examination-Syllabus- For the Candidates admitted from the academic year 2018-2019 onwards

Fourth Semester

Part-III- AOC II Developing Communicative Skills

		Maximum CE-75 Total Hours - 36
Objective:		
	To impart LSRW Skills, in social, academic, business and literary contexts.	
Unit I	Education Word Grid Reading Problems and Solutions	(4 Hours)
Unit II	Syllabification Forms for Expressing Quality Expressing Comparison Monosyllabic Comparison	(8 Hours)
Unit III	Di/Polysyllabic Comparison The Best Monosyllabic Comparison The Best Di/Polysyllabic Comparison Practising Quality Words	(8 Hours)
Unit IV	Wh Words Yes/No Recollection Unscramble Wh Questions Wh Practice	(8 Hours)
Unit V	Education and the Poor Controlled Role Play Debate on Education Education in the Future	(8 Hours)

Text Book:

1. John Love Joy & Francis M.Peter, Let's Communicate 2. Trinity Press, 2015.

Reference Books:

1. The Secrets of Successful Communication: A Simple Guide to Effective Encounters in Business (Big Brain vs. Little Brain Communication) Paperback – September 1, 2011.
2. John Love Joy & Francis M.Peter, Let's Communicate 1. Trinity Press, 2015.

B.A (English- Literature) Degree Examination-Syllabus- For the Candidates admitted from the academic year 2018-2019 onwards

Fourth Semester

Part-IV-AOC II -Technical English

Maximum CE-75

Total Hours – 36

Objective:

To train the Learner to make use of Technical English and strengthen the LSRW Skills in English Language.

Unit I Fundamentals (4 Hours)

Nature of Technical Communication

Unit II Listening Comprehension (8 Hours)

The Listening Process

Unit III Speaking Strategies (8 Hours)

The Speech Process
Speaking Techniques

Unit IV Reading and Language Comprehension (8 Hours)

The Reading Process
Reading Strategies

Unit V Professional Writing (8 Hours)

Resume and Job Application
E-mail Messages.

Text Book:

1. Rixwi M.Ashraf, Effective Technical Communication, (1st Edition, Tata Mc Graw Hill), 2005.

Reference Books:

1. Sharon J.Gerson, Technical writing- Process and Product. Steven M. Greson (3rd Edition, Pearson Education(Singapore) Pvt.Ltd.,) 2004.
2. Hari Mohan Prasad & Uma Ram Sinha, Objective English for Competitive Examinations, Tata Mc Graw Hill, 2005.

B.A (English- Literature) Degree Examination-Syllabus- For the Candidates admitted from the academic year 2018-2019 onwards

FIFTH SEMESTER

PART III- CORE 9- SHAKESPEARE

Maximum Marks CIA:30

Maximum CE:70

Total Hours: 60

Objective:

To enable the students to gain the theatrical methods, style, complexities in characterization and the distinctive features of Shakespeare's comedies, tragedies, and histories.

Unit I Comedy (12 Hours)

Midsummer Night's Dream

Unit II History (12 Hours)

Henry IV Part I

Unit III Tragedy (12 Hours)

Macbeth

Unit IV (12 Hours)

Sonnets XVIII, XXIX, XXXII, LIII, LVII- No's: 18, 29, 32, 53, 57

Unit V General study (12 Hours)

Shakespeare's Theatre and Audience, Women characters in Shakespeare, Fools and Clowns in Shakespeare

Text Books

1. Shakespeare, William. *The Complete Works of William Shakespeare*. Wilco Publishing House: 2011.
2. Harrison. G. B. *Introducing Shakespeare*. Penguin Classics New York: 1950.

Reference Books

1. Jonathan Bate, Eric Rasmussen. *The RSC Shakespeare: The Complete Works*. Palgrave Macmillan: Chennai, 2007.
2. René Girard. *A Theater of Envy: William Shakespeare* Oxford University Press: 1991.
3. Thronidike, Ashley. *H. Shakespeare's Theater* New York: Macmillan: 1960.

B.A (English- Literature) Degree Examination-Syllabus- For the Candidates admitted from the academic year 2018-2019 onwards

**FIFTH SEMESTER
PART III - CORE 10- AMERICAN LITERATURE**

Maximum Marks CIA: 30
Maximum CE: 70
Total Hours: 60

Objective:

To gain the knowledge of major periods and trends in American literature.

Unit I Poetry (12 Hours)

Emily Dickinson: A Bird Came Down the Walk

Robert Frost: After Apple-Picking

Edgar Allan Poe: The Raven

Sylvia Plath: Daddy

Walt Whitman: A Noiseless Patient Spider

Unit II Prose (12 Hours)

Thoreau: "Where I Lived and What I Lived for"

Ralph Waldo Emerson: Self Reliance

Unit III Drama (12Hours)

Tennessee Williams: The Glass Menagerie

Unit IV Novel (12 Hours)

Ernest Hemingway: The Old Man and the Sea

Unit V Criticism (12 Hours)

Edgar Allan Poe: Philosophy of Composition

Text Books

- Poems can be taken from any authentic source
- Ed. Fisher, William J. *An Anthology: American Literature of the Nineteenth Century* Eurasia Publishing House Pvt. Ltd., New Delhi: 2002.
- Williams, Tennessee: *The Glass Menagerie* OUP: 1989.
- Hemingway, Ernest *The Old Man and the Sea* Atlantic: 2007.
- Subbian C, *An Anthology of Poems* Emerald Publications: 1987.

B.A (English- Literature) Degree Examination-Syllabus- For the Candidates admitted from the academic year 2018-2019 onwards

FIFTH SEMESTER

PART III- CORE 11- CHILDREN LITERATURE IN ENGLISH

Maximum Marks CIA:30

Maximum CE:70

Total Hours:48

Objective:

To achieve a general overview of Children's Literature and to acquire a historical perspective on its development

Unit I (8 Hours)

General Introduction: The Contexts of Children's Literature: The Eighteenth Century- The Nineteenth Century- The Twentieth Century and Beyond- Summary- Timeline

Unit II

Poetry & Picture Books (10 Hours)

Robert Louis Stevenson - My Shadow

Ted Hughes -Tiger

Ronald Dahl - Little Red Riding Hood and the Wolf

Grace Nicholas - Lizard

Valery Nash - Witch Words

Unit III

Tales (12Hours)

Walter de la Mare Dick and the Beanstalk

A Penny a Day

The Scarecrow

Unit IV

One Act Play (8 Hours)

George Bernard Shaw - A Meeting in a Forest

Fritz Karinthy - Refund

Unit V

Fiction (10 Hours)

Sudha Murthy - The Magic of the Lost Temple

Text Books

1. David L, Russell. *Literature for Children: A Short Introduction*. Pearson Publication 2011.
2. Hughes, Ted. *Collected Poems for Children*: London: Faber and Faber 2005.
3. Mare de la Walter. *Collected Stories for Children*: Faber & Faber, 1947.
4. Shaw, G.B. *A Meeting in the Forest*: Limelight 1, SSK Publishers & Distributors, 2015.
5. Karinthy, Fritz. *Refund*: Limelight 3, SSK Publishers & Distributors, 2015.
6. Murthy, Sudha. *The Magic of the Lost Temple*: Penguin Books India, 2015.

Reference Books

1. Heyman, Michael, Sumanyu Satpathy, and Anushka Ravishankar *The Tenth Rasa: An Anthology of Indian Nonsense*. New Delhi: Penguin, 2007.
2. Zipes, Jack et al. *The Norton Anthology of Children's Literature: The Traditions in English* New York: Norton, 2005.
3. Reynolds, Kimberley, and M O Grenby, eds. *Children's Literature Studies: A Research Handbook*: Basingstoke and New York: Palgrave Macmillan, 2011.
4. Rudd, David. *Routledge Companion to Children's Literature*: Abingdon and New York: Routledge, 2010.
5. Stahl, J. D., Tina L. Hanlon, and Elizabeth Lennox Keyser, eds. *Crosscurrents of Children's Literature*: New York: Oxford University Press, 2007.
6. Wolf, Shelby, Karen Coats, Patricia A. Enciso, and Christine Jenkins, eds. *Handbook of Research on Children's and Young Adult Literature*: Abingdon and New York: Routledge, 2011.
7. Subramaniam, Manasi. *Karadi Tales the Story and the Song* Karadi Tales Company, December 2012.

B.A (English- Literature) Degree Examination-Syllabus- For the Candidates admitted from the academic year 2018-2019 onwards

FIFTH SEMESTER

PART III - CORE 12- NEW LITERATURES

Maximum Marks CIA:30

Maximum CE: 70

Total Hours:48

Objective:

To make the students recognize and appreciate the importance of major literary genres in different literary traditions.

Unit I

Poem (12 Hours)

- | | | |
|---------------|---|-------------------------|
| Maya Angelou | - | Still I Rise |
| Derek Walcott | - | A Far Cry from Africa |
| Judith Wright | - | The Old Prison |
| Wole Soyinka | - | Telephonic Conversation |

UnitII

Prose (12 Hours)

- | | | |
|----------------|---|--------------------------------------|
| Edward Said | - | Orientalism (Introductory Part) |
| NgugiWaThiongo | - | Decolonizing the Mind (Introduction) |

UnitIII

Drama (8 Hours)

- | | | |
|-------------|---|-------------------------|
| George Ryga | - | The Ecstasy of Rita Joe |
|-------------|---|-------------------------|

UnitIV

Fiction (8 Hours)

- | | | |
|---------------|---|-------------|
| Patrick White | - | Tree of Man |
|---------------|---|-------------|

UnitV

Short Story (8 Hours)

- | | | |
|---------------|---|------------------|
| O Henry | - | The Gift of Magi |
| Anton Chekhov | - | My Life |

Text Books

1. Said, Edward. *The World, the Text and the Critic*: Cambridge: M.A. Harvard University Press, 1983.
2. Thiong'o Wa Ngugi. *Decolonising the Mind- the Politics of Language in African Literature*: Boydell & Brewer Limited, US. 1986.
3. White, Patrick. *Tree of Man*: Vintage Classics, 1994.
4. Ryga, George. *The Ecstasy of Rita Joe*: Talon Books, Canada; Reprint edition, 1970.
5. Henry. *Best Stories of O. Henry: Gift of the Magi: The Ransom of Red Chief, Mammon and the Archer and Others*, Kessinger Publishing Co. 2004.

B.A (English- Literature) Degree Examination-Syllabus- For the Candidates admitted from the academic year 2018-2019 onwards

FIFTH SEMESTER

PART III - CORE 13- HISTORY OF ENGLISH LANGUAGE

Maximum Marks CIA:30

Maximum CE:70

Total Hours:72

Objective:

To give the enhanced appreciation of the language and literature through history.

Unit I	(15Hours)
The Origin of language	
The Descent of the English language	
Unit II	(15Hours)
The Old English	
The Renaissance and After	
Unit III	(14Hours)
The Growth of Vocabulary	
Change of Meaning	
Unit IV	(14Hours)
The Evolution of Standard Language	
Unit V	(14Hours)
The Foreign Contribution	

Text Book

1. Wood. FT. *The Outline History of English Language*, Macmillan India Press. Chennai, 2008.

Reference Book

1. Baugh, C. Albert. *A History of the English Language*, Sixth Edition, Routledge Publishers, 2012.

B.A (English- Literature) Degree Examination-Syllabus- For the Candidates admitted from the academic year 2018-2019 onwards

FIFTH SEMESTER

PART III - ELECTIVE I –ENGLISH FOR SPECIFIC PURPOSE

Maximum Marks CIA:30

Maximum CE: 70

Total Hours:72

Objective:

To fulfill the specific needs of the learners of English and to make use of underlying methodology and activities of the discipline it serves to turn the learners into users.

Unit I (15 Hours)
The Reading Skill

Unit II (15 Hours)
The Writing Skill

Unit III (15 Hours)
Listening Skill

Unit IV (15 Hours)
Speaking in ESP/EAP (English for Specific Purpose and Academic Purpose)

Unit V (12 Hours)
Business Skills - Developing and Understanding

Text Book

1. Sifakis, Nicos. *The Teaching of English for Specific Purposes*: Patras, 2008.

B.A (English- Literature) Degree Examination-Syllabus- For the Candidates admitted from the academic year 2018-2019 onwards

FIFTH SEMESTER

PART III - ELECTIVE I –STUDY OF INDIAN THEATRE

Maximum Marks CIA:30

Maximum CE:70

Total Hours:72

Objective:

To help the students to develop histrionic talents and to give them an orientation in theatrical concepts.

Unit I (15 Hours)

Introduction to Indian Theatre

Unit II (15 Hours)

Traditions of Performance

Unit III (15 Hours)

How to write a play

Unit IV (15 Hours)

How to produce a play

Unit V (12 Hours)

Review of a play- project or dialogue for a situation

Text Book:

1. Thailambhal.P*Study of Indian Theatre*. ENNES Publications-04252-226283.

B.A (English- Literature) Degree Examination-Syllabus- For the Candidates admitted from the academic year 2018-2019 onwards

SIXTH SEMESTER

PART III - CORE 14- JOURNALISM AND MASS COMMUNICATION

Maximum Marks CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To instill knowledge and fundamentals of communication in the students and hone written and spoken communication skills essential for various media platforms.

Unit I (12Hours)

1. What is News – Concept and Definition – News Values?
2. Duties and Responsibilities of a Journalist
3. Various types of News-Follow-up,CurtainRaiser,Human Interest Story etc.
4. News Story, Structure, Headlines-exercise in writing Headlines-Lead-Significance and its Types
5. Page makeup – Importance and its types

Unit II Reporting – Editing (12 Hours)

1. News gathering-sources of news-Hard and Weak sources of News – Beats
2. Reporting (translation)
3. Editing – Translation and its role

Unit III (12 Hours)

1. Definition of Mass Communication – Nature and Scope – role of Communicator – Communication process
2. Types of Communication – Downward, Upward, Horizontal, Lateral
3. Communication Barriers – How to remove them

Unit IV (12 Hours)

1. Functions of Mass Media
2. Mass Media-Role of Press-Role of Radio-Role of T.V

Unit V (12 Hours)

1. Importance of Film Communication-different types of films-division-Censor Board film Awards
2. Precision News writing
3. Communication in the coming decade-Computer and Mass Communication – Internet

Reference Books

1. KevalJ.Kumar – *Mass Communication in India(Third Edition)*Jaico Publishing House, Mumbai: 2012.
2. N.Vembusamy – *ABC of Mass Media*: Blackie Books, 1975.
3. RangaswamiParthasarathy – *Basic Journalism*: Macmillan, 2000.
4. K.M Shrivastava – *News Reporting and Editing*: Sterling Publishers Private Limited, 1989.
5. Mehta Vinod, *Lucknow Boy* Viking Penguin Books, India 2011.

B.A (English- Literature) Degree Examination-Syllabus- For the Candidates admitted from the academic year 2018-2019 onwards

SIXTH SEMESTER

PART III - CORE 15- ETHICS IN ENGLISH LITERATURE

Maximum Marks CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

It helps the students to gain knowledge about ethical virtues from various genres to cultivate state of character that recognizes the flaws in other human beings, and adapt to the world.

Unit I

Poem (12 Hours)

The Holy Bible Book of Job(King James Version)(Chapters 1 – 5)

Unit II

Prose (12 Hours)

A.P.J. Abdul Kalam My Early Days
Norman Vincent Peale Power in the Positive

Unit III

Short Stories (12 Hours)

Mulk Raj Anand The Lost Child
A.J.Cronin Two Gentleman of Verona

Unit IV &V

Fiction (24 Hours)

Nathaniel Hawthorne The Scarlet Letter

Text Books

1. Hawthorne, Nathaniel. *The Scarlet Letter*: New York, N.Y., U.S.A: Signet Classic: 1988.
2. Kalam, Abdul. *My Early Days, Sunlight I*: Anuradha publications, Chennai 2016.

B.A (English- Literature) Degree Examination-Syllabus- For the Candidates admitted from the academic year 2018-2019 onwards

SIXTH SEMESTER

PART III - CORE 16- WORLD LITERATURE IN ENGLISH TRANSLATION

Maximum Marks CIA: 30

Maximum CE: 70

Total Hours: 72

Objective:

To familiarize the students with the literary classics written and translated from different parts of the world and to acquaint the students with the global literary and cultural sensibilities prevalent in other parts of the globe.

Unit I	
Prose	(15 Hours)
Walter Benjamin: Unpacking my Library: A Talk about Book Collecting	
Michel de Montaigne: Of Friendship	
Unit II	
Poetry	(15 Hours)
Khalil Gibran: Your Children are not your Children	
Gothe: The Reunion	
Pablo Neruda: If You Forget Me	
Unit III	
Short Story	(14 Hours)
Anton Chekov: Vanka	
Gabriel Garcia Marquez: A Very Old Man with Enormous wings	
Ivan S. Turgenev: The District Doctor	
Unit IV	
Drama	(14 Hours)
Kalidasa: Shakuntala (Translated by Arthur W. Ryder)	
Unit V	
Fiction	(14 Hours)
Hermann Hesse: Siddhartha	

Text Book

1. *World Literature in Translation*. Angel Publishers. Chennai-8.

B.A (English- Literature) Degree Examination-Syllabus- For the Candidates admitted from the academic year 2018-2019 onwards

SIXTH SEMESTER

PART III- CORE 17-PROJECT – CREATIVE WRITING

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objective:

To develop the writing skills of the students

- Paragraph Writing- Creating Paragraph from individual sentences using cohesion to link sentences, using a topic sentences.
- Writing on given themes, expansion of ideas, developing from topic sentences, developing from a paragraph, essay writing.
- Writing advertisements, slogans, caption, word games, puzzles.
- Rewriting of texts- excerpts from novels and scenes from plays.
- Poetry writing /Story writing /One act play.

No. of Pages:30

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SIXTH SEMESTER

PART III –ELECTIVE II- COMPARATIVE LITERATURE

Maximum Marks CIA:30

Maximum CE:70

Total Hours:72

Objective:

To acquaint students of literature with a knowledge of using comparison as a tool of criticism and to help the students to have a broad outlook on literature.

Unit I (12 Hours)

Comparative Literature Definition and Function, The Art of Translation

Unit II (12 Hours)

Literature and Psychology, The Study of Literary Genres

Unit III (16 Hours)

Epoch, Period and Generation – the Link between Comparative Literatures and World Literature

History of Literature – The difference between Epoch, Period and Generation

Unit IV (16 Hours)

Genres – Comparing two Texts on the basis of Form – Comparing Novels, Plays and Poems –

Variations – a Drama and an Epic also can be compared based on the Common Qualities –

Comparing Burns with Bharathidasan and Bacon with Valluvar, Kamban with John Milton,

Bharathidasan with Wordsworth

Unit V (16 Hours)

Thematology – Comparing Works on the basis of Themes – Defining terms like Motif, Leitmotif –

Characters and Situations. In addition to these, the teacher can illustrate the Study of Comparative

Literature by Comparing Antony and Cleopatra with All for Love and Macbeth with Dr. Faustus.

GayathriSpivak's Death of a Discipline

Text Books

1. Newton P.Stallknecht, Horst Frenz .*Comparative Literature: Methods and perspective* 1971.
2. Peck, John and Martin Coyle. *Practical Criticism*: New York: Palgrave, 1995.
3. Ddaiches, David. *Critical Approaches to Literature*: Kolkata: Orient Longman, 2006.
4. Spivak, GaythriChakravorthy. *Death of a Discipline*: Columbia: Columbia University Press, 2003.

Reference Books

1. Ulrich Weissteerein. *Comparative Literature and Literary Theory: Survey and Introduction*: Indiana University Press, 1974.
2. Brooks, Cleanth and Robert Penn Warren. *Modern Rhetoric Atlanta*: Harcourt, Brace & World, 1958.
3. Mohan, Devinder. *Comparative Poetics: Aesthetics of the Ineffable*: New Delhi: Intellectual Publishing House, 1988.

B.A (English- Literature) Degree Examination-Syllabus- For the Candidates admitted from the academic year 2018-2019 onwards

SIXTH SEMESTER

PART III - ELECTIVE II- ENGLISH FOR COMPETITIVE EXAMS

Maximum CIA: 30

Maximum CE: 70

Total Hours: 72

Objective:

To prepare the students for various Competitive Examinations and make them understand the various methods those are essential for Competitive Examinations.

Unit I Grammar (15 Hours)

Subject –Verb Agreement
Articles
Sequences of Tenses
Common Errors

Unit II Word Power (15 Hours)

Idioms and Phrases
One word substitution
Synonyms & Antonyms
Words often confused

Unit III Paragraph & Essay (14 Hours)

Expansion of an idea

Unit IV Report Writing (14 Hours)

Essay
Letters

Unit V Speaking (14 Hours)

Public Speaking
Group Discussion
Interview

Text books

1. J.K Gangal. *Competitive English for Professional Courses*: S.Chand Publication (Sections D, E & F).
2. R P Bhatnagar & Rajual Bhargava. *English for Competitive Examinations*, Macmillan, 2005.

Reference Book

1. V. Saraswathi & Maya K. Mudbhatkal, *English for Competitive Examinations*: Emerald Publishers 2005.

B.A (English- Literature) Degree Examination-Syllabus- For the Candidates admitted from the academic year 2018-2019 onwards

**SIXTH SEMESTER
ELECTIVE II - CREATIVE WRITING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 72

Objective:

To encourage the students to have a hands-on experience of writing poetry, fiction, drama and literary prose.

Unit I (15 Hours)

The Art of writing: an introduction to various types of writing (literary-critical; journalistic; non-literary, theoretic, scientific, communicative) discussing and responding to specimens.

Unit II (15 Hours)

Creative writing: understanding the notion, general/common characteristics; types of creative writing: literary prose, poetry, drama, fiction etc; reading/ presentation of select items; discussion of genre and genre-based characteristics of selected specimen; encouraging the students to write and present their work to the class.

Unit III (14 Hours)

Major components of creative writing; theme, style, form, structure, vision; discussion of model specimen - (encourage students participation) practical session on identifying subject matter, research for writing; exercise on chosen themes.

Unit IV (14 Hours)

Significance of grammar, punctuation, focus and rhythm in creative writing; a brief introduction to the notion of the rhyme; lyric, narrative and dramatic modes of writing.

Unit V (14 Hours)

Importance of re-reading, re-writing; self-editing/copy-editing, revision and publication.

Text Book

1. AnjanaNeiraDev, *Creative writing: A Beginner's Manual and Others*: Pearson, Delhi, 2009.

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SIXTH SEMESTER

**PART III - ELECTIVE III- INTENSIVE STUDY OF AN AUTHOR –
RABINDRANATH TAGORE**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objective:

To introduce the students to appreciate the contribution of Indian writers and explore them to Rabindranath Tagore's philosophy, creative and artistic style, his mysticism and freedom of education.

Unit I
Poetry (12 Hours)
Gitanjali (1-5 poems)

Unit II & III
Prose (16 Hours)
Sadhana- The realization of Life (Chapter 1-3)

Unit IV
Drama (12 Hours)
Mukthathara

Unit V
Short Stories (8 Hours)
Kabuliwallah
The Post Master

Text Books

1. Tagore, Rabindranath *Mutha-Dhara* New Delhi: Educational P, 1993.
2. Tagore, Rabindranath. *Gitanjali* Mac Millan and co limited, London 1913.
3. Tagore, Rabindranath. *Selected Short Story* Penguin 1985.

Reference Books

1. Rabindranath, Tagore. *Poet and Dramatist* Edward J. Thompson Read Books. 2008.
2. Ghosal, Sukriti. *The Language of Gitanjali: The Paradoxical Matrix*. 1912.

B.A (English- Literature) Degree Examination-Syllabus- For the Candidates admitted from the academic year 2018-2019 onwards

SIXTH SEMESTER

PART III –ELECTIVE III - CRITICAL APPROACHES TO LITERATURE

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objective:

To make the students understand the concepts and approaches to literature.

Unit I (10 Hours)
IrvingBabbit – Genius & Taste

Unit II (8 Hours)
Sigmund Freud – “Creative Writers & Day Dreaming”

Unit III (8 Hours)
Christopher Caudwell – George Bernard Shaw’s “A study of the Bourgetis Superman”

Unit IV (10 Hours)

Allen Tate’s – Tension in poetry

Unit V (12 Hours)

Northrop Frye – Archetypes of Literature

Text Book:

1. Wilbur Scott – *The Five Approaches to Literature*, Macmillan: 1966.

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**SIXTH SEMESTER
PART III –ELECTIVE III - INSPIRING SPEECHES**

Maximum CIA:30

Maximum CE:70

Total Hours:48

Objective:

To motivate the students and make them understand the various speeches which are essential for their life.

Unit I (10 Hours)

J.K. Rowling: 'The Fringe Benefits of Failure, and the Importance of Imagination'

Unit II (8 Hours)

Jim Carry – Speech at Maharishi University of Management

Unit III (8 Hours)

Barack Obama's – Yes We Can

Unit IV (10 Hours)

Martin Luther King Jr. - I Have a Dream

Unit V (12 Hours)

Swami Vivekananda's Chicago speech of 1893

Text Book:

1. Compiled by the Department of English

All UG Degree Examination-Syllabus- For the Candidates admitted from the academic year 2019-2020 onwards

**THIRD SEMESTER
PART III – ALC I - PROFESSIONAL COMMUNICATION**

Maximum CE: 100

Course Objective:

To provide an outline to effective Organizational Communication.

Unit-I

Language Development: subject-verb agreement, personal passive voice, numerical adjectives, embedded sentences, clauses, conditionals, reported speech, active/passive voice

Unit -II

Reading styles, speed, critical reading, reading and comprehending shorter and longer technical articles from journals, newspapers, identifying the various transitions in a text

Unit -III

Oral Presentation: Voice modulation, Tone, Describing a process - Self-Introduction, introducing the topic, answering questions, individual presentation practice- Debate and Group Discussions

Unit -IV

Listening and Interview Skills – Definition- Types - Purpose

Unit -V

Formal writing- Technical Writing- Letter Writing (formal, informal and semi-formal) -CV preparation

Text Books:

1. Goodheart-Willcox, *Professional Communication*, First Edition, 2017.
2. Meenakshi Raman and Sangeetha Sharma, *Technical Communication: Principles and Practice*”, 2nd Edition, Oxford University Press, 2011
3. Stephen E. Lucas, *The Art of Public Speaking*, 10th Edition; McGraw Hill Education, 2012.
4. Ashraf Rizvi, *Effective Technical Communication*, 2nd Edition, McGraw Hill Education, 2017.
5. William Strunk Jr. & E.B. White, *The Elements of Style*, 4th Edition, Pearson, 1999.
6. *English for Engineers and Technologists* (Combined edition, Vol. 1 and 2), Orient Blackswan 2010.

Reference Books:

1. David F. Beer and David McMurrey, *Guide to writing as an Engineer*, John Willey. New York, 2004.
2. Training in Interpersonal Skills: *Tips for Managing People at Work*, Pearson Education, India, 2015.
3. The Ace of Soft Skills: *Attitude, Communication and Etiquette for Success*, Pearson Education; 1 edition, 2013.
4. AnandGanguly, *Success in Interview*, RPH, 5th Edition, 2016. 11. Raman Sharma, *Technical Communications*, Oxford Publication, London, 2004.

**Bachelor of Arts (English Literature) Degree Examination-Syllabus- for the Candidates
admitted from the academic year 2019-2020 onwards**

**FOURTH SEMESTER
PART III - ALC II - WRITING FOR CORPORATE SECRETARYSHIP**

Maximum CE: 100

Course Objective:

To provide knowledge that turns out high caliber, competent and versatile Professionals.

Unit I

Secretary – Definition and Role
Qualities and Qualifications of a Secretary

Unit II

Types of Secretaries and their duties Private Secretary

Secretary of an Association
Secretary of a Co-operative Society
Secretary of a Government Department
Company Secretary
Front Office Management and attributes of Front Office Personnel

Unit III

Business Travel
Modes of Transport and Travel Agencies

Unit IV

Air/Train Tickets Reservations, Booking Accommodation
Online Railway/Airline booking

Unit V

Preparing Travel Itinerary
Documents required for International Travel

Reference Books

1. Chopra R.K. – *Office Management* – Himalaya Publishing House.
2. Raman B.S. – *Office Management and Communication*.
3. M C Kuchhal, *Secretarial Practice*, 8th Edition, Vikas Publication House Pvt. Ltd.

**Bachelor of Arts (English Literature) Degree Examination-Syllabus- for the Candidates
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**FIFTH SEMESTER
PART III - ALC III - THEATRICAL ARTS**

Maximum CE: 100

Course Objective:

To develop an appreciation of and respect for the various roles/aspects inherent within the theatrical process.

Unit I

Introduction to Theatre and Theatre Arts

Unit II

Elements of Theatre-Theatre design - Direction, Stage Management, Costumes, Light and Sound, Backstage

Unit III

Role Play

Unit IV

TDF Theatre Dictionary Videos

Unit V

Practical

Voice & Speech -Role Analysis-Costume -Scenic Design-Music

Text Books

1. BalwantGargi, *Folk Theatre Forms of India*, South Asia Books January 1992.
2. Hoggett, Chris. William Shakespeare's theatre, *All about Theatre-* off Stage.

Reference Books

1. Role Play – Book of activities – David Turner.
2. TDF Theatre Dictionary Videos
<http://dictionary.tdf.org/dictionary/browse-all>

BOARD – BBA

**Scheme of Examination (CBCS Pattern) Programme BBA
For the Candidates admitted during the academic year 2018-2019 onwards**

BBA (Bachelor of Business Administration)

Part	Sub Code	Subject Title	Ins.Hrs/Week	Examination				
				Dur. Hrs.	CIA	CE	Total	Credit
SEMESTER I								
I	16LATA01/ 18LAHI01/ 15LAMY01/ 15LAFR01	Language – I Tamil-I/Hindi-I/Malayalam-I/French-I	5	3	30	70	100	3
II	16ENG001	English –I	5	3	30	70	100	3
III	18BBA101/ 18BAC101/ 18BAB101	Core 1 Principles of Management	6	3	30	70	100	4
III	18BBA102/ 18BAB102	Core 2 Financial Accounting	6	3	30	70	100	4
III	15BBAID1	IDC 1 Business Mathematics and Statistics	6	3	30	70	100	4
IV	18UFCA01	Foundation Course I : EVS #	2	2	-	50	50	2
		Total	30				550	20
SEMESTER II								
I	16LATA02/ 18LAHI02/ 15LAMY02/ 15LAFR02	Language –II Tamil-II/Hindi-II/Malayalam-II/French-II	5	3	30	70	100	3
II	16ENG002	English – II	5	3	30	70	100	3
III	18BBA201/ 18BAB201	Core 3 Organizational Behavior	6	3	40	60	100	4
III	18BBA202/ 18BAB202	Core 4 Business Economics	6	3	30	70	100	4
III	15BBAID2	IDC 2 Operations Research	6	3	30	70	100	4
IV	18UFCA02	Foundation Course II: Value Education #	2	2	-	50	50	2
		Total	30				550	20
SEMESTER III								

III	18BBA301/ 18BAC301/ 18BAB301	Core 5 Marketing Management	5	3	30	70	100	4
III	15BBA302/ 15BAC302/ 15BAB302	Core 6 Production and Operations Management	5	3	30	70	100	4
III	15BBA303/ 15BAB303	Core 7 Management Information System	5	3	30	70	100	4
III	15BBA304	Core 8 Cost Accounting	5	3	30	70	100	4
III	18BBAID3/ 18BACID3/ 18BABID3	IDC 3 Business Taxation	5	3	30	70	100	4
IV	15BBAAO1/ 15BABAO1/ 15BBAAO2/ 15BACAO2/ 15BABAO2	AOC I PC-Software and Internet [Practical] Customer Relationship Management	3	3	-	75	75	3
IV	16BTA001/ 16ATA001/ 15EDC002	BT-I/AT-I / EDC :Communicative English #	2	2	-	50	50	2
		Total	30				625	25
SEMESTER IV								
III	15BBA401/ 15BAC401/ 15BAB401	Core 9 Human Resource Management	5	3	30	70	100	4
III	15BBA402/ 15BAC402/ 15BAB402	Core 10 Research Methods for Management	5	3	30	70	100	4
III	15BBA403/ 15BAB403	Core 11 Management Accounting	5	3	30	70	100	4
III	15BBA404	Core 12 Consumer Behavior	5	3	30	70	100	4
III	15BBAID4/ 15BABID4	IDC 4 Legal Aspects of Business	5	3	30	70	100	4
IV	15BBAAO3/ 15BACAO3/ 15BABAO3 15BBAAO4/ 15BACAO4/ 15BABAO4	AOC II Business Communication / Modern Office Management	3	3	-	75	75	3

IV	16BTA002/ 16ATA002/ 18BBAED1	BT-II/AT-II/EDC : Multimedia and its applications #	2	2	-	50	50	2	
V	15NCC001/ 15NSS001/ 15SPT001/ 15EXT001	NCC/NSS/SPORTS/Extension Activity	-	-	50	-	50	2	
Total			30				675	27	
SEMESTER V									
III	15BBA501/ 15BAC501 15BAB501	Core 13 Financial Management	5	3	30	70	100	4	
III	15BBA502	Core 14 Entrepreneurship and Project Management	5	3	30	70	100	4	
III	15BBA503	Core 15 Brand and Business	5	3	30	70	100	4	
III	15BBA504/ 15BAB504	Core 16 Business Ethics and Corporate Governance	5	3	30	70	100	4	
III	15BBAE01/ 15BBAE02/ 15BBAE03	Elective I Advertising and Sales Promotion/ Banking Law and Practices/ Labour Welfare and Industrial Relations	5	3	30	70	100	4	
III	15BBAPR1/ 15BACPR1/ 15BABPR1	Project Viva Voce	5	3	50	50	100	4	
Total			30				600	24	
SEMESTER VI									
III	15BBA601	Core 17 International Business Management	5	3	30	70	100	4	
III	15BBA602/ 15BAC602/ 15BAB602	Core 18 Business Strategy	5	3	30	70	100	4	
III	15BBA603	Core 19 Insurance for Business Process	5	3	30	70	100	4	
III	15BBA604/ 15BAB604	Core 20 E- Commerce	5	3	30	70	100	4	
III	15BBAE04/ 15BBAE05/ 15BBAE06	Elective II Event Marketing/Financial Services/ Human Resource Development	5	3	30	70	100	4	
III	15BBAE07/ 15BBAE08/ 15BBAE09	Elective III Supply Chain and Logistic/Stock Exchange Practices/Training and Development	5	3	30	70	100	4	

			Total	30		600	24	
						Total	3600	140

No Continuous Internal Assessment (CIA) , only Comprehensive Examination (CE)

@ No Continuous Internal Assessment (CIA) and Comprehensive Examination (CE)

IDC- Inter disciplinary Course , EDC – Extra disciplinary Course , AOC – Application Oriented Course

Additional Credit Course

Sem	Sub Code	Subject Title	Max marks	Credits
III	15BBAAAC1	Retail Management	100	2
IV	15BBAAAC2	Institutional Training	100	2
V	15BBAAAC3	Banking Technology	100	2

List of Application Oriented Papers

Sem	Sub Code	Subject Title	Max marks	Credits
III	15BBAA01	PC-Software and Internet Lab	75	3
III	15BBAA02	Customer Relationship Management	75	3
IV	15BBAA03	Business Communication	75	3
IV	15BBAA04	Modern Office Management		3

LIST OF ELECTIVE PAPERS

	Subject Code	Subject Title
Elective I	15BBAE01	Advertisement and Sales Promotion
	15BBAE02	Banking Law and Practices
	15BBAE03	Labour Welfare and Industrial Relations
Elective II	15BBAE04	Event Marketing
	15BBAE05	Financial Services
	15BBAE06	Human Resource Development
Elective III	15BBAE07	Supply Chain & Logistics
	15BBAE08	Stock Exchange and Practice
	15BBAE09	Training and Development

Summary

Part	No of Papers	Total Credits	Total Marks
I	2	6	200
II	2	6	200
III –Core	20	80	2000
III – IDC	4	16	400
III – Elective	3	12	300
III –Project	1	4	100
IV –Foundation Course	2	4	100
IV – EDC	2	4	100
IV – Application Oriented Course	2	6	150
V Extension Activities	-	2	50
Total	38	140	3600

REGULATIONS FOR BOARD OF MANAGEMENT

BBA

(Effective from the academic year 2018-2019 onwards)

1. Project and Viva Voce :

Each student in the UG final year shall compulsorily undergo Project Work in the 5th semester. Projects shall be done individually. Project Coordinators shall allocate the project title and the guide for each group. Project work shall be done only in the lab provided by the college, including Project Record Preparation. Project Reviews shall be conducted thrice in which the progress of project work shall be strictly evaluated by respective Project Guides and Project Coordinators. Viva-Voce shall be conducted only in the presence of Industrialists or academicians. Out of the Total of 100 marks, 50% of mark shall be allocated for CIA and 50% for CE VIVA VOCE.

2. Institutional Training

Institutional Training for a period of 4 weeks in any industrial establishment is to be completed during the 4th semester. Students will have to submit an institution training report within 6 weeks after the prescribed completion date to the H.O.D. A training certificate obtained from the company, has to be enclosed with the report. A viva-voce will be conducted by the internal examiners in IV semester. The minimum marks for passing the Institutional training shall be 40%.

3. Submission of Record Note Books for practical examinations

Candidates appearing for practical examinations shall submit bonafide Record Note Books prescribed for practical examinations. If not the candidate has to submit a bonafide certificate issued by the concerned subject incharge duly signed by the Head of the department. In such case, the record marks will not be provided.

4. Distribution of Marks: The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum (Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	28	30	40
	75	75	30	-	30
	50	50	20	-	20
Practical Paper	100	60	24	40	40
	75	75	30	-	30
Project	100	50	20	50	40

5. Distribution of Internal Mark for Theory : (No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6=30

Seminar:

S.NO	SEMINAR SPLIT UP	Marks
1	Content	10
2	Flow of the presentation	10
3	Stage management and Body language	10
Total		30

Breakup for Attendance:

60 - 74 %	- 4 Marks
75% - 80%	- 6 Marks
81% - 90%	- 8 Marks
91% - 100%	- 10 Marks

6. Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 40		
S No	CIA	Distribution of Marks
1	For Completion of the Practical List	20
2	Test –I	10
3	Test –II	10
Total		40

7. Distribution of External Mark for Practical:

MAXIMUM MARKS : 60		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	10
2	Program – I a) Algorithm b) Coding c) Execution	5 10 10 TOTAL (25)
3	Program – II a) Algorithm b) Coding c) Execution	5 10 10 TOTAL (25)
Total		60

8. Distribution of External Mark for Practical :

MAXIMUM MARKS : 75		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	15
2	Program – I Algorithm Coding Execution	10 10 10 TOTAL (30)
3	Program – II Algorithm Coding Execution	10 10 10 TOTAL (30)
Total		75

9. Distribution of Mark for Project VIVA-VOCE :

S.No	CIA	Distribution of Marks
1	INTERNAL a) Review –I b) Review –II c) Documentation & Final Review	 10 10 30 Total (50)
2	EXTERNAL * a) Presentation b) Viva	 30 20 Total (50)
Total		100

*Marks to be awarded by both External and Internal Examiners.

10. Question Paper Pattern

Time: 3 Hour

Max marks: 70

SECTION – A	(10×1=10)
Answer ALL questions	
Each Question carries One Mark	
(NO CHOICE)	
Five Definition Questions	
Five Multiple Choice Questions	
SECTION – B	(5×4=20)
Answer ALL questions	
Each question carries FOUR Marks	
(INTERNAL CHOICE)	
SECTION – C	(5×8=40)
Answerer ALL questions	
Each question carries EIGHT Marks	
(INTERNAL CHOICE)	

11. Question Paper Pattern

Time: 3 Hour

Max marks: 75

SECTION – A	(10×1=10)
Answer ALL questions	
Each Question carries One Mark	
(NO CHOICE)	
Five Definition Questions	
Five Multiple Choice Questions	
SECTION – B	(5×5=25)
Answer ALL questions	
Each question carries FIVE Marks	
(INTERNAL CHOICE)	
SECTION – C	(5×8=40)
Answerer ALL questions	
Each question carries EIGHT Marks	
(INTERNAL CHOICE)	

12. Question Paper Pattern

Time: 3 Hour

Max marks: 50

SECTION – A (10×1=10)
Answer ALL questions
Each Question carries One Mark
(NO CHOICE)
Five Definition Questions
Five Multiple Choice Questions

SECTION – B (5×3=15)
Answer ALL questions
Each question carries THREE Marks
(INTERNAL CHOICE)

SECTION – C (5×5=25)
Answerer ALL questions
Each question carries FIVE Marks
(INTERNAL CHOICE)

13. Question Paper Pattern

Time: 3 Hour

Max marks: 100

SECTION – A (10×1=10)
Answer ALL questions
Each Question carries One Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B (5×8=40)
Answer ALL questions
Each question carries EIGHT Marks
(INTERNAL CHOICE)

SECTION – C (5×10=50)
Answerer ALL questions
Each question carries TEN Marks
(INTERNAL CHOICE)

NOTE:

1. The questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the unit in the syllabus in all the sections of the question paper.
3. While framing questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

10. Conduct of Practical Examinations:

Practical examinations shall be conducted with one internal examiner and one external examiner and the question paper for practical examination shall be set by both Internal and External examiners.

**Bachelor of Business Administration Degree Examination– Syllabus for Candidates
admitted from the Academic Year 2018 - 2019 Onwards**

**FIRST SEMESTER
PART-IIICORE-1 PRINCIPLES OF MANAGEMENT**

MAXIMUM CIA:30
MAXIMUM CE:70
TOTAL HOURS:72

OBJECTIVE: On the Successful completion of this paper, the students should have acquired knowledge of the nature and types of business organizations, Principles and functions of Management Process, decision making, Modern trends in management process.

UNIT –I [15 HOURS]
Nature and evolution of management – Meaning and definition of management – Contributions of Taylor, Fayol, Mayo and Drucker – Functions of management – management: Art, Science and Profession – Administration Vs management – Functional areas of management – Managerial skills: Levels of management- Social responsibility and Ethics.

UNIT –II [15 HOURS]
Planning: Nature and purpose of planning - steps in planning - types of planning- Objectives – strategies - Policies - Decision making: Process of Decision making - types of Decisions, MBO- Definition and concept-process-merits and demerits.

UNIT –III [13 HOURS]
Organising: Meaning, definition and Principles, Formal and Informal Organisation – Organisation structure – Line and staff organization – Types of Groups – Formal and Informal Groups – Merits and Demerits of the groups

UNIT – IV [14 HOURS]
Directing: Definition and principles of Directing – Motivation: Meaning, nature and importance – Maslow, Mc Gregor, Herzberg Mc Cleland, and Alderfer theories of motivation– Delegation of Authority – Centralization and decentralization – Merits and Demerits. Co-ordination: Meaning need and features – Techniques – Problems in coordination.

UNIT – V [15 HOURS]
Staffing: meaning and importance of staffing – Recruitment, selection, training of staff.
Controlling: Meaning, definition and need – Principles of controlling – Controlling techniques.

TEXT BOOKS

- 1.P. C. Tripathy, P.N.Reddy, Principles of Management, 3rd Edition, Tata MC Graw hill publishing Company ltd, New Delhi, 2007.
- 2.Principles of Management – Dr.G.Venkatesan, R.K.Sharma & Shashi K.Gupta

REFERENCE BOOKS

1. Bhushan Y.K, Business Organization, 4th Edition, Tata MC Graw hill publishing, New Delhi, 2006
2. L.M.Prasad, Principles of Management, 5th Edition, Himalaya publication, Mumbai - 2006

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admitted from the Academic Year 2018-2019 Onwards**

FIRST SEMESTER

PART-III-CORE-2 FINANCIAL ACCOUNTING

MAXIMUM CIA:30

MAXIMUM CE:70

TOTAL HOURS:72

OBJECTIVE: On the Successful completion of this paper, the students should have acquired knowledge of the basic accounting concepts

UNIT – I [15 HOURS]

Introduction to Accounting: Need for accounting-Definition of accounting-Advantages and disadvantages of accounting-Methods of accounting: Single and Double Entry book keeping-Types of accounts- Basic accounting concepts - Journal-Ledger.

UNIT – II [12 HOURS]

Subsidiary books-Trial balance [problems] - Errors-types of errors-Rectification of errors [excluding suspense account]

UNIT – III [15 HOURS]

Final accounts of trading concerns [with simple adjustment only]-Depreciation accounting-Meaning-Causes -Methods of providing depreciation- Straight Line Method -Written down Value method.

UNIT – IV [16 HOURS]

Branch accounting-Meaning-merits-demerits-Departmental accounting- Meaning of departments and departmental accounting –Need for departmental accounting-advantages-Difference between branch and departmental accounts-Methods and techniques of departmental accounting [simple problems only]

UNIT – V [14 HOURS]

Preparation of accounts from incomplete records [Theory and Problems] - Accounting for non-trading institutions.

[Theory and problems may be in the ratio of 20% and 80%respectively]

TEXT BOOKS:

1. S.P.Jain, K.L.Narang, Financial Accounting and analysis, 6th Edition-Kalyani Publishers, 2012, Mumbai
2. Dr.S.N.Maheshwari, Financial Accounting, 1st Edition- Sultan Chand and Sons, 2014, New Delhi

REFERENCE BOOKS:

1. Dr. P.C.Tulsian, Financial Accounting, 4th Edition, Tata MC Graw Hill, 2011, Delhi
2. V.K.Gupta, Financial Accounting, 5th Edition- Sultan Chand and Sons, 2010, New Delhi
3. S.P.Jain, K.L.Narang, Financial Accounting, 5th Edition-Kalyani Publishers, 2010, Mumbai.

**Bachelor of Business Administration Degree Examination - Syllabus for Candidates
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SECOND SEMESTER

PART-III-CORE 3 –ORGANIZATIONAL BEHAVIOUR

MAXIMUM CIA:30

MAXIMUM CE:70

TOTAL HOURS:72

Objective: On successful completion of this paper, the students should have acquired knowledge in the organizational behaviour.

UNIT-I [14 HOURS]

Importance and scope of Organizational Psychology- Individual Differences-Intelligence Tests- Measurement of Intelligence – Personality Tests – Concept of Organizational Behaviour – Importance and scope of Organizational Behaviour- Disciplines Contributing to Organizational Behaviour.

UNI -II [15 HOURS]

Perception – Process – Personality – Determinants of Personality – Trait(Big Five Model, MBIT Model, Type A&B) – Motivation – Concept – Theories (Maslow's , Equity & Theory X & Y) – Financial And Non – Financial Motivation – Techniques of Motivation. Attitude – Meaning – Concept of Value – Attitude Change – Determinants of Attitude Change.

UNIT-III [15 HOURS]

Job satisfaction – Meaning – Factors , Morale – Importance – Employee Attitude and Behaviour and their Significance to Employee Productivity – Job Enrichment – Job Enlargement. Leadership Styles – [Trait, Managerial Grid, Life Cycle Theory] – Importance – Qualities and Characteristics of a Leader – Morale – Importance – Factors Affecting Morale.

UNIT-IV [14 HOURS]

Group Dynamics – Formation of Group – Types – Concept – Group Cohesiveness – Concept – Group Norm – Concept – Team Development – Types – Creation Process – Conflicts – Types – Managing Conflicts.

UNIT-V [14 HOURS]

Organizational Climate – Concept – Organizational Effectiveness – Concept – Organizational Development – Nature, Scope and Objectives – Counseling & Guidance – Types of Counseling - Information Needed for Counseling.

TEXT BOOKS

1. Santhosh Sharma & Shivi Saxena ,” Organizational Behaviour” ,
Thakur Publishers ,2016, Chennai.
2. L.M.Prasad,” Organizational Behaviour” Mc Graw Hill,7th Edition 2006, New Delhi.
3. Fred Luthans,” Organizational Behaviour”, Mc Graw Hill,7th Edition 2006, USA.

REFERENCE BOOKS

1. Stephen P. Robbins “Organizational Behaviour”, P H I, 5th Edition ,2007, NewDelhi.
2. Robbins , ,” Organizational Behaviour” Mc Graw Hill,7th Edition 2006, New Delhi.

**Bachelor of business administration degree Examination – Syllabus for Candidates
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**SECOND SEMESTER
PART-III-CORE 4 - BUSINESS ECONOMICS**

MAXIMUM CIA:30
MAXIMUM CE:70
TOTAL HOURS:72

OBJECTIVE: On the successful completion of this paper the students should have acquired knowledge of Profit Maximization, Demand Analysis, Elasticity of Demand, Cost, Pricing, Government and Business.

UNIT -I [14 HOURS]

Objectives of business firm: Definition – Nature and scope of Economics–Objectives – Profit maximization – Social responsibility of business – demand analysis – Law of demand, Demand curve and Demand forecasting.

UNIT- II [14 HOURS]

Elasticity of demand: Types of elasticity – price elasticity of demand, income elasticity of demand and cross elasticity of demand -factors of influencing elasticity of demand.

UNIT- III [15 HOURS]

Production function: factor of production – types of production function- Isoquant Curves - law of production - law of diminishing returns – law of variable proportion – economics of scale – Law of returns to scale.

UNIT- IV [15 HOURS]

Cost and Revenue :Cost – Average, Marginal, fixed & total cost, Relation between production & cost, - opportunity cost– revenue analysis – total, average & marginal Revenue - break even analysis - Break Even point, Managerial use of B.E.P. and its limitation.

UNIT- V [14 HOURS]

Product pricing and firms: marketing structure – Characteristics - equilibrium under perfect, imperfect competition and monopoly –determination under monopolistic competition – oligopoly – duopoly. Government and business – performance of public enterprises in India – price policy in public utilities, government measures to control monopoly in India – MRTP Act.

TEXT BOOKS:

1. S. Sankaran, Business Economics, 4th edition, Margham Publication, 2014, chennai.
2. P.L. Mehta, Managerial Economics, 12th edition, sultan chand and sons, 2006 New Delhi.

REFERENCE BOOKS:

1. B.L Varshney and K.L Mageswari, Business Economics, 19th Edition, Sulthanchand and Sons, 2005, New Delhi.
2. S. Sankaran, Indian Economy, 4th edition, Margham Publication, 2008, Chennai.
3. Edwin Mansfield, Managerial economics 2nd Edition, Nortan Company, New York, 1993.

18BBA301/ 18BAB301/18BAC301

Bachelor of Business Administration Degree Examination-Syllabus for Candidates admitted from the academic year 2018-2019 Onwards

THIRD SEMESTER

PART III - CORE 5 - MARKETING MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On the successful completion of this paper, the students should have acquired knowledge in Principles of Marketing Management, Market Segmentation, Product Life Cycle, Pricing, and Branding.

Unit I (10 Hours)

Definition of Marketing - Marketing Management- Marketing Concept – Meaning Importance of Marketing in Developing Countries - Functions of Marketing – Customer Value-Changing Marketing Practices- Modern marketing concepts - Marketing Environment.

Unit II (15 Hours)

Buyer Behaviour - Buying Motives - Market Segmentation of Different Bases – Market Positioning – Market Targeting - Marketing Strategy - Branding Decisions: Brand-Brand Image, Brand Identity-Brand Personality –Brands Equity

Unit III (10 Hours)

Product- Types of Product - Product Policy - Product Life Cycle [PLC] – Market Place- Product Mix - Modification and Elimination – Marketing Mix - Packing – New Product Development – Strategies

Unit IV (15 Hours)

Definition and Types of Channel - Channel Selection and Problems- Middle Man: Wholesaler - Retailer- Agent Middleman Price Decision-Concept, and Meaning of Price and Pricing-Significance of Pricing Decision- Factors Affecting Price Determination; Pricing Methods and Techniques.

Unit V (10 Hours)

Advertisement Media- Radio-T.V-Newspaper- Merits and Demerits of Advertisement – Sales Promotion – Publicity –Virtual Adverstising- Personal Selling- Recent trends in Media.

Text Books:

1. Philip Kotler and Kevin Lane Keller, Marketing Management, 14th Edition, 2012, Prentice Hall of India, New Delhi.
2. KS Chandrasekar, Marketing Management-Text and Cases, First Edition, 2010, Tata McGraw Hill.

Reference Books:

1. Paul Baines, Chris Fill and Kelly Page, Marketing, 2nd Edition, 2011, Oxford University Press.
2. Philip Kotler, Marketing Management, 2nd Edition, 2010, McGraw Hill, New Delhi.

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THIRD SEMESTER

PART III - CORE 6 - PRODUCTION AND OPERATIONS MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On the Successful completion of this paper, the students should have acquired knowledge of Principles and Process of Production Management.

Unit-I (12 Hours)
Production Management - Functions - Scope - Plant Location - Factors - Site Location -Plant Layout - Principles - Process - Product Layout For Production Planning and Control -Principles - Information Flow - Routing - Scheduling - Dispatching – Control.

Unit-II (12 Hours)
Materials Requirement Planning (MRP) – Evolution of MRP into MRP II – JIT- Difference between JIT and MRP - Maintenance - Types - Breakdown - Preventive - Routine - Methods Study –Work Study-Time Study - Definition - Motion Study - Principles – Work Measurement.

Unit-III (12 Hours)
Materials Management – Objectives, Planning, Budgeting and Control - Purchasing – Procedure - Principles - Import Substitution and Import Purchase Procedure - – Steps - Vendor Rating - Vendor Development – BPR

Unit-IV (12 Hours)
Function of Inventory - Importance - Tools - ABC, VED, FSN Analysis - EOQ – Reorder Point - Safety Stock - Lead Time Analysis - Store Keeping - Objectives - Functions – Store Keeper - Duties - Responsibilities - Location of Store - Stores Ledger - Bin card – KAIZEN-KANBAN.

Unit-V (12 Hours)
Inspection and Quality Control - Types of Inspection. TQM: Meaning -Objectives - Elements - Benefits - Bench Marking: Meaning - Objectives - Advantages -ISO: Features - Advantages - Procedure for Obtaining ISO - Six Sigma Concept – Six sigma concepts of process capability

Text Books:

1. Pannerselvam, Production and Operation Management, 5th Edition, March 2012, Prentice Hall of India, New Delhi.
2. Swapnil Rupaye, Production and Operations Management 12th Edition, April 2015, OUP Australia and New Zealand.

Reference Books:

1. S.K.Anil Kumar and N.Suresh, Production and Operations Management, Revised Edition, 2012, New Age International Publishers.
2. Elwood.S.Buffa and Rakesh.Sarin, Modern Production Operation Management, 8th Edition, 2010, John Wiley and Sons, USA.

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THIRD SEMESTER

PART III - CORE 7 - MANAGEMENT INFORMATION SYSTEM

MAXIMUM CIA: 30

MAXIMUM CE: 70

TOTAL HOURS: 60

OBJECTIVE: On the Successful completion of this paper, the students should have acquired knowledge in Management Information System.

UNIT – I [10 HOURS]

MIS - Evolution of MIS - Growth of MIS - Characteristics of MIS - Subsystem of MIS-Executive Information System - Information Resource Management - Role of MIS - Concepts of Information: Data of Information - Business Data Processing.

UNIT – II [12HOURS]

Features of Information - Types of Information - Quality of Information – Value - Management Information System - System Concepts: Characteristics of System - Types of System - Control in System - System Concepts Applied to MIS - Structure of MIS: Organizational Function and Information Required-Level of Management.

UNIT – III [12HOURS]

Transaction Processing System – Cycle – Features - Transaction Document - Transaction Processing Models - Decision Support System – Types – Characteristics – Components - Tools-Capabilities - Group DSS - Expert System.

UNIT – IV [12HOURS]

Planning for MIS - System Development Model - System Design: Input Design - Procedure Design - File Design - DB design – DBMS – DBA - Design Document - Program Development: Techniques of Program Development - System Implementation Steps.

UNIT- V [14HOURS]

Data Communication System – Networking – Types - Electronic Communication - History of Internet-WWW-Navigation Tools - Security on Internet - Types of Electronic Commerce - EDI .

TEXT BOOKS

1. P. Mohan, Management Information System, 9th Edition, 2012, Himalayan Publishing House.
2. A.K.Gupta, Management Information System, 3rd Edition, 2010, Sultan Chand and Sons, New Delhi.

REFERENCE BOOKS

1. Gordon.B.Davis, Margrethe.H.Olson, Management Information System- Conceptual Foundation, Structure and Development, 2nd Edition, 2011, Tata McGraw Hill, New Delhi.
2. Laudon and Laudon, Management Information System, 8th Edition, 2011, Pearson Education, South Asia.

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**THIRD SEMESTER
PART III - CORE 8 – COST ACCOUNTING**

MAXIMUM CIA: 30

MAXIMUM CE: 70

TOTAL HOURS: 60

Objective: To enable the student to have a thorough knowledge on the Cost Accounting Principles and the Methods of Accounting for Cost.

UNIT- I [Theory & Problem] [13 HOURS]
Cost Accounting – Definition – Meaning and Scope – Concept and Classification – Costing an aid to Management — Types and Methods of Cost – Preparation of Cost Sheet – Cost Accounting vs. Financial Accounting

UNIT – II [Problems only] [12 HOURS]
Material Control: Need for Material Control – Levels of Material Control [Maximum, Minimum and Reorder Level] – Economic Order Quantity. Purchase and Stores Control, Methods of Valuing Material Issue [FIFO, LIFO and Weighted Average Method].

UNIT – III [Problems only] [12 HOURS]
Labour: Systems of Wage Payment [Piece Rate, Time Rate, Taylor’s & Merrick Differential Piece Rate System, Halsey Plan and Rowan’s Plan] – Idle Time – Control Over Idle Time – Labour Turnover.

UNIT – IV [Theory & Problem] [12 HOURS]
Process Costing – Features of Process Costing – Process Losses, Wastage, Scrap, Normal Process Loss – Abnormal Loss, Abnormal Gain. (Excluding Inter Process Profit).

UNIT – V [Theory only] [11 HOURS]
Marginal Costing – Meaning, Definition, Benefits and Limitations of Marginal Costing – Break Even Analysis – Application of Marginal Costing in Business Decision Making.

NOTE : Theory and Problems in the Ratio of 40% and 60% respectively.

TEXT BOOKS

1. Jain.S.P and Narang.K.L, Cost Accounting, Revised Edition, 2012, Kalyani Publishers, New Delhi.
2. T.S.Reddy and Y.Hari Prasad Reddy, Cost Accounting, 10th Edition, 2010, Margham Publications, Chennai.

REFERENCE BOOKS

1. Pillai.R.S.N and Bagavathi.V, Cost Accounting, 9th Edition, 2011, S. Chand and Company.
2. M.Y.Khan and P.K.Jain, Cost Accounting, 8th Edition, 2010, Tata McGraw-Hill Education.

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**THIRD SEMESTER
PART III - IDC 3 – BUSINESS TAXATION**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On the Successful completion of this paper, the students should have acquired knowledge in Business Taxation.

Unit I (Theory only) (10 Hours)

Income Tax Act 1961-Meaning, Concepts. Tax - Definition - Canons of Taxation- Direct and Indirect Taxes -Comparison –Merits and Demerits of Direct and Indirect Taxes - Proportional, Progressive and Regressive Taxations - Income Tax Act 1961 - Definitions - Incomes which do not form part of Total Income.

Unit II (Problems only) (16 Hours)

Residential Status-Heads of Income- Salaries - Computation of Salaries – Allowance – Perks.

Unit III (Problems only) (14 Hours)

Income from House Properties –Computation of Income from House Properties- Profits and Gains of Business or Profession- Computation of Profits and Gains of Business or Profession of an Individual .

Unit IV (Problems only) (12 Hours)

Capital Gain-Computation of Capital Gain-Income From Other Sources-Computation of Income From Other Sources-Set off and carry forward of losses - Deductions to be made in Computing Total Income – Assessment of Individual.

Unit V (Theory only) (8 Hours)

VAT– Impact – Registration – Computation of VAT – Refund – Mechanism – Return Filing - Advantages and Disadvantages – TNVAT- Central Excise Duty -Objectives of Excise Duty. Introduction to GST, Computation of GST Liabilities, Registrations.

Note: Theory and Problems in the Ratio of 40% and 60% respectively.

Text Books:

- 1.V.P.Gaur and D.B.Narang, Income Tax Law and Practice, Revised Edition, 2016, Kalyani Publishers, Mumbai.
- 2 Parameshwaran, Principles of Taxation, 6th Edition, 2010, Kalyani Publishers, Mumbai.

Reference Books:

1. Dr. Mehrotra.H.C, Income Tax Law and Practice, 5th Edition, 2010, Tata McGraw, New Delhi.
2. Dinkar Pagare, Business Taxation, Revised Edition, 2011, Tata McGraw, New Delhi.

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THIRD SEMESTER

PART – IV – AOC - I - PC SOFTWARE AND INTERNET [PRACTICAL]

MAXIMUM CE: 75

TOTAL HOURS: 36

OBJECTIVE: Imparting Professional skills in Personal Computer software.

MS WORD

1. Type the Text and Perform the Following:

(i) Bullets and Numbering (ii) Align the Text to Left, Right, Justify, and Centre

2. Prepare a Job Application Letter enclosing Detailed Resume.

3. Create a Call Letter for Interview by using Mail Merge.

MS EXCEL

4. Prepare a Student Mark List [Minimum of 5 Subjects] and Perform Sorting Operation.

5. Prepare Statement of Bank Customer's Account Showing Simple and Compound Interest Calculations for 10 Different Customers Using Mathematical and Logical Functions.

6. Prepare a Result Analysis Chart with Subject Details, Staff details and Pass percentage details.

MS ACCESS

7. Generate a Payroll for Employee Database of an Organization with the Following Details: Employee Id- Employee Name- Date of Birth- Department and Designation- Date of Appointment- Basic Pay- Dearness Allowance- and House Rent Allowance and Other Deductions. Perform Queries for Different Categories.

8. Prepare a Report Based on Invoice details such as Product Number, Quantity, Price for Five Products.

MS POWER POINT

9. Draw an Organization Chart for Courses Offered in College with Minimum Three Hierarchical Levels.

10. Design an Advertisement Campaign with Minimum Three Slides.

INTERNET

11. Search Information from Bharathiar University Website.

12. Create an Email Account , Compose and Send mail by using CC and BCC Options with Attachments.

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THIRD SEMESTER

PART IV- AOC I - CUSTOMER RELATIONSHIP MANAGEMENT

MAXIMUM CE: 75

TOTAL HOURS: 36

OBJECTIVE: On the Successful completion of this paper, the students should have acquired knowledge of Relationship Marketing.

UNIT –I [8 HOURS]

Customer Relationship Management- Fundamentals- Evolution of Relationship Marketing-Stages of Relationship- Issues of Relationship- Purpose of Relationship Marketing- CRM Definitions, Emergence of CRM Practice:, CRM Cycle, Types of CRM .

UNIT –II [7 HOURS]

CRM – Overview and Evolution of the Concept – CRM and Relationship Marketing – CRM Strategy – Importance of Customer Divisibility in CRM

UNIT –III [7 HOURS]

Sales Force Automation – Contact Management – Concept – Enterprise Marketing Management – Core Beliefs – CRM Practices in Retail Industry- Hospitality Industry- Banking Industry- Telecom Industry-Aviation Industry

UNIT –IV [7 HOURS]

Value Chain – Concept – Integration Business Management – Benchmarks and Metrics – Culture Change – Alignment with Customer Eco System – Vendor Selection

UNIT – V [7 HOURS]

Database Marketing – Prospect Database – Data Warehouse and Data Mining – Analysis of Customer Relationship Technologies – Best Practices in Marketing Technology.

TEXT BOOKS

1. S. Shajahan, Relationship Marketing, 5th Edition, 2010, McGraw Hill, New Delhi.
2. Paul Green Berg, CRM, 5th Edition, 2011, Tata McGraw Hill, New Delhi.

REFERENCE BOOKS

1. Philip Kotler, Marketing Management, Revised Edition, 2012, Prentice Hall of India.
2. Barry Berman and Joel R Evans, Retail Management, A Strategic Approach, 12th Edition, 2011, Prentice Hall of India.

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**FOURTH SEMESTER
PART III - CORE 9 - HUMAN RESOURCE MANAGEMENT**

MAXIMUM CIA: 30

MAXIMUM CE: 70

TOTAL HOURS: 60

OBJECTIVE: On the successful completion of this paper, the students should have acquired knowledge in Role of a HR Manager, Job Description and Job Analysis.

UNIT-I [12 HOURS]

Human Resource Management - Definition - Objectives - Functions - Scope - Importance - HRM in India - Evolution of HRM - Computer Application in Human Resource Management - Quality of a Good Human Resource Managers - Human Resource Planning - Job Analysis, Job Description and Job Specification.

UNIT-II [12 HOURS]

Recruitment and Selection - Sources of Recruitment - Selection Process - Test Types - Interview Types - Career Planning vs. Man Power Planning and Succession Planning - Career Planning - Process - Career Development - Placement and Induction.

UNIT-III [12 HOURS]

Training - Methods of Training - Executive Development - Performance Appraisal - Methods of Performance Appraisal - Transfers - Promotion - Wage & Salary Administration - Wage Boards and Pay Commission - Wage Incentive - Fringe Benefits - Employees Welfare - Safety and Health Measures - Grievance Procedures - Redressal of Grievances.

UNIT-IV [12 HOURS]

Industrial Relations - Meaning & Characteristics Industrial Relations - Parties to Industrial Relations - Nature of Trade Unions - Problems of Trade Union - Measures to Strengthen Trade Union Movement in India - Causes for Industrial Disputes - Settlement of Industrial Disputes.

UNIT-V [12 HOURS]

Collective Bargaining - Features - Pre-requisite of Collective Bargaining - Agreement at Different Levels - Workers Participation in Management - Objectives for Successful Participation.

TEXT BOOKS

1. Dr. C.B. Gupta, Human Resource Management, Revised Edition, 2014, Sultan and Sons.
2. K. Aswathappa, Human Resource and Personnel Management, Revised Edition, 2013, Tata McGraw Hill Publishing Co. Ltd.

REFERENCE BOOKS

1. C.S. Venkata Rathnam & B.K. Srivastava, Personnel Management & Human Resources, Revised Edition, 2011, TMPL.
2. Dr. C.B. Memoria, Dr. Satish Memoria & S.V. Gankar, Dynamics of Industrial Relations, Revised Edition, 2009, Himalaya Publishing House.

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**FOURTH SEMESTER
PART III - CORE 10 - RESEARCH METHODS FOR MANAGEMENT**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On the Successful completion of this paper, the students should have acquired knowledge of Research Techniques and Sampling Design

UnitI (12 Hours)

Research - Meaning - Scope and Significance - Types of Research - Research Process - Problems in Research – Characteristics of Good Research - Research in an evolutionary perspective – the role of theory in research.

UnitII (12 Hours)

Research Design - Sources - Types - Formulation Research Design - Types – Features of Good Design - Measurement - Meaning - Need Errors in Measurement - Tests of Sound Measurement - Techniques of Measurement - Scaling Techniques - Meaning - Types of Scales - Scale Construction Techniques.

UnitIII (12 Hours)

Sampling Design: Meaning - Concepts - Steps in Sampling - Criteria for Good Sample Design - Types of Sample Designs - Probability and Non-Probability Samples. Data Collection: Types of Data - Sources - Tools for Data Collection- Methods of Data Collection - Construction of questionnaire and instrument- Pilot Study - Case Study .Data processing: Coding – Editing and Tabulation of Data - Application of statistical software for data analysis.

UnitIV (12 Hours)

Hypothesis - Central Limit Theorem - Test of Significance- Assumptions about Parametric and Non-Parametric Tests. Parametric Test - T Test, F Test, Chi-Square Test and Z Test - Non Parametric Test [No Problems] - U Test, Kruskal Wallis Test, Sign Test.

UnitV (12 Hours)

Interpretation - Meaning - Techniques of Interpretation - Report Writing:- Significance - Steps in Report Writing - Layout of Report - Types of Reports – Oral Presentation - Executive Summary - Mechanics of Writing Research Report – Precautions for Writing Report - Norms for using Tables, Charts Diagrams, Index, Appendix, and Bibliography – Application of SPSS.

Note: Theory and Problems in the Ratio of 80% and 20% respectively.

Text Books:

1. C.R. Kothari Gaurav Garg, Research Methodology, New Age International [P] Limited, 3rd Edition, 2014, New Delhi.
2. Donald R. Cooper and Pamela S. Schindler, Business Research Methods, Tata McGraw Hill, 2006, New Delhi.

Reference Books:

1. M.P Gupta and K.B Khanna, Quantitative Techniques for Decision Making, Revised Edition, 2009, PHL Learning Private Limited, New Delhi.
2. R.Pannerselvam, Research Methodology, Revised Edition, 2014, PHI Learning, New Delhi.

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**FOURTH SEMESTER
PART III - CORE 11 - MANAGEMENT ACCOUNTING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To enable the student to have a thorough knowledge on the Management Accounting Principles and the Methods of Accounting for Managers.

Unit I (Theory Only) (12 Hours)
Management Accounting: Introduction - Meaning – Objectives and Scope – Merits- Features - Difference between Management Accounting, Cost Accounting and Financial Accounting.

Unit II (Problems Only) (12 Hours)
Ratio Analysis – Analysis of Liquidity – Solvency and Profitability – Construction of Balance Sheet.

Unit III (Problems Only) (12 Hours)
Financial Statement Analysis – Comparative Statement – Common Size – Trend Analysis

Unit IV (Theory & Problems) (12 Hours)
Budgeting and Budgetary control – Definition - Importance – Classification of Budgets – Master Budget – Preparation of Cash budget, Sales Budget, Purchase Budget, Material Budget, Flexible Budget.

Unit V (Theory & Problems) (12 Hours)
Fund Flow Analysis and Cash Flow Analysis (As per new accounting standards)

Note: Theory and Problems in the Ratio of 40% and 60% respectively.

Text Books:

1. Sharma and S.K.Gupta, Management Accounting, Revised Edition 2014, Kalyani Publishers, New Delhi.
2. Dr. S.N. Maheshwari, Management Accounting, Revised Edition 2014, Sultan Chand & Sons, New Delhi.

Reference Books:

1. S.P. Jain and KL. Narang, Cost and Management Accounting, 11th Edition, 2012, Kalyani Publishers, New Delhi.
2. T.S.Reddy and Dr.Hariprasad Reddy, Management Accounting, Revised Edition, 2010, Margham Publications.

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**FOURTH SEMESTER
PART III - IDC 4 – LEGAL ASPECTS OF BUSINESS**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On the Successful completion of this paper the students should have acquired knowledge of Law of Contract and Agencies, Sales of Goods, Companies Act, and Negotiable Act.

Unit I (12 Hours)

Law of Contract-Definition-Nature of Contract- Essential Elements of Contract-Classification of Contract-Agreements-Void-Voidable-Illegal Contract- Offer and Acceptance-Communication of Offer-Acceptance and Revocation- Free Consent- Contingent Contract-Quasi Contract-Performance of Contract-Discharge of Contract-Remedies for Breach of Contract.

Unit II (12 Hours)

Law of Agency-Essentials-Kinds of Agent-Rights and Duties of Agent- Negotiable Instrument Act 1881-Definition- Concepts, and Negotiation-Characteristic-Promissory Note-Bill of Exchange-Types-Crossing of Cheques-Type of Crossing- Bearer and Order Instruments- Accommodation Bill.

Unit III (12 Hours)

Contract of Sale- Definition Sales of Good Act-Classification of Goods - Conditions and Warranties-Transfer of Property-Rights of Unpaid Seller.

Unit IV (12 Hours)

Companies Act-Definition-Type-Characteristic-Kinds of Company-Formation of Company - Memorandum of Association-Articles of Association and Prospectus

Unit V (12 Hours)

Types of Meeting-Auditor Appointment- Rights and Liabilities of Auditors- Winding up of a Company - Modes of Winding up of a Company. Consumer Protection Act- Consumer Rights, Cyber Law: Introduction-Copy rights, Trade marks ,Patent Act.

Text Books:

1. N.D.Kapoor, Business Law, Revised 12th Edition, 2012, Sultan Chand and Sons, New Delhi.
2. Ewan Macintyre, Essentials of Business Law, 5th Edition April 2015, Pearson Publishers.

Reference Books:

1. N.D.Kapoor, Business Law, Revised Edition, 2010, Sultan Chand and Sons, New Delhi.
2. M.C.Shukla, Mercantile Law, 13th Edition, 2007, Sultan Chand and Sons, New Delhi.

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**FOURTH SEMESTER
PART IV- AOC II - BUSINESS COMMUNICATION**

**MAXIMUM CE: 75
TOTAL HOURS: 36**

OBJECTIVE: On the Successful completion of this course, the students should have understood Methods of Communication, Types of Communication and Barriers of Communication

UNIT-I [6 HOURS]

Define Communication- Importance-Objectives-Types-Barriers-Principles.

UNIT-II [10 HOURS]

Written Communication-Essentials of an Effective Business Letter-The Layout-Enquiries and Replies-Orders and Their Execution-Collection Letters-Circular Letters-Sales Letters-Bank Correspondence-Application Letters.

UNIT-III [8 HOURS]

Correspondence of Company Secretary with Shareholders, Directors-Agenda-Minutes of Meeting-Group Discussion and Interviews-Seminar-Conference -Press Releases.

UNIT-IV [6 HOURS]

Communication through Reports: Essentials-Importance-Contents-Reports by Individuals-Committees-Annual Report-Application for Appointment-Reference and Appointment Orders.

UNIT-V [6 HOURS]

Internal Communication-Short Speeches-Memo Circulars-Notices-Explanations to Superiors-Precise Writing-Communication Media-Merits of Various Devices-Intercom, Telex and Telephone-Fax-Internet.

TEXTBOOKS

1. Rajendra Pal Korahalli, Essentials of Business Communication, 13th Edition 2015, Sultan Chand & Sons, New Delhi.
2. Ramesh, MS, & C.C Pattanshetti, Business Communication, R.Chand & Co, Revised Edition 2011, New Delhi.

REFERENCE BOOKS

1. V.K.Jain & Prakash Biyani, Business Communication, 1st Edition, 2014, Sultan Chand & Sons.
2. C.B.Gupta, Business Communication, Reprint 2014, Sultan Chand & Sons.

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**FOURTH SEMESTER
PART IV- AOC II - MODERN OFFICE MANAGEMENT**

**MAXIMUM CE: 75
TOTAL HOURS: 36**

OBJECTIVE: On the Successful completion of the course the students should have acquired knowledge regarding Modern Office Management.

UNIT – I [8 HOURS]

Office Management and Organization: Basic concepts of Office – Importance – Functions – Size of the Office – Office Management – Relations with Other Departments – Scientific Office Management – Office Manager - Principles of Office Organization.

UNIT - II [7 HOURS]

Office Environment & Communication: Office Location – Characteristics / Qualities of Office Building – Environment – Physical – Hazards in Office Safety – Security – Secrecy – Communication – Meaning – Essential features – Classification – Communication Barriers.

UNIT – III [7 HOURS]

Office Correspondence & Record Management: Centralized Vs Departmental Correspondence – Departmental Typing and Typing Pools – Classification of Records – Principles of Record Keeping – Filing – Methods.

UNIT – IV [7 HOURS]

Office Systems & Procedures: Systems – Procedure – Advantages – Characteristics of Sound Office System & Procedures – Work Simplification – Principles – Types of Reports.

UNIT - V [7 HOURS]

Office Personnel Relations: Personnel Management – Definitions – Functions – Office Committees - Employee Morale – Productivity – Employee Welfare – Grievances – Work Measurement – Office Work Control.

TEXT BOOKS

1. NirajKumar & Chetan Srivastava, Modern Office Management, 5th Edition, January 2013, New Royal Book Company.
2. J.N.Jain & P.P.Singh, Modern Office Management Principles and Techniques, Revised Edition, December 2010, Regal Publications.

REFERENCE BOOKS

1. S.P Arora, Office Organization and Management, 2nd Edition, 2012, Vikas Publishing House Pvt Ltd.
2. Dr.I.M.Sahai, Modern Office Management, Revised Edition, 2009, Sathiya Bhavan Agra.

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**THIRD SEMESTER
ADDITIONAL CREDIT - RETAIL MANAGEMENT**

MAXIMUM CE: 100

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge of Retail, Pricing, Promotion Strategy, Retail Customer, and Retail in India.

UNIT I

Introduction to Retailing - Meaning - Functions of Retailer - Types of Retailers. Retailing in India- The Evolution of Retail in India - Foreign Direct Investment in Retail - Challenges Ahead for Retailing.

UNIT II

Retail Strategy - Growth Strategy - Value Chain and Ethics. Retail Location - Types - Steps Involved in Selection. Store Design - Principles and Elements – Elements of Store Design.

UNIT III

Retail Franchising - Concept of Franchising - Evolution of Franchising – Types of Franchising – Basic Retail Merchandising - Meaning - Factors Affecting Buying Functions - Role and Responsible of Merchandiser and Buyer.

UNIT IV

Retail Marketing - Role of Marketing in Retail - Retail Marketing Mix - STP Approach - Retail Image - Concept of Retail Branding –Retail Pricing - Retail Pricing Policy.

UNIT V

Retail MIS - Importance of Information Technology in Retail - Factors Affecting the Use of Information Technology - Applications of Technology – E-Tailing - The New Online Retail Categories.

TEXT BOOKS

1. Swapna Pradhan, Retailing Management (Text and Cases), 4th Edition, 2012, Tata McGraw Hill Publishing.
2. Gibson G Vedamani, Retail Management - Functional Principles and Practice, 4th Edition, 2012, Jaico Publishing House.

REFERENCE BOOKS

1. Barry Berman and Joel R Evans, Retail Management, A strategic Approach, 12th Edition, 2012, Prentice Hall of India.
2. Rosemary Varley, Principles of Retail Management, Revised Edition, 2009, Palgravemalminnan Publishers.

Bachelor of Business Administration Degree Examination-Syllabus for Candidates admitted from the academic year 2018-2019 Onwards**FOURTH SEMESTER****PART IV – ED 1 - MULTIMEDIA AND ITS APPLICATIONS**

Maximum CE: 50

Total Hours: 24

Objective: On the successful completion of the course, the students should have understood the concept of Multimedia is the combined use of text, graphics, sound, animation, and video.

Unit I (4 Hours)
Multimedia Definition - Use Of Multimedia - Delivering Multimedia - Text: About Fonts and Faces - Using Text in Multimedia - Computers and Text - Font Editing and Design Tools - Hypermedia and Hypertext.

Unit II (5 Hours)
Images: Plan Approach - Organize Tools - Configure Computer Workspace - Making Still Images - Color - Image File Formats. Sound: The Power of Sound - Digital Audio - Midi Audio - Midi vs. Digital Audio - Multimedia System Sounds - Audio File Formats -Vaughan's Law of Multimedia Minimums - Adding Sound to Multimedia Project.

Unit III (5 Hours)
Animation: The Power of Motion - Principles of Animation - Animation by Computer - Making Animations that Work. Video: Using Video - Working with Video and Displays - Digital Video Containers - Obtaining Video Clips - Shooting and Editing Video.

Unit IV (5 Hours)
Making Multimedia: The Stage of Multimedia Project - The Intangible Needs - The Hardware Needs - The Software Needs - An Authoring Systems Needs. Multimedia Production Team.

Unit V (5 Hours)
Planning and Costing: The Process of Making Multimedia - Scheduling - Estimating - RFPs and Bid Proposals. Designing and Producing - Content and Talent: Acquiring Content - Ownership of Content Created for Project - Acquiring Talent.

Text Books :

1. Tay Vaughan, "Multimedia: Making It Work", 9th Edition, Osborne/McGraw-Hill, 2014.

Reference Books:

1. Ralf Steinmetz & Klara Nahrstedt - "Multimedia Computing, Communication & Applications", Pearson Education, 2012.

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FIFTH SEMESTER

PART III – CORE 13 –FINANCIAL MANAGEMENT

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objective: On successful completion of this paper, the students should have acquired knowledge in Finance Functions, cost of Capital, Capital Structure.

UNIT-I (Theory only) [10 HOURS]

The Finance function: Goals, Objective and functions of Financial Management, source of finance –Scope of financial management –Importance of Financial Management - Role of Financial Manager.

UNIT-II (Problem& Theory question) [14 HOURS]

Financing Decision: Cost of Specific Source of Capital – Equity – Debt, Preference- Reserve fund –Weighted Average Cost of Capital

UNIT-III (Problem& Theory question) [14 HOURS]

Capital Budgeting – Meaning - Objective – Preparation of Various Methods of Capital Budgeting. Pay Back Period, Net Present Value Method, Profitability Index, and IRR.

UNIT-IV (Theory only) [10 HOURS]

Capital Structure – Factors influencing Capital Structure – Optimal Capital Structure – Theories of capital structure. Dividend– Meaning, Classification – Dividend Policy-Determinants of Dividend Policy.

UNIT-V (Theory only) [12 HOURS]

Working Capital Management: Concepts – Scope & Importance –Determinants of Working Capital. Cash Management: Motives for Holding Cash – Objective and Strategies of Cash Management. Receivable Management: Objective – Cost of Credit Extension, Benefits – Collections Policies. Inventory Management –Benefits of holding inventory.

NOTE: Theory and problem in the ratio of 60% and 40% respectively

TEXT BOOKS

1. S.N.Maheswari, “Financial Management”, Sultan Chand and Sons, Revised Edition, 2009, New Delhi.

2. Sharma Shashi.K.Gupta, Financial Management, Kalyani Publishers, 5th Edition, 2007, New Delhi.

REFERENCE BOOKS

1. Prasanna Chandra, “Financial Management”, M.H. Publications, 7th Edition 2008, New Delhi.

2. M.Y.Khan and P.K. Jain, Financial management, Tata Mc-Graw Hill, 5th Edition, 2007, New Delhi.

3. I.M.Pandey, Financial Management, Vikas Publishing House PVT Ltd., 9th Edition 2007

4. P.V.Kulkarni, Financial Management, Himalaya Publishing House, 7th Edition, 2006, New Delhi

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PART III - CORE 14 – BRANDS AND BUSINESS**

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objectives: To equip the students with the various dimensions of product management such as Brand Positioning and its Preference. To develop familiarity and competence with the strategies and tactics involved in building, leveraging and defending strong brands in different sectors.

UNIT I [12 HOURS]

Products - Concepts - New Product Development – Strategies - Launching Strategies, Product Life Cycle - Portfolio Management - BCG, GE, Porter's Model, Competitor's Analysis, Customer Analysis, Market potential, Product Demand pattern and Trend Analysis.

UNIT II [12 HOURS]

The Concept of Brands - The Economic Importance of Brands - The Social and Political Aspects of Brands - Difference between Marketing and Branding - Changing Rules of Marketing and Branding in India - Digital Dimension, Consumer Activism, Leveraging Technology

UNIT III [12 HOURS]

Introduction to Brand Positioning: The 4Ps – An Inherently Futuristic Model - 4Ps in the IT Age - Brand Positioning - Fundamentals of Brand Positioning - First Movers - Mistakes in Brand Positioning – Introspection - Gaining Brand Preference.

UNIT IV [12 HOURS]

The Brand Relevance Model: The First Mover Advantage - Managing a New Category - The Different Levels of Innovation - Understanding Brand Relevance – Categorization - Creating New Categories or Subcategories — Four Tasks - How Categorization Affects Information Processing and Attitudes

UNIT V [12 HOURS]

Packaging – Labeling - Brand Rejuvenation - Brand Success strategies - Brand Resilience - Brand Equity - Brand valuation - Building global brands - Branding failures.

TEXT BOOKS:

1. Lehmann., & Winner. (2004). Product Management. New Delhi: Tata McGraw Hill.
2. Venugopal., K. (2010). Product and brand management. New Delhi: Himalaya Publishing House.

REFERENCE BOOKS:

1. Subroto Sengupta. (2005). Brand Positioning. New Delhi: Tata McGraw Hill Education Private Limited.
2. David Aaker. (2011). Brand Relevance – Making Competitors Irrelevant. Jossey Bass.
3. Hamel, G., & Prahalad, C.K. (1994). Competing for the Future. Boston: Harvard Business School Press.
4. Kartikeya Kompella, (2006). Building Brands: A guide to increasing the financial value of brands. Viva Books Private Limited.

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FIFTH SEMESTER

PART III - CORE 15 - ENTREPRENEURSHIP AND PROJECT MANAGEMENT

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge of institutional support to entrepreneurial development.

UNIT I [12 HOURS]

Evolution of the concept of entrepreneur – Definition of entrepreneur – Entrepreneurship – Entrepreneur and managers – Qualities of entrepreneur – Types of entrepreneurs – Functions of entrepreneur – Barriers to entrepreneurship – Intrapreneurs.

UNIT II [12 HOURS]

Factors affecting entrepreneurial growth-economic and non-economic factors-Entrepreneurial Motivation-Motivation Theories-Motivating Factors-Achievement Motivation-Entrepreneurial Development Programmes-Need-Objectives-Course Content-Phases-Evaluation of EDPs.

UNIT III [12 HOURS]

Meaning of project – Projects classification – Project life cycle -Project identification and Selection– Project Formulation.

UNIT IV [12 HOURS]

Feasibility Report - Preparing a project report – Meaning-Significance-Content Formulation-Planning Commission Guidelines for Formulating a Project Report-Types of project report - Specimen of a Project Report-Project Evaluation.

UNIT V [12 HOURS]

Financial assistance for Entrepreneurs: DIC – SIDO – NSIC – SIDCO – SISI –IC – NAYE – Commercial banks.

TEXT BOOKS

1. S.S.Khanka, Entrepreneurial Development, Sultan Chand, Revised Edition, 2009, Delhi
2. C.B.Gupta and N.P. Srinivasan: Entrepreneurial Development, Sultan Chand and Sons, 4th Edition, 2006 New Delhi.

REFERENCE BOOKS

1. S.Choudhury ,Project Management, Tata Mc Graw Hill Publishing Co Ltd.6th Edition, 2006, New Delhi.
2. Jose Paul,N.Ajith Kumar,Paul.T.Mampilly, Entrepreneurship Development, Revised Edition ,Himalaya Publication House ,2006,Mumbai.

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FIFTH SEMESTER

PART III - CORE 16 – BUSINESS ETHICS AND CORPORATE GOVERNANCE

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objectives: To inculcate knowledge on Business Ethics and to provide knowledge of various factors influencing the corporate sector.

UNIT - I [12 HOURS]

Business Ethics - Meaning - scope - benefits - Sources of Ethics - religion - philosophical system - cultural experience - legal system - Importance of Ethics - Factors influencing Business Ethics - leadership - strategy and Performance - environment - corporate culture - individual characteristics.

UNIT - II [12 HOURS]

Ethical Values - Meaning - Features - importance - Types of values - Personal values - Values of work force - Ethics committee – Ethical leadership.

UNIT - III [12 HOURS]

Culture - Meaning - components of culture - Organisation culture - Meaning - characteristics - steps in building and maintaining organization culture - Managing cultural diversity in organisation.

UNIT - IV [12 HOURS]

Corporate Governance - History and Development - ingredients - Meaning - definition Importance - objectives - Principles - Code of Corporate Governance - Committees on Corporate Governance - Global and Indian perspectives - Mandatory and non-mandatory regulations .

UNIT - V [12 HOURS]

Corporate Social Responsibility of Business - Meaning – rationale - Strategies- Corporate social Responsibility reporting - Ackerman’s model of social responsibility.

TEXT BOOKS:

1. Laura P Hartman, Perspectives in Business Ethics, Mc Graw Hill International, 3rd edition 2007.
2. Bhatia S.K. Business Ethics and Corporate Governance, Deep & Deep Publications Pvt. Ltd New Delhi, 2004.

REFERENCE BOOKS:

1. SK Chakraborty, Ethics in Management; Vedantic Perspectives, Oxford University Press
2. George A Steiner and John F Steiner, Business, Government and Society, Mc Graw Hill, International, 1996.
3. Subhash Sharma, Management in New Age: Western Windows- Eastern Doors, New Age, International Publishing, New Delhi, 1996.

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Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objectives: On successful completion of this course, the students should have understood Advertising, Ad media, Ad agencies, Sales force management, Promotional strategies.

UNIT – I [12 HOURS]

Introduction to Advertising- Meaning, Definition, Importance - Role and functions, economic, social and ethical issues - Advertising Creativity - Meaning of creativity, Creative strategy, Creative tactics, Advertising Appeals - Advertising copy - Copywriting - Objectives - Essentials - Types - Elements of copy writing: Headlines, body copy.

UNIT – II [12 HOURS]

Advertising layout - Functions - Design of layout - Typography printing: Process - Lithography - Printing plates and reproduction paper, and cloth - Size of advertising - Repeat advertising, advertising Campaign - Steps in campaign planning.

UNIT – III [12 HOURS]

Media planning and scheduling strategy - Types of media, media characteristics, selection of media, evaluation of media, media scheduling strategy, forms of media - Press, Newspaper, trade journal, Magazines - outdoor advertising - Poster, banners, neon signs, publicity literature booklets, folders, house organs - Direct mail advertising - Cinema and theatre programme - Radio and television advertising - exhibition, trade fair, transportation advertising.

UNIT – IV [12 HOURS]

Evaluation of advertising effectiveness - Need and purpose of evaluation, pre-testing and post testing techniques. Sales force Management - Importance - Sales force decision - Selection- Training - Methods - Motivating salesmen, Controlling - Compensation & Incentives - Fixing sales territories, and quota - Evaluation.

UNIT – V [12 HOURS]

Sales Promotion - Definition of sales promotion - Objectives reason for its rapid growth, promotional strategy - Promotional instruments: types and techniques of sales promotion - Dealers promotion. After sales service - Packing - Guarantee.

TEXT BOOKS:

1. Advertising and sales promotion – S.H.H. Kami Sathish K. Batra – Excel book India, 2009, Edition: 3rd edition.
2. Advertising Management – Concepts and cases, Author - Mahendra Mohan, Publisher – Tata McGraw-Hill Education, 1989.

REFERENCE BOOK:

1. Advertising and Sales Promotion Management – S.L.Gupta, V.V.Ratra Advertising and Salesmanship – P.Saravanel, The book house of Margham publications 2012.

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FIFTH SEMESTER

PART-III – ELECTIVE I - BANKING LAW AND PRACTICES

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

OBJECTIVE: After the successful completion of the course the student should have a thorough knowledge on Indian Banking System and Acts pertaining to it.

UNIT – I [12 HOURS]

Definition of Banker and Customer – Relationships between Banker and Customer – Special Feature of RBI- Banking Regulation Act 1949 - RBI Credit Control Measure

UNIT – II [12 HOURS]

Opening of Account – Special types of Customer – Types of Deposit – Bank Pass book – Banker Lien.

UNIT – III [12 HOURS]

Cheque – Features - Essentials of Valid Cheque – Crossing – Marking and Endorsement – Payment of Cheque - Refusal of Payment Cheque

UNIT – IV [12 HOURS]

Loan and Advances by Commercial Bank - Lending Policies of Commercial Bank - Forms of Securities – Lien Pledge - Hypothecation - Advance – Mortgage-Position of Surety

UNIT – V [12 HOURS]

Letter of Credit – Bills Discounting - Traveler's Cheque - Credit Cards & Debit Cards - Automatic Teller Machine-Internet Banking.

TEXT BOOKS:

1. S.N.Maheshwari & S.K.Maheshwari, Banking Theory Law and Practice, 14th Edition 2014, Kalyani Publication.
2. Sundharam and Varshney, Banking Theory Law and Practice, 16th Edition 2010, Sultan Chand and Sons, New Delhi.

REFERENCE BOOKS:

1. Natarajan and Gordan: Banking Theory Law and Practice, 14th Edition 2008, Himalaya Publishing House, Bombay
2. Shekar and Shekar, Banking Theory Law and Practice, 18th Edition 2008, Vikas Publishing House Pvt Ltd, New Delhi.

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Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objectives: On successful completion of this course, the students should have acquire knowledge in Legislations relating to Industrial Disputes and Labour welfare.

UNIT I [12 HOURS]

Industrial Relations - Industrial Disputes - Causes - Handling and Settling Disputes - Employee Grievances - Steps in Grievance Handling - Causes for Poor Industrial Relations - Remedies.

UNIT II [12 HOURS]

Collective Bargaining: - Concept - Principles and forms of Collective Bargaining - Procedure - conditions for Effective Collective Bargaining - Worker's Participation in Management.

UNIT III [12 HOURS]

Factories Act 1948 – Provisions regarding Health, Safety, Welfare of Workers, Hazardous Process- Restriction on Employment of Women and Children. Introduction to Workman's Compensation Act, 1923.

UNIT IV [12 HOURS]

The Industrial Disputes Act 1947 - Types- Industrial Dispute Resolution Mechanism- Settlement- Voluntary Arbitration- Adjudication in India.

UNIT V [12 HOURS]

The Payment of Wages Act,1936 – Application- Responsibility – Fixation of Wage Period- Payment of Wages- Authorised Deduction- Authorities. Employee's State Insurance Act, 1948- Schemes-Applicability- ESI Contribution.

TEXT BOOKS:

1. P.C.Tripathi, Personnel Management & Industrial Relation, Sultan Chand & Sons,12th edition,2012.
2. N.D. Kapoor ,Mercantile Law, Sultanchand & Sons, 7th Edition, 2012.

REFERENCES BOOKS:

1. N.G.Nair & Latha Nair, Human Resource Management , Sultan Chand & Sons, Revised Edition, 2014.
2. P.Subbarao ,Essentials of Human Resource Management and Industrial Relations, Himalaya Publishing House, Revised Edition, 2010.
3. R.Venkatapathy & Assissi Menachery , Industrial Relations & Labour Legislation , Aditya Publishers, 7th Edition, 2013.

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**FIFTH SEMESTER
PART V– AOC III– BANKING TECHNOLOGY**

MAXIMUM CIA: 100

Objective: To enhance the conceptual knowledge about core banking technology.

UNIT I

Technology in banking – Need – Benefits – Issues involved in technology – Orientation of banks.

UNIT II

Computer technology in banks: What is a Computer? Brief history of computers of early computers – Generations of computers – Uses of computers.

UNIT III

Hardware: Anatomy of computer – CPU – Memory – Peripheral controllers – Peripherals.

UNIT IV

Software: Need for software – what is software? Types of software – Systems software – Operating systems – Language translators – Programming Languages.

UNIT V

Technology based products in banking – ATM's – Home Banking MICR cheques – Electronic Fund transfer [EFTs] Internet Banking – Real Time Gross Settlement [RTGS]. Security considerations.

TEXT BOOKS:

- 1 Bajwa K.S., Bank Mechanisation, Skylark publications, New Delhi, 1986.
- 2 Srivatsava, Computer applications in Banks, BTC, RBI, May 2009.

REFERENCE BOOKS:

- 1 Sanjay Soni and Vinayak Aggarwal, Computer and banking, Sultan Chand and Son's, New Delhi 1993.
- 2 Ravi Kalakota nad Andrew B. Whinston, "Frontiers of Electronic Commerce", Dorling Kindersley Pvt.Ltd, 2nd Edition 2009, India.

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SIXTH SEMESTER

PART III- CORE 17 – INTERNATIONAL BUSINESS MANAGEMENT

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge of laws applicable and prevailing in the industry and its implication.

UNIT-I [12HOURS]

The Globalization of the World Economy – The Changing Nature of International Business - Evolution of IB – Drivers of Globalization- Differences between Domestic Business & IB.

UNIT-II [12HOURS]

World Business Environment – Political Environment – Economic Environment – Legal Environment – The Determinants of Economic Development – States in Transition. Difference in Culture: Introduction – Social Structure – Religion – Language – Education – Culture and the Workplace.

UNIT-III [12HOURS]

International Trade Theories: Introduction – An Overview of Trade Theory – Absolute Advantage – Comparative Advantage – Heckscher –Ohlin Theory – The New Trade Theory – National Comparative Advantages – Porter’s Diamond Model.

UNIT-IV [12HOURS]

Strategies of International Business – Strategy and the Firm – Profiting from Global Expansion – Pressure for Cost Reductions and Local Responsiveness – Strategic Choice. Mode of Entry and International Marketing Operations – Strategic Alliances: Introduction- Entry Modes – Selecting and Entry Mode- Strategic Alliances – Making Alliances Work.

UNIT-V [12HOURS]

Exporting, Importing and Counter Trade – Introduction – Export Procedure – Export Assistance – Export and Import Finance – WTO & Development of World Trade – IMF World Bank – Functions and Features – Regional grouping of countries ad its impact.

TEXT BOOK:

1. SubbaRao.P., International Business, Himalaya Publishing House, 3rd Revised Edition,2013.

- 2.

REFERENCE BOOKS:

1. Francis Cherunilam., International Business., PHI.,5th Edition., 2011.
2. Charles W.L.Hill., International Business: Competing in the Global Marketplace., Irwin- McGraw Hill., 10th Edition,2014

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SIXTH SEMESTER

PART III- CORE 18 – BUSINESS STRATEGY

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objectives: The main objectives of the subject are to promote the development of participants' leadership, managerial and entrepreneurial competencies and to strengthen their expertise in strategy, strategy implementation and the management of complex situations.

UNIT – I [12 HOURS]

Introduction-concept of Strategy – Need – Dimensions - Strategic Planning – Process – Benefits – McKinsey's 7S Model – Strategic Vision – Corporate Mission – Objectives – Goals – Social Responsibility – Business ethics – Linking Strategies with ethics – Social audit.

UNIT – II [12 HOURS]

Environmental analysis – Need – Scanning – Approaches – Forecasting – Techniques. Internal Analysis – Need – SWOT analysis – Value Chain – Functional Analysis – Grid approach – Criteria for evaluating internal capabilities.

UNIT - III [12 HOURS]

Strategic Decision framework – Developing alternatives – Strategy Options – Diversification strategies – Cultural context of strategy – comparing alternatives – BCG Model.

UNIT – IV [12 HOURS]

Implementation – Role of top management – Process – Matching Structure of strategy – Resource allocation – Planning and Controlling system. Evaluation – Criteria – Quantitative and Qualitative factors – Feedback and Information.

UNIT – V [12 HOURS]

Core Competencies – Building core competencies – Building Strategic Supportive Corporate Culture Strategic advantage – Managing Strategic Change – Strategic Change Process – Diagnosing change need.

TEXT BOOKS:

1. Business Strategy and Strategic Cost Management - Publisher: Taxmann Publications Pvt. Ltd. - Edition: 2014.
2. Business Strategy: Managing Uncertainty, Opportunity, and Enterprise 1st , Kindle Edition - by J.-C. Spender – 2014.

REFERENCE BOOKS:

1. Business Environment and Strategy - Educreation Publishing; 01 edition (10 April 2015)
2. Business Policy Strategic Management - Author: by: Aurnob Roy, Vrinda Publications, Reprint 2012.
3. Strategic Management: The Indian Context - R. Srinivasan – Publisher - PHI Learning, 2012.

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SIXTH SEMESTER

PART III - CORE 19 – INSURANCE FOR BUSINESS PROCESS

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge to facilitate an understanding of the concepts, methods and practices of insurance

UNIT I: [12 HOURS]

Defining risk and uncertainty - Sources, Classifications and type of risk-Insurance – Meaning, Nature, Significance and Principles- Privatization of Insurance Business in India- Insurance Regulatory development Authority Act- Recent Developments in Insurance sector-Re- Insurance – Double insurance

UNIT II: [12 HOURS]

Life Insurance – Principles – Economic, Legal and actuarial principles-Organization setup and functions of LIC of India.- Types of policies

UNIT III: [12 HOURS]

General insurance – Fire Insurance contract – Principles - Policies, Disclosure, Risk Covered, Subrogation - Termination of coverage, policy conditions, and claim procedure- Claim procedure

UNIT IV: [12HOURS]

Marine Insurance contract – Origin and growth, Evolution of Marine Insurance business in India - Insurable interest utmost good faith. Policy Document – Principle of marine insurance - type of marine insurance – Procedure for Obtaining marine Protection policies and conditions – Requirement of insure, documents needed – Procedure for Claim.

UNIT V: [12 HOURS]

Miscellaneous Insurance – Motor Vehicle act and motor insurance – Types of Motor vehicles and policies – Motor Accident claim – Personal Accident policy.

TEXT BOOKS:

1. P.K. Gupta, Fundamentals of insurance, Himalaya Publishing House, 10th Edition, 2009, Mumbai.
2. M.N. Mishra, Insurance Principles and practice, S.Chand and Co Ltd, Revised Edition,2010, New Delhi.

REFERENCE BOOKS:

1. Nalini Prava Thirupathi and Prabir Pal, Insurance theory and Practice, PHI, 6th Edition, 2005, New Delhi
2. Parameshwaran, Insurance theory and Practice, Himalaya Publishing House, 10th Edition, 2009, Mumbai

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SIXTH SEMESTER

PART III - CORE 20 – E - COMMERCE

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge of techniques in the application of E-Commerce.

UNIT- I [10 HOURS]
Electronic Commerce-Main Activities E-Commerce-Goals of E-Commerce-Technical Components of E-Commerce-Advantages and Disadvantages of E-Commerce- Electronic Commerce and Electronic Business (C2C) (2G, G2G, B2G, B2P, B2A, P2P, B2A, C2A, B2B, B2C).

UNIT- II [12 HOURS]
The Internet - Domain Names and Internet Organization (.edu , .com, .mil,.gov, .net etc.-Types of Network -Building Own Website-Reasons for Building own Website-Benefits of Website-Cost, Time, Reach-Registering a Domain Name-Target email, Banner Exchange, Shopping Bots.

UNIT- III [12 HOURS]
Planning for Electronic Commerce- Initiates-Linking objectives to business strategies-Measuring Cost Objectives-Comparing benefits to Costs -Strategies for Developing Electronic Commerce Web sites.

UNIT- IV [12 HOURS]
Internet Marketing-The PROS and CONS of online shopping-Internet marketing techniques -The E-cycle of Internet marketing- Personalization E-commerce-Electronic Data Exchange-Introduction-Concepts of -Applications of EDI-Advantages and Disadvantages of EDI-EDI model.

UNIT- V [14 HOURS]
Electronic Payment System - -Credit Card System –Electronic Fund Transfer-Paperless bill - Modern Payment Cash- Electronic Cash-Internet Security-Secure Transaction-Computer Monitoring-Privacy on Internet-Corporate Email privacy-Computer Crime(Laws , Types of Crimes).

TEXT BOOKS:

1. E-Commerce Concepts, Models, Strategies- :- G.S.V. Murthy Himalaya Publishing House.
2. E- Commerce - Kamlesh K Bajaj and Debjani Nag.

REFERENCE BOOKS:

1. Electronic commerce :- Gray P. Schneider
2. E-Commerce, Fundamentals & Applications : Chand (Wiley) University of Pune.

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SIXTH SEMESTER

PART III – ELECTIVE II – EVENT MARKETING

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge to Marketing, Pricing and Promotion.

UNIT I [12 HOURS]

Principles of Event Management: Introduction to Event Management, Concept and Designing, Feasibility, Keys to Success.

UNIT II [12 HOURS]

Events defined- Introduction of event management – event marketing-5C- Marketing Mix, Sponsorship, Image, Branding, Advertising, Publicity and Public Relations.

UNIT III [12 HOURS]

Event Planning and Team Management: Aim to Event, Develop a Mission, Establish Objectives, Preparing Event Proposal, Use of Planning Tools; Protocols, Dress Codes, Staging, Staffing, Leadership Traits and Characteristics.

UNIT IV [12 HOURS]

Marketing Of Events - The Need for Marketing, Consumer Expectations, Marketing Mix, Four Ps, Elements, The Promotional mix, What should be the basis of Pricing, When should the Payment be Made, How Should the Payment be Made, Promotion, Strategic Decision, Marketing Objectives, The Promotional Mix, The Media Mix.

UNIT V [12 HOURS]

Future Of Event Marketing - Event Promotion, Tools of Promotion, Advertising, Public Relations, Tips on writing a New Release, What is a Media kit, Direct Marketing, Word of Mouth, Hospitality, Websites, The Promotion Schedule, Planning a Promotion Campaign for an Event.

TEXT BOOKS:

1. Sanjaya Singh Gaurand Sanjay Sanger, Event Marketing and Management, Revised Edition , PHI,2008,Delhi
2. Ramasamy and Namakumari, Marketing Management,6th Edition, Macmillan, 2009,Chennai.

REFERENCE BOOKS:

- 1.Philip Kotler ,Kevin Lane Kellar,Abraham Koshy Mithileshwar jha, Marketing Management,13th Edition, Pearson Education, 2009,South Asia
2. Rajan Saxena-Marketing Management, 3rd Edition, Mc Graw Hill, 2006, Delhi.

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SIXTH SEMESTER

PART III – ELECTIVE II – FINANCIAL SERVICES

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge of the Concepts, Methods and Practices of Financial Services.

UNIT I [12 HOURS]

Indian Financial System: Introduction- Scope – Objective – Functions of Financial System – Components of Financial Services – Key Elements – Recent Development in Indian Financial System.

UNIT II [12 HOURS]

Financial Market: Meaning – Types –Money Market – Instruments (T- Bill, Call, CP, CB, CD, CBLO) – Concept – Capital Market – Primary Market & Secondary Market – Issue Management (IPO Process).

UNIT III [13 HOURS]

Mutual Funds : Introduction- Characteristics – General Classification – Operations – Hire Purchase – Concept – Feature –Parties Involved – Leasing – Concept – Types - Hire Purchase vs. Leasing.

UNIT IV [13 HOURS]

Venture Capital : Concept – Forms – Stages – Bill Discounting – Concept – Types- Credit Rating – Concept – Process – Types – Credit Rating Agencies in India – Depository – Meaning – Depositories in India.

UNIT V [10 HOURS]

Regulatory: RBI – Introduction – Origin – Objectives – Functions – Roles – SEBI – Objective – Function – Powers – Organization – SEBI & Central Government..

TEXT BOOKS:

1. E.Gordon And Natarajan.K,Financial Marketing Services, Himalaya Publishing House,3rd Edition 2006,Mumbai.
2. M.Y. Khan- Financial Services, Prentice Hall,7th Edition,2009, India.

REFERENCE BOOKS:

1. Sunil .K. Parameswaran, Futures Market, Tata McGraw,3rd Edition, 2006,Delhi.
2. Dr.S.Gurusamy,Essential Of Financial Services, Mc Graw Hill,7th Edition, 2009,Chennai.

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SIXTH SEMESTER

PART III – ELECTIVE II – HUMAN RESOURCE DEVELOPMENT

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge of laws applicable and prevailing in the industry and its implication.

UNIT –I [12 HOURS]
Human resource Development: Definition - Characteristics - Need for HRD -HRD Methods - HRD Process. HRD Objectives – HRD Policies — Steps involved in introducing HRD System.

UNIT –II [12 HOURS]
Development of HRD Strategy: HRD Strategies – Designing HRD strategy- Future Challenges to HRD strategy – HRD Model.Organizational Culture and Climate: Meaning - Forms of HRD Organization – Role of HRD in Organizational Culture.

UNIT –III [12 HOURS]
Development of Human Resource Capacity: Individual Behaviors – Importance of Personality – Attitudes, Values and Beliefs – Determination of personnel quality. Group Dynamics – Meaning- Characteristics - Types - Morale – Relationship between Morale and Productivity. Career Planning: Meaning, Steps involved in Career Planning - Management of Career stages.

UNIT –IV [12 HOURS]
Employee counseling and Mentoring: Concept and definitions of employee counseling – Types- Concept and Characteristics of mentoring – principles – Mentoring Process – Benefits- Elements of Successful Mentoring. Employee Empowerment – Process – Benefits of Employee Empowerment.

UNIT – V [12 HOURS]
Quality of Work Life: Definition – Objectives – Importance – Ways to increase the quality of work life – HRD Audit and Accounting –Objectives – Methods – Role. HRD Scenario in Indian Organization – Managing HRD functions effectively.

TEXT BOOK:

1. Tripathi.P.C , Human resource Development , Sulthan Chand & sons , New Delhi ,7th Edition,Reprint(2015).

REFERENCE BOOKS:

1. Deb Tapomoy, Human Resource Development Theory & Practice, Ane Books Pvt.Ltd, New Delhi, 3rd Edition (2010).
2. Rao.T.V, Human Resource Development Experiences Interventions Strategies, Sage Publications, New Delhi, 18th Edition (2010).

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SIXTH SEMESTER

PART III – ELECTIVE III – SUPPLY CHAIN AND LOGISTIC

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objective: To enable the students to have an insight view on stages of Supply Chain Management and to know how a logistic strategy fits into an organisation decision.

UNIT - I [12 HOURS]

Supply Chain Management – Definition – objectives – Evolution - need-Issues involved in developing Supply Chain Management Framework-Types. Supply Chain Management activities - constituents - Organisation.

UNIT - II [12 HOURS]

Supply chain Integration-Stages-Barriers to internal integration-Achieving Excellence in Supply Chain Management - Dimensions of Supply Chain Excellence-Forces influencing Supply Chain Excellence Emotions - Physical and Financial Supply Chains-Check list for Excellence.

UNIT – III [12 HOURS]

Purchasing process - Supply Management-Introduction-importance Objectives purchasing process-purchasing & other functions-Purchasing and integrated logistics interfaces-Types of purchases-Purchasing partnerships-Materials sourcing-Just-in-time purchasing.

UNIT – IV [12 HOURS]

Logistics- Definition - History and Evolution- Objectives-Elements-activities importance- The work of logistics-Logistics interface with marketing-retails logistics-Emerging concept in logistics.

UNIT – V [12 HOURS]

Logistics Management-Definition-Achievement of competitive advantage through logistics Framework-Role of Logistics management-Integrated Logistics Management- Evolution of the concept- model - process-activities (in brief).

TEXT BOOKS:

1. Satish C. Ailawadi & Rakesh Singh: Logistics Management (2nd edition), Prentice-Hall of India Pvt Ltd., New Delhi, 2013
2. Rahul V. Altekar , Supply Chain Management Prentice-Hall of India Pvt Ltd., New Delhi, 2013

REFERENCE BOOKS:

1. V.V.Sople, Logistics Management, Pearson Education India; Third edition (2012).
2. James Stevaens , Supply chain Management (Strategy, Planning, Operations for Logistics Management), Shepal Publishing 2016

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SIXTH SEMESTER

PART III – ELECTIVE III – STOCK EXCHANGE AND PRACTICES

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

OBJECTIVE: To help the students understand the types of stock exchanges, methods of trading in stock exchanges and kinds of intermediaries in the capital market.

UNIT I [12 HOURS]

Need and Importance of Capital Market – Primary and Secondary Market- Different types of Securities dealt in the Capital Market.

UNIT II [12 HOURS]

Secondary Market – Origin and Growth – Types of Securities traded – Role and Functions of Stock Exchange – Organization and Management – OTCEI – NSE –Reading of Stock Indices - Weaknesses of Stock Exchange .

UNIT III [12 HOURS]

Listing of Securities – Group A, Group B, Group C Shares – Advantages of Listing – Drawbacks – Listing Procedure – Criteria for Listing – Listing Obligations.

UNIT IV [12 HOURS]

Registration of Stock Brokers – Registration Procedure – Code of Conduct for Stock Brokers – Kinds of Brokers and their Assistants – Methods of Trading in a Stock Exchange – Carry over or Badla Transactions – Genuine Trading – Kinds of Speculators – Speculative Transactions.

UNIT V [12 HOURS]

Credit Rating – CRISIL – CARE – ICRA Agencies, Dematerialization – Depositories.

TEXT BOOK:

1. Punidhavadhi, Security Analysis & Portfolio Management, Revised Edition, 2010, Vikas Publishing House.

REFERENCE BOOKS:

1. Prasanna Chandra, Investment Management & Portfolio Management, 4th Edition, 2012, McGraw Hill Education.
2. Preeti Singh, Security Analysis, Himalaya Publishing House, Revised Edition, 2010.

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SIXTH SEMESTER

PART III – ELECTIVE III – TRAINING AND DEVELOPMENT

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge of laws applicable and prevailing in the industry and its implication.

UNIT I [12 HOURS]

Concept in training- - Principles in Training- Components in Training- Trainers- Training Skills- Consultants for T&D- Organizational Climate for T& D- System Model in T&D.

UNIT II [12 HOURS]

Training Methods- Types in Training - Choosing Appropriate T&D Method - Designing - T&D Methods Strategic T&D Process- Organizational Characteristics that Influence Training- Models in Organizing the Training Department.

UNIT III [12 HOURS]

Learning- Concept- Learning Cycle- Learning Window- Principles in Learning- Learning Theories: Reinforcement Theory, Social Learning Theory, Need Theory, Expectancy Theory, Adult Learning Theory, The Learning Process- Considerations in Designing Effective Training Programs.

UNIT IV [12 HOURS]

Training Evaluation- Objectives- Purposes- Reasons for Evaluating Training- Types in Evaluation- Process in Evaluation- Outcomes Used in Evaluation in Training Programs- Evaluation Designs. Employee Development- Approaches- Development Planning Process.

UNIT V [12 HOURS]

Special Issues in Training & Employee Development: External Environment- Internal Needs in the Company. Career Management- Model in Career Development- Career Management Systems – Roles of Employees, HR Managers & Company in Career Management- Evaluating Career Management Systems.

TEXT BOOK:

1. Lalitha Balakrishnan and Gowri Ramachandran, Training and Development, Vijay Nicole Imprints Pvt.Ltd., Chennai, January 2015.

REFERENCE BOOKS:

1. Tapomoy Deb, Training and Development Concepts and Application, Ane Books India, 2009.
2. Blanchard and Thacker, Effective Training Systems, Strategies and Practices, 3rd Edition, Pearson Prentice Hall, 2009, New Delhi.
3. Sha shiKapur, Training and Development, 1st Edition, Infinity Books, 2004.

BOARD – BBA(CA)

**Scheme of Examination (CBCS Pattern) Programme BBA CA
For the Candidates admitted from the Academic Year 2018-2019 Onwards**

Part	Sub Code	Subject Title	Ins.Hrs/Week	Examination				
				Dur. Hrs.	CIA	CE	Total	Credit
SEMESTER I								
I	16LATA01/ 18LAHI01/ 15LAMY01/ 15LAFR01	Language – I Tamil-I/Hindi-I/Malayalam -I/ French-I	5	3	30	70	100	3
II	16ENG001	English –I	5	3	30	70	100	3
III	18BAC101/ 18BBA101/ 18BAB101	Core 1 Principles of Management	6	3	30	70	100	4
III	18BAC102	Core 2 Introduction to Information Technology	6	3	30	70	100	4
III	16BACID1	IDC 1 Business Mathematics and Statistics	6	3	30	70	100	4
IV	18UFCA01	Foundation Course I : EVS #	2	3	-	50	50	2
		Total	30				550	20
SEMESTER II								
I	16LATA02/ 18LAHI02/ 15LAMY02/ 15LAFR02	Language – I Tamil-II/Hindi-II/Malayalam-II/ French-II	5	3	30	70	100	3
II	16ENG002	English – II	5	3	30	70	100	3
III	18BAC201	Core 3 Financial Accounting	6	3	30	70	100	4
III	18BACP01	Core Lab 1 PC-Software	6	3	40	60	100	4
III	15BACID2	IDC 2 Operations Research	6	3	30	70	100	4
IV	18UFCA02	Foundation Course II: Value Education #	2	2	-	50	50	2
		Total	30				550	20

SEMESTER III								
III	15BAC301/ 15BBA301/ 15BAB301	Core 4 Marketing Management	5	3	30	70	100	4
III	15BAC302/ 15BBA302	Core 5 Production and Operations Management	5	3	30	70	100	4
III	18BAC303	Core 6 System Analysis and Design	5	3	30	70	100	4
III	18BACP02	Core Lab:2 Tally	5	3	40	60	100	4
III	18BACID3/ 18BBAID3/ 18BABID3	IDC 3 Business Taxation	5	3	30	70	100	4
IV	15BACAO1/ 15BACAO2/ 15BBAO2 15BBAO2	AOC I Retail Management/ Customer Relationship Management	3	3	-	75	75	3
IV	16BTA001/ 16ATA001/ 15EDC002	BT -I/AT-I/ EDC: Communicative English#	2	2	-	50	50	2
		Total	30				625	25
SEMESTER IV								
III	15BAC401/ 15BBA401/ 15BAB401	Core 7 Human Resource Management	5	3	30	70	100	4
III	15BAC402/ 15BAB402/ 15BBA402	Core 8 Research Methods for Management	5	3	30	70	100	4
III	18BAC403	Core 9 RDBMS and ORACLE	5	3	30	70	100	4
III	18BACP03	Core Lab :3 RDBMS and ORACLE	5	3	40	60	100	4
III	15BACID4	IDC 4 Business Economics	5	3	30	70	100	4

IV	15BACAO3/ 15BBAAO3/ 15BABAO3/ 15BACAO4/ 15BBAAO4/ 15BABAO4	AOC II Business Communication/Modern Office Management	3	3	-	75	75	3
IV	16BTA002/ 16ATA002/ 18BACED1	BT-II/AT-II/EDC: Multimedia and its applications #	2	2		50	50	2
V	15NSS001/ 15NCC001/ 15SPT001/ 15EXT001	NCC/NSS/Sports/Extension Activity	-	-	50	-	50	2
		Total	30				675	27
SEMESTER V								
III	15BAC501/ 15BBA501/ 15BAB501	Core 10 Financial Management	5	3	30	70	100	4
III	15BAC502	Core 11 Consumer Behavior	5	3	30	70	100	4
III	15BAC503	Core 12 Visual Programming	5	3	30	70	100	4
III	15BACP04	Core Lab 4 Visual Programming	5	3	40	60	100	4
III	15BACE01/ 15BACE02/ 15BACE03	Elective I Advertising and Sales Promotion/Banking Law and Practices/Labor Welfare and Industrial Relations	5	3	30	70	100	4
III	15BACPR1/ 15BBAPR1/ 15BABPR1	Project and Viva Voce	5	3	50	50	100	4
		Total	30				600	24
SEMESTER VI								
III	15BAC601	Core 13 Cost and Management Accounting	5	3	30	70	100	4
III	15BAC602/ 15BBA602/ 15BAB602	Core 14 Business Strategy	5	3	30	70	100	4
III	17BAC603	Core 15 Internet and Web Design	5	3	40	60	100	4

III	17BACP05	Core Lab 5 Internet and Web Design	5	3	30	70	100	4
III	15BACE04/ 15BACE05/ 15BACE06	Elective II Event marketing/Financial Services/Human Resource Development	5	3	30	70	100	4
III	15BACE07/ 15BACE08/ 15BACE09	Elective III Supply Chain and Logistics/Stock Exchange and Practice/Training and Development	5	3	30	70	100	4
		Total	30				600	24
Total							3600	140

No Continuous Internal Assessment (CIA) , only Comprehensive Examination (CE)
 @ No Continuous Internal Assessment (CIA) and Comprehensive Examination (CE)
 IDC- Inter disciplinary Course, EDC – Extra Disciplinary course , AOC – Application Oriented Course

List of Additional Credit Papers

SEM	CODE	SUBJECT TITLE	MAX MARKS	CREDITS
III	15BACAC1	E-Commerce	100	2
IV	15BACAC2	Institutional Training	100	2
V	15BACAC3	Banking Technology	100	2

List of Application Oriented Papers

SEM	CODE	SUBJECT TITLE	MAX MARKS	CREDITS
III	15BACAO1	Retail Management	75	3
III	15BACAO2	Customer Relationship Management	75	3
IV	15BACAO3	Business Communication	75	3
IV	15BACAO4	Modern Office Management	75	3

LIST OF ELECTIVE PAPERS		
	Subject Code	Subject Title
Elective I	15BACE01	Advertisement and Sales Promotion
	15BACE02	Banking Law and Practices
	15BACE03	Labour Welfare and Industrial Relations
Elective II	15BACE04	Event Marketing
	15BACE05	Financial Services
	15BACE06	Human Resource Development
Elective III	15BACE07	Supply Chain & Logistics
	15BACE08	Stock Exchange and Practice
	15BACE09	Training and Development

SUMMARY

Part	No of papers	Total Credits	Total Marks
I	2	6	200
II	2	6	200
III – Core	20	80	2000
III – IDC	4	16	400
III - Elective	3	12	300
III – Project	1	4	100
IV – Foundation Course	2	4	100
IV – EDC	2	4	100
IV – Application Oriented	2	6	150
V – Extension Activities	-	2	50
Total	38	140	3600

REGULATIONS FOR BOARD OF MANAGEMENT BBA (CA)

(Effective from the Academic Year 2018-2019 onwards)

1. Project and Viva Voce :

Each student in the UG final year shall compulsorily undergo Project Work in the 5th Semester. Projects shall be done individually. Project Coordinators shall allocate the project title and the guide for each group. Project work shall be done only in the lab provided by the college, including Project Record Preparation. Project Reviews shall be conducted thrice in which the progress of project work shall be strictly evaluated by respective Project Guides and Project Coordinators. Viva-Voce shall be conducted only in the presence of Industrialists or academicians. Out of the Total of 100 marks, 50% of mark shall be allocated for CIA and 50% for CE VIVA VOCE.

2. Institutional training

Institutional training for a period of 4 weeks in any industrial establishment is to be completed during the 4th semester. Students will have to submit an institution training report

within 6 weeks after the prescribed completion date to the H.O.D. A training certificate obtained from the company, has to be enclosed with the report. A viva – voce will be conducted by the internal examiners in IV semester. The minimum marks for passing the Institutional training shall be 40%.

3. Submission of Record Note Books for practical examinations

Submission of Record Work for Practical Examinations, Candidates appearing for Practical Examinations shall submit Bonafide Record work for the concerned Practical Examination. If not the Candidates has to submit a Bonafide Certificate issued by the concerned subject in charge duly signed by the head of the department in order to be permitted to take up the Practical Examination. The Candidate so permitted will not be eligible for the Record work mark.

4. Distribution of Marks: The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum (Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	28	30	40
	75	75	30	-	30
	50	50	20	-	20
Practical Paper	100	60	24	40	40
	75	75	30	-	30
Project	100	50	20	50	40

5. Distribution of Internal Mark for Theory : (No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30

4.	Attendance	10
Total		180/6=30

Seminar:

S.NO	SEMINAR SPLIT UP	Marks
1	Content	10
2	Flow of the presentation	10
3	Stage management and Body language	10
	Total	30

Breakup for Attendance:

Upto 74 %	- 4 Marks
75% - 84%	- 6 Marks
85% - 94%	- 8 Marks
95% - 100%	- 10 Marks

6. Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 40		
S No	CIA	Distribution of Marks
1	For Completion of the Practical List	20
2	Test –I	10
3	Test –II	10
Total		40

7. Distribution of External Mark for Practical :

MAXIMUM MARKS : 60		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	10
2	Program – I a) Algorithm b) Coding c) Execution	5 10 10 TOTAL (25)
3	Program – II a) Algorithm b) Coding c) Execution	5 10 10 TOTAL (25)
Total		60

8. Distribution of Mark for Project VIVA-VOCE:

S.No	CIA	Distribution of Marks
1	INTERNAL a) Review –I b) Review –II c) Documentation & Final Review	10 10 30 Total (50)
2	EXTERNAL * a) Presentation b) Viva	30 20 Total (50)
Total		100

*Marks to be awarded by both External and Internal Examiners

9. Question Paper Pattern

Time: 3 Hours

Max marks: 70

SECTION – A (10×1=10)
Answer ALL Questions
Each Question Carries ONE Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B (5×4=20)
Answer ALL Questions
Each Question Carries FOUR Marks
(INTERNAL CHOICE)

SECTION – C (5×8=40)
Answerer ALL Questions
Each Question Carries EIGHT Marks
(INTERNAL CHOICE)

10. Question Paper Pattern

Time: 3 Hours

Max marks: 75

SECTION – A (10×1=10)
Answer ALL Questions
Each Question Carries ONE Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B (5×5=25)
Answer ALL Questions
Each Question Carries FIVE Marks
(INTERNAL CHOICE)

SECTION – C (5×8=40)
Answerer ALL Questions
Each Question Carries EIGHT Marks
(INTERNAL CHOICE)

11. Question Paper Pattern

Time: 3 Hours

Max marks: 50

SECTION – A (10×1=10)
Answer ALL Questions
Each Question Carries ONE Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B (5×3=15)
Answer ALL Questions
Each Question Carries THREE Marks
(INTERNAL CHOICE)

SECTION – C (5×5=25)
Answerer ALL Questions
Each Question Carries FIVE Marks
(INTERNAL CHOICE)

12. Question Paper Pattern

Time: 3 Hours

Max marks: 100

SECTION – A (10×1=10)
Answer ALL Questions
Each Question Carries ONE Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B (5×8=40)
Answer ALL Questions
Each Question Carries EIGHT Marks
(INTERNAL CHOICE)

SECTION – C (5×10=50)
Answerer ALL Questions
Each Question Carries TEN Marks
(INTERNAL CHOICE)

NOTE:

1. The questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the unit in the syllabus in all the sections of the question paper.

3. While framing questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

13. Conduct of Practical Examinations:

Practical examinations shall be conducted with one Internal examiner and one External examiner and the question paper for practical examination shall be set by both Internal and External examiners.

**Bachelor of Business Administration with Computer Applications Degree Examination–
Syllabus for Candidates admitted from the Academic Year 2018 - 2019 Onwards**

FIRST SEMESTER

PART III-CORE-1 PRINCIPLES OF MANAGEMENT

MAXIMUM CIA: 30

MAXIMUM CE: 70

TOTAL HOURS: 72

OBJECTIVE: On the Successful completion of this paper, the students should have acquired knowledge of the nature and types of business organizations, Principles and functions of Management Process, decision making, Modern trends in management process

UNIT –I [15 HOURS]
Nature and evolution of management – Meaning and definition of management – Contributions of Taylor, Fayol, Mayo and Drucker – Functions of management – management: Art, Science and Profession – Administration Vs management – Functional areas of management – Managerial skills – Levels of management – Social Responsibility and Ethics.

UNIT –II [15 HOURS]
Planning: Nature and purpose of planning - steps in planning - types of planning- Objectives – strategies and Policies - Decision making: Process of Decision making - types of Decisions, MBO-Definition and concept-process-merits and demerits.

UNIT –III [13 HOURS]
Organising: Meaning, definition and Principles, Formal and Informal Organisation – Organisation structure – Line and staff organization – Types of Groups – Formal and Informal Groups – Merits and Demerits of the groups

UNIT –IV [14 HOURS]
Directing: Definition and principles of Directing – Motivation: Meaning, nature and importance – Maslow, Mc Gregor, Herzberg Mc Cleland, and Alderfer theories of motivation– Delegation of Authority – Centralization and decentralization – Merits and Demerits. Co-ordination: Meaning need and features – Techniques – Problems in coordination.

UNIT – V [15 HOURS]

Staffing: meaning and importance of staffing – Recruitment, selection, training of staff.
Controlling: Meaning, definition and need – Principles of controlling – Controlling techniques.

TEXT BOOKS:

1. P. C. Tripathy, P.N.Reddy, Principles of Management, 3rd Edition, Tata MC Graw hill publishing Company ltd, New Delhi, 2007.
2. Principles of Management – Dr.G.Venkatesan, R.K.Sharma & Shashi K.Gupta

REFERENCE BOOKS

1. Bhushan Y.K, Business Organization, 4th Edition, Tata MC Graw hill publishing, New Delhi, 2006
2. L.M.Prasad, Principles of Management, 5th Edition, Himalaya publication, Mumbai - 2006

**Bachelor of Business Administration with Computer Application Degree Examination-
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FIRST SEMESTER

PART – III-CORE 2 –INTRODUCTION TO INFORMATION TECHNOLOGY

MAXIMUM CIA: 30

MAXIMUM CE: 70

TOTAL HOURS: 72

OBJECTIVE:

On the successful completion of the course, the students should have understood the concept of system.

UNIT- I [15 HOURS]

Computer Basics: Introduction-Evolution of Computers-Generation of computers-Classification of Computers-The Computer System-Applications of Computers.

UNIT- II [15 HOURS]

MS Word: Introduction-Working with Word-Working with Text-Working with Tables-Checking Spelling & Grammar-Adding Graphics to Documents-Printing a Document.

UNIT- III [15 HOURS]

MS PowerPoint: Introduction-Working with PowerPoint-Working with different views-Designing Presentation-Printing in PowerPoint.

UNIT- IV [15 HOURS]

MS Excel: Introduction-Working with Excel-Working with Worksheet-Formulas & Functions-Inserting charts –Printing in Excel.

UNIT- V [12 HOURS]

Internet: Introduction-Evolution of Internet-Basic Internet Terms-Getting connected to internet-Internet Application –Data over Internet.

TEXT BOOKS

1. V. Rajaraman, Introduction to Information Technology, PHI Learning Pvt.Ltd, 3rd Edition, 2018.
2. Prided K.Sinha & Priti Sinha, Computer Fundamentals, BPB Publications, 6th Edition, 2014.
3. Joan Lambert and Curtis Frye, Microsoft Office 2016 Step by Step, 2nd Edition, Microsoft Press,2016.

REFERENCE BOOKS

1. ITL Education Solutions Ltd, Introduction to Information Technology, 2nd Edition, Pearson Education, 2012.
2. Brian K.Williams & Stacey Sawyer, Using Information Technology, Mc-Graw Hill Publications, 11th Edition, 2014.

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SECOND SEMESTER

PART-III- CORE-3- FINANCIAL ACCOUNTING

MAXIMUM CIA: 30

MAXIMUM CE: 70

TOTAL HOURS: 72

OBJECTIVE: On the Successful completion of this paper, the students should have acquired knowledge of the basic accounting concepts

UNIT – I [15 HOURS]
Introduction to Accounting: Need for accounting-Definition of accounting-Advantages and disadvantages of accounting-Methods of accounting: Single and Double Entry book keeping-Types of accounts- Basic accounting concepts - Journal-Ledger.

UNIT – II [12 HOURS]
Subsidiary books-Trial balance [problems] - Errors-types of errors-Rectification of errors [excluding suspense account]

UNIT – III [15 HOURS]
Final accounts of trading concerns [with simple adjustment only]-Depreciation accounting-Meaning-Causes -Methods of providing depreciation- Straight Line Method -Written Down Value method.

UNIT – IV [16 HOURS]
Branch accounting-Meaning-merits-demerits-Departmental accounting- Meaning of departments and departmental accounting –Need for departmental accounting-advantages-Difference between branch and departmental accounts-Methods and techniques of departmental accounting [simple problems only]

UNIT – V [14 HOURS]
Preparation of accounts from incomplete records [Theory and Problems] - Accounting for non-trading institutions.
[Theory and problems may be in the ratio of 20% and 80%respectively]

TEXT BOOKS:

1. S.P.Jain, K.L.Narang, Financial Accounting and analysis, 6th Edition-Kalyani Publishers, 2012, Mumbai
2. Dr.S.N.Maheshwari, Financial Accounting, 1st Edition- Sultan Chand and Sons, 2014, New Delhi

REFERENCE BOOKS:

1. Dr. P.C.Tulsian, Financial Accounting, 4th Edition, Tata MC Graw Hill, 2011, Delhi
2. V.K.Gupta, Financial Accounting, 5th Edition- Sultan Chand and Sons, 2010, New Delhi
3. S.P.Jain, K.L.Narang, Financial Accounting, 5th Edition-Kalyani Publishers, 2010, Mumbai.

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**SECOND SEMESTER
PART – III-CORE LAB 1 –PC-SOFTWARE**

MAXIMUM CIA: 40

MAXIMUM CE: 60

TOTAL HOURS: 72

OBJECTIVE: On the Successful completion of this paper, the students should acquired developing and designing skills in Ms Office and method of calculating, accounting techniques by using Tally.

LIST OF PRACTICALS

OBJECTIVE: Imparting professional skills in Personal Computer software.

MS-WORD

1. Creating an Invitation.
2. Preparing a job application letter enclosing Detailed Resume.
3. Performing Mail Merger Operation.

MS – EXCEL

4. Creating a Worksheet Using Formulas for a pay roll preparation.
5. Calculating electricity bill using formulas.
6. Drawing graphs to illustrate class performance of semester marks result analysis.

MS- ACCESS

7. Simple commands perform sorting on name, place and pin code of students database and address printing using label format.
8. Pay rolls processing and prepare report.

MS- POWER POINT

9. Designing an advertisement campaign with minimum three slides.
10. Preparing a power point presentation for grouping and ungrouping concept with minimum three slides.

INTERNET

11. Working with Internet Explorer to search data in Internet.
12. Create an Email Account, Compose and Send mail by using CC and BCC options with Attachments.

Bachelor of Business Administration Degree Examination-Syllabus for Candidates admitted from the academic year 2018-2019 Onwards

THIRD SEMESTER

PART III - CORE 5 - MARKETING MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On the successful completion of this paper, the students should have acquired knowledge in Principles of Marketing Management, Market Segmentation, Product Life Cycle, Pricing, and Branding.

Unit I (10 Hours)

Definition of Marketing - Marketing Management- Marketing Concept – Meaning Importance of Marketing in Developing Countries - Functions of Marketing – Customer Value-Changing Marketing Practices- Modern marketing concepts - Marketing Environment.

Unit II (15 Hours)

Buyer Behaviour - Buying Motives - Market Segmentation of Different Bases – Market Positioning – Market Targeting - Marketing Strategy - Branding Decisions: Brand-Brand Image, Brand Identity-Brand Personality –Brands Equity

Unit III (10 Hours)

Product- Types of Product - Product Policy - Product Life Cycle [PLC] – Market Place- Product Mix - Modification and Elimination – Marketing Mix - Packing – New Product Development – Strategies

Unit IV (15 Hours)

Definition and Types of Channel - Channel Selection and Problems- Middle Man: Wholesaler - Retailer- Agent Middleman Price Decision-Concept, and Meaning of Price and Pricing-Significance of Pricing Decision- Factors Affecting Price Determination; Pricing Methods and Techniques.

Unit V (10 Hours)

Advertisement Media- Radio-T.V-Newspaper- Merits and Demerits of Advertisement – Sales Promotion – Publicity –Virtual Adverstising- Personal Selling- Recent trends in Media.

Text Books:

1. Philip Kotler and Kevin Lane Keller, Marketing Management, 14th Edition, 2012, Prentice Hall of India, New Delhi.
2. KS Chandrasekar, Marketing Management-Text and Cases, First Edition, 2010, Tata McGraw Hill.

Reference Books:

1. Paul Baines, Chris Fill and Kelly Page, Marketing, 2nd Edition, 2011, Oxford University Press.
2. Philip Kotler, Marketing Management, 2nd Edition, 2010, McGraw Hill, New Delhi.

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THIRD SEMESTER

PART III - CORE 6 - PRODUCTION AND OPERATIONS MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On the Successful completion of this paper, the students should have acquired knowledge of Principles and Process of Production Management.

Unit-I (12 Hours)

Production Management - Functions - Scope - Plant Location - Factors - Site Location -Plant Layout - Principles - Process - Product Layout For Production Planning and Control -Principles - Information Flow - Routing - Scheduling - Dispatching – Control.

Unit-II (12 Hours)

Materials Requirement Planning (MRP) – Evolution of MRP into MRP II – JIT- Difference between JIT and MRP - Maintenance - Types - Breakdown - Preventive - Routine - Methods Study –Work Study-Time Study - Definition - Motion Study - Principles – Work Measurement.

Unit-III (12 Hours)

Materials Management – Objectives, Planning, Budgeting and Control - Purchasing – Procedure - Principles - Import Substitution and Import Purchase Procedure - – Steps - Vendor Rating - Vendor Development – BPR

Unit-IV (12 Hours)

Function of Inventory - Importance - Tools - ABC, VED, FSN Analysis - EOQ – Reorder Point - Safety Stock - Lead Time Analysis - Store Keeping - Objectives - Functions – Store Keeper - Duties - Responsibilities - Location of Store - Stores Ledger - Bin card – KAIZEN-KANBAN.

Unit-V (12 Hours)

Inspection and Quality Control - Types of Inspection. TQM: Meaning -Objectives - Elements - Benefits - Bench Marking: Meaning - Objectives - Advantages -ISO: Features - Advantages - Procedure for Obtaining ISO - Six Sigma Concept – Six sigma concepts of process capability

Text Books:

1. Pannerselvam, Production and Operation Management, 5th Edition, March 2012, Prentice Hall of India, New Delhi.
2. Swapnil Rupaye, Production and Operations Management 12th Edition, April 2015, OUP Australia and New Zealand.

Reference Books:

1. S.K.Anil Kumar and N.Suresh, Production and Operations Management, Revised Edition, 2012, New Age International Publishers.
2. Elwood.S.Buffa and Rakesh.Sarin, Modern Production Operation Management, 8th Edition, 2010, John Wiley and Sons, USA.

**Bachelor of Business Administration with Computer Applications (BBA CA) Degree
Examination-Syllabus for Candidates admitted from the academic year 2018-20219
Onwards**

THIRD SEMESTER

PART – III - CORE - 6 – SYSTEM ANALYSIS AND DESIGN [THEORY]

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On the successful completion of this course, the students should have implicit knowledge of analyze and design system.

Unit I (12 Hours)

Overview of System Analysis and Design: What is System-Characteristics of system-Element of System-System Components, Environment and Boundaries-Types of systems-System Models-Types of Information System.

Unit II (12 Hours)

System Development life Cycle: Introduction to System development Life Cycle-Phases of SDLC-Life Cycle Models-Organization for a project-System Documentation Consideration-Role and need of System Analyst.

Unit III (12 Hours)

Tools and Techniques for Modeling: Data flow diagram- Data Dictionary- Decision Table- Decision Tree- Entity Relationship Diagrams- System Flowchart- Programming Flowchart

Unit IV (12 Hours)

System Design and Modeling: An Overview of Design Phase- Design Consideration-Logical and Physical Design-Data Modeling and Design-Types of files in an organization System-File Access and Organization-Database Design.

Unit V (12 Hours)

Input And Output Design Control: Overview of Input and Output-Forms-Input Design-Output Design-Introduction to structured Design Concepts-Top Down and Bottom Up Design-Tools for Structured Design- Module Coupling and Cohesion-Specification.

Text Books:

1. Preeti Gupter- Structured System Analysis and Design,Lakshmi Publication Pvt.Ltd,3rd Edition.
2. Shelly, Cashman, Rosenblatt, Thomson, Systems Analysis and Design, 4th Edition.

Reference Books:

1. Elias Awad Systems Analysis and Design, Galgotia Publications, 3rd Edition.
2. Whitten,Bentley,Dittman,Systems Analysis and Design Method, McGraw-Hill/ Irwin 5th Edition

Bachelor of Business Administration with Computer Application BBA CA Degree Examination-Syllabus for Candidates admitted from the Academic Year 2018-2019 Onwards

THIRD SEMESTER

PART – III - CORE LAB - 2 ACCOUNTING PACKAGE - TALLY

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Objective: On the Successful completion of this paper impart knowledge regarding concepts of Financial Accounting Tally is an accounting package which is used for learning to maintain accounts.

List of Practical Programs

1. By using Tally - Create Voucher & ledger with adjustments (Using F11 and F12 keys)
2. Prepare Trial Balance, Profit & Loss A/C and Balance Sheet (With minimum of any 5 adjustments)
3. Prepare Inventory statement using (Calculate Inventory by using all methods) a) FIFO b) LIFO c) Simple Average method d) Weighted Average Method.
4. Prepare a day book and give your opinion.
5. Create a inventory and calculate the interest.
6. Create a company details and financial year using Tally.
7. Create a ledger and inventory information.
8. Prepare a list of accounts.
9. Create a report for sales register and purchase register.
10. Prepare a stock report of the organization.
11. Balance sheet preparation of an organization.
12. Budget preparation of an organization.

Bachelor of Business Administration with Computer Application BBA CA Degree Examination - Syllabus for Candidates admitted from the academic year 2018-2019 Onwards

**THIRD SEMESTER
PART III - IDC 3 – BUSINESS TAXATION**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On the Successful completion of this paper, the students should have acquired knowledge in Business Taxation.

Unit I (Theory only) (10 Hours)

Income Tax Act 1961-Meaning, Concepts. Tax - Definition - Canons of Taxation- Direct and Indirect Taxes -Comparison –Merits and Demerits of Direct and Indirect Taxes - Proportional, Progressive and Regressive Taxations - Income Tax Act 1961 - Definitions - Incomes which do not form part of Total Income.

Unit II (Problems only) (16 Hours)

Residential Status-Heads of Income- Salaries - Computation of Salaries – Allowance – Perks.

Unit III (Problems only) (14 Hours)

Income from House Properties –Computation of Income from House Properties- Profits and Gains of Business or Profession- Computation of Profits and Gains of Business or Profession of an Individual .

Unit IV (Problems only) (12 Hours)

Capital Gain-Computation of Capital Gain-Income From Other Sources-Computation of Income From Other Sources-Set off and carry forward of losses - Deductions to be made in Computing Total Income – Assessment of Individual.

Unit V (Theory only) (8 Hours)

VAT– Impact – Registration – Computation of VAT – Refund – Mechanism – Return Filing - Advantages and Disadvantages – TNVAT- Central Excise Duty -Objectives of Excise Duty. Introduction to GST, Computation of GST Liabilities, Registrations.

Note: Theory and Problems in the Ratio of 40% and 60% respectively.

Text Books:

- 1.V.P.Gaur and D.B.Narang, Income Tax Law and Practice, Revised Edition, 2016, Kalyani Publishers, Mumbai.
- 2 Parameshwaran, Principles of Taxation, 6th Edition, 2010, Kalyani Publishers, Mumbai.

Reference Books:

1. Dr. Mehrotra.H.C, Income Tax Law and Practice, 5th Edition, 2010, Tata McGraw, New Delhi.
2. Dinkar Pagare, Business Taxation, Revised Edition, 2011, Tata McGraw, New Delhi.

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**THIRD SEMESTER
PART - IV - AOC I - RETAIL MANAGEMENT**

**MAXIMUM CE:75
TOTALHOURS: 36**

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge of Retail, Pricing, Promotion Strategy, Retail Customer, Retail in India.

UNIT I [8 HOURS]

Introduction to Retailing - Meaning - Functions of Retailer - Types of Retailers. Retailing in India- The Evolution of Retail in India - Foreign Direct Investment in Retail - Challenges Ahead for Retailing.

UNIT II [7 HOURS]

Retail Strategy - Growth Strategy - Value Chain and Ethics. Retail Location - Types - Steps Involved in Selection. Store Design - Principles and Elements – Elements of Store Design.

UNIT III [7 HOURS]

Retail Franchising - Concept of Franchising - Evolution of Franchising – Types of Franchising – Basic Retail Merchandising - Meaning - Factors Affecting Buying Functions - Role and Responsible of Merchandiser and Buyer.

UNIT IV [7 HOURS]

Retail Marketing - Role of Marketing in Retail - Retail Marketing Mix - STP Approach - Retail Image - Concept of Retail Branding –Retail Pricing - Retail Pricing Policy.

UNIT V [7 HOURS]

Retail MIS - Importance of Information Technology in Retail - Factors Affecting the Use of Information Technology - Applications of Technology – E-Tailing - The New Online Retail Categories.

TEXT BOOKS

- 1.Swapna Pradhan, Retailing Management (Text and Cases), 4th Edition, 2012, Tata McGraw Hill Publishing.
- 2.Gibson G Vedamani, Retail Management – Functional Principles and Practice, 4th Edition, 2012, Jaico Publishing House .

REFERENCE BOOK

- 1.Barry Berman and Joel R Evans, Retail Management, A strategic Approach, 12th Edition, 2012, Prentice Hall of India.
2. Rosemary Varley, Principles of Retail Management, Revised Edition, 2009, Palgravemalminna Publishers.

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THIRD SEMESTER

PART- IV - AOC I - CUSTOMER RELATIONSHIP MANAGEMENT

MAXIMUM CE: 75

TOTAL HOURS: 36

OBJECTIVE: On the Successful completion of this paper, the students should have acquired knowledge of Relationship Marketing.

UNIT –I [8 HOURS]

Customer Relationship Management- Fundamentals- Evolution of Relationship Marketing-Stages of Relationship- Issues of Relationship- Purpose of Relationship Marketing- CRM Definitions, Emergence of CRM Practice:, CRM Cycle, Types of CRM .

UNIT –II [7 HOURS]

CRM – Overview and Evolution of the Concept – CRM and Relationship Marketing – CRM Strategy – Importance of Customer Divisibility in CRM.

UNIT –III [7 HOURS]

Sales Force Automation – Contact Management – Concept – Enterprise Marketing Management – Core Beliefs – CRM Practices in Retail Industry- Hospitality Industry- Banking Industry- Telecom Industry-Aviation Industry.

UNIT –IV [7 HOURS]

Value Chain – Concept – Integration Business Management – Benchmarks and Metrics – Culture Change – Alignment with Customer Eco System – Vendor Selection.

UNIT – V [7 HOURS]

Database Marketing – Prospect Database – Data Warehouse and Data Mining – Analysis of Customer Relationship Technologies – Best Practices in Marketing Technology.

TEXT BOOKS

1. S. Shajahan, Relationship Marketing, 5th Edition, 2010, Mc Graw Hill, New Delhi.
2. Paul Green Berg, CRM , 5th Edition, 2011, Tata Mc Graw Hill, New Delhi.

REFERENCE BOOKS

1. Philip Kotler, Marketing Management, Revised Edition,2012, Prentice Hall of India.
2. Barry Berman and Joel R Evans , Retail Management , A Strategic Approach, 12th Edition, 2011, Prentice Hall of India.

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FOURTH SEMESTER

PART - III – CORE 7- HUMAN RESOURCE MANAGEMENT

MAXIMUM CE:70

MAXIMUM CIA:30

TOTAL HOURS: 60

OBJECTIVE: On the successful completion of this paper, the students should have acquired knowledge in Role of a HR Manager, Job Description and Job Analysis.

UNIT-I **[12HOURS]**

Human Resource Management - Definition - Objectives - Functions - Scope - Importance - HRM in India - Evolution of HRM - Computer Application in Human Resource Management - Quality of a good Human Resource Managers - Human Resource Planning - Job Analysis, Job description and Job Specification.

UNIT-II **[12HOURS]**

Recruitment and Selection - Sources of Recruitment - Selection Process - Test Types - Interview Types - Career Planning vs. Man Power Planning and succession Planning - Career Planning - Process - Career Development - Placement and Induction.

UNIT-III **[12 HOURS]**

Training - Methods of Training - Executive Development - Performance Appraisal - Methods of Performance Appraisal - Transfers - Promotion - Wage & Salary Administration - Wage Boards and Pay Commission - Wage Incentive - Fringe Benefits - Employees Welfare - Safety and Health Measures - Grievance Procedures - Redressal of Grievances.

UNIT-IV **[12 HOURS]**

Industrial Relations - Meaning & Characteristics Industrial Relations - Parties to Industrial relations - Nature of Trade Unions - Problems of Trade Union - Measures to Strengthen Trade Union Movement in India - Causes for Industrial Disputes - Settlement of Industrial Disputes.

UNIT-V **[12 HOURS]**

Collective Bargaining - Features - Pre-requisite of Collective Bargaining - Agreement at different levels - Workers Participation in Management - Objectives for Successful Participation.

TEXT BOOKS

1. Dr. C.B. Gupta, Human Resource Management, Revised Edition, 2014, Sultan and Sons.
2. K. Aswathappa, Human Resource and Personnel Management, Revised Edition, 2013, Tata Mc Graw Hill Publishing Co. Ltd.

REFERENCE BOOKS

1. C.S. Venkata Rathnam & B.K. Srivastava Personnel Management & Human Resources, Revised Edition, 2011, TMPL.
2. Dr. C.B. Memoria, Dr. Satish Memoria & S.V. Gankar Dynamics of Industrial Relations, Revised Edition, 2009, Himalaya Publishing House.

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**FOURTH SEMESTER
PART III - CORE 10 - RESEARCH METHODS FOR MANAGEMENT**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 60

Objective: On the Successful completion of this paper, the students should have acquired knowledge of Research Techniques and Sampling Design

UnitI (12 Hours)
Research - Meaning - Scope and Significance - Types of Research - Research Process - Problems in Research – Characteristics of Good Research - Research in an evolutionary perspective – the role of theory in research.

UnitII (12 Hours)
Research Design - Sources - Types - Formulation Research Design - Types – Features of Good Design - Measurement - Meaning - Need Errors in Measurement - Tests of Sound Measurement - Techniques of Measurement - Scaling Techniques - Meaning - Types of Scales - Scale Construction Techniques.

UnitIII (12 Hours)
Sampling Design: Meaning - Concepts - Steps in Sampling - Criteria for Good Sample Design - Types of Sample Designs - Probability and Non-Probability Samples. Data Collection: Types of Data - Sources - Tools for Data Collection- Methods of Data Collection - Construction of questionnaire and instrument- Pilot Study - Case Study .Data processing: Coding – Editing and Tabulation of Data - Application of statistical software for data analysis.

UnitIV (12 Hours)
Hypothesis - Central Limit Theorem - Test of Significance- Assumptions about Parametric and Non-Parametric Tests. Parametric Test - T Test, F Test, Chi-Square Test and Z Test - Non Parametric Test [No Problems] - U Test, Kruskal Wallis Test, Sign Test.

UnitV (12 Hours)
Interpretation - Meaning - Techniques of Interpretation - Report Writing:- Significance - Steps in Report Writing - Layout of Report - Types of Reports – Oral Presentation - Executive Summary - Mechanics of Writing Research Report – Precautions for Writing Report - Norms for using Tables, Charts Diagrams, Index, Appendix, and Bibliography – Application of SPSS.

Note: Theory and Problems in the Ratio of 80% and 20% respectively.

Text Books:

1. C.R. Kothari Gaurav Garg, Research Methodology, New Age International [P] Limited, 3rd Edition, 2014, New Delhi.
2. Donald R. Cooper and Pamela S. Schindler, Business Research Methods, Tata McGraw Hill, 2006, New Delhi.

Reference Books:

1. M.P Gupta and K.B Khanna, Quantitative Techniques for Decision Making, Revised Edition, 2009, PHL Learning Private Limited, New Delhi.
2. R.Pannerselvam, Research Methodology, Revised Edition, 2014, PHI Learning, New Delhi.

**Bachelor of Business Administration with Computer Applications (BBA CA) Degree
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Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On the successful completion of this course, the students should have implicit knowledge of Basic structure of Oracle, RDBMS and DBMS, PL/SQL Programming and Procedures .

Unit I (12 Hours)

Introduction: Database System Applications -Purpose of Database Systems -Database Languages -Transaction Management -Database Architecture - Relational Model: Structure of Relational Databases -Database Design -ER Model -Overview of the Design Process -The Entity-relationship Model -Constraints -Entity Relationship Diagrams.

Unit II (12 Hours)

Relational Algebra Operations -Relational Languages: The Tuple--Relational Calculus - The Domain Relational Calculus -SQL: Background -Data Definition Basic Structure of SQL Queries -Set Operations -Aggregate Functions -Null Values Nested Sub- Queries -Views -Modification of the Database.

Unit III (12 Hours)

PL/SQL: A Programming Language: History -Fundamentals -Block Structure- Comments- Data Types -Declaration -Assignment operation-Substitution -Variables -Arithmetic Operators.- Control Structures -Nested Blocks -SQL in PL/SQL -Data Manipulation -Transaction Control statements.

Unit IV (12 Hours)

PL/SQL Cursors and Exceptions: Cursors -Implicit & Explicit Cursors and Attributes -Cursor FOR loops -SELECT...FOR UPDATE-Cursor with Parameters -Cursor Variables -Exceptions - Types of Exceptions.

Unit V (12 Hours)

PL/SQL Composite Data Types: Records. -Tables -Varrays. Named Blocks: Procedures - Functions -Packages -Triggers -Data Dictionary Views.

Text Books:

1. "Database System Concepts", Abraham Silberschatz, Henry F .Korth, S.Sudarshan , TMH 5th Edition (Units -I, II)

2. Database systems using oracle -Nilesh Shah, 2nd edition, Prentice Hall of India Private Limited, New Delhi.

Reference Books:

1. David Loctman- Developing Personal Oracle for windows 95 Application – 2ND EDITION- SAMS PUBLICATION- 2007- USA
2. Ivan Bayross – Commercial Application Development using Oracle Developer 2000.- 2nd Edition- Tata McGraw Hill- USA

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FOURTH SEMESTER

PART – III - CORE LAB - 3 - RDBMS AND ORACLE (PRACTICAL)

Maximum Marks: 60

Total Hours: 60

Objective: Imparting professional skills in Oracle database programming.

List of Programs:

1. Create tables to maintain ticket header, ticket details
2. Create tables to maintain flight header, flight details
3. Insert records into both ticket database and flight database
4. Display various forms of select statement in SQL.
5. Adding a field in place information both add and modify, Field name (add): remarks, Field name (modify): flight name
6. Update field remarks: Condition: if distance < 100, remarks = "Home" If sales > 100 , remarks = "Distance"
7. Change case and Perform aggregate functions in database tables
8. Develop a simple PL/SQL block for Bank information
9. Display a program to print patterns using PL/SQL.
10. Display a given number to its reverse of a number
11. Display Student mark list preparation using PL/SQL.
12. Establish a function to perform net balance

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FOURTH SEMESTER

PART IV – ED1 - MULTIMEDIA AND ITS APPLICATIONS

Maximum CE: 50

Total Hours: 24

Objective: On the successful completion of the course, the students should have understood the concept of Multimedia is the combined use of text, graphics, sound, animation, and video.

Unit I (4 Hours)

Multimedia Definition - Use Of Multimedia - Delivering Multimedia - Text: About Fonts and Faces - Using Text in Multimedia - Computers and Text - Font Editing and Design Tools - Hypermedia and Hypertext.

Unit II (5 Hours)

Images: Plan Approach - Organize Tools - Configure Computer Workspace - Making Still Images - Color - Image File Formats. Sound: The Power of Sound - Digital Audio - Midi Audio - Midi vs. Digital Audio - Multimedia System Sounds - Audio File Formats -Vaughan's Law of Multimedia Minimums - Adding Sound to Multimedia Project.

Unit III (5 Hours)

Animation: The Power of Motion - Principles of Animation - Animation by Computer - Making Animations that Work. Video: Using Video - Working with Video and Displays - Digital Video Containers - Obtaining Video Clips - Shooting and Editing Video.

Unit IV (5 Hours)

Making Multimedia: The Stage of Multimedia Project - The Intangible Needs - The Hardware Needs - The Software Needs - An Authoring Systems Needs. Multimedia Production Team.

Unit V (5 Hours)

Planning and Costing: The Process of Making Multimedia - Scheduling - Estimating - RFPs and Bid Proposals. Designing and Producing - Content and Talent: Acquiring Content - Ownership of Content Created for Project - Acquiring Talent.

Text Books :

1. Tay Vaughan, "Multimedia: Making It Work", 9th Edition, Osborne/McGraw-Hill, 2014.

Reference Books:

1. Ralf Steinmetz & Klara Nahrstedt - "Multimedia Computing, Communication & Applications", Pearson Education, 2012.

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FOURTH SEMESTER

PART-III-IDC4 - BUSINESS ECONOMICS

MAXIMUM CIA:30

MAXIMUM CE: 70

TOTALHOURS: 60

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge of Demand Analysis, Elasticity of Demand, Pricing, Government and Business.

UNIT I [12HOURS]

Objective of Business Firm - Definition-Objective-Profit Maximization-Social Responsibility of Business-Demand Analysis-Law of Demand.

UNIT II [10HOURS]

Elasticity of Demand-Types of Elasticity-Factors Influencing Elasticity of Demand.

UNIT III [12HOURS]

Production Function- Factors of Production-Law of Diminishing Returns-Law of Variable Proportion-Economies of Scale-Internal Economies and External Economies.

UNIT IV [14HOURS]

Cost and Revenue -Cost Analysis – Introduction – Different Cost Concepts –Short Run Cost Curves – Long Run Cost Curves – Revenue Analysis – Break Even Analysis.

UNIT V [12HOURS]

Pricing -Market Structure and Pricing-Pricing Under Perfect Competition-Equilibrium of Firm and Industry Under Perfect Competition - Monopoly -Determination Under Monopolistic Competition-Oligopoly-Duopoly.

TEXTBOOKS

1. P.N. Chopra,Business Economics, 7th Edition, 2015, Kalyani Publishers, New Delhi.
2. S.Sankaran, Business Economics, 4th Edition, 2007, Margham Publication, Chennai.

REFERENCE BOOKS

1. K.P.M. Sundharam, K.N. Sundharam, Business Economics, 7th Edition, 2007, Sultan Chand and Sons, New Delhi.
- 2.P.N.Chopra, Business Economics, 6th Edition, 2008, Kalayani Publishers, New Delhi.

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FOURTH SEMESTER

PART – IV - AOC II - BUSINESS COMMUNICATION

**MAXIMUM CE: 75
TOTAL HOURS: 36**

OBJECTIVE :On successful completion of this course, the students should have understood Methods of communication, Types of Communication and Barriers of Communication.

UNIT-I [6 HOURS]

Define Communication-Importance-Objectives-Types-Barriers-Principles.

UNIT-II [10 HOURS]

Written Communication-Essentials of an Effective Business Letter-The Layout-Enquiries and Replies-Orders and Their Execution-Collection Letters-Circular Letters-Sales Letters-Bank Correspondence-Application Letters

UNIT-III [8 HOURS]

Correspondence of Company Secretary with Shareholders Directors-Agenda-Minutes of Meeting-Group Discussion and Interviews-Seminar-Conference -Press Releases.

UNIT-IV [6 HOURS]

Communication Through Reports :Essentials-Importance-Contents-Reports by Individuals-Committees-Annual Report-Application for Appointment-Reference and Appointment Orders.

UNIT-V [6 HOURS]

Internal Communication-Short Speeches-Memo Circulars-Notices-Explanations to Superiors-Precise writing-Communication Media-Merits of Various Devices-Intercom,Telex and Telephone-Fax-Internet.

TEXTBOOKS

- 1.Rajendra Pal Korahalli, Essentials of Business Communication, 13th Edition 2015, Sultan Chand & Sons, New Delhi.
2. Ramesh & C.C Pattanshetti, Business Communication, R.Chand & Co., Revised Edition 2011, New Delhi.

REFERENCE BOOKS

- 1.V.K.Jain&Prakash Biyani, Business Communication, 1st Edition , 2014, Sultan Chand & Sons.
- 2.C.B.Gupta, Business Communication, Reprint 2014, Sultan Chand & Sons.

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**FOURTH SEMESTER
PART - IV - AOC II - MODERN OFFICE MANAGEMENT**

**MAXIMUM CE: 75
TOTAL HOURS: 36**

OBJECTIVE: On the Successful completion of the course the students should have acquired knowledge regarding Modern Office Management.

UNIT –I [8 HOURS]

Office Management and Organization: Basic concepts of Office – Importance – Functions – Size of the Office – Office Management – Relations with Other Departments – Scientific Office Management – Office Manager - Principles of Office Organization.

UNIT- II [7 HOURS]

Office Environment & Communication: Office Location – Characteristics / Qualities of Office Building – Environment – Physical – Hazards in Office Safety – Security – Secrecy – Communication – Meaning – Essential Features – Classification – Communication Barriers.

UNIT –III [7 HOURS]

Office Correspondence & Record Management: Centralized Vs Departmental Correspondence – Departmental Typing and Typing Pools – Classification of Records – Principles of Record Keeping – Filing – Methods.

UNIT –IV [7 HOURS]

Office Systems & Procedures: Systems – Procedure – Advantages – Characteristics of Sound Office System & Procedures – Work Simplification – Principles – Types of Reports.

UNIT –V [7 HOURS]

Office Personnel Relations: Personnel Management – Definitions – Functions – Office Committees - Employee Morale – Productivity – Employee Welfare – Grievances – Work Measurement – Office Work Control.

TEXT BOOKS:

1. NirajKumar & Chetan Srivastava, Modern Office Management, 5th Edition, January 2013, New Royal Book Company.
2. J.N.Jain & P.P.Singh, Modern Office Management Principles and Techniques, 8th Edition, December 2007, Regal Publications.

REFERENCE BOOKS:

- 1.S.P Arora, Office Organization and Management, 2nd Edition, 2012, Vikas Publishing House Pvt Ltd.
2. Dr.I.M.Sahai, Modern Office Management, Revised Edition, 2009, Sathiya Bhavan Agra.

**Bachelor of Business Administration with Computer Applications Degree Examination-
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OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge of Techniques in the Application of E-Commerce.

UNIT I

Foundation of electronic Commerce :- Definition and Content of the Field – Driving Force of EC Impact of Ec – Managerial Issues- Benefits and Limitations of EC Retailing in EC :Business Models of E–Marketing – Aiding Comparison Shopping - The Impact of EC on Traditional Retailing System.

UNIT II

Internet Consumers and Market Research: - The Consumer Behavior Model – Personal Characteristics and the Demographics of Internet Surfers - Consumer Purchasing Decision Making - One – to – One Relationship Marketing - Delivering Customer Service in Cyberspace– Marketing Research of EC-Intelligent Agents for Consumers – Organizational Buyer Behavior.

UNIT III

Advertisement in EC : Web Advertising – Advertisement Methods – Advertisement Strategies – Push Technology and Intelligent Agents – Economics and Effectiveness of Advertisement – Online Catalogs. Internet and Extranet : Architecture of Intranet and External : Applications of Intranet and Extranet.

UNIT IV

Business – to – Business Electronic Commerce : Characteristics of B2B EC- Model– Procurement Management Using the Buyer’s Internal Market Place – Supplier and Buyer Oriented Marketplace – Other B2B Models Auctions – and Service – Integration with Back End Information System -The Role of S/W Agents in B2B – Electronic Marketing in B2B.

UNIT V

Public Policy : From Legal Issues to Privacy : Legal, Ethical and Other Public Policy Issues – Protecting Privacy – Free Speech , Internet Indecency Censorship – Taxation and Encryption Policies and Seller Protection in EC-Case study.

TEXT BOOKS

1. Ravi Kalakota and Andrew b. Whinston, “Frontiers of Electronic Commerce”, 2nd Edition, 2009, Dorling Kindersley Pvt.Ltd, India.
2. Bharat Bhasker, “Electronic Commerce”, 3rd Edition, 2006, Tata Mc Graw Hill Company Pvt Ltd, New Delhi.

REFERENCE BOOKS

1. Daniel Minoli, Emma Minoli “Web Commerce Technology Handbook”, 4th Edition, 2009, Tata McGraw Hill Company Pvt Ltd, New Delhi.
2. Dr.C.S.Rayudu, ”E-Commerce and E-Business”, 2nd Edition, 2007, Himalaya Publishing House, Mumbai.

Bachelor of Business Administration with Computer Applications Degree Examination - Syllabus for Candidates admitted from the Academic Year 2015-16 Onwards**FIFTH SEMESTER
PART III – CORE 10 –FINANCIAL MANAGEMENT**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On successful completion of this paper, the students should have acquired knowledge in Finance Functions, cost of Capital, Capital Structure.

UNIT-I (Theory only) [10 HOURS]

The Finance function: Goals, Objective and functions of Financial Management, source of finance – Scope of financial management –Importance of Financial Management - Role of Financial Manager.

UNIT-II (Problem& Theory question) [14 HOURS]

Financing Decision: Cost of Specific Source of Capital – Equity – Debt, Preference- Reserve fund – Weighted Average Cost of Capital

UNIT-III (Problem& Theory question) [14 HOURS]

Capital Budgeting – Meaning - Objective – Preparation of Various Methods of Capital Budgeting. Pay Back Period, Net Present Value Method, Profitability Index, and IRR.

UNIT-IV (Theory only) [10 HOURS]

Capital Structure – Factors influencing Capital Structure – Optimal Capital Structure – Theories of capital structure. Dividend– Meaning, Classification – Dividend Policy-Determinants of Dividend Policy.

UNIT-V (Theory only) [12 HOURS]

Working Capital Management: Concepts – Scope & Importance –Determinants of Working Capital. Cash Management: Motives for Holding Cash – Objective and Strategies of Cash Management. Receivable Management: Objective – Cost of Credit Extension, Benefits – Collections Policies. Inventory Management –Benefits of holding inventory.

NOTE: Theory and problem in the ratio of 60% and 40% respectively

TEXT BOOKS:

1. S.N.Maheswari, “Financial Management”, Sultan Chand and Sons, Revised Edition, 2009, New Delhi
2. Sharma Shashi.K.Gupta, Financial Management, Kalyani Publishers, 5th Edition, 2007, New Delhi

REFERENCE BOOKS:

1. Prasanna Chandra, “Financial Management”, M.H. Publications, 7th Edition 2008, New Delhi.
2. M.Y.Khan and P.K. Jain, Financial management, Tata Mc-Graw Hill, 5th Edition, 2007, New Delhi.
3. I.M.Pandey, Financial Management, Vikas Publishing House PVT Ltd., 9th Edition 2007
4. P.V.Kulkarni, Financial Management, Himalaya Publishing House, 7th Edition, New Delhi

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**FIFTH SEMESTER
PART – III – CORE 11 - CONSUMER BEHAVIOUR**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To develop an understanding of underlying concepts and issues in Consumer behaviour.

UNIT-I [12 HOURS]

Consumer Behaviour - Definition - Nature - Scope - need for studying CB – concept of needs - consumer needs and motives – dynamic nature of motivation - Consumer research process.

UNIT -II [12 HOURS]

Consumer Buying Behaviour and Buying process - Buying behaviour - Concepts - importance - need and elements involved in buying process - Factors influencing buying process -Economic and legal factor - Social factors - Psychological factors - Behavioural factors.

UNIT -III [12 HOURS]

Consumer behaviour and decision making models - types of consumer decisions - consumer decision making process - problem recognition - information search - alternative evaluation and selection - Consumer decision making models – group dynamics – types of groups.

UNIT –IV [12 HOURS]

Family – role and function – life style of family – role of family in decision making – consumer involvement and decision making - meaning – low involvement decision making – culture – meaning – characteristics – social class meaning and types.

UNIT –V [12 HOURS]

Rural consumer behaviour – factors affecting rural consumer behaviour – buyer characteristics - Consumer Protection Act 1986 - rights of consumers - Consumer Protection Council - State Protection Council - Consumer Dispute Redressal Agencies.

TEXT BOOKS:

1. S.L.Gupta, Consumer behaviour an Indian perspective 2013 Sultan Chand and Sons .
2. N.K. Sahni & Meenu Gupta, Consumer Behaviour Text and Cases, Kalyani Publishers (2015)

REFERENCE BOOKS:

1. Schiff man, L.G., Kanuk, L.L., & Kumar, S.R. (2011). Consumer Behaviour. (10th ed.). Pearson. Prentice Hall New Delhi
2. Michael R Solomon , Consumer Behaviour (Buying , Having and Being), Pearson Education India; 11 edition (2015)

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**FIFTH SEMESTER
PART III –CORE 12 –VISUAL PROGRAMMING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On the successful completion of this course, the students should have implicit Visual Programming environment with tool bars, Data base tools.

UNIT - I [12 HOURS]

Introduction to Visual Programming – Overview of IDE – Menu bar-Toolbar-Project Explorer-Properties Window-Form Layout Window- Toolbox- Form designers and Code Window.

UNIT - II [12 HOURS]

Aligning the controls: Sizing and Spacing the Controls- Customizing Menus and Tool bars- Visual Basic ariables - Data types -Constants– Array and its types-Dynamic arrays-Subroutines-Functions-Operators- Operator precedence – Conditional statements – Looping Statements.

UNIT - III [12 HOURS]

Forms in VB-Adding Toolbar-Status bar to form-Working with multiple forms- MDI forms-Message box and Input box- Toolbox and its features.

UNIT - IV [12 HOURS]

File handling and File controls: File Types-Binary-Random-Sequential-Common Dialog box-Drive List box-Directory List box-File list box-Changing directories.

UNIT - V [12 HOURS]

Working with graphics: Introduction- Redrawing-Setting Color-Drawing text-Working with fonts- Working with Images-Basic operation-Boxes-Circles-Ellipses-Arcs-Database: ADO and its connections.

TEXT BOOKS:

1. Steven Holzner, Visual Basic 6.0 Programming Black Book, dreamtech press, reprint edition 2009.
2. Azam, Mohammed, Programming With Visual Basic 6. 0, 1st Edition, Vikas Publication House Pvt Ltd, 2007, New Delhi

REFERENCE BOOKS:

1. Christian Nagel-Essential .NET Enterprise Services- 2nd Edition- Addison Wesley, July 2005- USA
2. Eric A Smith, Valor Whisher, Hank Marquis- Visual Basic 6 Programming Bible- 7th Edition- 2009- USA

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**FIFTH SEMESTER
PART III –CORE LAB 4 –VISUAL PROGRAMMING [PRACTICAL]**

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Objective: Imparting professional skills in Visual Basic Programming and Database connection.

Program List:

1. Develop a VB project to check user name and password given by user.
2. Develop a VB project to copy all items in a list box to combo box.
3. Develop a VB project to enter and display student information.
4. Develop a VB project to scroll text from left to right using timer.
5. Develop a VB project to display system date and time on screen.
6. Develop a VB project to find day of a week of a given date.
7. Develop a VB project for mini calculator function.
8. Develop a VB project to view all image file in your system.
9. Develop a VB project for notepad.
10. Develop a VB project for document typing using MDI forms.
Use Employee information for the following projects.
11. Develop a VB project to insert a record in MS –Access database using ADO.
12. Develop a VB project to modify a record in MS – Access database using ADO

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FIFTH SEMESTER

PART – III - ELECTIVE - I - ADVERTISING AND SALES PROMOTION

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On successful completion of this course, the students should have understood Advertising, Ad media, Ad agencies, Sales force management, promotional strategies...

UNIT – I [12 HOURS]

Introduction to Advertising- Meaning, Definition, Importance - Role and functions, economic, social and ethical issues - Advertising Creativity - Meaning of creativity, Creative strategy, Creative tactics, Advertising Appeals - Advertising copy - Copywriting - Objectives - Essentials - Types - Elements of copy writing: Headlines, body copy.

UNIT – II [12 HOURS]

Advertising layout - Functions - Design of layout - Typography printing: Process - Lithography - Printing plates and reproduction paper, and cloth - Size of advertising - Repeat advertising, advertising Campaign - Steps in campaign planning.

UNIT – III [12 HOURS]

Media planning and scheduling strategy - Types of media, media characteristics, selection of media, evaluation of media, media scheduling strategy, forms of media - Press, Newspaper, trade journal, Magazines - outdoor advertising - Poster, banners, neon signs, publicity literature booklets, folders, house organs - Direct mail advertising - Cinema and theatre programme - Radio and television advertising - exhibition, trade fair, transportation advertising.

UNIT – IV [12 HOURS]

Evaluation of advertising effectiveness - Need and purpose of evaluation, pre-testing and post testing techniques. Sales force Management - Importance - Sales force decision - Selection-Training - Methods - Motivating salesmen, Controlling - Compensation & Incentives - Fixing sales territories, and quota - Evaluation.

UNIT – V [12 HOURS]

Sales Promotion - Definition of sales promotion - Objectives reason for its rapid growth, promotional strategy - Promotional instruments: types and techniques of sales promotion - Dealers promotion. After sales service - Packing - Guarantee.

TEXT BOOKS:

1. Advertising and sales promotion – S.H.H. Kami Sathish K. Batra – Excel book India, 2009, Edition: 3rd edition.
2. Advertising Management – Concepts and cases, Author - Mahendra Mohan, Publisher – Tata McGraw-Hill Education, 1989.

REFERENCE BOOK:

1. Advertising and Sales Promotion Management – S.L.Gupta, V.V.Ratra Advertising and Salesmanship – P.Saravanel, The book house of Margham publications 2012.

**Bachelor of Business Administration with Computer Applications Degree Examination - Syllabus
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**FIFTH SEMESTER
PART-III – ELECTIVE I - BANKING LAW AND PRACTICES**

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objective: After the successful completion of the course the student should have a thorough knowledge on Indian Banking System and Acts pertaining to it.

UNIT – I [12 HOURS]
Definition of Banker and Customer – Relationships between Banker and Customer – Special Feature of RBI- Banking Regulation Act 1949 - RBI Credit Control Measure

UNIT – II [12 HOURS]
Opening of Account – Special types of Customer – Types of Deposit – Bank Pass book – Banker Lien

UNIT – III [12 HOURS]
Cheque – Features - Essentials of Valid Cheque – Crossing – Marking and Endorsement – Payment of Cheque - Refusal of Payment Cheque

UNIT – IV [12 HOURS]
Loan and Advances by Commercial Bank - Lending Policies of Commercial Bank - Forms of Securities – Lien Pledge - Hypothecation - Advance – Mortgage-Position of Surety

UNIT – V [12 HOURS]
Letter of Credit – Bills Discounting - Traveler’s Cheque - Credit Cards & Debit Cards - Automatic Teller Machine-Internet Banking.

TEXT BOOKS:

1. S.N.Maheshwari & S.K.Maheshwari, Banking Theory Law and Practice, 14th Edition 2014, Kalyani Publication.
2. Sundharam and Varshney, Banking Theory Law and Practice, 16th Edition 2010, Sultan Chand and Sons, New Delhi.

REFERENCE BOOKS:

1. Natarajan and Gordan: Banking Theory Law and Practice, 14th Edition 2008, Himalaya Publishing House, Bombay
2. Shekar and Shekar, Banking Theory Law and Practice, 18th Edition 2008, Vikas Publishing House Pvt Ltd, New Delhi.

**Bachelor of Business Administration with Computer Applications Degree Examination - Syllabus
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FIFTH SEMESTER

PART III- ELECTIVE I - LABOUR WELFARE AND INDUSTRIAL RELATIONS

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objective: On successful completion of this course, the students should have acquired knowledge in Legislations relating to Industrial Disputes and Labour welfare.

UNIT I [12 HOURS]
Industrial Relations - Industrial Disputes - Causes - Handling and Settling Disputes - Employee Grievances - Steps in Grievance Handling - Causes for Poor Industrial Relations - Remedies.

UNIT II [12 HOURS]
Collective Bargaining: - Concept - Principles and forms of Collective Bargaining - Procedure - conditions for Effective Collective Bargaining - Worker's Participation in Management.

UNIT III [12 HOURS]
Factories Act 1948 – Provisions regarding Health, Safety, Welfare of Workers, Hazardous Process-Restriction on Employment of Women and Children. Introduction to Workman's Compensation Act, 1923.

UNIT IV [12 HOURS]
The Industrial Disputes Act 1947 - Types- Industrial Dispute Resolution Mechanism- Settlement-Voluntary Arbitration- Adjudication in India.

UNIT V [12 HOURS]
The Payment of Wages Act, 1936 – Application- Responsibility – Fixation of Wage Period- Payment of Wages- Authorised Deduction- Authorities. Employee's State Insurance Act, 1948- Schemes- Applicability- ESI Contribution.

TEXT BOOKS:

1. P.C.Tripathi, Personnel Management & Industrial Relation, Sultan Chand & Sons, 12th edition, 2012.
2. N.D. Kapoor, Mercantile Law, Sultanchand & Sons, 7th Edition, 2012.

REFERENCES BOOKS:

1. N.G.Nair & Latha Nair, Human Resource Management, Sultan Chand & Sons, Revised Edition, 2014.
2. P.Subbarao, Essentials of Human Resource Management and Industrial Relations, Himalaya Publishing House, Revised Edition, 2010.
3. R.Venkatapathy & Assissi Menachery, Industrial Relations & Labour Legislation, Aditya Publishers, 7th Edition, 2013.

**Bachelor of Business Administration with Computer Applications Degree Examination -
Syllabus for Candidates admitted from the academic year 2015-2016 Onwards**

FIFTH SEMESTER

PART III- ALC- BANKING TECHNOLOGY

Maximum CIA: 100

Objective: To enhance the conceptual knowledge about core banking technology.

UNIT I

Technology in banking – Need – Benefits – Issues involved in technology – Orientation of banks.

UNIT II

Computer technology in banks: What is a Computer? Brief history of computers of early computers – Generations of computers – Uses of computers.

UNIT III

Hardware: Anatomy of computer – CPU – Memory – Peripheral controllers – Peripherals.

UNIT IV

Software: Need for software – what is software? Types of software – Systems software – Operating systems – Language translators – Programming Languages.

UNIT V

Technology based products in banking – ATM's – Home Banking MICR cheques – Electronic Fund transfer [EFTs] Internet Banking – Real Time Gross Settlement [RTGS]. Security considerations.

TEXT BOOKS:

1. Bajwa K.S., Bank Mechanisation, Skylark publications New Delhi, 1986.
2. Srivatsava, Computer applications in Banks, BTC, RBI, May 2009.

REFERENCE BOOKS:

1. Sanjay Soni and Vinayak Aggarwal, Computer and banking, Sultan Chand and Son's, New Delhi 1993.
2. Ravi Kalakota nad Andrew B. Whinston, "Frontiers of Electronic Commerce", Dorling Kindersley Pvt.Ltd, 2nd Edition 2009, India.

**Bachelor of Business Administration with Computer Applications Degree Examination - Syllabus
for Candidates admitted from the Academic Year 2015-16 Onwards**

**SIXTH SEMESTER
PART III – CORE 13 – COST AND MANAGEMENT ACCOUNTING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On Successful completion of this paper the students should have acquired knowledge of cost accounting, its classification, preparation of financial statement, marginal costing and budgeting.

UNIT-I (Theory and Problem) [12HOURS]

Cost Accounting- meaning-definition- scope- objectives- function- merits and demerits of cost and management accounting- Distinction between Financial, Cost and Management accounting- elements of cost- cost classification and preparation of Cost Sheet.

UNIT-II (Theory and Problem) [12HOURS]

Materials- need and essentials of material control- various stock level- EOQ- Maximum, Minimum, Reordering level- Issues of material- FIFO, LIFO.

UNIT- III (Problems only) [12HOURS]

Financial statement analysis- preparation of Comparative and Common size income statement- Trend analysis- Ratio analysis- classification of ratio- Liquidity, Profitability.

UNIT-IV (Theory and Problem) [12HOURS]

Fund flow analysis- cash flow analysis –Meaning-Difference between Fund Flow and Cash Flow Analysis-Application.

UNIT-V (Theory and Problem) [12HOURS]

Marginal costing- Cost Volume Profit analysis- Budgeting and preparation of various budgets .

Note: Theory and problem in the ratio of 20% and 80% respectively

TEXT BOOKS:

1. R.K. Sharma & Shashi k. Gupta, Management Accounting, revised edition 2008. Kalyani publisher, New Delhi
2. A.Murthy and S.Gurusamy, Cost Accounting, 2nd Edition, Tata Mc-Graw Hill Publishing House, 2008, New Delhi.

REFERENCE BOOKS:

1. S.P. Jain and K.L. Narang, Cost and Management Accounting, 5th edition, kalyani publishers, 2008 New Delhi
2. Dr. S.Ganeson and S.R. Kalavathi, Management Accounting, 4 th edition 2009, Thirumalai publication, Nagercoi
3. R.S.N.Pillai and Bagavathi, Cost and Management Accounting, 16th ^{Edition}, S.Chand and Company 2005, New Delhi.
4. S.N.Mageswari, Principles of Management Accounting, 18th Edition Sultan Chand and Sons, 2007, New Delhi.

**Bachelor of Business Administration with Computer Applications Degree Examination – Syllabus
for Candidates admitted from the Academic Year 2015-16 Onwards**

**SIXTH SEMESTER
PART-III-CORE 14 - BUSINESS STRATEGY**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: The main objectives of the subject are to promote the development of participants' leadership, managerial and entrepreneurial competencies and to strengthen their expertise in strategy, strategy implementation and the management of complex situations.

UNIT – I [12 HOURS]

Introduction-concept of Strategy – Need – Dimensions - Strategic Planning – Process – Benefits – McKinsey's 7S Model – Strategic Vision – Corporate Mission – Objectives – Goals – Social Responsibility – Business ethics – Linking Strategies with ethics – Social audit.

UNIT – II [12 HOURS]

Environmental analysis – Need – Scanning – Approaches – Forecasting – Techniques. Internal Analysis – Need – SWOT analysis – Value Chain – Functional Analysis – Grid approach –Criteria for evaluating internal capabilities.

UNIT - III [12 HOURS]

Strategic Decision framework – Developing alternatives – Strategy Options – Diversification strategies – Cultural context of strategy – comparing alternatives – BCG Model.

UNIT – IV [12 HOURS]

Implementation – Role of top management – Process – Matching Structure of strategy – Resource allocation – Planning and Controlling system. Evaluation – Criteria – Quantitative and Qualitative factors – Feedback and Information.

UNIT – V [12 HOURS]

Core Competencies – Building core competencies – Building Strategic Supportive Corporate Culture Strategic advantage – Managing Strategic Change – Strategic Change Process – Diagnosing change need.

TEXT BOOKS:

1. Business Strategy and Strategic Cost Management - Publisher: Taxmann Publications Pvt.Ltd. - Edition: 2014.
2. Business Strategy: Managing Uncertainty, Opportunity, and Enterprise 1st , Kindle Edition - by J.-C. Spender – 2014.

REFERENCE BOOKS:

1. Business Environment and Strategy - Educreation Publishing; 01 edition (10 April 2015)
2. Business Policy Strategic Management - Author: by: Aurnob Roy, Vrinda Publications, Reprint 2012.
3. Strategic Management: The Indian Context - R. Srinivasan – Publisher - PHI Learning, 2012.

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**SIXTH SEMESTER
PART III - CORE 15 – INTERNET AND WEB DESIGN**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To update the knowledge of internet and web applications concepts. Understand the importance of the web and creation of web pages.

UNIT-I [12HOURS]

Introduction to internet-Introduction to intranet and extranet – Internet protocols-Internet access –Tcp/Ip configuration – -Telnet-World wide webpage-Hyperlink , Hypertext and html tags – Net surfing – Internet and web browsing-Internet addressing with protocols and gopher wais.

UNIT-II [12HOURS]

Introduction to web searching and search engine-Web index and search functions – Webmeta and search meta files-Indexes and directories – Specialized directory – E-mail and e-mail messages-Managing mails -E-mails address book-Attachments and setting futures.

UNIT-III [12HOURS]

Html code setting-Internet webpage basics and webpage setups-Webpage display in newline and head-Webpage display in body text with new paragraph-Html elements-Headings levels and pre-format text-Subscript and superscript-Format text and monospace font-Block quote, font style size color and margins-Lists and nested lists-Image handling in webpage.

UNIT-IV [12HOURS]

Links-Internal and external-Link to image and files-Email box, link and ftp site-Keyboard shortcuts-Create table and caption-Table border and index border-Set design row, column and back color of table-Alignments and background image-Text wrapping and nested table-Wrap text around the table-Table cell spacing and cell padding.

UNIT-V [12HOURS]

Introduction to forms-Introduction to audio and video files handling-Link to audio and video files-Introduction to design a text box and radio checkbox-Menu organize from elements-List of elements of label form-Introduction to frames-Link to frames and creating frames-Nested frames-Inline frames – Scroll bars.

TEXT BOOKS:

1. Internet and its applications, by P.Rizwan Ahmed, Margham publications, 2012.
2. HTML 5.0 in simple steps, by Mike MC Grath, 2nd edition, PBP Publications, 2015.

REFERENCE BOOKS:

1. HTML Quick steps by Guy Hart-Davis, 5th Edition Tata Mc-Graw-Hill Publications, 2012.
2. Web design in easy steps by Sean McManus, Tata Mc-Graw Hill publications 2014.

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**SIXTH SEMESTER
CORE X – INTERNET AND WEB DESIGN PRACTICAL**

Maximum CIA: 40
Maximum CE: 60
Total Hours: 60

Objective: Imparting professional skills in creating web pages implementing using html.

1. Creating webpages for a business organizations using html.
2. Create a web page to display the ordered list and unordered list of department stores.
3. Designing an Image and text using html tags for advertisement of a company.
4. Create a Table to display list of products using html.
5. Design for Formatting and alignment to display sales letter.
6. Create a Resume using forms with html.
7. Create website of our department with minimum 3 links.
8. Create a class time table using html tags.
9. Design a Bus-ticket reservation using html table.
10. Creating a form for quiz portal using html tags.
11. Create a webpage of University exam fee payment.
12. Designing a Multiform document using html tags.

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for Candidates admitted from the Academic Year 2015-16 Onwards**

**FIFTH SEMESTER
PART – III - ELECTIVE II - EVENT MARKETING**

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objective: On the Successful completion of this paper the students should have acquired knowledge to Marketing, Pricing and Promotion.

UNIT I [12 HOURS]
Principles of Event Management: Introduction to Event Management, Concept and Designing, Feasibility, Keys to Success.

UNIT II [12 HOURS]
Events defined- Introduction of event management – event marketing-5C- Marketing Mix, Sponsorship, Image, Branding, Advertising, Publicity and Public Relations.

UNIT III [12 HOURS]
Event Planning and Team Management: Aim to Event, Develop a Mission, Establish Objectives, Preparing Event Proposal, Use of Planning Tools; Protocols, Dress Codes, Staging, Staffing, Leadership Traits and Characteristics.

UNIT IV [12 HOURS]
Marketing Of Events - The Need for Marketing, Consumer Expectations, Marketing Mix, Four Ps, Elements, The Promotional mix, What should be the basis of Pricing, When should the Payment be Made, How Should the Payment be Made, Promotion, Strategic Decision, Marketing Objectives, The Promotional Mix, The Media Mix.

UNIT V [12 HOUR]
Future Of Event Marketing - Event Promotion, Tools of Promotion, Advertising, Public Relations, Tips on writing a New Release, What is a Media kit, Direct Marketing, Word of Mouth, Hospitality, Websites, The Promotion Schedule, Planning a Promotion Campaign for an Event.

TEXT BOOKS:

1. Sanjaya Singh Gaurand Sanjay Sanger, Event Marketing and Management, Revised Edition , PHI,2008,Delhi
2. Ramasamy and Namakumari, Marketing Management,6th Edition, Macmillan, 2009,Chennai.

REFERENCE BOOKS:

1. Philip Kotler ,Kevin Lane Kellar,Abraham Koshy Mithileshwar jha, Marketing Management,13th Edition, Pearson Education, 2009,South Asia
2. Rajan Saxena-Marketing Management, 3rd Edition, Mc Graw Hill, 2006, Delhi.

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for Candidates admitted from the Academic Year 2015-16 Onwards**

**SIXTH SEMESTER
PART III -ELECTIVE II –FINANCIAL SERVICES**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On the Successful completion of this paper the students should have acquired knowledge of the Concepts, Methods and Practices of Financial Services.

UNIT I [12 HOURS]

Indian Financial System: Introduction- Scope – Objective – Functions of Financial System – Components of Financial Services – Key Elements – Recent Development in Indian Financial System.

UNIT II [12 HOURS]

Financial Market: Meaning – Types –Money Market – Instruments (T- Bill, Call, CP, CB, CD, CBLO) – Concept – Capital Market – Primary Market & Secondary Market – Issue Management (IPO Process).

UNIT III [13 HOURS]

Mutual Funds : Introduction- Characteristics – General Classification – Operations – Hire Purchase – Concept – Feature –Parties Involved – Leasing – Concept – Types - Hire Purchase vs. Leasing.

UNIT IV [13 HOURS]

Venture Capital : Concept – Forms – Stages – Bill Discounting – Concept – Types- Credit Rating – Concept – Process – Types – Credit Rating Agencies in India – Depository – Meaning – Depositories in India.

UNIT V [10 HOURS]

Regulatory: RBI – Introduction – Origin – Objectives – Functions – Roles – SEBI – Objective – Function – Powers – Organization – SEBI & Central Government..

TEXT BOOKS:

1. E.Gordon And Natarajan.K,Financial Marketing Services, Himalaya Publishing House,3rd Edition 2006,Mumbai.
2. M.Y. Khan- Financial Services, Prentice Hall,7th Edition,2009, India.

REFERENCE BOOKS:

1. Sunil .K. Parameswaran, Futures Market, Tata McGraw,3rd Edition, 2006,Delhi.
2. Dr.S.Gurusamy, Essential Of Financial Services, Mc Graw Hill,7th Edition, 2009,Chennai.

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**SIXTH SEMESTER
PART-III HUMAN RESOURCE DEVELOPMENT**

Maximum CIA :30

Maximum CE : 70

Total Hours : 60

Objective: On the Successful completion of this paper the students should have acquired knowledge of laws applicable and prevailing in the industry and its implication.

UNIT –I [12 HOURS]

Human resource Development: Definition - Characteristics - Need for HRD -HRD Methods -HRD Process. HRD Objectives – HRD Policies — Steps involved in introducing HRD System.

UNIT –II [12 HOURS]

Development of HRD Strategy: HRD Strategies – Designing HRD strategy- Future Challenges to HRD strategy – HRD Model.Organizational Culture and Climate: Meaning - Forms of HRD Organization – Role of HRD in Organizational Culture.

UNIT –III [12 HOURS]

Development of Human Resource Capacity: Individual Behaviors – Importance of Personality – Attitudes, Values and Beliefs – Determination of personnel quality. Group Dynamics – Meaning- Characteristics - Types - Morale – Relationship between Morale and Productivity. Career Planning: Meaning, Steps involved in Career Planning - Management of Career stages.

UNIT –IV [12 HOURS]

Employee counseling and Mentoring: Concept and definitions of employee counseling – Types- Concept and Characteristics of mentoring – principles – Mentoring Process – Benefits- Elements of Successful Mentoring. Employee Empowerment – Process – Benefits of Employee Empowerment.

UNIT – V [12 HOURS]

Quality of Work Life: Definition – Objectives – Importance – Ways to increase the quality of work life – HRD Audit and Accounting –Objectives – Methods – Role. HRD Scenario in Indian Organization – Managing HRD functions effectively.

TEXT BOOK:

1. Tripathi.P.C , Human resource Development , Sulthan Chand & sons , New Delhi ,7th Edition,Reprint(2015).

REFERENCE BOOKS:

1. Deb Tapomoy, Human Resource Development Theory & Practice, Ane Books Pvt.Ltd, New Delhi, 3rd Edition (2010).
2. Rao.T.V, Human Resource Development Experiences Interventions Strategies, Sage Publications, New Delhi, 18th Edition (2010).

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**SIXTH SEMESTER
PART – III - ELECTIVE III - SUPPLY CHAIN AND LOGISTICS**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To enable the students to have an insight view on stages of Supply Chain Management and to know how a logistic strategy fits into an organisation decision.

UNIT - I [12 HOURS]

Supply Chain Management – Definition – objectives – Evolution - need-Issues involved in developing Supply Chain Management Framework-Types. Supply Chain Management activities - constituents - Organisation.

UNIT - II [12 HOURS]

Supply chain Integration-Stages-Barriers to internal integration-Achieving Excellence in Supply Chain Management - Dimensions of Supply Chain Excellence-Forces influencing Supply Chain Excellence Emotions - Physical and Financial Supply Chains-Check list for Excellence.

UNIT – III [12 HOURS]

Purchasing process - Supply Management-Introduction-importance Objectives purchasing process-purchasing & other functions-Purchasing and integrated logistics interfaces-Types of purchases-Purchasing partnerships-Materials sourcing-Just-in-time purchasing

UNIT – IV [12 HOURS]

Logistics- Definition - History and Evolution- Objectives-Elements-activities importance- The work of logistics-Logistics interface with marketing-retails logistics-Emerging concept in logistics.

UNIT – V [12 HOURS]

Logistics Management-Definition-Achievement of competitive advantage through logistics Framework-Role of Logistics management-Integrated Logistics Management- Evolution of the concept- model - process-activities (in brief).

TEXT BOOKS:

1. Satish C. Ailawadi & Rakesh Singh: Logistics Management (2nd edition), Prentice-Hall of India Pvt Ltd., New Delhi, 2013
2. Rahul V. Altekar , Supply Chain Management Prentice-Hall of India Pvt Ltd., New Delhi, 2013

REFERENCE BOOKS:

1. V.V.Sople, Logistics Management, Pearson Education India; Third edition (2012).
2. James Stevaens , Supply chain Management (Strategy, Planning, Operations for Logistics Management), Shepal Publishing 2016

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**SIXTH SEMESTER
PART III – ELECTIVE III – STOCK EXCHANGE AND PRACTICES**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To help the students understand the types of stock exchanges, methods of trading in stock exchanges and kinds of intermediaries in the capital market.

UNIT I [12 HOURS]

Need and Importance of Capital Market – Primary and Secondary Market- Different types of Securities dealt in the Capital Market.

UNIT II [12 HOURS]

Secondary Market – Origin and Growth – Types of Securities traded – Role and Functions of Stock Exchange – Organization and Management – OTCEI – NSE –Reading of Stock Indices - Weaknesses of Stock Exchange .

UNIT III [12 HOURS]

Listing of Securities – Group A, Group B, Group C Shares – Advantages of Listing – Drawbacks – Listing Procedure – Criteria for Listing – Listing Obligations.

UNIT IV [12 HOURS]

Registration of Stock Brokers – Registration Procedure – Code of Conduct for Stock Brokers – Kinds of Brokers and their Assistants – Methods of Trading in a Stock Exchange – Carry over or Badla Transactions – Genuine Trading – Kinds of Speculators – Speculative Transactions.

UNIT V [12 HOURS]

Credit Rating – CRISIL – CARE – ICRA Agencies Dematerialization – Depositories.

TEXT BOOK:

1. Security Analysis & Portfolio Management– PUNIDHAVADHI

REFERENCE BOOKS:

1. Investment Management & Portfolio Management–V.K.BHALLA, S.Chand &Co.
2. Security Analysis – PREETI SINGH, Himalaya Publishing House.
3. Investment and Securities Markets in India – V.A.AVADHANI.
4. Financial Markets and Institutions – E. GORDON & K. NATARAJAN, Himalaya Publishing House
5. Indian Financial System – P.N.VARSHNEY.

**Bachelor of Business Administration with Computer Applications Degree Examination - Syllabus
for Candidates admitted from the Academic Year 2015-16 Onwards**

**SIXTH SEMESTER
PART-III TRAINING AND DEVELOPMENT**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On the Successful completion of this paper the students should have acquired knowledge of laws applicable and prevailing in the industry and its implication.

UNIT I [12 HOURS]

Concept in training- - Principles in Training- Components in Training- Trainers- Training Skills- Consultants for T&D- Organizational Climate for T& D- System Model in T&D.

UNIT II [12 HOURS]

Training Methods- Types in Training - Choosing Appropriate T&D Method - Designing - T&D Methods Strategic T&D Process- Organizational Characteristics that Influence Training- Models in Organizing the Training Department.

UNIT III [12 HOURS]

Learning- Concept- Learning Cycle- Learning Window- Principles in Learning- Learning Theories: Reinforcement Theory, Social Learning Theory, Need Theory, Expectancy Theory, Adult Learning Theory, The Learning Process- Considerations in Designing Effective Training Programs.

UNIT IV [12 HOURS]

Training Evaluation- Objectives- Purposes- Reasons for Evaluating Training- Types in Evaluation- Process in Evaluation- Outcomes Used in Evaluation in Training Programs- Evaluation Designs. Employee Development: Approaches- Development Planning Process.

UNIT V [12HOURS]

Special Issues in Training & Employee Development: External Environment- Internal Needs in the Company. Career Management- Model in Career Development- Career Management Systems – Roles of Employees, HR Managers & Company in Career Management- Evaluating Career Management Systems.

TEXT BOOK:

1. Lalitha Balakrishnan and Gowri Ramachandran, Training and Development, Vijay Nicole Imprints Pvt.Ltd. Chennai, January 2015.

REFERENCE BOOKS:

1. Tapomoy Deb, Training and Development Concepts and Application, Ane Books India, 2009.
2. Blanchard and Thacker, Effective Training Systems, Strategies and Practices, 3rd Edition, Pearson Prentice Hall, 2009, New Delhi.

BOARD- BBA (BANKING)
Scheme of Examination (CBCS Pattern)
For the Candidates admitted from the Academic Year 2018-2019 Onwards
BBA Banking (Bachelor of Business Administration with Banking)

Part	Sub Code	Subject Title	Ins.Hrs/ Week	Examination				
				Dur. Hrs.	CIA	CE	Total	Credit
SEMESTER I								
I	16LATA01/ 18LAHI01/ 15LAMY01/ 15LAFR01	Language – I Tamil-I/ Hindi-I /Malayalam-I /French-I	5	3	30	70	100	3
II	16ENG001	English –I	5	3	30	70	100	3
III	18BAB101/ 18BBA101/ 18BAC101	Core 1 Principles of Management	6	3	30	70	100	4
III	18BAB102/ 18 BBA102	Core 2 Financial Accounting	6	3	30	70	100	4
III	16BABID1	IDC 1 Business Mathematics and statistics	6	3	30	70	100	4
IV	18UFCA01	Foundation Course I : EVS #	2	2	-	50	50	2
		Total	30				550	20
SEMESTER II								
I	16LATA02/ 18LAHI02/ 15LAMY02/ 15LAFR02	Language –II Tamil-II /Hindi-II / Malayalam-II/French-II	5	3	30	70	100	3
II	16ENG002	English – II	5	3	30	70	100	3
III	18BAB201/ 18BBA201	Core 3 Organizational Behavior	6	3	60	40	100	4
III	18BAB202/ 18BBA202	Core 4 Business Economics	6	3	30	70	100	4
III	15BABID2	IDC 2 Operations Research	6	3	30	70	100	4
IV	18UFCA02	Foundation Course II: Value Education #	2	2	-	50	50	2
		Total	30				550	20

SEMESTER III								
III	15BAB301/ 15BBA301/ 15BAC301	Core 5 Marketing Management	5	3	30	70	100	4
III	15BAB302	Core 6 Banking Law and Practice	5	3	30	70	100	4
III	18BAB303/ 18BBA303	Core 7 Management Information System	5	3	30	70	100	4
III	15BAB304/ 15BBA304	Core 8 Cost Accounting	5	3	30	70	100	4
III	18BABID3/ 18BBAID3/ 18BACID3	IDC 3 Business Taxation	5	3	30	70	100	4
IV	15BABAO1/ 15BBAAO1/ 15BABAO2/ 15BBAAO2/ 15BACAO2	AOC I PC-Software and Internet [Practical] / Customer Relationship and Management	3	3	-	-	75	3
IV	16BTA001/ 16ATA 001/ 15EDC002	BT-I/AT-I/ EDC Communicative English#	2	2	-	50	50	2
Total			30				625	25
SEMESTER IV								
III	15BAB401/ 15BBA401/ 15BAC401	Core 9 Human Resource Management	5	3	30	70	100	4
III	15BAB402/ 15BBA402/ 15BAC402	Core 10 Research Methods for Management	5	3	30	70	100	4
III	18BAB403/ 18BBA403	Core 11 Management Accounting	5	3	30	70	100	4
III	15BAB404	Core 12 Banking , Auditing and Secretarial Practice Practical	5	3	30	70	100	4
III	15BABID4/ 15BBAID4	IDC 4 Legal Aspects of Business	5	3	30	70	100	4
IV	15BABAO3/ 15BBAAO3/ 15BACAO3/ 15BABAO4/ 15BBAAO4	AOC II Business Communication/ Modern office Management	3	3	-	75	75	3
IV	16BTA002/ 16ATA002/ 18EDC001	BT-II/AT-II/EDC : Multimedia and its Applications#	2	2	-	50	50	2
V	15NSS001/ 15NCC001/ 15SPT001/ 15EXT 001	NCC/NSS/Sports/ Extension Activity	-	-	50	-	50	2
Total			30				675	27

SEMESTER V								
III	15BAB501/ 15BBA501/ 15BAC501	Core 13 Financial Management	5	3	30	70	100	4
III	15BAB502/ 15BBA502	Core 14 Entrepreneurship and Project Management	5	3	30	70	100	4
III	15BAB503	Core 15 Money and Banking	5	3	30	70	100	4
III	15BAB504/ 15BBA504	Core 16 Business Ethics and Corporate Governance	5	3	30	70	100	4
III	15BABE01/ 15BABE02/ 15BABE03	Elective I Advertising and Sales Promotion/ Practices for Commercial Banking/ Labour Welfare and Industrial Relations	5	3	30	70	100	4
III	15BABPR1/ 15BBAPR1/ 15BACPR1	Project and Viva Voce	5	3	50	50	100	4
		Total	30				600	24
SEMESTER VI								
III	15BAB601	Core 17 Foreign exchange Management	5	3	30	70	100	4
III	15BAB602/ 15BBA602/ 15BAC602	Core 18 Business Strategy	5	3	30	70	100	4
III	15BAB603	Core 19 Innovative Banking	5	3	30	70	100	4
III	15BAB604/ 15BBA604	Core 20 E - Commerce	5	3	30	70	100	4
III	15BABE04/ 15BABE05/ 15BABE06	Elective II Event Marketing/ Financial Services/ Human Resource Development	5	3	30	70	100	4
III	15BABE07/ 15BABE08/ 15BABE09	Elective III Supply Chain and Logistics/ Stock Exchange and Practice / Training and Development	5	3	50	50	100	4
		Total	30				600	24
Total							3600	140

No Continuous Internal Assessment (CIA) , only Comprehensive Examination (CE)

@ No Continuous Internal Assessment (CIA) and Comprehensive Examination (CE)

IDC- Inter disciplinary Course , EDC – Extra disciplinary Course , AOC –Application Oriented Course

List of Additional Credit Papers

Sem	Code	Subject Title	Max Marks	Credits
III	15BABAC1	Retail Management	100	2
IV	15BABAC2	Institutional Training	100	2
V	15BABAC3	Banking Technology	100	2

List of Application Oriented Papers

Sem	Code	Subject Title	Max Marks	Credits
III	15BABAO1	PC- Software & Internet [Practical]	75	3
III	15BABAO2	Customer Relationship Management	75	3
IV	15BABAO3	Business Communication	75	3
IV	15BABAO4	Modern Office Management	75	3

List of Elective Papers

	Subject Code	Subject Title
Elective I	15BABE01	Advertising and Sales Promotion
	15BABE02	Practices for Commercial Banking
	15BABE03	Labour Welfare and Industrial Relations
Elective II	15BABE04	Event Marketing
	15BABE05	Financial Services
	15BABE06	Human Resource Development
Elective III	15BABE07	Supply Chain and Logistics
	15BABE08	Stock Exchange and Practice
	15BABE09	Training and Development

Summary

Part	No of Papers	Total Credits	Total Marks
I	2	6	200
II	2	6	200
III –Core	20	80	2000
III – IDC	4	16	400
III – Elective	3	12	300
III –Project	1	4	100
IV –Foundation Course	2	4	100
IV – EDC	2	4	100
IV – Application Oriented Course	2	6	150
V Extension Activities	-	2	50
Total	38	140	3600

**REGULATIONS FOR BOARD OF MANAGEMENT BBA
(Effective from the academic year 2018-2019 onwards)**

1. Project and Viva Voce:

Each student in the UG final year shall compulsorily undergo Project Work in the 5th semester. Projects shall be done individually. Project Coordinators shall allocate the project title and the guide for each group. Project work shall be done only in the lab provided by the college, including Project Record Preparation. Project Reviews shall be conducted thrice in which the progress of project work shall be strictly evaluated by respective Project Guides and Project Coordinators. Viva-Voce shall be conducted only in the presence of Industrialists or academicians. Out of the Total of 100 marks, 50% of mark shall be allocated for CIA and 50% for CE VIVA VOCE.

2. Institutional Training

Institutional training for a period of 4 weeks in any industrial establishment is to be completed during the 4th semester. Students will have to submit an institution training report within 6 weeks after the prescribed completion date to the H.O.D. A training certificate obtained from the company, has to be enclosed with the report. A viva – voce will be conducted by the internal examiners in IV semester. The minimum marks for passing the Institutional training shall be 40%.

3. Submission of Record Work for practical examinations

Submission of Record Work for Practical Examinations, Candidates appearing for Practical Examinations shall submit Bonafide Record work for the Concerned Practical Examination. If not the Candidates has to submit a Bonafide Certificate issued by the concerned subject incharge duly signed by the head of the department in order to be permitted to take-up the Practical Examination. The Candidate so permitted will not be eligible for the Record work mark.

4. Distribution of Marks: The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum (Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	28	30	40
	75	75	30	-	30
	50	50	20	-	20
Practical Paper	100	60	24	40	40
	75	75	30	-	30
Project	100	50	20	50	40

5. Distribution of Internal Mark for Theory:
(No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6=30

Seminar:

S.No	SEMINAR SPLIT UP	Marks
1	Content	10
2	Flow of the presentation	10
3	Stage management and Body language	10
Total		30

Breakup for Attendance:

60 - 74 %	- 4 Marks
75% - 80%	- 6 Marks
81% - 90%	- 8 Marks
91% - 100%	- 10 Marks

6. Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 40		
S.No	CIA	Distribution of Marks
1	For Completion of the Practical List	20
2	Test – I	10
3	Test – II	10
Total		40

7. Distribution of External Mark for Practical:

MAXIMUM MARKS : 60		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	10
2	Program – I Algorithm Coding Execution	5 10 10 TOTAL (25)
3	Program – II Algorithm Coding Execution	5 10 10 TOTAL (25)
Total		60

8. Distribution of External Mark for Practical:

MAXIMUM MARKS : 75		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	15
2	Program – I Algorithm Coding Execution	10 10 10 TOTAL (30)
3	Program – II Algorithm Coding Execution	10 10 10 TOTAL (30)
Total		75

9. Distribution of Mark for Project VIVA-VOCE:

S.No	CIA	Distribution of Marks
1	INTERNAL Review –I Review –II Documentation & Final Review	10 10 30 Total (50)
2	EXTERNAL * Presentation Viva	30 20 Total (50)
Total		100

***Marks to be awarded by both External and Internal Examiners.**

10. Question Paper Pattern

Time: 3 Hour

Max marks: 70

SECTION – A (10×1=10)
Answer ALL questions
Each Question carries One Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B (5×4=20)
Answer ALL questions
Each Question carries FOUR Marks
(INTERNAL CHOICE)

SECTION – C (5×8=40)
Answerer ALL questions
Each Question carries EIGHT Marks
(INTERNAL CHOICE)

11. Question Paper Pattern

Time: 3 Hour

Max marks: 75

SECTION – A (10×1=10)
Answer ALL questions
Each Question carries One Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B (5×5=25)
Answer ALL questions
Each Question carries FIVE Marks
(INTERNAL CHOICE)

SECTION – C (5×8=40)
Answerer ALL questions
Each Question carries EIGHT Marks
(INTERNAL CHOICE)

12. Question Paper Pattern

Time: 3 Hour

Max marks: 50

SECTION – A (10×1=10)
Answer ALL questions
Each Question carries One Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B (5×3=15)
Answer ALL questions
Each Question carries THREE Marks
(INTERNAL CHOICE)

SECTION – C (5×5=25)
Answerer ALL questions
Each Question carries FIVE Marks
(INTERNAL CHOICE)

13. Question Paper Pattern

Time: 3 Hour

Max marks: 100

SECTION – A (10×1=10)
Answer ALL questions
Each Question carries One Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B (5×8=40)
Answer ALL questions
Each Question carries EIGHT Marks
(INTERNAL CHOICE)

SECTION – C (5×10=50)
Answerer ALL questions
Each Question carries TEN Marks
(INTERNAL CHOICE)

NOTE:

1. The questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the unit in the syllabus in all the sections of the question paper.
3. While framing questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

14. Conduct of Practical Examinations:

Practical examinations shall be conducted with one Internal examiner and one External examiner and the question paper for practical examination shall be set by both Internal and External examiners.

15. Regulations for Banking, Auditing & Secretarial Practice (Practicals)

1. Every student under the programme will undergo a practical training during the IV semester.
2. The student will prepare a comprehensive report in a practical manner for its submission and subsequent evaluation by both External & Internal Examiners at the end of the semester.
3. The papers will be both of Theory & Practical in nature while the practical component in the class room and in the comprehensive examination will be for a major part.
4. The Evaluation process for the paper is projected such a way that 60% component of the mark will be allotted by the External Examiner after a Oral Examination based on the report submitted by the candidate along with the Viva Voce session. The balance 40% of the mark component will be given by the Internal Examiner after the evaluation and scrutinization of his / her practical work done during the entire semester which will be organized in form of a Report.
5. A candidate has to score the minimum specified Marks in order to be placed as a successful candidate. If a candidate is unsuccessful he/she has to represent their work for clearing the paper.
6. The report will be based on the multiple data collected from various related institutions with the view of enhancing the practical competency of the students who undergo this practical paper.

**Bachelor of Business Administration with Banking Degree Examination– Syllabus for
Candidates admitted from the Academic Year 2018 - 2019 Onwards**

FIRST SEMESTER

PART-III-CORE-1 PRINCIPLES OF MANAGEMENT

MAXIMUM CIA: 30

MAXIMUM CE: 70

TOTAL HOURS: 72

OBJECTIVE: On the Successful completion of this paper, the students should have acquired knowledge of the nature and types of business organizations, Principles and functions of Management Process, decision making, Modern trends in management process

UNIT –I [15 HOURS]

Nature and evolution of management – Meaning and definition of management – Contributions of Taylor, Fayol, Mayo and Drucker – Functions of management – management: Art, Science and Profession – Administration Vs management – Functional areas of management – Managerial skills- Levels of management - Social responsibility and Ethics.

UNIT –II [15 HOURS]

Planning: Nature and purpose of planning - steps in planning - types of planning- Objectives - strategies and Policies - Decision making: Process of Decision making - types of Decisions, MBO-Definition and concept-process-merits and demerits.

UNIT –III [13 HOURS]

Organising: Meaning, definition and Principles, Formal and Informal Organisation – Organisation structure – Line and staff organization – Types of Groups – Formal and Informal Groups – Merits and Demerits of the groups

UNIT –IV [14 HOURS]

Directing: Definition and principles of Directing – Motivation: Meaning, nature and importance – Maslow, Mc Gregor, Herzberg Mc Clelland, and Alderfer theories of motivation– Delegation of Authority – Centralization and decentralization – Merits and Demerits. Co-ordination: Meaning need and features – Techniques – Problems in coordination.

UNIT – V [15 HOURS]

Staffing: meaning and importance of staffing – Recruitment, selection, training of staff.
Controlling: Meaning, definition and need – Principles of controlling – Controlling techniques.

TEXT BOOKS

1. P. C. Tripathy, P.N.Reddy, Principles of Management, 3rd Edition, Tata MC Graw hill publishing Company Ltd, New Delhi, 2007.
2. Principles of Management – Dr.G.Venkatesan, R.K.Sharma & Shashi K.Gupta

REFERENCE BOOKS

1. Bhushan Y.K, Business Organization, 4th Edition, Tata MC Graw hill publishing, New Delhi, 2006
2. L.M.Prasad, Principles of Management, 5th Edition, Himalaya publication, Mumbai - 2006

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FIRST SEMESTER

PART-III- CORE-2 FINANCIAL ACCOUNTING

MAXIMUM CIA: 30

MAXIMUM CE: 70

TOTAL HOURS: 72

OBJECTIVE: On the Successful completion of this paper, the students should have acquired knowledge of the basic accounting concepts

UNIT – I [15 HOURS]

Introduction to Accounting: Need for accounting-Definition of accounting-Advantages and disadvantages of accounting-Methods of accounting: Single and Double Entry book keeping-Types of accounts- Basic accounting concepts - Journal-Ledger.

UNIT – II [12 HOURS]

Subsidiary books-Trial balance [problems] - Errors-types of errors-Rectification of errors [excluding suspense account]

UNIT – III [15 HOURS]

Final accounts of trading concerns [with simple adjustment only]-Depreciation accounting-Meaning-Causes -Methods of providing depreciation- Straight Line Method -Written Down Value method.

UNIT – IV [16 HOURS]

Branch accounting-Meaning-merits-demerits-Departmental accounting- Meaning of departments and departmental accounting –Need for departmental accounting-advantages-Difference between branch and departmental accounts-Methods and techniques of departmental accounting [simple problems only]

UNIT – V [14 HOURS]

Preparation of accounts from incomplete records [Theory and Problems] - Accounting for non-trading institutions.

[Theory and problems may be in the ratio of 20% and 80%respectively]

TEXT BOOKS

1. S.P.Jain, K.L.Narang, Financial Accounting and analysis, 6th Edition-Kalyani Publishers, 2012, Mumbai
2. Dr.S.N.Maheshwari, Financial Accounting, 1st Edition- Sultan Chand and Sons, 2014, New Delhi

REFERENCE BOOKS

1. Dr. P.C.Tulsian, Financial Accounting, 4th Edition, Tata MC Graw Hill, 2011, Delhi
2. V.K.Gupta, Financial Accounting, 5th Edition- Sultan Chand and Sons, 2010, New Delhi
3. S.P.Jain, K.L.Narang, Financial Accounting, 5th Edition-Kalyani Publishers, 2010, Mumbai.

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SECOND SEMESTER

PART-III-CORE 3 –ORGANIZATIONAL BEHAVIOUR

MAXIMUM CIA: 30

MAXIMUM CE: 70

TOTAL HOURS: 72

Objective: On successful completion of this paper, the students should have acquired knowledge in the organizational behaviour.

UNIT- I [14 HOURS]

Importance and scope of Organizational Psychology- Individual Differences-Intelligence Tests- Measurement of Intelligence – Personality Tests – Concept of Organizational Behaviour – Importance and scope of Organizational Behaviour- Disciplines Contributing to Organizational Behaviour.

UNIT- II [15 HOURS]

Perception – Process – Personality – Determinants of Personality – Trait(Big Five Model, MBIT Model, Type A&B) – Motivation – Concept – Theories (Maslow's , Equity & Theory X & Y) – Financial And Non – Financial Motivation – Techniques of Motivation. Attitude – Meaning – Concept of Value – Attitude Change – Determinants of Attitude Change.

UNIT- III [15 HOURS]

Job satisfaction – Meaning – Factors , Morale – Importance – Employee Attitude and Behaviour and their Significance to Employee Productivity – Job Enrichment – Job Enlargement. Leadership Styles – [Trait, Managerial Grid, Life Cycle Theory] – Importance – Qualities and Characteristics of a Leader – Morale – Importance – Factors Affecting Morale.

UNIT- IV [14 HOURS]

Group Dynamics – Formation of Group – Types – Concept – Group Cohesiveness – Concept – Group Norm – Concept – Team Development – Types – Creation Process – Conflicts – Types – Managing Conflicts.

UNIT- V [14 HOURS]

Organizational Climate – Concept – Organizational Effectiveness – Concept – Organizational Development: Nature, scope and objectives – Counseling & Guidance – Types of Counseling - Information Needed for Counseling.

TEXT BOOKS

- 1.Santhosh Sharma & Shivi Saxena ,” Organizational Behaviour” ,
Thakur Publishers, 2016, Chennai.
- 2.L.M.Prasad,” Organizational Behaviour” Mc Graw Hill,7th Edition 2006, New Delhi
- 3.Fred Luthans,” Organizational Behaviour”, Mc Graw Hill,7th Edition 2006, USA

REFERENCE BOOKS

1. Stephen P. Robbins “Organizational Behaviour”, P H I, 5th Edition, 2007, New Delhi
2. Robbins,” Organizational Behaviour” Mc Graw Hill, 7th Edition 2006, New Delhi

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Candidates admitted from the Academic year 2018 – 2019 Onwards**

SECOND SEMESTER

PART-III-CORE 4 - BUSINESS ECONOMICS

MAXIMUM CIA: 30

MAXIMUM CE: 70

TOTAL HOURS: 72

Objective:

On the successful completion of this paper the students should have acquired knowledge of Profit Maximization, Demand Analysis, Elasticity of Demand, Cost, Pricing, Government and Business.

UNIT- I [14 HOURS]

Objectives of business firm: Definition – Nature and scope of Economics–Objectives – Profit maximization – Social responsibility of business – demand analysis – Law of demand, Demand curve and Demand forecasting.

UNIT- II [14 HOURS]

Elasticity of demand: Types of elasticity – price elasticity of demand, income elasticity of demand and cross elasticity of demand -factors of influencing elasticity of demand.

UNIT- III [15 HOURS]

Production function: factor of production – types of production function- Isoquant Curves - law of production - law of diminishing returns – law of variable proportion – economics of scale – Law of returns to scale.

UNIT- IV [15 HOURS]

Cost and Revenue :Cost – Average, Marginal, fixed & total cost, Relation between production & cost, - opportunity cost– revenue analysis – total, average & marginal Revenue - break even analysis - Break Even point, Managerial use of B.E.P. and its limitation.

UNIT- V [14 HOURS]

Product pricing and firms: Marketing Structure - Characteristics - Equilibrium under perfect, imperfect competition and monopoly –determination under monopolistic competition – oligopoly – duopoly. Government and business – performance of public enterprises in India – price policy in public utilities, government measures to control monopoly in India – MRTP Act.

TEXT BOOKS

1.S. Sankaran, Business Economics, 4th edition, Margham Publication, 2014, chennai.

2.P.L. Mehta, Managerial Economics, 12th edition, sultan chand and sons, 2006 New Delhi.

REFERENCE BOOKS

1.B.L Varshney and K.L Mageswari, Business Economics, 19th Edition, Sulthanchand and Sons, 2005, New Delhi.

2.S. Sankaran, Indian Economy, 4th edition, Margham Publication, 2008, Chennai.

Edwin Mansfield, Managerial economics 2nd Edition, Nortan Company, New York, 1993.

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**THIRD SEMESTER
PART III - CORE 5 - MARKETING MANAGEMENT**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On the successful completion of this paper, the students should have acquired knowledge in Principles of Marketing Management, Market Segmentation, Product Life Cycle, Pricing, and Branding.

Unit I (10 Hours)

Definition of Marketing - Marketing Management- Marketing Concept – Meaning Importance of Marketing in Developing Countries - Functions of Marketing – Customer Value-Changing Marketing Practices- Modern marketing concepts - Marketing Environment.

Unit II (15 Hours)

Buyer Behaviour - Buying Motives - Market Segmentation of Different Bases – Market Positioning – Market Targeting - Marketing Strategy - Branding Decisions: Brand-Brand Image, Brand Identity- Brand Personality –Brands Equity

Unit III (10 Hours)

Product- Types of Product - Product Policy - Product Life Cycle [PLC] – Market Place- Product Mix - Modification and Elimination – Marketing Mix - Packing – New Product Development – Strategies

Unit IV (15 Hours)

Definition and Types of Channel - Channel Selection and Problems- Middle Man: Wholesaler - Retailer- Agent Middleman Price Decision-Concept, and Meaning of Price and Pricing-Significance of Pricing Decision- Factors Affecting Price Determination; Pricing Methods and Techniques.

Unit V (10 Hours)

Advertisement Media- Radio-T.V-Newspaper- Merits and Demerits of Advertisement – Sales Promotion – Publicity –Virtual Adverstising- Personal Selling- Recent trends in Media.

Text Books:

1. Philip Kotler and Kevin Lane Keller, Marketing Management, 14th Edition, 2012, Prentice Hall of India, New Delhi.
2. KS Chandrasekar, Marketing Management-Text and Cases, First Edition, 2010, Tata McGraw Hill.

Reference Books:

1. Paul Baines, Chris Fill and Kelly Page, Marketing, 2nd Edition, 2011, Oxford University Press.
2. Philip Kotler, Marketing Management, 2nd Edition, 2010, McGraw Hill, New Delhi.

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Candidates admitted from the Academic Year 2015-2016 Onwards**

THIRD SEMESTER

PART-III-CORE 6 - MANAGEMENT INFORMATION SYSTEM

MAXIMUM CIA: 30

MAXIMUM CE: 70

TOTAL HOURS: 60

OBJECTIVE: On the Successful completion of this paper, the students should have acquired knowledge in Management Information System.

UNIT – I [10 HOURS]

MIS - Evolution of MIS - Growth of MIS - Characteristics of MIS - Subsystem of MIS- Executive Information System - Information Resource Management - Role of MIS - Concepts of Information: Data of Information - Business Data Processing.

UNIT – II [12HOURS]

Features of Information - Types of Information - Quality of Information – Value - Management Information System - System Concepts: Characteristics of System - Types of System - Control in System - System concepts applied to MIS - Structure of MIS: Organizational Function and Information required-Level of Management.

UNIT – III [12HOURS]

Transaction Processing System – Cycle – Features - Transaction Document - Transaction processing models - Decision Support System – Types – Characteristics – Components - Tools-Capabilities - Group DSS - Expert System.

UNIT – IV [12HOURS]

Planning for MIS - System Development Model - System Design: Input Design - Procedure Design - File Design - DB design – DBMS – DBA - Design Document - program development: Techniques of Program Development - System Implementation steps.

UNIT- V [14 HOURS]

Data Communication System – Networking – Types - Electronic Communication - History of Internet-WWW-Navigation Tools - Security on Internet - Types of Electronic Commerce - EDI .

TEXT BOOKS:

1. P. Mohan, Management Information System, 9th Edition-2012.Himalayan Publishing House.
2. A.K.Gupta- Management Information System, 3rd Edition, 2010, Sultan Chand and Sons New Delhi.

REFERENCE BOOKS:

1. Gordon.B.Davis, Margrethe.H.Olson, Management Information System, Conceptual Foundation, Structure and Development, 2nd Edition, 2011, Tata Mc Graw Hill,New Delhi.
2. Laudon and Laudon, Management Information System, 8th Edition, 2011, Pearson Education, South Asia.

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Candidates admitted from the Academic Year 2015-16 Onwards.**

THIRD SEMESTER

PART-III-CORE 7 – BANKING LAW AND PRACTICE

MAXIMUM CIA: 30

MAXIMUM CE: 70

TOTAL HOURS: 60

OBJECTIVE: After the successful completion of the course the student should have a thorough knowledge on Indian Banking System and Acts pertaining to it.

UNIT – I [12 HOURS]

Definition of Banker and Customer – Relationships between Banker and Customer – Special Feature of RBI- Banking Regulation Act 1949 - RBI Credit Control Measure

UNIT – II [12 HOURS]

Opening of Account – Special types of Customer – Types of Deposit – Bank Pass book – Banker Lien.

UNIT – III [12 HOURS]

Cheque – Features - Essentials of Valid Cheque – Crossing – Marking and Endorsement – Payment of Cheque - Refusal of Payment Cheque

UNIT – IV [12 HOURS]

Loan and Advances by Commercial Bank - Lending Policies of Commercial Bank - Forms of Securities – Lien Pledge - Hypothecation - Advance – Mortgage-Position of Surety

UNIT – V [12 HOURS]

Letter of Credit – Bills Discounting - Traveler’s Cheque - Credit Cards & Debit Cards - Automatic Teller Machine-Internet Banking.

TEXT BOOKS

1. S.N.Maheshwari & S.K.Maheshwari, Banking Theory Law and Practice, 14th Edition 2014, Kalyani Publication.
2. Sundharam and Varshney, Banking Theory Law and Practice, 16th Edition 2010, Sultan Chand and Sons, New Delhi.

REFERENCE BOOKS

1. Natarajan and Gordan: Banking Theory Law and Practice, 14th Edition 2008, Himalaya Publishing House, Bombay
2. Shekar and Shekar, Banking Theory Law and Practice, 18th Edition 2008, Vikas Publishing House Pvt Ltd, New Delhi.

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Candidates admitted from the Academic Year 2015-2016 Onwards**

**THIRD SEMESTER
PART III - CORE 8 – COST ACCOUNTING**

MAXIMUM CIA: 30

MAXIMUM CE: 70

TOTAL HOURS: 60

Objective: To enable the student to have a thorough knowledge on the Cost Accounting Principles and the Methods of Accounting for Cost.

UNIT- I [Theory & Problem] [13 HOURS]

Cost Accounting – Definition – Meaning and Scope – Concept and Classification – Costing an aid to Management — Types and Methods of Cost – Preparation of Cost Sheet – Cost Accounting vs. Financial Accounting

UNIT – II [Problems only] [12 HOURS]

Material Control: Need for Material Control – Levels of Material Control [Maximum, Minimum and Reorder Level] – Economic Order Quantity. Purchase and Stores Control, Methods of Valuing Material Issue [FIFO, LIFO and Weighted Average Method].

UNIT – III [Problems only] [12 HOURS]

Labour: Systems of Wage Payment [Piece Rate, Time Rate, Taylor’s & Merrick Differential Piece Rate System, Halsey Plan and Rowan’s Plan] – Idle Time – Control Over Idle Time – Labour Turnover.

UNIT – IV [Theory & Problem] [12 HOURS]

Process Costing – Features of Process Costing – Process Losses, Wastage, Scrap, Normal Process Loss – Abnormal Loss, Abnormal Gain. (Excluding Inter Process Profit).

UNIT – V [Theory only] [11 HOURS]

Marginal Costing – Meaning, Definition, Benefits and Limitations of Marginal Costing – Break Even Analysis – Application of Marginal Costing in Business Decision Making.

NOTE : Theory and Problems in the Ratio of 40% and 60% respectively.

TEXT BOOKS

1. Jain.S.P and Narang.K.L, Cost Accounting, Revised Edition, 2012, Kalyani Publishers, New Delhi.
2. T.S.Reddy and Y.Hari Prasad Reddy, Cost Accounting, 10th Edition, 2010, Margham Publications, Chennai.

REFERENCE BOOKS

1. Pillai.R.S.N and Bagavathi.V, Cost Accounting, 9th Edition, 2011, S. Chand and Company.
2. M.Y.Khan and P.K.Jain, Cost Accounting, 8th Edition, 2010, Tata McGraw-Hill Education.

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Candidates admitted from the Academic Year 2015-2016 Onwards**

**THIRD SEMESTER
PART III - IDC 3 – BUSINESS TAXATION**

MAXIMUM CIA: 30

MAXIMUM CE: 70

TOTAL HOURS: 60

OBJECTIVE: On the Successful completion of this paper, the students should have acquired knowledge in Business Taxation.

UNIT I [Theory only] [10 HOURS]

Tax - Definition and General Characteristics - Canons of Taxation- Direct and Indirect Taxes -Comparison –Merits and Demerits of Direct and Indirect Taxes - Proportional, Progressive and Regressive Taxations - Income Tax Act 1961 - Definitions - Incomes which do not form part of Total Income.

UNIT II [Problems only] [16 HOURS]

Residential Status-Heads of Income- Salaries - Computation of Salaries

UNIT III [Problems only] [14 HOURS]

Income from House Properties –Computation of Income from House Properties- Profits and Gains of Business or Profession- Computation of Profits and Gains of Business or Profession of an Individual .

UNIT IV [Problems only] [12 HOURS]

Capital Gain-Computation of Capital Gain-Income From Other Sources-Computation of Income From Other Sources-Deductions to be made in Computing Total Income.

UNIT V [Theory only] [8 HOURS]

VAT– Impact – Registration – Computation of VAT – Refund – Mechanism – Return Filing - Advantages and Disadvantages – TNVAT- Central Excise Duty -Objectives of Excise Duty.

Note: Theory and Problems in the Ratio of 40% and 60% respectively.

TEXT BOOKS

- 1.V.P.Gaur and D.B.Narang, Income Tax Law and Practice, Revised Edition, 2016, Kalyani Publishers, Mumbai.
- 2 Parameshwaran, Principles of Taxation, 6th Edition, 2010, Kalyani Publishers, Mumbai.

REFERENCE BOOKS

1. Dr. Mehrotra.H.C, Income Tax Law and Practice, 5th Edition, 2010, Tata McGraw Hill, New Delhi.
2. Dinkar Pagare, Business Taxation, Revised Edition, 2011, Tata McGraw Hill, New Delhi.

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THIRD SEMESTER

PART – IV – AOC - I - PC SOFTWARE AND INTERNET [PRACTICAL]

MAXIMUM CE: 75

TOTAL HOURS: 36

OBJECTIVE: Imparting Professional skills in Personal Computer software.

MS WORD

1. Type the Text and Perform the Following:

(i) Bullets and Numbering (ii) Align the Text to Left, Right, Justify, and Centre

2. Prepare a Job Application Letter enclosing Detailed Resume.

3. Create a Call Letter for Interview by using Mail Merge.

MS EXCEL

4. Prepare a Student Mark List [Minimum of 5 Subjects] and Perform Sorting Operation.

5. Prepare Statement of Bank Customer's Account Showing Simple and Compound Interest Calculations for 10 Different Customers Using Mathematical and Logical Functions.

6. Prepare a Result Analysis Chart with Subject Details, Staff details and Pass percentage details.

MS ACCESS

7. Generate a Payroll for Employee Database of an Organization with the Following Details: Employee Id- Employee Name- Date of Birth- Department and Designation- Date of Appointment- Basic Pay- Dearness Allowance- and House Rent Allowance and Other Deductions. Perform Queries for Different Categories.

8. Prepare a Report Based on Invoice details such as Product Number, Quantity, Price for Five Products.

MS POWER POINT

9. Draw an Organization Chart for Courses Offered in College with Minimum Three Hierarchical Levels.

10. Design an Advertisement Campaign with Minimum Three Slides.

INTERNET

11. Search Information from Bharathiar University Website.

12. Create an Email Account, Compose and Send mail by using CC and BCC Options with Attachments.

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**THIRD SEMESTER
PART IV- AOC I - CUSTOMER RELATIONSHIP MANAGEMENT**

**MAXIMUM CE: 75
TOTAL HOURS: 36**

OBJECTIVE: On the Successful completion of this paper, the students should have acquired knowledge of Relationship Marketing.

UNIT –I [8 HOURS]
Customer Relationship Management- Fundamentals- Evolution of Relationship Marketing- Stages of Relationship- Issues of Relationship- Purpose of Relationship Marketing- CRM Definitions, Emergence of CRM Practice:, CRM Cycle, Types of CRM .

UNIT –II [7 HOURS]
CRM – Overview and Evolution of the Concept – CRM and Relationship Marketing – CRM Strategy – Importance of Customer Divisibility in CRM

UNIT –III [7 HOURS]
Sales Force Automation – Contact Management – Concept – Enterprise Marketing Management – Core Beliefs – CRM Practices in Retail Industry- Hospitality Industry- Banking Industry- Telecom Industry-Aviation Industry

UNIT –IV [7 HOURS]
Value Chain – Concept – Integration Business Management – Benchmarks and Metrics – Culture Change – Alignment with Customer Eco System – Vendor Selection

UNIT – V [7 HOURS]
Database Marketing – Prospect Database – Data Warehouse and Data Mining – Analysis of Customer Relationship Technologies – Best Practices in Marketing Technology.

TEXT BOOKS

1. S. Shajahan, Relationship Marketing, 5th Edition, 2010, McGraw Hill, New Delhi.
2. Paul Green Berg, CRM, 5th Edition, 2011, Tata McGraw Hill, New Delhi.

REFERENCE BOOKS

1. Philip Kotler, Marketing Management, Revised Edition, 2012, Prentice Hall of India.
2. Barry Berman and Joel R Evans, Retail Management, A Strategic Approach, 12th Edition, 2011, Prentice Hall of India.

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FOURTH SEMESTER

PART III - CORE 9 - HUMAN RESOURCE MANAGEMENT

MAXIMUM CIA: 30

MAXIMUM CE: 70

TOTAL HOURS: 60

OBJECTIVE: On the successful completion of this paper, the students should have acquired knowledge in Role of a HR Manager, Job Description and Job Analysis.

UNIT-I

[12 HOURS]

Human Resource Management - Definition - Objectives - Functions - Scope - Importance - HRM in India - Evolution of HRM - Computer Application in Human Resource Management - Quality of a Good Human Resource Managers - Human Resource Planning - Job Analysis, Job Description and Job Specification.

UNIT-II

[12 HOURS]

Recruitment and Selection - Sources of Recruitment - Selection Process - Test Types - Interview Types - Career Planning vs. Man Power Planning and Succession Planning - Career Planning - Process - Career Development - Placement and Induction.

UNIT-III

[12 HOURS]

Training - Methods of Training - Executive Development - Performance Appraisal - Methods of Performance Appraisal - Transfers - Promotion - Wage & Salary Administration - Wage Boards and Pay Commission - Wage Incentive - Fringe Benefits - Employees Welfare - Safety and Health Measures - Grievance Procedures - Redressal of Grievances.

UNIT-IV

[12 HOURS]

Industrial Relations - Meaning & Characteristics Industrial Relations - Parties to Industrial Relations - Nature of Trade Unions - Problems of Trade Union - Measures to Strengthen Trade Union Movement in India - Causes for Industrial Disputes - Settlement of Industrial Disputes.

UNIT-V

[12 HOURS]

Collective Bargaining - Features - Pre-requisite of Collective Bargaining - Agreement at Different Levels - Workers Participation in Management - Objectives for Successful Participation.

TEXT BOOKS

1. Dr. C.B. Gupta, Human Resource Management, Revised Edition, 2014, Sultan and Sons.
2. K. Aswathappa, Human Resource and Personnel Management, Revised Edition, 2013, Tata McGraw Hill Publishing Co. Ltd.

REFERENCE BOOKS

1. C.S. Venkata Rathnam & B.K. Srivastava, Personnel Management & Human Resources, Revised Edition, 2011, TMPL.
2. Dr. C.B. Memoria, Dr. Satish Memoria & S.V. Gankar, Dynamics of Industrial Relations, Revised Edition, 2009, Himalaya Publishing House.

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**FOURTH SEMESTER
PART III - CORE 10 - RESEARCH METHODS FOR MANAGEMENT**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On the Successful completion of this paper, the students should have acquired knowledge of Research Techniques and Sampling Design

Unit I (12 Hours)
Research - Meaning - Scope and Significance - Types of Research - Research Process - Problems in Research – Characteristics of Good Research - Research in an evolutionary perspective – the role of theory in research.

Unit II (12 Hours)
Research Design - Sources - Types - Formulation Research Design - Types – Features of Good Design - Measurement - Meaning - Need Errors in Measurement - Tests of Sound Measurement - Techniques of Measurement - Scaling Techniques - Meaning - Types of Scales - Scale Construction Techniques.

Unit III (12 Hours)
Sampling Design: Meaning - Concepts - Steps in Sampling - Criteria for Good Sample Design - Types of Sample Designs - Probability and Non-Probability Samples. Data Collection: Types of Data - Sources - Tools for Data Collection- Methods of Data Collection - Construction of questionnaire and instrument- Pilot Study - Case Study .Data processing: Coding – Editing and Tabulation of Data - Application of statistical software for data analysis.

Unit IV (12 Hours)
Hypothesis - Central Limit Theorem - Test of Significance- Assumptions about Parametric and Non-Parametric Tests. Parametric Test - T Test, F Test, Chi-Square Test and Z Test - Non Parametric Test [No Problems] - U Test, Kruskal Wallis Test, Sign Test.

Unit V (12 Hours)
Interpretation - Meaning - Techniques of Interpretation - Report Writing:- Significance - Steps in Report Writing - Layout of Report - Types of Reports – Oral Presentation - Executive Summary - Mechanics of Writing Research Report – Precautions for Writing Report - Norms for using Tables, Charts Diagrams, Index, Appendix, and Bibliography – Application of SPSS.

Note: Theory and Problems in the Ratio of 80% and 20% respectively.

Text Books:

1. C.R. Kothari Gaurav Garg, Research Methodology, New Age International [P] Limited, 3rd Edition, 2014, New Delhi.
2. Donald R. Cooper and Pamela S. Schindler, Business Research Methods, Tata McGraw Hill, 2006, New Delhi

Reference Books:

1. M.P Gupta and K.B Khanna, Quantitative Techniques for Decision Making, Revised Edition, 2009, PHL Learning Private Limited, New Delhi.
1. R.Pannerselvam, Research Methodology, Revised Edition, 2014, PHI Learning, New Delhi.

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**FOURTH SEMESTER
PART III - CORE 11 - MANAGEMENT ACCOUNTING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To enable the student to have a thorough knowledge on the Management Accounting Principles and the Methods of Accounting for Managers.

Unit I (Theory Only) (12 Hours)

Management Accounting: Introduction - Meaning – Objectives and Scope – Merits- Features - Difference between Management Accounting, Cost Accounting and Financial Accounting.

Unit II (Problems Only) (12 Hours)

Ratio Analysis – Analysis of Liquidity – Solvency and Profitability – Construction of Balance Sheet.

Unit III (Problems Only) (12 Hours)

Financial Statement Analysis – Comparative Statement – Common Size – Trend Analysis

Unit IV (Theory & Problems) (12 Hours)

Budgeting and Budgetary control – Definition - Importance – Classification of Budgets – Master Budget – Preparation of Cash budget, Sales Budget, Purchase Budget, Material Budget, Flexible Budget.

Unit V (Theory & Problems) (12 Hours)

Fund Flow Analysis and Cash Flow Analysis (As per new accounting standards)

Note: Theory and Problems in the Ratio of 40% and 60% respectively.

Text Books:

1. Sharma and S.K.Gupta, Management Accounting, Revised Edition 2014, Kalyani Publishers, New Delhi.
2. Dr. S.N. Maheshwari, Management Accounting, Revised Edition 2014, Sultan Chand & Sons, New Delhi.

Reference Books:

1. S.P. Jain and KL. Narang, Cost and Management Accounting, 11th Edition, 2012, Kalyani Publishers, New Delhi.
2. T.S.Reddy and Dr.Hariprasad Reddy, Management Accounting, Revised Edition, 2010, Margham Publications.

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FOURTH SEMESTER

**CORE 12- BANKING, AUDITING & SECRETARIAL PRACTICE-
PRACTICAL**

MAXIMUM CIA: 40

MAXIMUM CE: 60

TOTAL HOURS: 60

OBJECTIVE: On the Successful completion of the Course the students would have acquired knowledge in Banking, Auditing & Secretarial Practice - Practical.

UNIT-I

Financing – Need of Finance - Financing New Organization – Loan Application – Application for Mortgaging - Financing Working Capital.

UNIT-II

Banking - Introduction – Definition – Modes of Transaction – Account Opening Form - Pay-in Slip – Withdrawal Form – Cheque Leaf – Demand Draft - Internet Banking – Application for E-Banking – Mobile Banking - Internet Banking.

UNIT-III

Practice in Corporate Accounting – Creation of Invoice –Voucher-- Cash Receipt – Debit Note – Credit Note - Preparing Internal Audit - Working Papers – Preparation of Annual Report.

UNIT-IV

Secretarial activities of a Company – Meeting – Agenda - Minutes – Allotment of Share – Register for Share – Returns to Allotment – Duty of a Company Secretary.

UNIT-V

Tax Procedures – E Filing and its Procedures under Income Tax Act 1961.

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**FOURTH SEMESTER
PART III - IDC 4 – LEGAL ASPECTS OF BUSINESS**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On the Successful completion of this paper the students should have acquired knowledge of Law of Contract and Agencies, Sales of Goods, Companies Act, and Negotiable Act.

Unit I (12 Hours)

Law of Contract-Definition-Nature of Contract- Essential Elements of Contract-Classification of Contract-Agreements-Void-Voidable-Illegal Contract- Offer and Acceptance-Communication of Offer-Acceptance and Revocation- Free Consent- Contingent Contract-Quasi Contract-Performance of Contract-Discharge of Contract-Remedies for Breach of Contract.

Unit II (12 Hours)

Law of Agency-Essentials-Kinds of Agent-Rights and Duties of Agent- Negotiable Instrument Act 1881-Definition- Concepts, and Negotiation-Characteristic-Promissory Note-Bill of Exchange-Types-Crossing of Cheques-Type of Crossing- Bearer and Order Instruments- Accommodation Bill.

Unit III (12 Hours)

Contract of Sale- Definition Sales of Good Act-Classification of Goods - Conditions and Warranties-Transfer of Property-Rights of Unpaid Seller.

Unit IV (12 Hours)

Companies Act-Definition-Type-Characteristic-Kinds of Company-Formation of Company - Memorandum of Association-Articles of Association and Prospectus

Unit V (12 Hours)

Types of Meeting-Auditor Appointment- Rights and Liabilities of Auditors- Winding up of a Company - Modes of Winding up of a Company. Consumer Protection Act- Consumer Rights, Cyber Law: Introduction-Copy rights, Trade marks ,Patent Act.

Text Books:

1. N.D.Kapoor, Business Law, Revised 12th Edition, 2012, Sultan Chand and Sons, New Delhi.
2. Ewan Macintyre, Essentials of Business Law, 5th Edition April 2015, Pearson Publishers.

Reference Books:

1. N.D.Kapoor, Business Law, Revised Edition, 2010, Sultan Chand and Sons, New Delhi.
2. M.C.Shukla, Mercantile Law, 13th Edition, 2007, Sultan Chand and Sons, New Delhi.

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FOURTH SEMESTER

PART IV- ED 1 - MULTIMEDIA AND ITS APPLICATIONS

Maximum CE: 50

Total Hours: 24

Objective: On the successful completion of the course, the students should have understood the concept of Multimedia is the combined use of text, graphics, sound, animation, and video.

Unit I (4 Hours)

Multimedia Definition - Use Of Multimedia - Delivering Multimedia - Text: About Fonts and Faces - Using Text in Multimedia - Computers and Text - Font Editing and Design Tools - Hypermedia and Hypertext.

Unit II (5 Hours)

Images: Plan Approach - Organize Tools - Configure Computer Workspace - Making Still Images - Color - Image File Formats. Sound: The Power of Sound - Digital Audio - Midi Audio - Midi vs. Digital Audio - Multimedia System Sounds - Audio File Formats -Vaughan's Law of Multimedia Minimums - Adding Sound to Multimedia Project.

Unit III (5 Hours)

Animation: The Power of Motion - Principles of Animation - Animation by Computer - Making Animations that Work. Video: Using Video - Working with Video and Displays - Digital Video Containers - Obtaining Video Clips - Shooting and Editing Video.

Unit IV (5 Hours)

Making Multimedia: The Stage of Multimedia Project - The Intangible Needs - The Hardware Needs - The Software Needs - An Authoring Systems Needs. Multimedia Production Team.

Unit V (5 Hours)

Planning and Costing: The Process of Making Multimedia - Scheduling - Estimating - RFPs and Bid Proposals. Designing and Producing - Content and Talent: Acquiring Content - Ownership of Content Created for Project - Acquiring Talent.

Text Books :

1. Tay Vaughan, "Multimedia: Making It Work", 9th Edition, Osborne/McGraw-Hill, 2014.

Reference Books:

1. Ralf Steinmetz & Klara Nahrstedt - "Multimedia Computing, Communication & Applications", Pearson Education, 2012.

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**FOURTH SEMESTER
PART IV- AOC II - BUSINESS COMMUNICATION**

**MAXIMUM CE: 75
TOTAL HOURS: 36**

OBJECTIVE: On successful completion of this course, the students should have understood Methods of Communication, Types of Communication and Barriers of Communication

UNIT-I [6 HOURS]

Define Communication- Importance-Objectives-Types-Barriers-Principles.

UNIT-II [10 HOURS]

Written Communication-Essentials of an Effective Business Letter-The Layout-Enquiries and Replies-Orders and Their Execution-Collection Letters-Circular Letters-Sales Letters-Bank Correspondence-Application Letters.

UNIT-III [8 HOURS]

Correspondence of Company Secretary with Shareholders, Directors-Agenda-Minutes of Meeting- Group Discussion and Interviews-Seminar-Conference -Press Releases.

UNIT-IV [6 HOURS]

Communication through Reports: Essentials-Importance-Contents-Reports by Individuals- Committees-Annual Report-Application for Appointment-Reference and Appointment Orders.

UNIT-V [6 HOURS]

Internal Communication-Short Speeches-Memo Circulars-Notices-Explanations to Superiors-Precise Writing-Communication Media-Merits of Various Devices-Intercom,Telex and Telephone-Fax-Internet.

TEXTBOOKS

1. Rajendra Pal Korahalli, Essentials of Business Communication, 13th Edition 2015, Sultan Chand & Sons, New Delhi.
2. Ramesh, MS, & C.C Pattanshetti, Business Communication, R.Chand & Co, Revised Edition, 2011, New Delhi.

REFERENCE BOOKS

- 1.V.K.Jain & Prakash Biyani, Business Communication, 1st Edition , 2014, Sultan Chand & Sons.
- 2.C.B.Gupta, Business Communication, Reprint 2014, Sultan Chand & Sons.

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FOURTH SEMESTER

PART IV- AOC II - MODERN OFFICE MANAGEMENT

**MAXIMUM CE: 75
TOTAL HOURS: 36**

OBJECTIVE: On the Successful completion of the course the students should have acquired knowledge regarding Modern Office Management.

UNIT – I [8 HOURS]

Office Management and Organization: Basic concepts of Office – Importance – Functions – Size of the Office – Office Management – Relations with Other Departments – Scientific Office Management – Office Manager - Principles of Office Organization.

UNIT - II [7 HOURS]

Office Environment & Communication: Office Location – Characteristics / Qualities of Office Building – Environment – Physical – Hazards in Office Safety – Security – Secrecy – Communication – Meaning – Essential features – Classification – Communication Barriers.

UNIT – III [7 HOURS]

Office Correspondence & Record Management: Centralized Vs Departmental Correspondence – Departmental Typing and Typing Pools – Classification of Records – Principles of Record Keeping – Filing – Methods.

UNIT – IV [7 HOURS]

Office Systems & Procedures: Systems – Procedure – Advantages – Characteristics of Sound Office System & Procedures – Work Simplification – Principles – Types of Reports.

UNIT - V [7 HOURS]

Office Personnel Relations: Personnel Management – Definitions – Functions – Office Committees - Employee Morale – Productivity – Employee Welfare – Grievances – Work Measurement – Office Work Control.

TEXT BOOKS

1. NirajKumar & Chetan Srivastava, Modern Office Management, 5th Edition, January 2013, New Royal Book Company.
2. J.N.Jain & P.P.Singh, Modern Office Management Principles and Techniques, Revised Edition, December 2010, Regal Publications.

REFERENCE BOOKS

1. S.P Arora, Office Organization and Management, 2nd Edition, 2012, Vikas Publishing House Pvt Ltd.
2. Dr.I.M.Sahai, Modern Office Management, Revised Edition, 2009, Sathiya Bhavan Agra.

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**THIRD SEMESTER
ADDITIONAL CREDIT-RETAIL MANAGEMENT**

MAXIMUM CE: 100

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge of Retail, Pricing, Promotion Strategy, Retail Customer, and Retail in India.

UNIT I

Introduction to Retailing - Meaning - Functions of Retailer - Types of Retailers. Retailing in India- The Evolution of Retail in India - Foreign Direct Investment in Retail - Challenges Ahead for Retailing.

UNIT II

Retail Strategy - Growth Strategy - Value Chain and Ethics. Retail Location - Types - Steps Involved in Selection. Store Design - Principles and Elements – Elements of Store Design.

UNIT III

Retail Franchising - Concept of Franchising - Evolution of Franchising – Types of Franchising – Basic Retail Merchandising - Meaning - Factors Affecting Buying Functions - Role and Responsible of Merchandiser and Buyer.

UNIT IV

Retail Marketing - Role of Marketing in Retail - Retail Marketing Mix - STP Approach - Retail Image - Concept of Retail Branding –Retail Pricing - Retail Pricing Policy.

UNIT V

Retail MIS - Importance of Information Technology in Retail - Factors Affecting the Use of Information Technology - Applications of Technology – E-Tailing - The New Online Retail Categories.

TEXT BOOKS

- 1.Swapna Pradhan, Retailing Management (Text and Cases), 4th Edition, 2012, Tata McGraw Hill Publishing.
- 2.Gibson G Vedamani, Retail Management - Functional Principles and Practice, 4th Edition, 2012, Jaico Publishing House.

REFERENCE BOOKS

- 1.Barry Berman and Joel R Evans, Retail Management, A strategic Approach, 12th Edition, 2012, Prentice Hall of India.
2. Rosemary Varley, Principles of Retail Management, Revised Edition, 2009, Palgravemalminnan Publishers.

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FIFTH SEMESTER

PART III – CORE 13 –FINANCIAL MANAGEMENT

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objective: On successful completion of this paper, the students should have acquired knowledge in Finance Functions, cost of Capital, Capital Structure.

UNIT-I (Theory only) [10 HOURS]

The Finance function: Goals, Objective and functions of Financial Management, source of finance –Scope of financial management –Importance of Financial Management - Role of Financial Manager.

UNIT-II (Problem& Theory question) [14 HOURS]

Financing Decision: Cost of Specific Source of Capital – Equity – Debt, Preference- Reserve fund –Weighted Average Cost of Capital

UNIT-III (Problem& Theory question) [14 HOURS]

Capital Budgeting – Meaning - Objective – Preparation of Various Methods of Capital Budgeting. Pay Back Period, Net Present Value Method, Profitability Index, and IRR.

UNIT-IV (Theory only) [10 HOURS]

Capital Structure – Factors influencing Capital Structure – Optimal Capital Structure – Theories of capital structure. Dividend– Meaning, Classification – Dividend Policy-Determinants of Dividend Policy.

UNIT-V (Theory only) [12 HOURS]

Working Capital Management: Concepts – Scope & Importance –Determinants of Working Capital. Cash Management: Motives for Holding Cash – Objective and Strategies of Cash Management. Receivable Management: Objective – Cost of Credit Extension, Benefits – Collections Policies. Inventory Management –Benefits of holding inventory.

NOTE: Theory and problem in the ratio of 60% and 40% respectively

TEXT BOOKS:

1. S.N.Maheswari, “Financial Management”, Sultan Chand and Sons, Revised Edition, 2009, New Delhi
2. Sharma Shashi.K.Gupta, Financial Management, Kalyani Publishers, 5th Edition, 2007, New Delhi

REFERENCE BOOKS:

1. Prasanna Chandra, “Financial Management”, M.H. Publications, 7th Edition 2008, New Delhi.
2. M.Y.Khan and P.K. Jain, Financial management, Tata Mc-Graw Hill, 5th Edition, 2007, New Delhi.
3. I.M.Pandey, Financial Management, Vikas Publishing House PVT Ltd., 9th Edition 2007
4. P.V.Kulkarni, Financial Management, Himalaya Publishing House, 7th Edition, New Delhi

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FIFTH SEMESTER

PART III - CORE 15 - ENTREPRENEURSHIP AND PROJECT MANAGEMENT

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge of institutional support to entrepreneurial development.

UNIT I [12 HOURS]

Evolution of the concept of entrepreneur – Definition of entrepreneur – Entrepreneurship – Entrepreneur and managers – Qualities of entrepreneur – Types of entrepreneurs – Functions of entrepreneur – Barriers to entrepreneurship – Intrapreneurs.

UNIT II [12HOURS]

Factors affecting entrepreneurial growth-economic and non-economic factors-Entrepreneurial Motivation-Motivation Theories-Motivating Factors-Achievement Motivation-Entrepreneurial Development Programmes-Need-Objectives-Course Content-Phases-Evaluation of EDPs.

UNIT III [12 HOURS]

Meaning of project – Projects classification – Project life cycle -Project identification and Selection– Project Formulation.

UNIT IV [12 HOURS]

Feasibility Report - Preparing a project report – Meaning-Significance-Content Formulation-Planning Commission Guidelines for Formulating a Project Report-Types of project report - Specimen of a Project Report-Project Evaluation.

UNIT V [12 HOURS]

Financial assistance for Entrepreneurs: DIC – SIDO – NSIC – SIDCO – SISI –IC – NAYE – Commercial banks.

TEXT BOOKS:

1. S.S.Khanka, Entrepreneurial Development, Sultan Chand, Revised Edition, 2009, Delhi
2. C.B.Gupta and N.P. Srinivasan: Entrepreneurial Development, Sultan Chand and Sons, 4th Edition, 2006 New Delhi.

REFERENCE BOOKS:

1. S.Choudhury ,Project Management, Tata Mc Graw Hill Publishing Co Ltd.6th Edition, 2006, New Delhi.
2. Jose Paul,N.Ajith Kumar,Paul.T.Mampilly, Entrepreneurship Development, Revised Edition ,Himalaya Publication House,2006,Mumbai.

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FIFTH SEMESTER

PART III - CORE 15 – MONEY AND BANKING

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objective: On successful completion of this paper, the students should have acquired knowledge of various currency and banking practice

UNIT – I [12 HOURS]

Money: Evolution and functions of money – Significance of money – Quantity theory of money (Fishers and Cambridge) – Demand for and supply of money.

UNIT – II [12 HOURS]

Commercial Banking: Functions and kinds – Balance sheet of a commercial bank – Investment policy – Commercial bank in economic development – Branch Banking and Unit Banking – Deposit Banking Vs Mixed Banking - credit creation of Commercial Banks.

UNIT – III [12 HOURS]

Central Banking: RBI-Introduction -Origin-Objectives-Functions – RBI and Economic development in India.

UNIT – IV [12 HOURS]

Money market: Structure – organized and unorganized money market – Development of money market – Indian Money Market – World money market – Capital Market in India.

UNIT – V [12 HOURS]

Inflation: Meaning and definition – Kinds of inflation – causes and consequences of inflation – Deflation – Inflation in a developing economy.

TEXT BOOKS :

1. KPM Sundaram, Money and Banking and International Trade, Sultan Chand and Sons, 9th Edition, 2009, New Delhi.
2. KPM Sundram, Money Banking, Sultan Chand and Sons, 8th Edition, 2008, New Delhi.

REFERENCE BOOKS:

1. ML Jhingan, Money Banking and International Trade, Sultan Chand and Sons, 10th Edition, 2010, New Delhi
2. S.Sankaran, Money Banking and International Trade, Margham Publications.
3. Ashok Desai, Indian Banking, Himalaya Publishing House
4. Gordan & Natarajan, Banking, Himalaya Publishing House

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FIFTH SEMESTER

PART III - CORE 16 – BUSINESS ETHICS AND CORPORATE GOVERNANCE

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objectives: To inculcate knowledge on Business Ethics and to provide knowledge of various factors influencing the corporate sector.

UNIT - I [12 HOURS]
Business Ethics - Meaning - scope - benefits - Sources of Ethics - religion - philosophical system - cultural experience - legal system - Importance of Ethics - Factors influencing Business Ethics - leadership - strategy and Performance - environment - corporate culture - individual characteristics.

UNIT - II [12 HOURS]
Ethical Values - Meaning - Features - importance - Types of values - Personal values - Values of work force - Ethics committee – Ethical leadership.

UNIT - III [12 HOURS]
Culture - Meaning - components of culture - Organisation culture - Meaning - characteristics - steps in building and maintaining organization culture - Managing cultural diversity in organisation.

UNIT - IV [12 HOURS]
Corporate Governance - History and Development - ingredients - Meaning - definition Importance - objectives - Principles - Code of Corporate Governance - Committees on Corporate Governance - Global and Indian perspectives - Mandatory and non-mandatory regulations .

UNIT - V [12 HOURS]
Corporate Social Responsibility of Business - Meaning – rationale - Strategies- Corporate social Responsibility reporting - Ackerman’s model of social responsibility.

TEXT BOOKS:

1. Laura P Hartman, Perspectives in Business Ethics, Mc Graw Hill International, 3rd edition 2007.
2. Bhatia S.K. Business Ethics and Corporate Governance, Deep & Deep Publications Pvt. Ltd New Delhi, 2004.

REFERENCE BOOKS:

1. SK Chakraborty, Ethics in Management; Vedantic Perspectives, Oxford University Press
2. George A Steiner and John F Steiner, Business, Government and Society, Mc Graw Hill, International, 1996.
3. Subhash Sharma, Management in New Age: Western Windows- Eastern Doors, New Age, International Publishing, New Delhi, 1996.

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Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objectives: On successful completion of this course, the students should have understood Advertising, Ad media, Ad agencies, Sales force management, promotional strategies.

UNIT – I [12 HOURS]

Introduction to Advertising- Meaning, Definition, Importance - Role and functions, economic, social and ethical issues - Advertising Creativity - Meaning of creativity, Creative strategy, Creative tactics, Advertising Appeals - Advertising copy - Copywriting - Objectives - Essentials - Types - Elements of copy writing: Headlines, body copy.

UNIT – II [12 HOURS]

Advertising layout - Functions - Design of layout - Typography printing: Process - Lithography - Printing plates and reproduction paper, and cloth - Size of advertising - Repeat advertising, advertising Campaign - Steps in campaign planning.

UNIT – III [12 HOURS]

Media planning and scheduling strategy - Types of media, media characteristics, selection of media, evaluation of media, media scheduling strategy, forms of media - Press, Newspaper, trade journal, Magazines - outdoor advertising - Poster, banners, neon signs, publicity literature booklets, folders, house organs - Direct mail advertising - Cinema and theatre programme - Radio and television advertising - exhibition, trade fair, transportation advertising.

UNIT – IV [12 HOURS]

Evaluation of advertising effectiveness - Need and purpose of evaluation, pre-testing and post testing techniques. Sales force Management - Importance - Sales force decision - Selection- Training - Methods - Motivating salesmen, Controlling - Compensation & Incentives - Fixing sales territories, and quota - Evaluation.

UNIT – V [12 HOURS]

Sales Promotion - Definition of sales promotion - Objectives reason for its rapid growth, promotional strategy - Promotional instruments: types and techniques of sales promotion - Dealers promotion. After sales service - Packing - Guarantee.

TEXT BOOKS:

1. Advertising and sales promotion – S.H.H. Kami Sathish K. Batra – Excel book India, 2009, **Edition:** 3rd edition.
2. Advertising Management – Concepts and cases, Author - Mahendra Mohan, Publisher – Tata McGraw-Hill Education, 1989.

REFERENCE BOOK:

1. Advertising and Sales Promotion Management – S.L.Gupta, V.V.Ratra Advertising and Salesmanship – P.Saravanavel, The book house of Margham publications 2012.

**Bachelor of Business Administration with Banking Degree Examination - Syllabus for
Candidates admitted from the Academic Year 2015-16 Onwards.**

FIFTH SEMESTER

PART-III – ELECTIVE I – PRACTICES FOR COMMERCIAL BANKING

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objective: To enhance the conceptual knowledge about core banking practices.

UNIT – I [12 HOURS]

Commercial Banking: An overview- functions- Structure of the banking system: organization, incorporation, supervision, of commercial banks- profitability of banks: income from bank loans, securities and others- Bank expenses- profits.

UNIT - II [12 HOURS]

Lending of money by banks: Principles of sound lending - Forms of advances such as Cash credit, Overdraft, Loan, Purchase and Discounting of bills –Borrower study.

UNIT - III [12 HOURS]

Secured advances: Different types of securities viz., Government securities. Corporate securities, Life Insurance Policies, Goods, Document of Title to Goods, Real Estate and Book debts. Modes of creating charges viz.. Lien, Pledge, Hypothecation and Mortgage.

UNIT - IV [12 HOURS]

Guarantees: Definition - Essential features of a contract of guarantee - Liability of the surety - Rights of surety - Obligations of creditor towards surety - Rights of creditor.

UNIT - V [12 HOURS]

Loan appraisal: Managerial appraisal, Technical appraisal, Commercial appraisal and financial appraisal-Follow up and supervision – NPAs Documentation: Meaning - Documentation in respect of various types of borrowers and securities.

TEXT BOOKS:

1. Tannan M.L. – Banking Law and Practice in India, 19th edition 1996, India Law House, New Delhi.
2. Sundharam and Varshney, Banking theory Law & Practice, 17th edition 2007, Sultan Chand & Sons, New Delhi.

REFERENCE BOOKS:

1. Edward .W. Reed & Edward.K.Gill- Commercial Banking, 4th edition, Prentice Hall, New Jersey
2. Dr.K.Nirmala Prasad, Banking and Financial System, 1995, Mrs Meena Pandey, New Delhi.

**Bachelor of Business Administration with Banking Degree Examination - Syllabus for
Candidates admitted from the Academic Year 2015-16 Onwards.**

FIFTH SEMESTER

PART III- ELECTIVE I - LABOUR WELFARE AND INDUSTRIAL RELATIONS

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objectives: On successful completion of this course, the students should have acquire knowledge in Legislations relating to Industrial Disputes and Labour welfare.

UNIT I [12 HOURS]

Industrial Relations - Industrial Disputes - Causes - Handling and Settling Disputes - Employee Grievances - Steps in Grievance Handling - Causes for Poor Industrial Relations - Remedies.

UNIT II [12 HOURS]

Collective Bargaining: - Concept - Principles and forms of Collective Bargaining - Procedure - conditions for Effective Collective Bargaining - Worker's Participation in Management.

UNIT III [12 HOURS]

Factories Act 1948 – Provisions regarding Health, Safety, Welfare of Workers, Hazardous Process- Restriction on Employment of Women and Children. Introduction to Workman's Compensation Act, 1923.

UNIT IV [12 HOURS]

The Industrial Disputes Act 1947 - Types- Industrial Dispute Resolution Mechanism- Settlement- Voluntary Arbitration- Adjudication in India.

UNIT V [12 HOURS]

The Payment of Wages Act,1936 – Application- Responsibility – Fixation of Wage Period- Payment of Wages- Authorised Deduction- Authorities. Employee's State Insurance Act, 1948- Schemes-Applicability- ESI Contribution.

TEXT BOOKS:

1. P.C.Tripathi, Personnel Management & Industrial Relation, Sultan Chand & Sons,12th edition,2012.
2. N.D. Kapoor ,Mercantile Law, Sultanchand & Sons, 7th Edition, 2012.

REFERENCES BOOKS:

1. N.G.Nair & Latha Nair, Human Resource Management , Sultan Chand & Sons, Revised Edition, 2014.
2. P.Subbarao ,Essentials of Human Resource Management and Industrial Relations, Himalaya Publishing House, Revised Edition, 2010.
3. R.Venkatapathy & Assissi Menachery , Industrial Relations & Labour Legislation , Aditya Publishers, 7th Edition, 2013.

**Bachelor of Business Administration with Banking Degree Examination - Syllabus for
Candidates admitted from the academic year 2015-2016 Onwards**

FIFTH SEMESTER

PART III- ALC III- BANKING TECHNOLOGY

Maximum CIA: 100

Objective: To enhance the conceptual knowledge about core banking technology.

UNIT I

Technology in banking – Need – Benefits – Issues involved in technology – Orientation of banks.

UNIT II

Computer technology in banks: What is a Computer? Brief history of computers of early computers – Generations of computers – Uses of computers.

UNIT III

Hardware: Anatomy of computer – CPU – Memory – Peripheral controllers – Peripherals.

UNIT IV

Software: Need for software – what is software? Types of software – Systems software – Operating systems – Language translators – Programming Languages.

UNIT V

Technology based products in banking – ATM's – Home Banking MICR cheques – Electronic Fund transfer [EFTs] Internet Banking – Real Time Gross Settlement [RTGS]. Security considerations.

TEXT BOOKS:

- 1 Bajwa K.S., Bank Mechanisation, Skylark publications, New Delhi, 1986.
- 2 Srivatsava, Computer applications in Banks, BTC, RBI, May 2009.

REFERENCE BOOKS:

- 1 Sanjay Soni and Vinayak Aggarwal, Computer and banking, Sultan Chand and Son's, New Delhi 1993.
- 2 Ravi Kalakota and Andrew B. Whinston, "Frontiers of Electronic Commerce", Dorling Kindersley Pvt.Ltd, 2nd Edition 2009, India.

**Bachelor of Business Administration with Banking Degree Examination - Syllabus for
Candidates admitted from the Academic Year 2015-16 Onwards.**

SIXTH SEMESTER

PART III- CORE 17 – FOREIGN EXCHANGE MANAGEMENT

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objectives: To enable the students to have an overview of the foreign exchange market and to survive and grow in international business by managing the risks efficiently.

Unit – I [12 HOURS]

Nature significance & scope of forex management - Foreign exchange rate - Foreign exchange market - Types of foreign exchange – Determinants of foreign exchange - Exchange rate quotations - Multinational banking.

Unit – II [12 HOURS]

Foreign exchange market - Spot and forward transactions – TT selling and buying rate – Forward exchange contract - Features of forward exchange contract.

Unit – III [12 HOURS]

Risk management - Basis of risk management - Concepts and objectives - Risks in foreign exchange - Spot and forward - Basic issues in interest rate risks - Risk management process - Techniques – Measurement - Monitoring exchange control.

Unit – IV [12 HOURS]

Interbank deals - Cover deals trading - Swap deals - Arbitrage operations - Managing foreign exchange reserves – Devaluation - Pros and Cons.

Unit – V [12 HOURS]

Sources of forex funds – Debt short term, supplier’s credit, buyer’s credit, medium and long term - Present status of foreign exchange markets in India.

TEXT BOOKS:

1. Foreign Exchange Management - Laxmi Publications; First edition (2015).
2. Foreign Exchange Facilities for Individuals - Macmillan India; 2nd Edition, 2017 edition (2012).

REFERENCE BOOKS:

1. C. Jeevanandam - Foreign exchange – Practice, concepts and control – Sultan Chand & Sons 16 Edition 2016.
2. Foreign Exchange Management Manual with FEMA & FDI Ready Reckoner (Set of Two Volumes) - Edition : 30th Edition 2017 - Date of Publication : January 2017
3. Foreign Exchange Management Manual (Volume-I) - Snow White Publications Pvt. Ltd - 30th Edition - January 2017.

**Bachelor of Business Administration with Banking Degree Examination - Syllabus for
Candidates admitted from the Academic Year 2015-16 Onwards.**

SIXTH SEMESTER

PART III- CORE 18 – BUSINESS STRATEGY

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objectives: The main objectives of the subject are to promote the development of participants' leadership, managerial and entrepreneurial competencies and to strengthen their expertise in strategy, strategy implementation and the management of complex situations.

UNIT – I [12 HOURS]

Introduction-concept of Strategy – Need – Dimensions - Strategic Planning – Process – Benefits – McKinsey's 7S Model – Strategic Vision – Corporate Mission – Objectives – Goals – Social Responsibility – Business ethics – Linking Strategies with ethics – Social audit.

UNIT – II [12 HOURS]

Environmental analysis – Need – Scanning – Approaches – Forecasting – Techniques. Internal Analysis – Need – SWOT analysis – Value Chain – Functional Analysis – Grid approach – Criteria for evaluating internal capabilities.

UNIT - III [12 HOURS]

Strategic Decision framework – Developing alternatives – Strategy Options – Diversification strategies – Cultural context of strategy – comparing alternatives – BCG Model.

UNIT – IV [12 HOURS]

Implementation – Role of top management – Process – Matching Structure of strategy – Resource allocation – Planning and Controlling system. Evaluation – Criteria – Quantitative and Qualitative factors – Feedback and Information.

UNIT – V [12 HOURS]

Core Competencies – Building core competencies – Building Strategic Supportive Corporate Culture Strategic advantage – Managing Strategic Change – Strategic Change Process – Diagnosing change need.

TEXT BOOKS:

1. Business Strategy and Strategic Cost Management - Publisher: Taxmann Publications Pvt.Ltd. - Edition: 2014.
2. Business Strategy: Managing Uncertainty, Opportunity, and Enterprise 1st , Kindle Edition - by J.-C. Spender – 2014.

REFERENCE BOOKS:

1. Business Environment and Strategy - Educreation Publishing; 01 edition (10 April 2015)
2. Business Policy Strategic Management - Author: by: Aurnob Roy, Vrinda Publications, Reprint 2012.

**Bachelor of Business Administration with Banking Degree Examination - Syllabus for
Candidates admitted from the Academic Year 2015-16 Onwards.**

SIXTH SEMESTER

PART III - CORE 19 – INNOVATIVE BANKING

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge to facilitate about the innovative banking system.

UNIT - I [12 HOURS]

Innovation: Meaning – Need for Innovations in Banking – Constraints in Innovations – Role of Technology in Banking.

UNIT - II [12 HOURS]

Innovation in Savings and Loan Schemes: Innovative Schemes of Bank Deposits, Mutual Funds, Housing Finance, Personal Loans, and Educational Loans.

UNIT - III [12 HOURS]

Innovations in Individual Customer Service: ATMs, Consumer Credit Cards, Green Card, Investment Counseling, 24x7 Banking and Other Services.

UNIT - IV [12 HOURS]

Innovations in Corporate Customer Service: Merchant Banking, Leasing, Venture Capital, Factoring, Dematerialized Accounts, and Cash Management Services.

UNIT - V [12 HOURS]

Policy based Innovations: Setting up of Rural Development Cells, Rural Service Centers, Self Help Groups. Women Entrepreneurs Cells and Model Village Project – Priority Sector Lending Society Oriented Innovations: Community Banking – Financial Inclusion.

TEXT BOOKS:

1. C.B.Gupta, Marketing Management, Sultan Chand & Sons, Revised Edition, 2014.
2. IIBs Publication.
3. House Journals of Banks.

**Bachelor of Business Administration with Banking Degree Examination - Syllabus for
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SIXTH SEMESTER

PART III - CORE 20 – E - COMMERCE

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge of techniques in the application of e-Commerce.

UNIT- I [10 HOURS]
Electronic Commerce-Main Activities E-Commerce-Goals of E-Commerce-Technical Components of E-Commerce-Advantages and Disadvantages of E-Commerce- Electronic Commerce and Electronic Business (C2C) (2G, G2G, B2G, B2P, B2A, P2P, B2A, C2A, B2B, B2C).

UNIT- II [12 HOURS]
The Internet - Domain Names and Internet Organization (.edu , .com, .mil,.gov, .net etc.-Types of Network -Building Own Website-Reasons for Building own Website-Benefits of Website-Cost, Time, Reach-Registering a Domain Name-Target email, Banner Exchange, Shopping Bots.

UNIT- III [12 HOURS]
Planning for Electronic Commerce- Initiates-Linking objectives to business strategies-Measuring Cost Objectives-Comparing benefits to Costs -Strategies for Developing Electronic Commerce Web sites.

UNIT- IV [12 HOURS]
Internet Marketing-The PROS and CONS of online shopping-Internet marketing techniques -The E-cycle of Internet marketing- Personalization E-commerce-Electronic Data Exchange-Introduction-Concepts of -Applications of EDI-Advantages and Disadvantages of EDI-EDI model.

UNIT- V [14 HOURS]
Electronic Payment System - -Credit Card System –Electronic Fund Transfer-Paperless bill - Modern Payment Cash- Electronic Cash-Internet Security-Secure Transaction-Computer Monitoring-Privacy on Internet-Corporate Email privacy-Computer Crime(Laws , Types of Crimes)

TEXT BOOKS:

1. G.S.V. Murthy, E-Commerce Concepts, Models, Strategies- Himalaya Publishing House, 5th Edition, 2010.
2. Kamlesh K Bajaj and Debjani Nag, E- Commerce, McGraw Hill Education, Revised Edition, 2005.

REFERENCE BOOKS:

1. E-Commerce, Fundamentals & Applications ,2009, Chand (Wiley) University of Pune.

**Bachelor of Business Administration with Banking Degree Examination - Syllabus for
Candidates admitted from the Academic Year 2015-16 Onwards.**

SIXTH SEMESTER

PART III – ELECTIVE II – EVENT MARKETING

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge to Marketing, Pricing and Promotion.

UNIT I [12 HOURS]

Principles of Event Management: Introduction to Event Management, Concept and Designing, Feasibility, Keys to Success.

UNIT II [12 HOURS]

Events defined- Introduction of event management – event marketing-5C- Marketing Mix, Sponsorship, Image, Branding, Advertising, Publicity and Public Relations.

UNIT III [12 HOURS]

Event Planning and Team Management: Aim to Event, Develop a Mission, Establish Objectives, Preparing Event Proposal, Use of Planning Tools; Protocols, Dress Codes, Staging, Staffing, Leadership Traits and Characteristics.

UNIT IV [12 HOURS]

Marketing Of Events - The Need for Marketing, Consumer Expectations, Marketing Mix, Four Ps, Elements, The Promotional mix, What should be the basis of Pricing, When should the Payment be Made, How Should the Payment be Made, Promotion, Strategic Decision, Marketing Objectives, The Promotional Mix, The Media Mix.

UNIT V [12 HOURS]

Future Of Event Marketing - Event Promotion, Tools of Promotion, Advertising, Public Relations, Tips on writing a New Release, What is a Media kit, Direct Marketing, Word of Mouth, Hospitality, Websites, The Promotion Schedule, Planning a Promotion Campaign for an Event.

TEXT BOOKS:

1. Sanjaya Singh Gaurand Sanjay Sanger, Event Marketing and Management, Revised Edition , PHI,2008,Delhi
2. Ramasamy and Namakumari, Marketing Management,6th Edition, Macmillan, 2009,Chennai.

REFERENCE BOOKS:

- 1.Philip Kotler ,Kevin Lane Kellar,Abraham Koshy Mithileshwar jha, Marketing Management,13th Edition, Pearson Education, 2009,South Asia
2. Rajan Saxena-Marketing Management, 3rd Edition, Mc Graw Hill, 2006, Delhi.

**Bachelor of Business Administration with Banking Degree Examination - Syllabus for
Candidates admitted from the Academic Year 2015-16 Onwards.**

SIXTH SEMESTER

PART III – ELECTIVE II – FINANCIAL SERVICES

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge of the Concepts, Methods and Practices of Financial Services.

UNIT I [12 HOURS]

Indian Financial System: Introduction- Scope – Objective – Functions of Financial System – Components of Financial Services – Key Elements – Recent Development in Indian Financial System.

UNIT II [12 HOURS]

Financial Market: Meaning – Types –Money Market – Instruments (T- Bill, Call, CP, CB, CD, CBLO) – Concept – Capital Market – Primary Market & Secondary Market – Issue Management (IPO Process).

UNIT III [13 HOURS]

Mutual Funds : Introduction- Characteristics – General Classification – Operations – Hire Purchase – Concept – Feature –Parties Involved – Leasing – Concept – Types - Hire Purchase vs. Leasing.

UNIT IV [13 HOURS]

Venture Capital : Concept – Forms – Stages – Bill Discounting – Concept – Types- Credit Rating – Concept – Process – Types – Credit Rating Agencies in India – Depository – Meaning – Depositories in India.

UNIT V [10 HOURS]

Regulatory: RBI – Introduction – Origin – Objectives – Functions – Roles – SEBI – Objective – Function – Powers – Organization – SEBI & Central Government..

TEXT BOOKS:

1. E.Gordon And Natarajan.K,Financial Marketing Services, Himalaya Publishing House,3rd Edition 2006,Mumbai.
2. M.Y. Khan- Financial Services, Prentice Hall,7th Edition,2009, India.

REFERENCE BOOKS:

1. Sunil .K. Parameswaran, Futures Market, Tata McGraw,3rd Edition, 2006,Delhi.
2. Dr.S.Gurusamy,Essential Of Financial Services, Mc Graw Hill,7th Edition, 2009,Chennai.

**Bachelor of Business Administration with Banking Degree Examination - Syllabus for
Candidates admitted from the Academic Year 2015-16 Onwards.**

SIXTH SEMESTER

PART III – ELECTIVE II – HUMAN RESOURCE DEVELOPMENT

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge of laws applicable and prevailing in the industry and its implication.

UNIT –I [12 HOURS]

Human resource Development: Definition - Characteristics - Need for HRD -HRD Methods - HRD Process. HRD Objectives – HRD Policies — Steps involved in introducing HRD System.

UNIT –II [12 HOURS]

Development of HRD Strategy: HRD Strategies – Designing HRD strategy- Future Challenges to HRD strategy – HRD Model.Organizational Culture and Climate: Meaning - Forms of HRD Organization – Role of HRD in Organizational Culture.

UNIT –III [12 HOURS]

Development of Human Resource Capacity: Individual Behaviors – Importance of Personality – Attitudes, Values and Beliefs – Determination of personnel quality. Group Dynamics – Meaning- Characteristics - Types - Morale – Relationship between Morale and Productivity. Career Planning: Meaning, Steps involved in Career Planning - Management of Career stages.

UNIT –IV [12 HOURS]

Employee counseling and Mentoring: Concept and definitions of employee counseling – Types- Concept and Characteristics of mentoring – principles – Mentoring Process – Benefits- Elements of Successful Mentoring. Employee Empowerment – Process – Benefits of Employee Empowerment.

UNIT – V [12 HOURS]

Quality of Work Life: Definition – Objectives – Importance – Ways to increase the quality of work life – HRD Audit and Accounting –Objectives – Methods – Role. HRD Scenario in Indian Organization – Managing HRD functions effectively.

TEXT BOOK:

1. Tripathi.P.C , Human resource Development , Sulthan Chand & sons , New Delhi ,7th Edition,Reprint(2015).

REFERENCE BOOKS:

1. Deb Tapomoy, Human Resource Development Theory & Practice, Ane Books Pvt.Ltd, New Delhi, 3rd Edition (2010).
2. Rao.T.V, Human Resource Development Experiences Interventions Strategies, Sage Publications, New Delhi, 18th Edition (2010).

**Bachelor of Business Administration with Banking Degree Examination - Syllabus for
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SIXTH SEMESTER

PART III – ELECTIVE III – SUPPLY CHAIN AND LOGISTIC

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objective: To enable the students to have an insight view on stages of Supply Chain Management and to know how a logistic strategy fits into an organization decision.

UNIT - I [12 HOURS]

Supply Chain Management – Definition – objectives – Evolution - need-Issues involved in developing Supply Chain Management Framework-Types. Supply Chain Management activities - constituents - Organisation.

UNIT - II [12 HOURS]

Supply chain Integration-Stages-Barriers to internal integration-Achieving Excellence in Supply Chain Management - Dimensions of Supply Chain Excellence-Forces influencing Supply Chain Excellence Emotions - Physical and Financial Supply Chains-Check list for Excellence.

UNIT – III [12 HOURS]

Purchasing process - Supply Management-Introduction-importance Objectives purchasing process-purchasing & other functions-Purchasing and integrated logistics interfaces-Types of purchases-Purchasing partnerships-Materials sourcing-Just-in-time purchasing.

UNIT – IV [12 HOURS]

Logistics- Definition - History and Evolution- Objectives-Elements-activities importance- The work of logistics-Logistics interface with marketing-retails logistics-Emerging concept in logistics.

UNIT – V [12 HOURS]

Logistics Management-Definition-Achievement of competitive advantage through logistics Framework-Role of Logistics management-Integrated Logistics Management- Evolution of the concept- model - process-activities (in brief).

TEXT BOOKS:

1. Satish C. Ailawadi & Rakesh Singh: Logistics Management (2nd edition), Prentice-Hall of India Pvt Ltd., New Delhi, 2013
2. Rahul V. Altekar , Supply Chain Management Prentice-Hall of India Pvt Ltd., New Delhi, 2013

REFERENCE BOOKS:

1. V.V.Sople, Logistics Management, Pearson Education India; Third edition (2012).
2. James Stevaens , Supply chain Management (Strategy, Planning, Operations for Logistics Management), Shepal Publishing 2016

**Bachelor of Business Administration with Banking Degree Examination - Syllabus for
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SIXTH SEMESTER

PART III – ELECTIVE III – STOCK EXCHANGE AND PRACTICES

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

OBJECTIVE: To help the students understand the types of stock exchanges, methods of trading in stock exchanges and kinds of intermediaries in the capital market.

UNIT I [12 HOURS]

Need and Importance of Capital Market – Primary and Secondary Market- Different types of Securities dealt in the Capital Market.

UNIT II [12 HOURS]

Secondary Market – Origin and Growth – Types of Securities traded – Role and Functions of Stock Exchange – Organization and Management – OTCEI – NSE –Reading of Stock Indices - Weaknesses of Stock Exchange .

UNIT III [12 HOURS]

Listing of Securities – Group A, Group B, Group C Shares – Advantages of Listing – Drawbacks – Listing Procedure – Criteria for Listing – Listing Obligations.

UNIT IV [12 HOURS]

Registration of Stock Brokers – Registration Procedure – Code of Conduct for Stock Brokers – Kinds of Brokers and their Assistants – Methods of Trading in a Stock Exchange – Carry over or Badla Transactions – Genuine Trading – Kinds of Speculators – Speculative Transactions.

UNIT V [12 HOURS]

Credit Rating – CRISIL – CARE – ICRA Agencies Dematerialization – Depositories.

TEXT BOOK:

1. Punidhavathi, Security Analysis & Portfolio Management, Revised Edition, 2010, Vikas Publishing House.

REFERENCE BOOKS:

1. Prasanna Chandra, Investment Management & Portfolio Management, 4th Edition, 2012, McGraw Hill Education.
2. Preeti Singh, Security Analysis, Himalaya Publishing House, Revised Edition, 2010.

**Bachelor of Business Administration with Banking Degree Examination - Syllabus for
Candidates admitted from the Academic Year 2015-16 Onwards.**

SIXTH SEMESTER

PART III – ELECTIVE III – TRAINING AND DEVELOPMENT

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge of laws applicable and prevailing in the industry and its implication.

UNIT I [12 HOURS]

Concept in training- - Principles in Training- Components in Training- Trainers- Training Skills- Consultants for T&D- Organizational Climate for T& D- System Model in T&D.

UNIT II [12 HOURS]

Training Methods- Types in Training - Choosing Appropriate T&D Method - Designing - T&D Methods Strategic T&D Process- Organizational Characteristics that Influence Training- Models in Organizing the Training Department.

UNIT III [12 HOURS]

Learning- Concept- Learning Cycle- Learning Window- Principles in Learning- Learning Theories: Reinforcement Theory, Social Learning Theory, Need Theory, Expectancy Theory, Adult Learning Theory, The Learning Process- Considerations in Designing Effective Training Programs.

UNIT IV [12 HOURS]

Training Evaluation- Objectives- Purposes- Reasons for Evaluating Training- Types in Evaluation- Process in Evaluation- Outcomes Used in Evaluation in Training Programs- Evaluation Designs. Employee Development- Approaches- Development Planning Process.

UNIT V [12 HOURS]

Special Issues in Training & Employee Development: External Environment- Internal Needs in the Company. Career Management- Model in Career Development- Career Management Systems – Roles of Employees, HR Managers & Company in Career Management- Evaluating Career Management Systems.

TEXT BOOK:

1. Lalitha Balakrishnan and Gowri Ramachandran, Training and Development, Vijay Nicole Imprints Pvt.Ltd., Chennai, January 2015.

REFERENCE BOOKS:

1. Tapomoy Deb, Training and Development Concepts and Application, Ane Books India, 2009.
2. Blanchard and Thacker, Effective Training Systems, Strategies and Practices, 3rd Edition, Pearson Prentice Hall, 2009, New Delhi.
3. ShashiKapur, Training and Development, 1st Edition, Infinity Books, 2004.

Bachelor of Commerce (B.Com)
Scheme of Examination (CBCS Pattern)
For the Candidates admitted from the Academic Year 2018-2019 onwards

Part	Sub Code	Subject Title	Ins.Hrs/Week	Examination				
				Dur. Hrs.	CIA	CE	Total	Credit
SEMESTER I								
I	16LATA01/ 18LAHI01/ 15LAMY01/ 15LAFR01	Language –I : Tamil-I, Hindi-I, Malayalam-I, French-I	5	3	30	70	100	3
II	16ENG001	English-I	5	3	30	70	100	3
III	17BCM101	Core 1:Financial Accounting – I	6	3	30	70	100	4
III	18BCM102	Core 2: Essentials of Commerce	6	3	30	70	100	4
III	16BCMID1	IDC 1: Business Economics and Economic Development	6	3	30	70	100	4
IV	18UFCA01	Foundation Course I : Environmental studies #	2	3	-	50	50	2
		Total	30				550	20
SEMESTER II								
I	16LATA02/ 18LAHI02/ 15LAMY02/ 15LAFR02	Language –II: Tamil-II, Hindi-II, Malayalam-II, French-II	5	3	30	70	100	3
II	16ENG002	English – II	5	3	30	70	100	3
III	17BCM201	Core 3: Financial Accounting -II	6	3	30	70	100	4
III	18BCM202	Core 4 : Principles of Banking and Insurance	6	3	30	70	100	4
III	17BCMID2	IDC 2 : Practical –I Computer Applications in Business – MS Office	6	3	40	60	100	4
IV	18UFCA02	Foundation Course II: Value Education #	2	3	-	50	50	2
		Total	30				550	20
SEMESTER III								
III	18BCM301	Core 5: Corporate Accounting	5	3	30	70	100	4
III	17BCM302	Core 6: E. Commerce	5	3	30	70	100	4
III	15BCM303	Core 7 : Commercial Law	5	3	30	70	100	4

III	17BCM304	Core 8: Principles of Marketing	5	3	30	70	100	4
III	16BCMID3	IDC 3 : Business Mathematics	5	3	30	70	100	4
IV	17BCMAO1/O2	AOC I	3	3	-	-	75	3
IV	16BTA001/ 16ATA001/ 15BCMED1	EDC I : Basic Tamil I /Advanced Tamil I / Web Designing #	2	3	-	50	50	2
		Total	30				625	25
SEMESTER IV								
III	15BCM401	Core 9 : Higher Corporate Accounting	5	3	30	70	100	4
III	17BCM402	Core 10: Company Law and Secretarial Practice	5	3	30	70	100	4
III	16BCM403	Core 11:Corporate Communication	5	3	30	70	100	4
III	17BCM404	Core 12: Practical II – Computerized Accounting with Tally	5	3	40	60	100	4
III	16BCMID4	IDC 4 : Business Statistics	5	3	30	70	100	4
IV	17BCMAO3/O4	AOC II	3	3	-	-	75	3
IV	16BTA002/ 16ATA001/ 15EDC002	EDC II : Basic Tamil II/Advanced Tamil II/ Communicative English #	2	3	—	50	50	2
V	15NSS001/ 15NCC001/ 15SPT001/ 15EXT001	NCC/NSS/Sports and Extension Activities	—	—	50	—	50	2
		Total	30				675	27
SEMESTER V								
III	15BCM501	Core 13: Cost Accounting	5	3	30	70	100	4
III	15BCM502	Core 14: Management Principles and Practices	5	3	30	70	100	4
III	15BCM503	Core 15: Income Tax Law and Practice	5	3	30	70	100	4
III	15BCM504	Core 16: Principles of Auditing	5	3	30	70	100	4
III	15BCM505	Core 17: Entrepreneurial Development	5	3	30	70	100	4
III	15BCME01/ E02/E03	Elective I	5	3	30	70	100	4
III	15BCMPR1	Institutional Training	-	-	-	-	-	-
		Total	30				600	24
SEMESTER VI								
III	15BCM601	Core 18: Management Accounting	5	3	30	70	100	4

III	15BCM602	Core 19: Business Finance	5	3	30	70	100	4
III	15BCM603	Core 20: Marketing Research	5	3	30	70	100	4
III	17BCME04/05/ 15BCME06	Elective II	5	3	30	70	100	4
III	15BCME07/09/ 18BCME08	Elective III	5	3	30	70	100	4
III	15BCMPR2	Project and Viva Voce	-	3	50	50	100	4
		Total	25				600	24
Total							3600	140

No Continuous Internal Assessment (CIA) , only Comprehensive Examination (CE)

@ No Continuous Internal Assessment (CIA) and Comprehensive Examination (CE)

IDC- Inter disciplinary Course , EDC – Extra disciplinary Course , AOC –Application Oriented Course

List of Elective Papers			
Elective I	1	15BCME01	Human Resource Management
	2	15BCME02	Customer Relationship Management
	3	15BCME03	Organizational Behavior
Elective II	1	17BCME04	Retail Marketing
	2	17BCME05	Business Environment
	3	15BCME06	Working Capital Management
Elective III	1	15BCME07	International Financial Reporting Standards
	2	18BCME08	Indian Capital Market
	3	15BCME09	Brand Management

List of AOC			
AOC I	1	17BCMAO1	Industrial Law
	2	17BCMAO2	Cyber Law
AOC II	1	17BCMAO3	Service Marketing
	2	17BCMAO4	Indirect Taxation

List of Additional Credit Papers

Sem	Code	Subject Title	Marks	Credits
III	14BCMAC1	Principles of International Trade	100	2
IV	18BCMAC2	Supply Chain Management	100	2
V	18BCMAC3	Service Marketing	100	2

Summary

Part	No of Papers	Total Credits	Total Marks
I	2	6	200
II	2	6	200
III –Core	20	80	2000
III – IDC	4	16	400
III – Elective	3	12	300
III –Project	1	4	100
IV –Foundation Course	2	4	100
IV – EDC	2	4	100
IV – Application Oriented Course	2	6	150
V Extension Activities	-	2	50
Total	38	140	3600

REGULATIONS

1. Project and Viva Voce:

Each student in the UG final Year shall compulsorily undergo Project work in the 6th semester. Projects shall be done individually. Project Coordinators shall allocate the project title and the guide for each Student. Project work shall be done only in the lab provided by the College, including Project Record Preparation. Project Reviews shall be conducted thrice in which the progress of project work shall be strictly evaluated by respective Project Guides and Project Coordinators. Viva-Voce shall be conducted only in the presence of Industrialists or Academicians. Out of the Total of 100 marks, 50% of mark shall be allocated for CIA and 50% for CE VIVA VOCE.

2. Submission of Record Note Books for practical examinations

Candidates appearing for practical examinations shall submit Bonafide record note books prescribed for practical examinations. If not the candidate has to submit a bonafide certificate issued by the concerned subject in charge duly signed by the Head of the department. In such case, the record marks will not be provided.

3. Distribution of Marks: The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum (Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	28	30	40
	75	75	30	-	30
	50	50	20	-	20
Practical Paper	100	70	24	30	40
Project	100	50	20	50	40

5. Distribution of Internal Mark for Theory:
(No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6=30

Breakup for Attendance:

65% - 74 %	- 4 Marks
75% - 80%	- 6 Marks
81% - 90%	- 8 Marks
91% - 100%	- 10 Marks

Seminar Mark Split up:

Content	- 10 Marks
Flow of presentation	- 10 Marks
Stage Management & Body Language	- 10 Marks

6. Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 40		
S No	CIA	Distribution of Marks
1	For Completion of the Practical List	20
2	Test –I	10
3	Test –II	10
Total		40

7. Distribution of Comprehensive Exam Mark for Practical :

MAXIMUM MARKS : 60		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	10
2	Program – I a) Algorithm b) Coding c) Execution	10 10 5 TOTAL (25)
3	Program – II a) Algorithm b) Coding c) Execution	10 10 5 TOTAL (25)
Total		60

8. Distribution of Mark for Project VIVA-VOCE :

S.No	CIA	Distribution of Marks
1	INTERNAL a) Review –I b) Review –II c) Documentation & Final Review	10 10 30 Total (50)
2	EXTERNAL * a) Presentation b) Viva	30 20 Total (50)
Total		100

***Marks to be awarded by both External and Internal Examiners.**

9. Question Paper Pattern

Time: 3 Hours

Max marks: 70

SECTION – A

(10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Five Definition Questions

Five Multiple Choice Questions

SECTION – B

(5×4=20)

Answer ALL questions

Each question carries FOUR Marks

(INTERNAL CHOICE)

SECTION – C

(5×8=40)

Answerer ALL questions

Each question carries EIGHT Marks

(INTERNAL CHOICE)

10. Question Paper Pattern

Time: 3 Hours

Max marks: 75

SECTION – A

(10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Five Definition Questions

Five Multiple Choice Questions

SECTION – B

(5×5=25)

Answer ALL questions

Each question carries FIVE Marks

(INTERNAL CHOICE)

SECTION – C

(5×8=40)

Answerer ALL questions

Each question carries EIGHT Marks
(INTERNAL CHOICE)

11. Question Paper Pattern

Time: 3 Hours

Max marks: 50

SECTION – A

(10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Five Definition Questions

Five Multiple Choice Questions

SECTION – B

(5×3=15)

Answer ALL questions

Each question carries THREE Marks

(INTERNAL CHOICE)

SECTION – C

(5×5=25)

Answerer ALL questions

Each question carries FIVE Marks

(INTERNAL CHOICE)

12. Question Paper Pattern

Time: 3 Hours

Max marks: 100

SECTION – A

(10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Five Definition Questions

Five Multiple Choice Questions

SECTION – B

(5×8=40)

Answer ALL questions

Each question carries EIGHT Marks

(INTERNAL CHOICE)

SECTION – C

(5×10=50)

Answerer ALL questions

Each question carries TEN Marks

(INTERNAL CHOICE)

NOTE:

1. The questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the unit in the syllabus in all the sections of the question paper.

3. While framing questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

12. Conduct of Practical Examinations:

Practical examinations shall be conducted with one internal examiner and one external examiner and the question paper for practical examination shall be set by both Internal and External examiners.

13. Institutional Training:

The student has to go for Institutional Training at any commercial establishments, for a minimum period of 15 days at the end of fourth semester and has to submit the report during the fifth semester.

**B.Com Degree Examination – Syllabus for Candidates admitted from the academic year
2017-18 onwards**

**FIRST SEMESTER
PART III: CORE I- FINANCIAL ACCOUNTING – I**

**Maximum CIA: 30
Maximum CE: 70
Total Hours: 72**

Objective: To enable the students to learn Principles, Conventions and Concepts of Accounting.

UNIT I (15 HOURS)
Accounting- Origin -Meaning - Scope – Objectives -Accounting Concepts and Conventions –
Double Entry Book Keeping - Journal, Ledger, Subsidiary books, Preparation of Trial Balance,
Rectification of Errors.

UNIT II (15 HOURS)
Preparation of Final accounts with simple adjustments – Accounting for Non- Profit
Organizations: Receipts and Payments Account, Income and Expenditure Account and Balance
sheet.

UNIT III (14 HOURS)
Depreciation – Meaning – Objectives- Causes – Methods of Calculating Depreciation – Straight
Line Method – Diminishing Balance Method - Annuity Method – Sinking Fund Method.

UNIT IV (14 HOURS)
Single entry - Meaning, Features, Defects, Difference between Single entry and Double entry
Systems –Methods-Statement of Affairs and conversion – Bank Reconciliation Statement.

UNIT V (14 HOURS)
Bills of Exchange (excluding Accommodation Bills) - Average Due Date - Account Current.

TEXT BOOK

1. Reddy T.S and Murthy.A, Financial Accounting, 5th Edition, Margham Publications, 2016, Chennai.

REFERENCE BOOKS

1. Tulsian.P.C, Financial Accounting, 2nd Edition, Tata Mc Graw Hill, 2016, New Delhi.
2. Grewal.T.S, Introduction to Accountancy, 9th Edition, S.Chand and Company Ltd., 2016, New Delhi.

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2018-19 onwards

**FIRST SEMESTER
PART III - CORE 2 – ESSENTIALS OF COMMERCE**

Maximum CIA: 30

Maximum CE: 70

Total Hours : 72

Objectives:

To enrich the students in the fundamental areas of commerce.

UNIT- I (15 HOURS)

Commerce: Meaning – Features - Importance –Functions -Nature and Scope – Trade – Types- Differences between trade, business and commerce. Business – objectives - Evolution – Barter system – Ethics in business- Social responsibilities of business.

UNIT-II (14 HOURS)

Forms of Business organizations: Sole trader- Features – Partnership-Definition – Features – Advantages – Disadvantages – Partnership deed – Kinds of partner – Company – types – formation – Co-operative enterprises - Selection of form of organization -

UNIT-III (14 HOURS)

Chamber of Commerce: Need –Features –objectives - Functions –Importance - Benefits - Role for economic development –International chamber of commerce –ICC Arbitration –FICCI – Trade Associations – Trade Unions –Difference between trade association and chamber of commerce.

UNIT-IV (15 HOURS)

Share Trading : Share - Meaning – types – Equity share – Preference share – Advantages – Disadvantages — Stock exchange – Functions – SEBI – Powers - Share trading procedures.

UNIT-V (15 HOURS)

Taxation: Objectives – Types – Tax system in India - Indian constitution and tax system in India – Taxation powers of union and state government – Computation of tax.

TEXT BOOKS

1. G. Prasad, “ Business organization”, Margham publication, 7th Edition 2016
2. Gorden and Natarajan, “Banking theory law and practice” Himalya publishing house, 25th Revised Edition 2017.
3. T.S. Reddy, “ Income tax theory, Law and practice”, Margham publications, 17th Edition 2017.

REFERENCE BOOKS

1. Kathiresan & Radha,” Business Organisation”, Prasanna Publishers, 25th Edition, 2016.
2. Sundharam & Varshney, “ Banking Theory, Law & Practice”, Sultan Chand, 19th Edition, 2016.
- 3.G.P.Gaur & D.B. Narang, “ Income Tax Law & Practice”, Kalyani Publishers, 35th Edition, 2017.

B.Com Degree Examination – Syllabus – for candidates admitted from the Academic Year 2018– 2019 onwards

FIRST SEMESTER

PART III – IDC 1- BUSINESS ECONOMICS AND ECONOMIC DEVELOPMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

UNIT 1 (15 HOURS)

Introduction to economics: Definition –Nature and Scope of Economics –Decision Making in Business – Demand – Meaning - Determinants –Law of Demand - Elasticity of Demand

UNIT-II (14 HOURS)

Introduction to Supply - Equilibrium – Utility - Law of Diminishing Marginal Utility - Equimarginal utility-Production-Factors of Production-Law of Variable Proportion>Returns to Scale.

UNIT-III (13 HOURS)

Introduction to market structure: Types of Competition – Perfect Competition-Monopoly-Monopolistic Competition - Oligopoly.

UNIT-IV (15 HOURS)

Introduction to Economic Growth and Development - Characteristics of Under developed Countries – Determinants – Obstacles - Indian Agriculture and its Role in Indian Economy.

UNIT-V (15 HOURS)

Growth of Population in India – Population Policy - Higher Education – Health – Infrastructure -Technology and Development.

TEXT BOOK

1.Sundharam K.P.M. and Sundaram .E.N, Business Economics, 4th Edition Sultan Chand and sons.2007, New Delhi.

REFERENCE BOOKS

1.Ahuja.H.L.Business economics 6th Edition, S.Chand & Company Ltd., 2007, New Delhi.

2.Ruddar Datt, K.P.M. Sundharam, Indian Economy, S.Chand Company Ltd, latest edition, Ram nagar, New Delhi.

3. S.K. Mishra, V.K. Puri, Indian Economy, Himalaya Publishing House, Latest Edition, New Delhi.

**B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year
2017-18 onwards**

**SECOND SEMESTER
PART III: CORE 3- FINANCIAL ACCOUNTING – II**

**Maximum CIA: 30
Maximum CE: 70
Total Hours: 72**

Objective: To enable the students to learn Principles, Conventions and Concepts of Accounting.

UNIT – I (15 HOURS)

Hire Purchase and Installment System – Branch accounts: Dependent Branch – Independent Branch (excluding Foreign Branch)

UNIT – II (15 HOURS)

Consignment – Valuation of unsold Stock – Normal Loss – Abnormal Loss –Joint Venture (Excluding Memorandum of Joint Venture Account)

Unit – III (15 HOURS)

Admission and Retirement of Partner – Treatment of Goodwill – Revaluation of Assets and Liabilities – Calculation of Gaining and Solvency Ratio – Death of a Partner –Settlement to executor.

UNIT – IV (14 HOURS)

Dissolution – Insolvency of Partners – Garner Vs Murray – Preparation of Deficiency A/C

UNIT – V (14 HOURS)

Conversion of Partnership into Company – Insolvency A/c – Preparation of Statement of Affairs – Deficiency A/c

TEXT BOOK

1. Reddy T.S and Murthy.A, Financial Accounting, 5th Edition, Margham Publications, 2016, Chennai.

REFERENCE BOOKS

2. Tulsian.P.C, Financial Accounting, 2nd Edition, Tata Mc Graw Hill, 2016, New Delhi.
3. Grewal.T.S, Introduction to Accountancy, 9th Edition, S.Chand and Company Ltd., 2016, New Delhi.

B.Com Degree Examination – Syllabus – for candidates admitted from the Academic Year 2018– 2019 onwards

SECOND SEMESTER

PART III – CORE 4- PRINCIPLES OF BANKING AND INSURANCE

Maximum CIA - 30

Maximum CE - 70

Total Hours: 60

Objective:

To impart the knowledge on the theory and practice of Banking and to understand about Insurance.

UNIT I

(12 HOURS)

Banker and Customer- Definition-Relation between Banker and Customer-Paying and Collecting Banker-Rights and Responsibilities – Commercial Banks –Evolution - Functions of Modern Commercial Banks – Branch Banking – CRM In Banking – Multinational Banking – Customer Service.

UNIT II

(12 HOURS)

Opening of a New Account — Types of Accounts – Fixed Deposit and its implications – Savings Account – Current Account – Recurring Deposit –New deposit saving schemes introduced by banks- Special Type of Customers – Minor – Lunatic – Drunkards – Joint Accounts – Partnership Account – Public Limited Account – Closure of Accounts.

UNIT III

(12 HOURS)

Negotiable Instruments – Meaning – Characteristics – Types – Bills Of Exchange – Essentials – Promissory Note – Essentials – Cheques –Drawing of a cheque- Crossing of Cheques- Marking of Cheques –Types of Cheque- Essentials – Endorsements –Types –Online Bank Transactions- NEFT-IMPS-RTGs

UNIT IV

(12 HOURS)

Insurance-Meaning-Need- Principles -Contract of Insurance(Indemnity, Guarantee, Subrogation)- -Classifications of Insurance-IRDA Act 1938-Constitutions of IRDA-Objectives- Indian Companies Act 2013-Role of Insurance in Economic Development-Privatisation of Insurance.

UNIT V

(12 HOURS)

General Insurance Business act 1973- Role of GIC- Recent Developments- Procedures -Motor Vehicle Act 1988-Fire Insurance - Marine Insurance Act– Essentials –Types -Reinsurance – Concepts – Types - Double Insurance.

TEXT BOOKS :

1. Gordon and Natarajan , Banking theory law and practice, Himalaya publishing house,New Delhi.Revised Edition 2016.
2. Principles and Practises of Insurance, , Himalaya publishing house,New Delhi.Revised Edition 2017

REFERENCE BOOK:

1. N.C .Majumdar , Fundamentals of Modern Banking , New central book agency (P) Ltd, New Delhi, 2010.

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2017-18 onwards

SECOND SEMESTER

PART III – IDC 2 – PRACTICAL I – COMPUTER APPLICATIONS IN BUSINESS

Maximum CIA: 40

Maximum CE: 60

Total Hours: 72

Objective:

Enabling the students to acquire practical knowledge to be successful in Ms Office

I – MS WORD

1. Prepare Chairman's Speech/ Auditors Report Minutes/ Agenda and Perform the following Operations: Bold- Underline- Font Size- Style- Background Color- Text Color- Line Spacing- Spell Check- Alignment- Header and Footer- Inserting Pages and Page Numbers- Find and Replace.
2. Prepare an Invitation for the College Function Using Text Boxes and Clip arts.
3. Prepare Class Time Table and Perform the Following Operations Inserting the Table- Data Entry- Alignment of Rows and Columns- Inserting and Deleting the Rows and Columns and Change of Table Format.
4. Prepare Shareholders Meeting Letter for 10 Members Using Mail Merge Operation.
5. Prepare Bio- Data by Using Wizard/ Templates.

II – MS EXCEL

1. Prepare Mark List of Your Class (Minimum of 5 Subjects) and Perform the following Operations: Data Entry- Total- Average- Result and Ranking by Using Arithmetic and Logical functions and sorting.
2. Prepare Statement of Bank Customer's Account Showing Simple and Compound Interest Calculations for 10 different Customers using Mathematical and Logical functions.
3. Prepare a Result Analysis chart with subject details, staff details and pass percentage details.

III – MS POWERPOINT

1. Design a Presentation slides for a Product of Your Choice.
2. Design a Presentation Slides for Organization details for 5 levels of hierarchy of a Company by using Organization chart.
3. Design a presentation slides for the Seminar/Lecture Presentation using Animation effects and perform the following operations: Creation of different Slides- Changing Background Color – Font Color Word Art.

IV MS ACCESS

1. Prepare a Payroll for Employee database of an Organization with the following details: Employee Id- Employee Name- Date of Birth- Department and Designation- Date of Appointment- Calculation of Basic Pay- Dearness Allowance- and House Rent Allowance and other deductions (if any) and perform queries for different categories.
2. Create Mailing Labels for Student's Database which should include at least three tables must have at least two fields with the following details-Roll Number- Name- Course-Year- College Name- University- Address- Phone Number.
3. Gather Price- Quantity and other descriptions for five products and enter in the Access Table and create an invoice in form design view.
4. Prepare a Report based on Invoice details such as product number, quantity, price etc., for five products.

TEXT BOOK

1. R.K.Taxali, PC Software, 1st edition Tata MC Graw Hill , 2005, (Last Edition).

REFERENCE BOOKS

1. Ashok Kisor, Tally 9, 2nd Edition BPB Publication, 2001, New Delhi.
2. Dinesh Veerma, Computer Basics and PC Software, Gullybaba Publishing House, 2012

B.Com Degree Examination – Syllabus for candidates admitted from the academic Year 2018-19 onwards

**THIRD SEMESTER
PART III - CORE 5 - CORPORATE ACCOUNTING**

Maximum CIA: 30

Maximum CE : 70

Total Hours: 60

Objective:

To enable the students understand the preparation of accounts of companies.

Unit I (12 Hours)

Issue of Shares – Various kinds – Under subscription and over subscription- Issue of Share at Discount and Premium - Pro rata allotment - Forfeiture of Shares – Reissue of Forfeited Shares.

Unit II (12 Hours)

Redemption of Preference shares - Underwriting of shares – Types of Underwriting – Marked and Unmarked Application – Complete Underwriting – Partial Underwriting - Firm underwriting

Unit III (12 Hours)

Issue of Debentures – Distinction between Shares and Debentures - Par, Premium and Discount Rating - Redemption of Debentures.

Unit IV (12 Hours)

Liquidation of Companies – Preparation of Statement of affairs and Deficiency account - Valuation of Goodwill and Shares.

Unit V (12 Hours)

Profits prior to Incorporation – Preparation of Final Accounts of Companies – (including Managerial Remuneration Calculation).

NOTE : Distribution of marks : Theory 20% and Problems 80%

Text Books

1. T.S. Reddy, A. Murthy, Corporate Accounting , Revised Edition, Margham Publication, New Delhi, 2015

Reference Books

1. Gupta R.L, Radhaswamy .M ,Corporate Accounts, 13th Revised Edition, Sultan Chand and Co., New Delhi, 2006.
2. Shukla M.C , Grewal T.S., Gupta S.L., Advanced Accountancy, 12th Edition, S. Chand and Co., New Delhi, 2005.

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2017-18 onwards

**THIRD SEMESTER
PART III – CORE 6 – E-COMMERCE**

Maximum CIA - 30

Maximum CE - 70

Total Hours: 60

Objective: To enable the students to have knowledge in electronic commerce

UNIT I (12 HOURS)

Electronic Commerce-Meaning-Introduction to E-Commerce-Goals of E-Commerce-Technical Components of E-Commerce-Advantages and Disadvantages of E-Commerce- Electronic Commerce and Electronic Business- C2C,C2G,G2G, B2G, B2P, B2A, P2P, B2A, C2A, B2B, B2C

UNIT II (12 HOURS)

The Internet - Domain Names and Internet Organization (.edu ,.com, .mil,.gov, .net etc.-Types of Network -World Wide Web–Benefits of Website- -Target email, Banner Exchange, Shopping Bots

UNIT III (12 HOURS)

Planning for Electronic Commerce--Linking objectives to business strategies-Measuring cost objectives-Comparing benefits to Costs -Strategies for developing electronic commerce web sites- E-marketing-E-Advertising-E-commerce sites- Designs.

UNIT IV (12 HOURS)

Internet Marketing-The PROS and CONS of online shopping-Internet marketing techniques- - The E-cycle of Internet marketing-Personalization E-commerce - Electronic Data Exchange-Introduction-Concepts of EDI -Applications of EDI-Advantages and Disadvantages of EDI-EDI model.

UNIT V (12 HOURS)

E -Payment System -Benefits –Components-Credit Card System –Electronic Fund Transfer-Paperless bill -Modern Payment Cash- Electronic Cash-Internet Security-Secure Transaction- - Privacy on Internet-Corporate Email privacy-Computer Crime- Laws - Types of Crimes.

TEXT BOOK:

1. Dr. K. Abirami Devi, Dr. M. Alagammai, E-Commerce, Margham Publications , Chennai, Reprint 2015.

REFERENCE BOOKS:

1.. P.T.Joseph, S.J, “E-Commerce- An Indian Perspective”, 4th Edition, PHI Publishers, New Delhi, 2016

2. David Whitley, E - Commerce: Strategy, Technologies and Applications, Tata McGrawHill, New Delhi, 2001.

B.Com Degree Examination – Syllabus for the Candidates admitted from the Academic Year 2015-16 onwards

**THIRD SEMESTER
PART III - CORE 7 - COMMERCIAL LAW**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

On the successful completion of this paper, the students should be well versed in the basic provisions regarding legal framework governing the business world.

UNIT I (12 HOURS)

Sources of Law- Law of Contract – Nature –Kinds - Essentials of Valid Contract Offer- Acceptance- Intention to create Legal Relations – Considerations- Capacity to a Contract.

UNIT II (12 HOURS)

Free Consent – Mistake – Misrepresentations – Fraud – Coercion and Undue Influence – Lawful Object – Agreement not declared Void – Legal Formalities.

UNIT III (12 HOURS)

Contingent Contract – Performance of Contract – Remedies for Breach of Contract – Quasi Contracts – Discharge of contract.

UNIT IV (12 HOURS)

Special Contracts – Indemnity and guarantee – Rights and liabilities of Surety- Discharge of Surety-Agency – Bailment and Pledge.

UNIT V (12 HOURS)

Law relating Sale of Goods Act 1930 – Right of Unpaid Seller – Caveat Emptor – Auction Sale – Condition and Warranties to sell – Performance of contract of Sale-Rights and Duties of Buyer- Rights of Unpaid seller

TEXT BOOK

1. N.D.Kapoor, Business Law, 5th Revised Edition , Sulthan Chand and Sons, New Delhi, 2014.

REFERENCE BOOKS

1. S.KathiresanV.Radha, Commercial Law, Prasanna Publication, Chennai, 2002.
- 2..N.Premadevi, Business Law, Sri Vishnu publication, Chennai, 2003.
3. Noshirvan H.Jhabvala , Sale of Goods Act &The IPA , Jamnadas &Co , Mumbai,2000

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2017-18 onwards

**THIRD SEMESTER
PART III - CORE 8 - PRINCIPLES OF MARKETING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

On the successful completion of this paper the students should have acquired the basic knowledge of marketing and its functions.

UNIT – I (12 HOURS)

Introduction to Market - Meaning, Definition and Concept – Role and Importance of Market- Evolution of Marketing-Traditional and Modern Marketing concepts - Classification of Market-Marketing Function –Functions of Marketing Manager - Marketing Process.

UNIT – II (12 HOURS)

Marketing Mix - Product mix – Meaning of products – Product Life Cycle – Branding, Labeling - Price mix, Importance of Price – Pricing Objectives - Kinds of Pricing – Pricing Strategies

UNIT – III (12 HOURS)

Promotion - Advertisement – Personal Selling and Sale promotion - Distribution - Importance of Channels of Distribution – Meaning – Functions of Middlemen – Elimination of Middlemen.

UNIT – IV (12 HOURS)

Market Segmentation – Benefits – Bases – Requisites of Sound Market Segmentation – Market Segments and Marketing Mix – Buyer Behaviour – Significance – Buying Process – Steps in Online Buying Process – Buyer Behaviour Models.

UNIT – V (12 HOURS)

Recent Trends in Marketing – E-Marketing, Direct Marketing, Online Marketing, Market Research, AG-MARK-Green Marketing- Consumerism and Consumer rights.

TEXT BOOK

1. Philip Kotler, Gary Armstrong, Principles of Marketing, 14th Edition, Prentice Hall of India Pvt Ltd, 2015.

REFERENCE BOOKS

1. Gupta.C.B , Rajan Nair. N, Marketing Management, 11th Edition, Sultan Chand and Sons, New Delhi, 2014.
2. Varshney R.L and Gupta S.L, Marketing Management, 3rd Edition, Sultan Chand and Sons, 2013

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2016-17 onwards

**THIRD SEMESTER
PAER IV: AOC I- INDUSTRIAL LAW**

Maximum CE: 75

Total Hours: 36

Objective : After completion of this Course the Students shall be through knowledge in Industrial Legislations.

UNIT – 1 (7 HOURS)
Factories Act 1948 – Provisions relating to Health, Safety and Welfare – Employment of Child and Young Men – Adult Workers – Women Workers.

UNIT – II (6 HOURS)
Industrial Disputes Act 1947 – Provision relating to Strike, Lockout and Retrenchment. Layoff – closure – Machinery to solve dispute.

UNIT – III (8 HOURS)
Trade Unions Act 1926 – Definitions registration - Rights and Privileges – Cancellations of Registration – Political Fund – Payment of Wages Act 1926 – Permissible Deductions – Time and Mode of Payment.

UNIT - IV (8 HOURS)
Payment of Bonus Act 1965-Meaning of Gross Profit- Computation of available and allocable Surplus – Eligibility for Bonus – Minimum & Maximum Bonus – Exemption – Applicability of the Act – Employees State Insurance Act of 1948 – Definition –Medical Board – Purpose for which Funds can be spent – Benefits.

UNIT – V (7 HOURS)
The Minimum Wage Act 1948 – Workmen’s Compensation Act 1923 – Employers Liability & Non-Liability. Partial , Permanent and Total Disablement – Accusation Diseases.

TEXT BOOK

1. N.D.Kapoor , Industrial Laws, Sulthan Chand and Sons Publications, 2013

REFERENCE BOOKS

1. P.K. Pathi, Labour and Industrial Law, Prentice Hall India Learning Pvt., Ltd, 2nd Edition, 2012
2. S.S.Srivatsava, Industrial Relations and Labour Laws, Vikas Publishing House, 6th Edition, 2012

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2016-17 onwards

**THIRD SEMESTER
PART IV: AOC I - CYBER LAW**

**Maximum CE: 75
Total Hours: 36**

Objectives :

After the successful completion of the course the student shall gain knowledge on various Cyber Acts and its practical applications.

UNIT I (7 HOURS)

Cyber Law: Introduction- Concept of Cyberspace- E-Commerce in India-Privacy factors in ECommerce- Cyber law in E-Commerce-Contract Aspects.

UNIT II (7 HOURS)

Security Aspects: Introduction-Technical Aspects of Encryption-Digital Signature-Data Security. Intellectual Property Aspects: WIPO-GII-ECMS-Indian Copy rights Act on Soft Proprietary Works-Indian Patents Act on Soft Proprietary works.

UNIT III (8 HOURS)

Evidence Aspects: Evidence as part of the Law of Procedures –Applicability of the Law of Evidence on Electronic Records-The Indian Evidence Act 1872.Criminal Aspect: Computer Crime-Factors influencing Computer Crime- Strategy for prevention of Computer Crime Amendments to Indian Penal Code 1860.

UNIT IV (7 HOURS)

Global Trends- Legal frame work for Electronic Data Interchange: EDI Mechanism-Electronic Data Interchange Scenario in India

UNIT V (7 HOURS)

The Information Technology Act 2000-Definitions-Authentication of Electronic Records Electronic Governance-Digital Signature Certificates.

TEXT BOOK

1. The Indian Cyber Law: Suresh T.Viswanathan, Bharat Law House, New Delhi

REFERENCE BOOKS

1. Pavan Duggal, Text Book on Cyber Law, Universal Law Publishing Co.,2nd Edition, 2016
2. Dr.P.Rizwan Ahmed, Cyber Law, Margham Publication, 2016

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B.Com Degree Examination – Syllabus for the Candidates admitted from the Academic Year 2015-16 onwards

FOURTH SEMESTER

PART III - CORE 9 –HIGHER CORPORATE ACCOUNTING

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective :

To enable the students understand the preparation of accounts of companies

UNIT I

(12 HOUR)

Amalgamation – Types of Amalgamation – Purchase consideration- Absorption and Reconstruction of Companies (both Internal and External Reconstruction).

UNIT II

(12 HOURS)

Holding Company Accounts - Consolidation of Balance Sheets with treatment of Mutual Owings, Contingent Liability, Unrealized Profit, Revaluation of Assets, Bonus issue and Payment of Dividend (Inter Company Holdings excluded).

UNIT III

(12 HOURS)

Statements of Accounts for Electricity Companies – Treatment of Repairs and Renewals- Final Accounts of Electricity Companies

UNIT IV

(12 HOURS)

Accounts of Banking Companies – Preparation of Profit and Loss Account and Balance Sheet (New Format)- Guidelines of RBI- Preparation of Final Accounts- Classification of Bank Advances

UNIT V

(12 HOURS)

Accounts of Insurance Companies – Life Insurance – General Insurance (both Marine and Fire Insurance Claims)

NOTE : Distribution of Marks : Theory 20% and Problems 80%

TEXT BOOKS

1. T.S. Reddy and A. Murthy, Corporate Accounting , Revised Edition, Margham Publication, New Delhi, 2015
2. Jain.S.P and Narang.K.L, Advanced Accounting, 14th Edition, Kalyani Publications, New Delhi. 2008.

REFERENCE BOOKS

1. Gupta R.L, Radhaswamy .M ,Corporate Accounts, 13th Revised Edition, Sultan Chand and Co., New Delhi, 2006.
2. Shukla M.C., Grewal T.S., Gupta S.L., Advanced Accountancy, 12th Edition, S. Chand and Co., New Delhi, 2005.

B.Com Degree Examination – Syllabus – for candidates admitted from the Academic Year 2017– 2018 onwards

FOURTH SEMESTER

PART III – CORE 10- COMPANY LAW AND SECRETARIAL PRACTICE

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To enable the student to have a thorough knowledge on Company Law and Secretarial Practice

UNIT-I (12 HOURS)

Company - Introduction- Types of Company - Characteristics - Lifting of Corporate Veil – Salient Features of Companies Act 2013 – Difference between Companies Act 1956 and 2013 - Incorporation of Company – Memorandum and Articles of Association-Meaning-Contents-Differences.

UNIT-II (12 HOURS)

Company Secretary – Legal position of Company Secretary-Provisions of the Companies Act, 2013- Appointment of Company Secretary – Procedure for Appointment of a Company Secretary - Role of a Company Secretary- Functions - Duties, Rights and Liabilities

UNIT-III (12 HOURS)

Form of Memorandum and Articles- Procedures for Alteration of Memorandum of Association –Alteration of Articles of Association –Share Certificate-Contents -Rules relating to Issue of Share Certificate - Share Warrant - Procedure for Issuing Share Warrant.

UNIT-IV (12 HOURS)

Kinds of Company Meetings – Objects and Purpose of Meeting - Statutory Meeting - Annual General meeting - Extra ordinary General meeting - Board Meeting – Frequency of Board Meeting - Quorum-Powers of Chairman – Agenda – Writing of Minutes- Declaration of Dividend-Quasi-Judicial Bodies - National Company Law Tribunal (NALT) and National Company Law Appellate Tribunal (NCLAT)

UNIT-V (12 HOURS)

Meaning of Winding up – Modes of Winding up – Winding up by the Tribunal-Filing of Petition for Winding up - Contents of the Petition – Official Liquidator – Provisional Liquidator –Winding up Committee – Duties of Liquidator – Powers of the Official Liquidator.

TEXT BOOKS

1. Dr. G. K. Kapoor, Company Law (A Comprehensive Text Book on Companies Act, 2013), 18th Edition, Taxmann, New Delhi, 2015.
2. J.Santhi, Company Law and Secretarial Practice, (As per Companies Act, 2013), 1st Edition 2016, Margam Publications

REFERENCE BOOKS

1. M.C.Kuchhal, Secretarial Practice, Vikas Publishing House, New Delhi, 2002
2. Varma .M.M, Agarwal.S.P .R.K, Company Law and Secretarial Practice, 1st edition, Forward Book Depot Educational publishers, 1996.

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2016-17 onwards

FORTH SEMESTER

PART III – CORE 11 – CORPORATE COMMUNICATION

Maximum CIA: 30

Maximum CE :70

Total Hours: 60

UNIT I (12 HOURS)
Meaning of Communication – Objectives - Types – Functions – Importance – Principles of Effective Communication - Barriers – Modern Communication Method –Channels of Communication - Composition of Sentences - Structure of Business Letters.

UNIT II (12 HOURS)
Business Letters – Enquiries - Reply – Orders and Execution- Claims & Adjustments- Collection- Sales Letters – Bank Correspondence- Internal Business Communication – Memos, Circular and Notices

UNIT III (12 HOURS)
Overview of Corporate – Oral & Written Communication- Merits and Demerits- Communication through Letters – Meetings- Kinds of Meetings- Preparing Agenda and Minutes - Drafting of a Company Meetings.

UNIT IV (12 HOURS)
Meaning of Reports – Types – Preparation- Structure & Organization of Reports- Reports by Individuals & Committees- Persuasive Communication: Publicity Material, News Letter, Notices, Leaflets, and Invitation. Non – Verbal Communication: Body Language, Kinetics, Proxemics, Para Language.

UNIT V (12 HOURS)
Employment Communication - Application for Jobs - Preparation of Resume – Types of Interview- Modern forms of Communication – Fax, Email, Video Conferencing and their uses in Business.

TEXT BOOK

1. Dr. Kathiresan, Dr. Radha, Business Communication, 1st Edition, Prasanna Publication Chennai , 2014.

REFERENCE BOOKS

1. Ramesh, M.S. and C.C.Pattanshetti, Business Communication, 1st Edition, R.Chand & Co, New Delhi 2003 (Last Edition)
2. Meenakshi Raman, Business Communication, Oxford Publishers, 2012

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2017-18 onwards

FOURTH SEMESTER

PART III – CORE 12 – PRACTICAL II – COMPUTERIZED ACCOUNTING WITH TALLY

Maximum CIA - 40

Maximum CE - 60

Total Hours: 60

Objective: To enable the students to have a practical knowledge in Tally

1. Introduction of Tally – History of Tally version– Features and configuration– company creation - Tally Short keys.
2. Ledger creation - Group creation – Accounting voucher.
3. Receivables and payables management.
4. Bank Reconciliation statement - Cheque printing.
5. Calculation of Interest - Interest Payable – Interest receivable –Inventory statement.
6. Preparation of Invoice.
7. Preparation of Stock summary – Creation of Stock group – Creation of stock category - Unit of measurement – Stock item creation.
8. Go down management creation – Inventory vouchers.
9. Preparation of final Accounts.
10. Ratio analysis.
11. Introduction to GST - Getting Started with GST (Goods)
12. Recording Advanced Entries (Goods)
13. GST Adjustment and Return Filing
14. Getting Started with GST (Services)
15. Recording Advanced Entries (Services)

TEXT BOOK

1. R.K.Taxali, PC Software, 1st Edition Tata MC Graw Hill , 2005, (Last Edition).
2. Nitya Tax Associates, Basics of GST, 1st Edition Taxmann's , 2016

REFERENCE BOOKS

1. Ashok Kisor, Tally 9, 2nd Edition BPB Publication, 2001, New Delhi.
2. Dinesh Veerma, Computer Basics and PC Software, Gullybaba Publishing House, 2012

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2016-17 onwards

**FOURTH SEMESTER
PART IV: AOC II- SERVICE MARKETING**

Maximum CE: 75

Total Hours: 36

Objectives: On completion of this course, the students shall acquire knowledge about marketing various services.

UNIT I (8 HOURS)

Foundations of Service Marketing: Concept of Service- Nature and Classification of Service- Characteristics of Service- Importance of Services Marketing- Service Industry- Services Marketing Triangle- Environment for Services Marketing-PESTEL frame work

UNIT II (8 HOURS)

Services Market Segmentation: Target Market Selection- Approaches to Target Market- Positioning and Differentiation of Services- Positioning: process - Types- Determinants of Service Quality- Measuring Service Quality.

UNIT III (7 HOURS)

Services Marketing Mix: Need for expanding Marketing Mix- Service Product- Product Mix, Branding of Services, New Service Development- Service Pricing- Distribution of Services- Promotion .

UNIT IV (6 HOURS)

Applications of Service Marketing: Marketing of Hospitality, Travel and Tourism, Health Care, Financial Services, IT enabled Services, Education, Entertainment, Transport Services, E-Services.

UNIT V (7 HOURS)

Customer Relationship Marketing in Services: Evolution of Relationship Marketing- Types of Relationship Marketing- Classic, Special, Mega, Nano Relationships- Components of Buyer Seller Relationships- Methods used to develop Customer Relationships.

TEXT BOOK

1. Zeithaml, Valarie A and Bitner, Mary Jo, Services Marketing, Tata McGraw Hill, New Delhi, Latest edition.

REFERENCE BOOKS

1. Woodruffe, Helen: Services Marketing, Macmillan India, New Delhi, (latest edition).
2. Lovelock, Christopher H: Managing Services: Marketing Operations and Human Resources, Prentice Hall, New Jersey, (latest edition).

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2016-17 onwards

**FOURTH SEMESTER
PART IV: AOC II- INDIRECT TAXATION**

Maximum CE: 75

Total Hours: 36

Objectives: The course enables the students to understand the concepts of indirect taxation and GST

UNIT I (8 HOURS)

Indirect Taxation – Introduction and Concepts - GST – Origin – Features – Objectives – Difference between Direct Tax and Indirect Tax - Benefits : Central Govt, State Govt, Individuals and Companies – Goods and Service Tax Network (GSTN).

UNIT II (8 HOURS)

GST Constitutional Amendment Bill 2016 - CGST Act – IGST Act – SGST Act – Difference between Previous Taxation and New GST in India – Provision of demand under GST

UNIT III (7 HOURS)

Types of GST in India: CGST, SGST, IGST – Categories GST Exemptions: Exempted, Essential, Standard and Special Goods & Services Categories.

UNIT IV (6 HOURS)

Authorities implementing GST - Registration Procedure – Penalties for Non Compliance – Self Assessment under GST – Goods and Service Tax System

UNIT V (7 HOURS)

Application of GST – Mechanism of GST – Applicable GST Rate – Levy of GST – Implementation of GST Bill : Benefits and Challenges

TEXT BOOK

1. Bimal Jain and Isha Bansal, GST Law and Analysis with Conceptual Procedures, Young Global Publications, 2016

REFERENCE BOOKS

1. Jayaram Hiregange and Deepak Rao, India GST for Beginners, White Falcon Publishing, 2016
2. CA. Chitresh Gupta, An Insight into GST, GB Books, 2015.

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-16 onwards

**FIFTH SEMESTER
PART-III: CORE 13 - COST ACCOUNTING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To enable the Student to have a thorough knowledge on the Cost Accounting Principles and the Methods of Accounting for Cost.

UNIT I (12 HOURS)

Cost Accounting – Definition – Meaning and Scope – Objectives and Importance of Cost Accounting - Concept and Classification – Costing: An Aid to Management – Types of Cost - Methods of Costing – Limitations of Cost Accounting - Cost Accounting vs. Financial Accounting – Cost Audit - Preparation of Cost Sheet.

UNIT II (12 HOURS)

Material Control: Need for Material Control – Levels of Material Control (Maximum, Minimum and Reorder Level) – Economic Order Quantity – ABC, VED Analysis, Perpetual Inventory System . Purchase and Stores Control - Pricing of Material Issue (FIFO, LIFO and Weighted Average Method).

UNIT III (12 HOURS)

Labour: Systems of Wage Payment (Time Rate, Piece Rate: Taylor’s Differential Piece Rate System, Merrick’s Multiple Piece Rate System, Gantt’s Task and Bonus Plans) – Over time and Idle time – Control over Idle time – Labour Turnover. Overhead – Classification of Overhead – Allocation and Absorption of Overhead.

UNIT IV (12 HOURS)

Process Costing – Features of Process Costing – Process Losses, Wastage, Scrap, Normal Process Loss – Abnormal Loss, Abnormal Gain (Including Inter Process Profit)

UNIT V (12 HOURS)

Marginal Costing – Meaning, Definition, Benefits and Limitations of Marginal Costing – Break Even Analysis – Application of Marginal Costing in Business Decision Making.

NOTE : Distribution of Marks : Theory 20% and Problems 80%

Text Book:

1. Jain.S.P and Narang.K.L , Cost Accounting, 12th Edition, Kalyani Publishers, 2012, New Delhi.

Reference Books:

1. T.S.Reddy and Y.Hari Prasad Reddy, Cost Accounting, Margham Publications, Chennai, 2010.
2. Pillai.R.S.N and Bagavathi.V , Cost and Management Accounting, 15th Edition, S. Chand and Company (Reprint 2016).

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-16 onwards

FIFTH SEMESTER

PART-III: CORE 14 - MANAGEMENT PRINCIPLES AND PRACTICES

Maximum CIA: 30
Maximum CE: 70
Total Hours: 60

Objective: To enable the Student to have a thorough knowledge on the Management Principles and Practices in various disciplines

UNIT I (12 HOURS)

Management-Definition-Features-Management is Science or Art -Principles of Management-Functions of Management-Modern Management Theories.

UNIT II (12 HOURS)

Planning-Characteristics-Objectives-Types of Planning Policies-Meaning-Phases of Policy Making-Forecasting -Elements of Business Forecasting –Decision Making-Nature-Types of Decisions-Importance

UNIT III (12 HOURS)

Organization-Process-Importance-Forms of Organization- Departmentation-Bases of Departmentation-Authority-Declaration of authority-Centralization-Decentralization-Types of Decentralization

UNIT IV (12 HOURS)

Staffing-Importance-Process of Staffing-Human Resource Planning-Aim & Objectives-Process of Manpower Planning-Motivation-Theories of Motivation-Requirement of sound Motivational system-Approaches & Techniques behaves Motivation

UNIT V (12 HOURS)

Coordinating -Leadership-Meaning-Characteristics-Types of Leadership styles-Qualities of Leadership-Controlling-Control Process-Controlling Techniques-Social Responsibility of Business-Barriers.

Text Book:

1. K.Sundar, Principles & Practice of Management, Vijay Nichole Publisher Pvt. Ltd, Chennai,2012

Reference Books:

1. Dr. Kumkum Mukerjee , Principles of Management 2nd Edition, Mc-Graw Hill Publication 2009 (Last Edition).
2. P.Parthasarathy, Principles of Management, Vrinda Publication Pvt. Ltd, New Delhi 2012.

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-16 onwards

**FIFTH SEMESTER
PART-III: CORE 15 - INCOME TAX LAW AND PRACTICE**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To familiarize the students with the basic Provisions of the Income Tax

UNIT I (12 HOURS)

Income Tax -Meaning – Tax Planning- Assessment year - Previous year- Assessee- Types of Assessee - Residential Status of Person - Exempted Income.

UNIT II (12 HOURS)

Heads of Income- Income from Salaries – Characteristics of Salary - Treatment of Provident Fund – Allowances – Types - Perquisites- Types – Valuation of Rent Free Accommodation- Calculation of Income from Salary.

UNIT III (12 HOURS)

Income from House Property – Exempted Income from House Property – Different types Rental Value – Determination of Annual Rental Value – Calculation of Income from House Property Profits and Gains of Business or Profession – Computation of Business and Professional Income.

UNIT IV (12 HOURS)

Capital Gains – Types - Determination of Cost of Acquisition - Set-off and Carry Forward of Losses – Income from Other Sources - Deduction of Tax at Source.

UNIT V (12 HOURS)

Deductions to be made from Total Income - Assessment of Individuals - Computation of Tax Liability –E-Filing –Procedure.

NOTE: Distribution of Marks: Theory 40% and Problems 60%

Text Book:

1. Gaur.V.P and Narang.D.B, Puja Gahai,Rajeev Puri , Income Tax Law and Practice, 44th Edition, Kalyani Publishers , 2017, New Delhi.

Reference Books:

1. Hariharan.N, Income Tax, 10th Edition, Tata McGraw Hill, 2017, New Delhi.
2. T.S.Reddy and Y.Hari Prasad Reddy, Income Tax Law and Practice, 16th Edition, Margam Publication, 2017 Chennai

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-16 onwards

**FIFTH SEMESTER
PART-III: CORE 16 - PRINCIPLES OF AUDITING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On successful completion of this paper the Students will gain knowledge on Auditing Principles and Procedures.

UNIT I (12 HOURS)

Origin of Auditing – Definition – Scope – Objectives - Tax Audit – Compulsory Tax Audit – Certification for Claiming Exemption – Selective Tax Audit – Tax Consultancy - Management of Audit – Importance – Objectives – Limitations.

UNIT II (12HOURS)

Classification of Audit – Scope - Nature of Statutory Audit – Continuous Audit – Final Audit - Partial Audit - Balance Sheet Audit – Procedures of Balance Sheet Audit - Performance Audit.

UNIT III (12 HOURS)

Qualification of Auditor – Appointment of an Auditor – Duties - Rights and Liabilities of an Auditor - Audit Report – Kinds of Audit Report

UNIT IV (12 HOURS)

Audit plan- Developing an Audit Plan- Vouching – Meaning – Objectives, Importance of Voucher – Types of Vouchers.

UNIT V (12 HOURS)

Verification and Valuation of Assets and Liabilities – Audit Approach- EDP and Mechanical System- Audit with the Aid of Computers- Recent Trends in Auditing.

TEXT BOOK

1. Tandon.B.N, Practical Auditing , 8th Edition, S Chand Company Ltd, 2007(Last Edition), New Delhi.

REFERENCE BOOKS

1. Arun Jha,Auditing,3rd Edition, Taxmann Publications, 2016.
2. Ravinder Kumar, Virender Sharma, Auditing Principles and Practice, Prentice Hall India learning Pvt. Ltd., 2015

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-16 onwards

FIFTH SEMESTER

PART-III: CORE 17 - ENTREPRENEURIAL DEVELOPMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To enable the Students to learn the fundamentals of being a good Entrepreneur and to acquire Knowledge about the Financial Institutions, Project Report, Incentives and Subsidies.

UNIT I (12 HOURS)

Concept of Entrepreneurship: Definition - Nature and Characteristics of Entrepreneurship – Function – Classifications - Development of Women Entrepreneur and Rural Entrepreneur – Self Employment - Problem of Women Entrepreneur – Theories of Entrepreneurship.

UNIT II (12 HOURS)

The Start-up Process, Project identification – Business Idea – Sources of Business Idea – Selection of the Product – Project formulation - Evaluation – Feasibility Analysis - Project Report.

UNIT III (12 HOURS)

Institutional Services to Entrepreneurs – DIC- SIDO- NSIC – SISI - SIDCO and KVIC, Institutional Finance to Entrepreneurs: IFCI – SFC – IDBI – ICICI - SIPCOT.(Inception to To- date)

UNIT IV (12 HOURS)

Incentives and Subsidies – Subsidized services – Subsidy for Market - Transport – Seed Capital Assistance - Taxation benefit to SSI - Role of Entrepreneur in Export Promotion and Import substitution.

UNIT V (12 HOURS)

Industrial Sickness- Symptoms- Remedies – Causes – Successful Entrepreneurs in India - Entrepreneurial Scenario in India.

TEXT BOOK

1. Poonima.M.Charantimath, Entrepreneurship Development and Small Business Enterprises, 2nd Edition, Pearson Education India, 2013.

REFERENCE BOOKS

1. K.Ramachandran, Entrepreneurship Development, MC Graw hill, 2008.
2. Gordon.E, Natarajan.K, Entrepreneurship Development, Himalaya Publication, 2014.

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-16 onwards

FIFTH SEMESTER

PART- III: ELECTIVE – I – HUMAN RESOURCE MANAGEMENT

Maximum CIA: 30
Maximum CE: 70
Total Hours: 60

Objective: On the successful completion of this Course the Students shall gain knowledge of Human Resource Management.

UNIT I (12 HOURS)

Human Resource Management - Meaning – Concept – Human Resource Management as Profession – Importance – Objectives - Functions – Qualities and Role of HR Manager – Human Resource Planning - Concepts – Process -Needs – Effectiveness

UNIT II (12 HOURS)

Job Design -- Factors – Mechanism - Job Enrichment -Job Analysis – Process - Methods – Job Description – Job Specification

UNIT III (12 HOURS)

Recruitment and Selection Process: Concepts of Recruitment – Process – Planning – Sources – Concepts of Selection – Selection Process – Types of Test – Selection Interview – Types of Interview – Steps in Interview Process – Placement and Induction

UNIT IV (12 HOURS)

Tanning and Development – Objectives - Concepts – Role – Methods – Evaluation – Career Concept - Planning - Process - Development – Career Development Programme .

UNIT V (12 HOURS)

Safety and Health Management – Safety Measures –Discipline Management – Grievance Management –Grievance Procedure – Collective bargaining – Concepts, Causes, Prevention of Industrial Disputes

TEXT BOOK

1. Rao V.S.P, Human Resource Management, 2nd Edition, Excel Books Publication, 2008(Last Edition), Mumbai.

REFERENCE BOOKS

1. K.Aswhappa, Human Resource Management; Text and Cases, MC Graw Hill Education,2013.
2. Prasad .L.M, Human Resource Management, 2nd Edition, Sultan Chand & Co, 2014, New Delhi.

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-16 onwards

FIFTH SEMESTER

PART – III: ELECTIVE I - CUSTOMER RELATIONSHIP MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On the successful completion of the course the students shall understand relationship Marketing , Sales Force Automation and Database Marketing.

UNIT I (12 HOURS)

CRM – Overview and Evolution of the concept – CRM and Relationship marketing – CRM Strategy – Importance of Customer Divisibility in CRM.

UNIT II (12 HOURS)

Overview of Relationship Marketing – Basis of Building Relationship – Types of Relationship Marketing – Customer Life cycle.

UNIT III (12 HOURS)

Sales Force Automation – Contact Management – Concept – Enterprise Marketing Management – Core beliefs – CRM in India.

UNIT IV (12 HOURS)

Value Chain – concept – Integration Business Management – Benchmarks and Metrics – Culture change – Alignment with customer Eco System – Vendor selection.

UNIT V (12 HOURS)

Database Marketing – Prospect Database – Data Warehouse and Data Mining – Analysis of Customer Relationship Technologies – Best Practices in Marketing Technology – Indian scenario.

TEXT BOOK

1. Brian Paulen, Mathew Johnson, CRM Fundamentals, Apress publications,2011.

REFERENCE BOOK

1. Francis Buttle, Customer Relationship Management :2nd Edition, Concept and Technologies, Butter – Heimenann, 2011.
2. Paul Green Berg, Customer Relationship Management,4th Edition, Tata Mc Graw Hill, 2010, New Delhi.

FIFTH SEMESTER

PART – III: ELECTIVE I- ORGANIZATIONAL BEHAVIOUR

Maximum CIA: 30
Maximum CE: 70
Total Hours: 60

Objective: To enable Students to learn Principles & Concepts of Organizational Behavior.

UNIT I (12 HOURS)

Organizational Behaviour: History – Evolution – Nature and scope – Need for studying Organizational Behaviour – Contributing Disciplines – Management functions and its relevance to Organizational Behaviour.

UNIT II (12 HOURS)

Personality – Determinants of Personality – Types of Personalities – Theories of Personality – Personality influencing Organizational Behaviour. Perception – Process, Selection, Managerial Implications of Perception. Learning – Classical, Operant and Social Cognitive Approaches – Implication of Learning on Managerial performance.

UNIT III (12 HOURS)

Organizational Structure – Features – Types of organizational structure – Line, Staff and Functional – Departmentation. Organizational Change – Managing planned change – Resistance to change – Approaches to Managing Organizational Change.

UNIT IV (12 HOURS)

Organizational Development – Values – Interventions – Organizational Culture – Dynamics, Role and types of Culture and Corporate culture. Leadership – Functions – Leadership vs Management – Types – Theories (Trait, Managerial).

UNIT V (12 HOURS)

Communication – Communication Network. Stress – Nature, Sources, Effects, Influence of Personality, Managing Stress – Conflict – Management, Levels, Sources, Bases, Conflict resolution Strategies.

TEXT BOOK

1. LM Prasad, Organizational Behavior, Sultan Chand and sons, New Delhi 2014

REFERENCE BOOKS

1. Fred Luthans, Organizational Behaviour, 9th Edition, Tata McGraw – Hill Publishing Company Ltd, 2002, New Delhi.
2. Dr.C.B.Gupta, Organizational Behaviour,S.Chand, New Delhi, 2014.

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-16 onwards

**SIXTH SEMESTER
PART-III: CORE 18 - MANAGEMENT ACCOUNTING**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 60

Objective : To enable the Students understand the practical usage of Management Accounting

UNIT I (12 HOURS)

Management Accounting – Meaning and Definition – Nature and Scope – Functions – Objectives - Importance and Limitations of Management Accounting – Comparison of Management Accounting with Financial and Cost Accounting – Tools and Technique of Management Accounting

UNIT II (12 HOURS)

Financial Statement Analysis and Interpretation – Comparative Statement Analysis , Common Size Statement Analysis -Trend Analysis.

UNIT III (12 HOURS)

Ratio Analysis – Liquidity Ratios – Activity Ratios – Profitability Ratios – Solvency Ratios – Preparation of Balance Sheet.

UNIT IV (12 HOURS)

Working Capital Management- Meaning Definition- Determinants of Working Capital - Schedule of changes in Working Capital. Funds Flow Statement — Preparation of Funds Flow Statement. Cash Flow Statement - Preparation of Cash Flow Statement.

UNIT V (12 HOURS)

Budgeting and Budgetary Control – Definition – Importance, Essentials – Classification of Budgets –Cash Budget, Sales Budget, Purchase Budget, Production Budget, Production Cost Budget, Flexible Budget, Master Budget- Zero Based Budgeting.

NOTE: Distribution of Marks : Theory 20% and Problems 80%

TEXT BOOK

1. Shashi K. Gupta and R.K. Sharma, Neeti Gupta, Management Accounting, 2nd Revised Edition, Kalyani Publishers, 2014, New Delhi.

REFERENCE BOOKS:

1. Dr. R. Ramachandran and Dr. R. Srinivasan, Management Accounting – Theory, Problems and Solutions, 14th Revised Edition, Sri Ram Publications, Trichy, 2010,
2. L.M Pandey, Management accounting, edition 3rd, Vikas publications, 2010.

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Year 2015-16 onwards**

**SIXTH SEMESTER
PART-III: CORE 19 - BUSINESS FINANCE**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On successful completion of this paper, the Student should be well versed in the concept of Business Finance and its Applications.

UNIT I (12 HOURS)

Business Finance: Introduction – Meaning – Concepts – Objectives - Scope – Financial Function – Approaches – Organization of the Financial Function - Financial Decision - Risk- Return trade off – Functions of Financial Manager.

UNIT II (12 HOURS)

Financial Plan: Meaning – Objectives - Principles of Sound Financial Plan - Steps in Financial Planning - Estimation of Financial requirements of a firm - Limitations of Financial Planning

UNIT III (12 HOURS)

Capitalization: Meaning - Need - Bases of Capitalization – Over Capitalization – Under Capitalization - Causes – Effects - Remedies – Watered Stock – Watered Stock vs. Over Capitalization.

UNIT IV (12 HOURS)

Capital Structure – Meaning and Importance –Theories of Capital Structure – Changes in Capitalization – Cost of Capital – Meaning – Concepts – Significance – Classification – Determination of Cost of Capital.

UNIT V (12 HOURS)

Sources and Forms of Finance: Equity Shares, Preference Shares, Bonds, Debentures – Features – Types - Advantages and Disadvantages - Difference Between Shares and Debentures - Lease Financing: Meaning – Features – Merits and Demerits.

TEXT BOOK

1. Shashi K. Gupta and Anuj Gupta, Business Finance , Kalyani Publishers , 2015, New Delhi

REFERENCE BOOKS

1. Pandey.I.M, Financial Management,11th reprint 2004, Vikas,Mumbai.
2. Khan.M.Y and Jain, Financial Management, 12th Edition, MC Graw hills,2014, New Delhi.

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**SIXTH SEMESTER
PART-III: CORE 20– MARKETING RESEARCH**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objectives: This paper is designed to acquaint Students with the application of Research Principles, Tools and Techniques.

UNIT-1 (13 HOURS)

Marketing Research – Objectives of Research – Significance of Research--Types of Research -- Applications, Limitations – Organizing the Marketing Research function – The Research Process – Criteria of Good Research - Technique involved in defining a Research Problem.

UNIT -II (13 HOURS)

Meaning of Research Design –Important Concepts relating to Research Design - Types of Research Design - Data Collection – Primary Data Collection – Questionnaire - Design – Interviewing - Secondary Data – Scaling Techniques – Sampling Designs.

UNIT -III (13 HOURS)

Data Processing -- Data Analysis – Testing Hypotheses – Simple Percentage Analysis – Chi-Square Test – Analysis of Variance (ANOVA) – Interpretation and Report writing.

UNIT -IV (10 HOURS)

Applications of MR – Sales Analysis and Forecasting, Product Development - Test Marketing, Advertising Research - Market Segmentation and Positioning.

UNIT -V (11 HOURS)

Industrial Marketing Research – Export Marketing Research – Ethical Considerations in Marketing Research – MR & IT – Online Research, Data warehousing and Data Mining – Marketing Information System

TEXT BOOK

1. C.R.Kothari., Research Methodology, 2nd Revised Edition, New Age International Publishers, New Delhi, 2014

REFERENCE BOOKS

1. Rajendran Nargundkar, Marketing Research, 2nd Reprint 2004, Tata McGraw Hill, 2003, New Delhi.
2. Donald R. Cooper & Pamela S. Schindler, Marketing Research, The McGraw Hill, New Delhi, 2013

**B.Com Degree Examination – Syllabus for candidates admitted from the academic year
2017-18 onwards**

SIXTH SEMESTER

PART – III: ELECTIVE I - RETAIL MARKETING

Maximum CIA: 30
Maximum CE :70
Total Hours: 60

Objective

To enable the students understand the ways that retailers use marketing tools and techniques to interact with their customers.

Unit-I (12 Hours)

Introduction to Retailing - Definition and Meaning- Characteristics–Functions- Role of retailing- Trends in Retailing- Types of Retailing–Forms of Retailing based on ownership– Non-Store Retailing- On-line sales- Service and Product Retailing-Retail theories–Wheel of Retailing.

Unit-II (12 Hours)

Retail Market segmentation- Need- Criteria- Dimensions of segmentation- Retail Market Mix: Elements of Mix- Designing the Mix to meet the Segment needs. Targeted Marketing Efforts- Criteria for Effective Segmentation- Dimensions of Segmentation- Limitations of Market Segmentation

Unit-III (12 Hours)

Retail store location and layout – Country/Region analysis – Trade area analysis – Site evaluation and selection-Store design and layout – Comprehensive store planning- Exterior design and layout – Interior store design and layout – Interior design elements.

Unit-IV (12 Hours)

Retail Pricing: Pricing Factors- Pricing Methods- Retail pricing strategies: Promotion Pricing – Competitive Pricing, Pricing strategies- Retail promotion strategies- Retail Advertisement-Marketing and Promotion- Criteria for selection of suppliers and Home Delivery.

Unit-V (12 Hours)

Globalizations and changing retail formats – Virtual store – E-tailing – International Retailing – Opportunities and challenges New Customized formats (Customized stores, Portable stores, Merchandise depots, Retail theatre, Service malls, Custom-made stores, Interactive kiosks, Shopping arcades)

Text Book:

1. Swapna Pradhan, Retail Management-A Strategic Approach, 2008, TMH.

References:

1. Barry Berman, Joel R. Evans, Retail Management, 2009, Pearson College Div
2. James Ogden & Denise Ogden, Integrated Retail Management, 2007, Biztantra.

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-16 onwards

SIXTH SEMESTER

PART – III: ELECTIVE II - BUSINESS ENVIRONMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: The course shall enable the Student to gather knowledge about business related aspects which helps them in better decision making.

UNIT I (12 HOURS)

Business Environment- Introduction- Types of Environment: Internal, External, Micro and Macro Environment. Competitive structure of industries- Environmental Analysis and Strategic Management. Managing Diversity- Scope of the Business – Characteristics – Objective and Uses. Environmental Analysis- Process and Limitations.

UNIT II (12 HOURS)

Economic Environment – Nature – Economic factors – Growth Strategy – Basic Economic System – Economic Planning – Economic Policies – New Industrial Policy – FEMA , Monetary and Fiscal Policies – Liberalization – Privatisation and Globalisation of Indian Economy- Trends and Issues.

UNIT III (12 HOURS)

Socio-Cultural Environment- Nature and Impact of Culture on Business- Culture and Globalization – Social Responsibilities of Business - Social Audit -Business Ethics and Corporate Governance - Demographic Environment Population Size - Migration and Ethical Aspects.

UNIT IV (12 HOURS)

Political Environment – Functions- Economic Roles of Government – Government and Legal Environment. The Constitutional Environment- Rationale and Extent of State Intervention.

UNIT V (12 HOURS)

Nature and Technological Environment – Innovation – Technological Leadership and Followership , Sources of Technological Dynamics, Impact of Technology on Globalization – Transfer of Technology, Time Lags in Technology – Status of Technology in India- Management of Technology – Features and Impact of Technology.

TEXT BOOK

1. Cherunilam Francis, Business Environment (Text and Cases) 25th Revised Edition, Himalaya Publishing House, 2014.

REFERENCE BOOKS

1. Dr.C.B.Gupta, Business Environment, Sultan Chand and Sons, 2013.
2. Faisal Ahmed, M.Absar Alam, Business Environment: India and Global Perspectives, Prentice-Hall of India Pvt. Ltd, 2014.

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-16 onwards

**SIXTH SEMESTER
PART – III: ELECTIVE – II– WORKING CAPITAL MANAGEMENT**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 60

Objective: On the successful completion of this paper the Students shall gain knowledge about Working Capital.

UNIT I (12 HOURS)
Working Capital Management - Meaning - Factors affecting Working Capital – Estimating Working Capital Requirements – Working Capital Policy - Operating Cycle - Sources of Working Capital.

UNIT II (12 HOURS)
Cash Management – Strategies in Cash Management Cash Budgeting – Reports for Control Monitoring Collections and Disbursements forms of Liquidity.

UNIT III (12 HOURS)
Receivables Management (Theory only) - Optimum Credit Policy - Credit Policy Variables - Credit Evaluation - Credit Granting Decision - Control of Receivables Management of Trade Credit in India.

UNIT IV (12 HOURS)
Inventory Management - Need for Inventories - EOQ model - Inventory Management Technique – Pricing of Raw Material Issue (FIFO , LIFO, Weighted Average) – Valuation of Stock – Monitoring and Control of Inventories.

UNIT V (12 HOURS)
Payables Management (Theory only) - Trade Credits Bank Finance for Working Capital - Public Deposits – Inter-Corporate Deposits - Loans from Financial Institutions.

TEXT BOOK

1. Shashi K. Gupta and R.K. Sharma, Neeti Gupta, Management Accounting, 2nd Revised Edition, Kalyani Publishers, 2014, New Delhi.

REFERENCE BOOKS

1. V.K Bhala, Working Capital Management, S.Chand and companies,2014.
2. Dr.P.Periyasamy, Working Capital Management Theory and Practical, Himalaya Publishing House,2014.

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-16 onwards

SIXTH SEMESTER

PART – III: ELECTIVE –III – INTERNATIONAL FINANCIAL REPORTING STANDARDS

Maximum CIA: 30
Maximum CE: 70
Total Hours: 60

Objective: To enable the Students to understand the need and method of presentation of Financial Statements in accordance with International Financial Reporting Standards.

UNIT I (12 HOURS)

International Financial Reporting Standards: Meaning of IFRS -Relevance of IFRS to India; Merits and Limitations of IFRS - Process of setting IFRS- Practical Challenges in Implementing IFRS - A Brief Theoretical Study of International Financial Reporting Standards (IFRS) 1 to 15 - List of International Accounting Standards issued by IASB.

UNIT II (12 HOURS)

Accounting for Assets and Liabilities Recognition Criteria's for Investment Properties, Government Grants - Borrowing Costs - Construction Contracts - Share Based Payments- Provisions - Contingent Liabilities and Contingent Assets - Events Occurring after the Reporting Period (Only Theory).

UNIT III (12 HOURS)

Presentation of Financial Statements: Outline for the Preparation of Financial Statements - Statement of Financial Position - Comprehensive Income Statement - Statement of Changes in Equity (SOCE), IAS 18 – Revenue. Elements of Financial Statements as per IFRS – Non-current assets - Current Assets – Equity - Non- Current Liability - Current liability - Revenue - Cost of Sales - Distribution Costs - Administrative Expenses - Financial Costs – Profits Attributable to Owners of Controlling Interest and Non-Controlling Interest .

UNIT IV (12 HOURS)

Accounts of Groups: Concept of Group – Need for Consolidated Financial Statements - Preparation of Consolidated Financial Statements – Procedure for the Preparation of Consolidated Financial Position Statement – Treatment of Pre-Acquisition Profit - Goodwill Arising on Consolidation - on-Controlling Interests at Fair Value.

UNIT V (12 HOURS)

Disclosure Standards Related party disclosure- Earnings per Share- Interim Financial Reporting- Insurance Contracts - Operating segments. (Theory Only).

TEXT BOOK:

1. IFRS: A quick reference guide by Robert J Kirk, Elsevier Ltd.

REFERENCE BOOKS

1. Roadmap to IFRS and Indian Accounting Standards by CA Shibarama Tripathy
2. IFRS explained – A Guide to IFRS by BPP Learning Media

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-16 onwards

SIXTH SEMESTER

PART – III: ELECTIVE –III - INDIAN STOCK EXCHANGES

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On successful completion of this paper the Students should have gained knowledge about Stock Exchanges, SEBI, Internet Stock Trading and Internet Stock Trading.

UNIT I (12 HOURS)

Stock Exchange-Meaning and Definition - Functions –Indian Stock Exchanges- Origin and Growth - Organisation Structure - Benefits - Mode of Organisation – Membership - Stock Exchange Traders – Stock Exchange Trading-Jobbers vs. Brokers - Stock Exchange Dealings-Real Marketing Concepts

UNIT II (12 HOURS)

Trading in stock exchange- Listing-Meaning, Characteristics, Steps, Legal provisions, Benefits, Consequences of Non-Listing – Delisting – Insider Trading – Speculation-Speculation Vs. Gambling- Speculators – Types of Speculators - Investors vs Speculators – Investor Protection.

UNIT III (12 HOURS)

Stock Exchange Regulatory Framework-Under the SEBI Act, BSCC Act, Defence of India Rules, Capital Issues Control Act 1947– OTCEI - Benefits - Trading on OTCEI - Profile of Indian Stock Exchanges – BSE - NSE

UNIT IV (12 HOURS)

The Securities Contracts (Regulation) Act, 1956-Important Provisions – SEBI- Functions and Working. Restructuring Indian Stock Exchanges-Dematerialization - Process - Procedures for Purchase and Sale of Demat – Processing and Documentation

UNIT V (12 HOURS)

Internet Stock Trading-Meaning and Features-Current Scenario-Regulating Internet Stock Trading – Overseas Trading- IPOs on the Internet-e-IPO – E-commerce Act and Internet Stock Trading – Stock Index Futures

TEXT BOOK

1. Dr.S.Gurusamy , Financial Services and Markets, 2nd Edition, Vijay Nicole Imprints (P) Ltd, Chennai.

REFERENCE BOOKS

1. Khan.M.Y , Financial Service, 8th Edition, Tata Mc Graw-Hill Publishing Company Limited, 2015, New Delhi.
2. Shashi.K.Gupta, Financial Services, Kalyani publishers, 2014, New Delhi.

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-16 onwards

**SIXTH SEMESTER
PART – III: ELECTIVE –III - BRAND MANAGEMENT**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 60

Objective: To help Students understand the concepts and practices of Brand Management

UNIT – I (12 HOURS)
Concept of A Brand – Evolution - Perspectives – Anatomy - Types of Brand Names -Brand name Associations- Brands vs. Products - Advantages of Brands to Consumers & Firms- Branding Challenges & Opportunities.

UNIT – II (12 HOURS)
Brand Positioning – Meaning – Positioning Strategy for Competitive advantage – Brands & Consumers –Buying Decision- Perspectives on Consumer Behaviour-Making Brands succeed- Building Superior brands.

UNIT – III (12 HOURS)
Brand Image- Image Dimensions-Brand Associations - Brand Identity –Perspectives – Levels and Prisms- Managing Brand Identity-Factors Influencing Identity- Brand Equity – Sources of Equity - Brand Equity Models - Brand Loyalty –Brand Culture.

UNIT – IV (12 HOURS)
Brand Extensions-Brand Extendibility-Benefits-Types of Brand Extensions-Making an Extension Successful-Brand Revitalisation Measures- Brand Enhancement, Brand Elimination and Brand withdrawal – Successful Extensions.

UNIT – V (12 HOURS)
Brand Valuation – Methods of Brand Valuation- Applications – Branding Industrial Products- Services and Retailers – Building Brands - Online- Global Issues & Challenges to Indian Brands.

TEXT BOOK

1. Harsh Varma, Brand Management, Pillappa Publication, 3rd Edition, 2012

REFERENCE BOOKS

1. Kevin Lane Keller, Strategic Brand Management, 4th Edition, Pearson, , New Delhi, 2015
2. Kapferer, Strategic Brand Management – Kogan Page, 4th Edition, New Delhi, 2011.

B.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-16 onwards

FIFTH SEMESTER

AOC- INSTITUTIONS FACILITATING INTERNATIONAL TRADE

Maximum Marks: – 100

Objective : To enable the students to acquire knowledge on the various institution facilitating International Trade.

UNIT I

Export promotion in India-Department of Commerce- Functional divisions- Advisory Bodies- Commodity Organizations-Export Promotion Councils (EPCs)- Commodity Boards-Autonomous Bodies- Service Institutions and Organizations- Government Trading Organizations-State Trading Corporations- Major STC's in India- State export –Promotion Agencies- Impediments in Export Promotion.

UNIT II

Role of RBI in export finance –Role of Commercial Banks-Small Industrial Development Bank of India (SIDBI) - Objectives-Schemes-Export and Import Bank of India (EXIM) - Objectives-Functions-Export Credit Guarantee Corporation of India (ECGC) – Functions – Special functions of ECGC.

UNIT III

World Trade Organisation – GATT – Objectives-Evolution of WTO-Functions- Principles of WTO- Organisation structure- WTO agreements-GATS-TRIMS-TRIPS-Objectives of IPRS benefits-Limitations-Procedure of dispute settlement –WTO and anti dumping measures-Evaluation of WTO- drawbacks/Criticisms.

UNIT IV

International Monetary Fund (IMF)-Objectives- Organisation and Management- Resources-Financing facilities- Conditions on Borrowers- Special drawing rights-World Bank-Purpose-Organisation structure- Guiding Principle- Leading programs.

UNIT V

International Development Association (IDA)-Objectives-Memberships – Loan Assistance-International Financial Corporation (IFC)- Objectives-Main features- Asian Development Bank(ADB)- Objectives-UNCTAD-Functions-Basic principles- International Trade Centre.

Note : The Question Paper shall cover 100% Theory.

Text Book

1. International Business (Text & cases) : Francis Cherunilam PHI Learning Pvt. Ltd, 2009.

Reference Books

1. Rakesh Mohan Joshi., International Marketing, Oxford University Press, 2005.
2. Francis Cherunilam, International Trade and Export Management, 6th Edition, Himalaya Publishing House, 2010, New Delhi.

**FOURTH SEMESTER
ALC 2 - SUPPLY CHAIN MANAGEMENT**

Maximum CE :100

Objectives: On successful completion of the paper the Student should understand to manage the interaction of Business functions across Companies in the Supply Chain.

Unit - I

Supply Chain Management – Need for Supply Chain - Supply Chain Performance - Achieving Strategic Fit and Scope Supply Chain - Drivers and Metrics- Demand Forecasting in a Supply Chain- Aggregate Planning in a Supply Chain.

Unit -II

Planning Supply and Demand in a Supply Chain - Managing Predictable Variability - Managing Economies of Scale in a Supply Chain - Cycle Inventory- Managing Uncertainty in a Supply Chain - Safety Inventory.

Unit -III

Determining the Optimal Level of Product Availability - Transportation Decisions in a Supply Chain- Designing Distribution Networks and Applications to E-Business – E-Retailing - Frame work for Strategic Alliances – 4PL – Merits and Demerits - Advantages and Disadvantages of RSP – Distributor Integration.

Unit -IV

Network Design in the Supply Chain- Network Design in an uncertain Environment- Sourcing Decisions in a Supply Chain - Supply Chain Integrates- Push, Pull Strategies – Demand Driven Strategies – Impact on Grocery Industry – Retail Industry – Distribution Strategies

Unit -V

Pricing and Revenue Management in a Supply Chain- Information Technology in a Supply Chain- Coordination in a Supply Chain –Information Systems in Supply Chain Management – Importance – MR,DRP,ERP,PDM,EIP,CPFR- Reverse Supply Chain Management.

Text Book

1. Supply Chain Management 6th Edition – Sunil Chopra , Peter Meidhl, Pearson Publications, 2016.

Reference Books

1. Martin Christopher, Logistics and Supply Chain Management, 4th Edition, FT Press; 4 Edition 2011.
2. D K Agrawal, Textbook of Logistics and Supply Chain Management, MacMillan 2015, 1st Edition

B.Sc. Mathematics Degree Examination-Syllabus for Candidates admitted from 2018-2019 onwards

THIRD SEMESTER

PART III- IDC 3- FUNDAMENTALS OF ACCOUNTING

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To enable the Students to learn fundamental principles and concepts of Accountancy

Unit I (12 Hours)

Fundamentals of Accounting and Book Keeping – Accounting Equation - Accounting Concepts and Conventions – Journal –Ledger – Subsidiary books – Trial Balance - Errors and Rectification.

Unit II (12 Hours)

Final Accounts of a Sole trader with Adjustments – Average due date – Account current.

Unit III (12 Hours)

Single Entry System – Meaning and Features – Statement of Affairs Method and Conversion Method.

Unit IV (12 Hours)

Accounting for Consignments and Joint Ventures

Unit V (12 Hours)

Bank Reconciliation Statement – Accounting for Non trading organizations - Receipts and Payments - Income and Expenditure Account and Balance sheet .

Distribution of marks Theory -20% Problem-80%

Text Books

1. T.S .Reddy A.Murthy , Financial Accounting ,6th Revised Edition, Reprint 2017, Margham Publications, ,Chennai.

Reference Books

1. Arunachalam, Advanced Accountancy, Hiamalaya Publishers, Sixth Revised Edition, Reprint 2016.
2. B.S. Raman , Financial Accounting, United Publishers , Mangalore, Third Edition 2008.

B.Sc. Mathematics Degree Examination-Syllabus for Candidates admitted from 2018-2019 onwards

**FOURTH SEMESTER
PART III - IDC 4 - ADVANCED ACCOUNTING**

Maximum CIA - 30

Maximum CE - 70

Total Hour: 60

Objective:

To enrich the students in advanced practices of Accounting.

Unit I (12 Hours)

Depreciation - Meaning- Features- Methods- Straight Line Method– WDV Method - Annuity Method - Sinking Fund Method

Unit II (12 Hours)

Departmental Accounts –Branch Accounts (excluding Foreign Branches)

Unit III (12 Hours)

Hire Purchase and Installment Systems (excluding Hire Purchase Trading Account)

Unit IV (12Hours)

Partnership – Definition - Indian Partnership Act 1932 – Features – Types of Partners – Liabilities of a Partner – Profit and Loss appropriation Account - Capital Accounts of Partner – Fixed and Fluctuating Capital method

Unit V (12 Hours)

Company – Definition – Features – Types - Share –Kinds – Issue of Shares – Pro rata allotment - Forfeiture - Reissue.

Distribution of marks Theory -20% Problem-80%

Text Books

1. T.S .Reddy A.Murthy , Financial Accounting ,6th Revised Edition, Reprint 2017, Margham Publications, ,Chennai.
2. S.P.Jain & K.L.Narang , Corporate Accounting ,6th Revised Edition, Reprint 2016, Margham Publications, ,Chennai.

Reference Books

1. Arunachalam, Advanced Accountancy, Hiamalaya Publishers, Sixth Revised Edition, Reprint 2016.
2. B.S. Raman , Financial Accounting, United Publishers , Mangalore, Third Edition, 2008.

B.Com Degree Examination – Syllabus for candidates admitted from the academic year 2018-19 onwards

FOURTH SEMESTER

ADDITIONAL CREDIT: PRINCIPLES OF INTERNATIONAL TRADE

Maximum CE : 100

Objective : On the successful completion of this paper the students should have gained knowledge about International Trade and legal provisions.

UNIT I

The Global Economy – Perspective on the Theory of International Trade – The Importance of International Trade – Counter Trade – Forms of Counter Trade – Reasons for Growth of Counter Trade – Global Trade and Developing Countries.

UNIT II

International Commodity Agreements – Quota Agreements, Buffer Stock Agreements – Carts – State Trading – Bilateral and Multilateral contracts. Gains from Trade – Terms of Trade – Factors Influencing the Terms of Trade.

UNIT III

Tariff – Meaning – Tariffs, Taxes and Distortions – Imports Tariffs and Export Taxes – Export Subsidies – Arguments for Free Trade – Demerits of Protection – Trade Barriers – Basic Concept of Balance of Payment.

UNIT IV

International Investments – Types of Foreign Investment – Significance of Foreign Investments – Limitations and Dangers of Foreign Capital – Factors affecting International Investment – Foreign Investment by Indian companies.

UNIT V

Multinational Corporation – Definition and Meaning – Importance of MNCs – Benefits of MNCs – Criticism – Globalizations – Meaning – Stages – Essential Conditions for Globalization – Implications and Importance of Globalization – Benefits – Obstacles to Globalization in India – Factors Favoring Globalization.

TEXT BOOK

1. G.S.Batra & R.C.Dangwal, International Business - New trends, Reprint 2010, Deep & Deep Publications Private ltd, New Delhi.

REFERENCE BOOK

1. Justin Paul, International Business, 5th Edition 2011 , PHI learning Private limited, New Delhi.
2. Roger Bennett, International Business, 2010, Pearson, New Delhi.
3. Vyuptakesh Sharan, International Business: Concept, Environment And Strategy, 2011, Pearson, New Delhi.

BACHELOR OF COMMERCE (COMPUTER APPLICATIONS)
Scheme of Examination (CBCS Pattern)
Syllabus for the Academic Year 2020-2021 for the
Candidates admitted for Academic Year 2018-2019

Part	Sub Code	Subject Title	Ins.Hrs/ Week	Examination				
				Dur. Hrs.	CIA	CE	Total	Credit
SEMESTER I								
I	16LAT001/ 15LAF001/ 15LAM001/ 18LAHI01	Language – I	5	3	30	70	100	3
II	16ENGOO1	English –I	5	3	30	70	100	3
III	18BCC101	Core I: Financial Accounting -I	6	3	30	70	100	4
III	18BCC102	Core –II: Office Automation , C and Tally	6	3	30	70	100	4
III	18BCCID1	IDC -I: Managerial Economics	6	3	30	70	100	4
IV	18UFCA01	Foundation Course- I : Environmental Studies #	2	2	-	50	50	2
		Total	30				550	20
I	15LAT002/ 15LAF002/ 15LAM002/ 18LAHI02	Language –II	5	3	30	70	100	3
II	16ENGOO2	English – II	5	3	30	70	100	3
III	18BCC201	Core- III: Financial Accounting -II	6	3	30	70	100	4
III	18BCCP01	Core Practical – I : MS Office, C and Tally Lab	6	3	40	60	100	4
III	18BCCID2	IDC- I: Principles of Management	6	3	30	70	100	4
IV	18UFCA02	Foundation Course -II: Value Education #	2	2	-	50	50	2
		Total	30				550	20
SEMESTER III								
III	18BCC301	Core – 4: Financial Accounting -III	5	3	30	70	100	4
III	18BCC302	Core – 5: Principles of Marketing	5	3	30	70	100	4
III	18BCC303	Core-6: Programming in C++	5	3	30	70	100	4
III	18BCCP02	Core Lab-II : Programming in C++ Lab	5	3	40	60	100	4
III	15BCCID3	IDC 3 :Business Mathematics	5	3	30	70	100	4
IV	18BCCA01/02	AOC - 1 : Corporate Communication	3	3	-	75	75	3
IV	16BTA001/ 16ATA001/ 18BCCED1	EDC- I :BT-I/ AT-I/ Human Resource Management #	2	2	-	50	50	2
III	19BCCPR1	Institutional Training	-	-	-	-	-	-

		Total	30			625	25	
SEMESTER IV								
III	18BCC401	Core 7- Corporate Accounting	5	3	30	70	100	4
III	18BCC402	Core 8- Mercantile Law	5	3	30	70	100	4
III	18BCC403	Core 9- DBMS	5	3	30	70	100	4
III	18BCCP03	Core Lab-III : DBMS (ORACLE) Lab	5	3	40	60	100	4
III	15BCCID4	IDC 4 Business Statistics	5	3	30	70	100	4
IV	18BCCAO3/O 4	AOC 2 -Mobile Computing	3	3	-	75	75	3
IV	16BTA002/ 16ATA002/ 15EDC002	EDC 2:Basic Tamil / Advanced Tamil / Communicative English #	2	2	-	50	50	2
V	15NSS001/NC C001/15SPT/ EXT001	NCC/NSS/SPORTS/Extension Activities @			50		50	2
		Total	30				675	27
SEMESTER V								
III	18BCC501	Core 10: Cost Accounting	5	3	30	70	100	4
III	18BCC502	Core 11: Income Tax Law and Practice	5	3	30	70	100	4
III	18BCC503	Core 12: Entrepreneurial Development	5	3	30	70	100	4
III	18BCC504	Core 13 : Visual Programming	5	3	30	70	100	4
III	18BCCP04	Core Lab-IV :Visual Programming Lab	5	3	40	60	100	4
III	18BCCE01/ 02/03	Elective I: Banking and Insurance Law	5	3	30	70	100	4
III	19BCCPR2	Research Project	-	-	-	-	-	-
		Total	30				600	24
SEMESTER VI								
III	18BCC601	Core 14: Management Accounting	5	3	30	70	100	4
III	18BCC602	Core 15: Internet and Html Programming	5	3	30	70	100	4
III	18BCCP05	Core Lab V: HTML Programming	5	3	40	60	100	4
III	18BCCE04/ 18BCCE05/ 18BCCE06	Elective - II : Investment management	5	3	30	70	100	4
III	18BCCE07/ 08/09	Elective - III : Principles of Auditing	5	3	30	70	100	4
III	19BCCPR3	Project and Viva Voce	5	3	40	60	100	4
		Total	30				600	24
Total						3600	140	

No Continuous Internal Assessment (CIA) , only Comprehensive Examination(CE)

@ No Continuous Internal Assessment (CIA) and Comprehensive Examination (CE)

IDC- Inter disciplinary Course, EDC – Extra Disciplinary Course,
AOC – Application Oriented Courses.

List of Application Oriented Papers

Part	Code	List of AOC Papers
AOC -I	18BCCA01	Corporate Communication
	18BCCA02	Industrial Law
AOC-II	18BCCA03	Mobile Computing
	18BCCA04	Cyber Law

List of Elective Papers

Part	Code	List of AOC Papers
ELECTIVE -I	18BCCE01	Banking and Insurance Law
	18BCCE02	Management Information Systems
	18BCCE03	Retail Business Management
ELECTIVE –II	18BCCE04	E-Commerce
	18BCCE05	Principles of International Trade
	18BCCE06	Investment Management.
ELECTIVE -III	18BCCE07	Principles of Auditing
	18BCCE08	Network Management.
	18BCCE09	Brand Management

List of Additional Credit Papers

Sem	Code	Subject Title	Marks	Credits
III	19BCCAC1	Principles of International Trade	100	2
IV	18BCCAC2	Business Finance	100	2
V	19BCCAC3	Export and Import Trade Procedures	100	2

Summary			
Part	Number of Papers	Total Credits	Total Marks
I – Language	2	6	200
II - English	2	6	200
III –Core	20	80	2000
III – IDC	4	16	400
III – Elective	3	12	300
III -Project	1	4	100
IV –Foundation Course	2	4	100
IV – EDC	2	4	100
IV – Application Oriented Course	2	6	150
V – Extension Activities	-	2	50
Total	38	140	3600

REGULATIONS FOR B.Com (CA)

(Effective from the Academic Year 2018-2019 onwards)

1. Project and Viva Voce :

Each student in the UG final year shall compulsorily undergo Institutional Training in the 3rd semester, Project Work in the 5th and 6th Semester. Projects shall be done individually. Project Coordinators shall allocate the project title and the guide for each group. Project work shall be done only in the lab provided by the college, including Project Record Preparation. Project Reviews shall be conducted twice in the semester in which the progress of project work shall be strictly evaluated by respective Project Guides and Project Coordinators. Viva-Voce shall be conducted only in the presence of Industrialists or Academicians. Out of the Total of 100 marks, 50% of mark shall be allocated for CIA and 50% for CE VIVA VOCE.

2. Submission of Record Work for Practical Examinations

Candidates appearing for practical examinations shall submit Bonafide Record Work for the concerned Practical Examinations. If not the Candidate has to submit a Bonafide Certificate issued by the concerned Subject in-charge duly signed by the Head of the Department in order to be permitted to take up the Practical Examination. The Candidate so permitted will not be eligible for the Record Work Marks.

3. Distribution of Marks:

The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project:

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum (Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	28	30	40
	75	75	30	-	30
	50	50	20	-	20
Practical Paper	100	60	24	40	40
Project	100	60	24	40	40

4. Distribution of Internal Mark for Theory :
(No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6=30

Breakup for Attendance:

Up to 74 %	- 4 Marks
75% - 84%	- 6 Marks
85% - 94%	- 8 Marks
95% - 100%	- 10 Marks

Split of the marks for a seminar is as follows:

Content	-10 Marks
Flow of the presentation	-10 Marks
Stage Management and Body language	-10 Marks

5. Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 40		
S No	CIA	Distribution of Marks
1	For Completion of the Practical List	20
2	Test –I	10
3	Test –II	10
Total		40

6. Distribution of Comprehensive Exam Mark for Practical :

MAXIMUM MARKS : 60		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	10
2	Program – I a) Algorithm b) Coding c) Execution	5 10 10 TOTAL (25)
3	Program – II a) Algorithm b) Coding c) Execution	5 10 10 TOTAL (25)
Total		60

7. Distribution of Mark for Project VIVA-VOCE (For V and VI Semester):

S.No	CIA	Distribution of Marks
1	INTERNAL a) Review –I b) Review –II c) Documentation & Final Review	10 10 20 Total (40)
2	EXTERNAL * a) Presentation b) Viva	30 30 Total (60)
Total		100

***Marks to be awarded by both External and Internal Examiners.**

8. Question Paper Pattern
Time: 3 Hour

Max marks: 70

SECTION – A (10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B (5×4=20)

Answer ALL questions

Each Question carries Four Marks

(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answerer ALL questions

Each Question carries Eight Marks

(INTERNAL CHOICE)

9. Question Paper Pattern
Time: 3 Hour

Max marks: 75

SECTION – A (10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B (5×5=25)

Answer ALL questions

Each Question carries Five Marks

(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answerer ALL questions

Each Question carries Eight Marks

(INTERNAL CHOICE)

10. Question Paper Pattern
Time: 3 Hour

Max marks: 50

SECTION – A (10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B (5×3=15)

Answer ALL questions

Each Question carries Three Marks

(INTERNAL CHOICE)

SECTION – C (5×5=25)

Answerer ALL questions

Each Question carries Five Marks

(INTERNAL CHOICE)

11. Question Paper Pattern
Time: 3 Hour

Max marks: 100

SECTION – A (10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B (5×8=40)

Answer ALL questions

Each Question carries Eight Marks

(INTERNAL CHOICE)

SECTION – C (5×10=50)

Answerer ALL questions

Each Question carries Ten Marks

(INTERNAL CHOICE)

NOTE:

1. The questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the unit in the syllabus in all the sections of the question paper.
3. While framing questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

12. Conduct of Practical Examinations:

Practical examinations shall be conducted with one internal examiner and one external examiner and the question paper for practical examination shall be set by both Internal and External examiners.

13. Institutional Training*:

All the candidates should undergo institutional training during the III Semester Comprehensive Examination in order to complete the Degree. He/she should submit the report to the Department and attend the viva voce examination conducted by the department.

14. Research Projects*:

All the candidates should undergo the Research projects during the V Semester Comprehensive Examination in order to complete the Degree. He/she should submit the report to the Department and attend the viva voce examination conducted by the department.

Note:

Any candidate having arrear in any of the theory paper or practical paper or project viva voce shall appear for the same in the subsequent semester of his study.

B.Com [Computer Applications] Degree Examination – Syllabus for Candidates admitted from the academic year 2018-19 onwards.

FIRST SEMESTER

PART III: CORE 1- FINANCIAL ACCOUNTING – I

Maximum CIA: 30

Minimum CE: 70

Total Hours: 72

Objective:

To enable the students to learn principles, Conventions and concepts of Accounting.

UNIT – I (14 HOUR)

Fundamentals of Accounting and Book Keeping – Book keeping Vs Accounting – Objectives, Advantages and limitation of accounting - Accounting Concepts and Conventions – Journal – Ledger – Subsidiary books – Trial balance.

UNIT – II (15 HOUR)

Final accounts – Trading, Profit and loss account- Balance sheet - Adjustments – Errors and rectification – Classification of errors - Basic principles for rectification of errors - Bank Reconciliation statement-Methods of Preparation of BRS

UNIT – III (14 HOUR)

Bill of exchange – Advantages of bill of exchange- Honouring and dishonouring of bill (including accommodation bill)– Average due date – Determination of due date- Average due date as basis for calculation of interest- Account current- Product method- Red ink interest method- Daily balance method.

UNIT – IV (15 HOUR)

Consignments – Features – Distinction between sale and consignment – Account Sales – Accounting treatment of consignment Transactions – Consignor’s books – books of consignee – Consignee’s books (including Normal loss and Abnormal loss). - Joint ventures - Features – Distinction between Joint venture and consignment - Distinction between Joint venture and Partnership - Accounting treatment of joint venture – when separate set of books of accounts is kept - when separate set of books of accounts is not kept – Memorandum Joint Venture Method.

UNIT – V (14 HOUR)

Accounting for non-trading organizations-Receipts and Payments account- Income and expenditure account - Indian Accounting Standards – IFRS - Concepts of IFRS - International Financial Accounting Standards – Significance – Importance.

Note : Distribution of Marks between problems and theory shall be 80% and 20%.

TEXT BOOK

1. R.S.Reddy and Moorthy, Financial Accounting, Margam Publication, Year-2016.

REFERENCE BOOKS

1. S.P.Jain and K.L.Narang, Principles of Accountancy, Kalyani Publishers,Year-2016, New Delhi.
2. T.S.Grewal, Double Entry Book Keeping, 6th Edition, Sultan Chand and Co, Year-2016.
3. Gupta .R.L, Gupta.V.K, Financial Accounting, 1st Edition, Sultan Chand and Co, Year-2016.
4. Agarwal.S.P. Jain P.C Advanced Financial Accounting, 1st Edition, Wiley Eastern Ltd Publishers,Year-2016.

B.Com (CA) Degree Examination - Syllabus for the candidates admitted from the academic year 2018-2019 onwards

FIRST SEMESTER

PART III: CORE 2- OFFICE AUTOMATION, C PROGRAMMING & TALLY

Maximum CIA: 30

Minimum CE: 70

Total Hours: 72

Objective:

To enable the students to acquire the latest trends in the technological developments.

UNIT I

(15 HOUR)

Computer system Architecture –Types of Computer Systems– Generation of Computers
Hardware: Input Output and Storage Devices -Software: System Software and Applications
Software- Operating Systems-Programming Languages: Machine Language – Assembly
Language – Higher level Languages-Language Translators: Compiler-Assemble-Interpreter -
importance of computers in various Areas of Business.

UNIT II

(15 HOUR)

Data and Information – Date processing – Date Storage and Data Retrieval capabilities –
Number systems and Conversions –Flowchart and Programmed flow Charts- Steps in Developing
a Computer Program- Introduction to MS-Office-Word-Document preparation-Excel-problem
solving-charts-PowerPoint Presentation-Access-Databases-Forms and Reports- Computer Related
jobs in Business.

UNIT III

(15 HOUR)

Overview of C-Introduction-Character Set-C Tokens-Keyword and Identifiers-Constant-
Variables-Data Types-Declaration of Variables and Constants-Assigning Values to Variables-
Defining Symbolic Constants-Operators-Arithmetic Expression-Evaluation of Expressions-
Precedence of Arithmetic Operators-Type Conversion in Expression.

UNIT-IV

(15 HOUR)

Decision Making and Branching: Decision Making with IF Statements- The Switch
Statements- Decision Making and Looping-Arrays-String Handling Functions. Functions-Return
Values and Their Types-Function Calls and Declaration-No Arguments and No Return Values-
Arguments But No Return Values- No Arguments But Returns a Value -Recursion-Functions
Function with Arrays and Strings.

UNIT-V

(12 HOUR)

Introduction about tally- rules of accounting-creation of company – selecting a company-
altering a company-close or shut company –Vouchers – stock journal- final accounts – trial
balance – profit and loss account – balance sheet printing a final accounts – data import – export –
backup & restore

TEXT BOOKS

1. C.Balagurusamy, Designing in ANSI C, 5th Edition, Tata Mc Graw Hill Publishing Company, 2007, New Delhi.
2. Leon Alexis, Leon Mathews, Fundamental of Information Technology, 1st Edition, Visas Publishing House, Year-2014.
3. Shraddha Singh and Navneet Mehra, Tally ERP 9 , 2015, V &S Publications

REFERENCE BOOKS

1. V. Rajaraman, Introduction to Information Technology, 3rd edition, Sami Publications, 2018
2. Henry C. Lucas. Jr., Information Technology, Strategy decision making for Managers, 1st Edition, John Wiley & Sons [Asia] Pvt. Ltd, Year-2015, Singapore.
3. Holzner Steve, C-Designing The Accessible Guide Professional Designing, 3rd Edition, Prentice Hall, 2014, London.
4. Dinesh Maidasani, Tally 9.0, 1st Edition, 2008, Lakshmi Publication

B.Com(CA) Degree Examination - Syllabus for the candidates admitted from the academic year 2018-2019 onwards

**FIRST SEMESTER
PART III: IDC 1- MANAGERIAL ECONOMICS**

Maximum CIA: 30

Minimum CE: 70

Total Hours: 72

Subject Description : To enable the students to understand various economic strategies in business decision making.

Goals : To make the students to understand the tools the techniques and economic analysis applied in the art of managerial decisions.

Objectives : On successful completion of this course, the student should be well versed in the concepts, tools and principles in the field of Economics and Business Management.

UNIT-I (15 HOUR)

Managerial Economics – Meaning and Definition – Nature and Scope – Economic Theory – Divisions – Goals of a firm.

UNIT-II (14 HOUR)

Demand Analysis – Meaning, Determinants of Demand – Law of Demand, Elasticity of Demand – Price, Income and Cross Demand – Demand Estimation and Demand Forecasting – Demand Distinctions.

UNIT-III (15 HOUR)

Consumer behavior: Meaning of utility –Law of Diminishing Marginal Utility – Equi- Marginal Utility – Indifference curve analysis –Definition –properties –consumer’s surplus- consumer’s equilibrium.

UNIT-IV (14 HOUR)

Production Function – Meaning and Definition – Elasticity of Substitution and Production – Type of cost of Production – Long run and Short run cost.

UNIT-V (14 HOUR)

Price Theory – Perfect Competition, Monopoly, Monopolistic competition, Monopsony, Duopoly, Duopsony and Oligopoly.

TEXT BOOK

1. Dr.Sankaran.S, Business Economics 3rd Edition ,Margham Publication ,2012,Chennai,

REFERENCE BOOKS:

1. Sundharam.K.P.M and Sundaram.E.N, Business Economics, 4th Edition, Sultan Chand and Sons, 2007, New Delhi.
2. Ahuja.H.L, Business Economics 13th Edition, S.Chand & Company Ltd., 2016, New Delhi.
3. Varshney R.L and Maheshwari K.L, Managerial Economics, 19th Edition, Sultan Chand & Sons, 2009, New Delhi.

B.Com [Computer Applications] Degree Examination – Syllabus for Candidates admitted from the academic year 2018-19 onwards

SECOND SEMESTER

PART III – CORE – 3 FINANCIAL ACCOUNTING II

Maximum CIA: 30

Minimum CE: 70

Total Hours: 72

Objective:

To train the students in solving advanced problems in Accounting.

UNIT - I (14 HOUR)

Accounting for Depreciation – Meaning, Characteristics, Causes and Objectives – Needs – Methods Straight Line method, Diminishing balance method – Change in Method of Depreciation - Annuity method, Sinking fund or Depreciation fund method, Insurance policy method, Revaluation method, Depletion method, Machine Hour rate method - Reserves and Provisions – Difference between provision and reserve – types of reserve – Provision for repairs and renewals.

UNIT - II (14 HOUR)

Single entry system- Meaning and Features- Ascertainment of profit- Net worth method- conversion method- Distinction between Statement of affairs method and Conversion method.

UNIT - III (14 HOUR)

Self balancing and Sectional balancing ledger- Meaning and advantages- Accounting aspects and transfers- Debtors ledger- Creditors ledger- General Ledger- Procedure of self balancing- Journal entries for self balancing- Transfer and set-off.

UNIT - IV (15 HOUR)

Hire Purchase and Installment System, Including Hire purchase Trading Account- Features- Distinction between Hire purchase and Installment System- Accounting treatment for Hire purchase System – Calculation of interest- Default and Repossession- Hire purchase Trading Account- Debtors method – Stock and Debtors method- Installment System- Accounting treatment.

UNIT - V (15 HOUR)

Branch Accounts (Excluding Foreign Branches) – Dependent and Independent Branches – Accounting treatment in Dependent branches- Debtors system- Stock and debtors system- Wholesale branch- Independent Branches- Departmental Accounts – Transfer at cost or selling prices- Need- Departmentalisation of expenses- Apportionment of expenses- Inter-departmental transfer- Stock reserves.

Note: Distribution of Marks between Problems and Theory shall be 80% and 20%.

TEXT BOOK

1. R.S.Reddy and Moorthy, Financial Accounting, Margam Publication, Year-2016.

REFERENCE BOOKS

1. S.P.Jain and K.L.Narang, Principles of Accountancy, Kalyani Publishers, Year-2016, New Delhi.
2. T.S.Grewal, Double Entry Book Keeping, 6th Edition, Sultan Chand and Co, Year-2016.
3. Gupta .R.L, Gupta.V.K, Financial Accounting, 1st Edition, Sultan Chand and Co, Year-2016.
4. Agarwal.S.P. Jain P.C Advanced Financial Accounting, 1st Edition, Wiley Eastern Ltd Publishers, Year-2016.

B.Com (CA) Degree Examination - Syllabus for the candidates admitted from the academic year 2018-2019 onwards

SECOND SEMESTER

CORE LAB 1-MS OFFICE AND C PROGRAMMING AND TALLY

Maximum CIA: 40

Minimum CE: 60

Total Hours: 72

1. (a) Prepare a Chairman speech/Auditors Report minutes/ Agenda and perform the following operations: Bold, Underline, Font size, style, background color, text color, line spacing, spell check, alignment, header, footer, inserting pages and page number, find and replace.
(b) Prepare an invitation for the college function using text boxes and clip arts.
2. Prepare bank customer statement in customer name, account number and find simple and compound interest
3. Prepare mark list of your class (Minimum 5 subjects) and perform the following operations: Data entry, total, average, result and ranking by using arithmetic and logical functions and sorting and prepare result analysis chart
4. Design a presentation slides for a product of your choice. The slides must include name, brand name, type of product, characteristics, special features, price, special offers and etc. The presentation should work in manual mode.
5. Prepare a payroll for employee database of an organization with following details: Employee Id, name, Date of birth, department and designation, date of appointment, basic pay, dearness allowance and house rent allowance.
6. Write a C program to generate Fibonacci series
7. Write a C program to sort the given number in ascending order.
8. Write a C program to find the factorial of given number using recursive function.
9. Write a C program to count the number of vowels is the given sentence
10. Write a C program to convert from decimal to binary, octal and hexadecimal values.

TALLY

11. Create a new company, group, voucher and ledger and record minimum 10 transactions and display the relevant results.
12. Prepare trial balance, Profit and Loss A/c and Balance Sheet (with minimum of any five adjustments).

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THIRD SEMESTER

PART III – CORE – 4: FINANCIAL ACCOUNTING - III

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objective: To train the students in solving advanced problems in Partnership Accounting.

Unit – I (12 Hours)

Introduction – Admission of Partner – Adjustment in the Profit Sharing Ratio – Calculation of Sacrificing Ratio – Treatment of Goodwill – Premium and Revaluation Method – Revaluation of Assets and Liabilities – Calculation of Ratios for Distribution of Profits – Capital Adjustments. [Memorandum Method Excluded]

Unit – II (12 Hours)

Retirement of a Partner – Adjustment in the Profit Sharing Ratio – Calculation of Gaining Ratio Distinction between Gaining Ratio and Sacrificing Ratio – Treatment of Goodwill - Revaluation of Assets and Liabilities – Calculation of Ratios for Distribution of Profits – Capital Adjustments. [Memorandum Method Excluded] – Payment to Retiring Partner

Unit – III (13 Hours)

Retirement Cum Admission - Death of a Partner – Mode of Payment – Ascertainment of deceased partner's share of profits - Dissolution – Modes of Dissolution – Treatment of Goodwill on Dissolution.

Unit – IV (12 Hours)

Insolvency of Partners – Capital Ratio under Fixed and Fluctuating Capital Method - Garner Vs. Murray – Insolvency of all Partners – Deficiency Accounts – Piecemeal Distribution – Proportionate capital and Maximum Loss Method.

Unit – V (11 Hours)

Conversion of Partnership into Company – Insolvency Accounts – Difference between insolvency of Individual and Partnership Firm - Preparation of Statement of Affairs – Deficiency Accounts – Difference between balance sheet and statement of affairs.

Note: Distribution of Marks between Problems and Theory shall be 80% and 20%.

Text Book:

1. Reddy T.S and Murthy.A, Financial Accounting, Reprint 2017, Margham Publications, Chennai.

Reference Books:

1. S.P.Jain & K.L.Narang, Principles Of Accountancy, Reprint 2013, Kalyani Publishers, New Delhi.
2. Gupta.R.L, Gupta.V.K, Shukla.M.C, Financial Accounting, 9th Edition, 2014, Sultan Chand and sons, New Delhi.
3. S.P.Jain & K.L.Narang, Advanced Accountancy, Volume - I Edition- 2010, Kalyani Publishers, New Delhi.

B.Com [CA] Degree Examination – Syllabus for Candidates admitted from the Academic Year 2018-19 onwards.

**THIRD SEMESTER
PART III - CORE- 5: PRINCIPLES OF MARKETING**

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objective: To acquire the basic knowledge of Marketing and its function, Modern Principles and state Regulation of Marketing Concepts.

Unit- I (12 Hours)

Introduction to Market – Meaning, Definition of Market and Marketing – Classification of Market – Marketing Vs Selling – Role and Importance of Marketing — Marketing Process –Marketing Trends

Unit - II (12 Hours)

Functions of Marketing – Functions of Exchange – Selling – Buying - Functions of Physical Supply – Transportation; Storage – Facilitating Functions – Financing – Risk Bearing – Standardization and Grading – Market Information.

Unit - III (12 Hours)

Consumer Behavior - Meaning, Need for Consumer Behavior –Consumerism - Consumer Rights – Concept of Consumer Protection Act - Factors influencing Consumer Behavior – Cultural – Social – Personal – Psychological factors – Market Segmentation. New product development and consumer adoption process

Unit - IV (12 Hours)

Product Decisions: Concept of a product; Classification of products; Major product decisions; Product line and product mix; Branding; Packaging and labeling; Product life cycle –Price Mix – Importance – Kinds of Pricing – Pricing Objectives – Methods of Price Determination – Pricing Strategies – Promotion Mix .

Unit - V (12 Hours)

Direct Marketing Vs Online Marketing – Concept of Market Research and Marketing Information Systems – Multi Level Marketing - Marketing Regulations – Agmark – Green Marketing – Digital Marketing (Social Media, Multiple Messaging Apps like Face book messenger, WhatsApp, Viber).

Text Books:

- 1.R.S.N.Pillai and Bhagavathi, Modern Marketing- Principles and Practice, Reprint 2013, S.Chand & Sons, New Delhi
- 2.Saxena, Rajan, Marketing Management, TataMcGraw Hill, New Delhi.
3. McCarthy, E.J Basic Marketing: A managerial approach, Irwin, New York.

Reference Books:

- 1.Varshney R.L and Gupta, Marketing Management, 6rd Edition, 2012, Sultan Chand and Sons, New Delhi.
2. R. Jayaprakash Reddy, Marketing Management, 5th Edition, 2010, JBA, New Delhi.

B.Com[CA] Degree Examination – Syllabus for candidates admitted academic year 2018-19 onwards

**THIRD SEMESTER
PART III CORE- 6 : PROGRAMMING IN C++**

Maximum CIA: 30

Maximum CE : 70

Total Hour: 60

Objective: On the successful completion of this language paper the students should have gained knowledge about Programming in C++.

Unit- I [12 Hours]

Introduction to C++- Input and Output in C++: OOP Paradigm – Concepts- Benefits- Object Oriented Languages and Applications - Formatted and Unformatted Console Input/output Operations – Manipulators in C++ - Storage Class - Parts of C++ Program- Type of Tokens - Data Types in C++- Constants: Declarations-Operators in C and C++ - Modifier: Types

Unit - II [12 Hours]

Classes and Objects: Classes in C++- Declaring Objects - Defining Member Function - Function in C++: Parts of Function - Inline Function Overloading -Static Member Variables and Function - Static Object - Friend Function - Overloading Member Function- Control Structures: C++ decision making statements-Looping Statements.

Unit - III [12 Hours]

Constructors and Destructors - Operator Overloading Unary - Binary Operators- Overloading with Friend Function - Type Conversion- Inheritance – Single Inheritance – Multiple Inheritance – Hierarchical- Hybrid Inheritance – Polymorphism – Virtual Functions – Virtual Base Classes - Abstract Classes.

Unit - IV [12 Hours]

Pointer and Arrays-References - Data Encapsulation - Date and Time- Data Abstraction- Numbers in C++ -Strings in C++ - Memory Models- New and Delete Operator - Dynamic Objects - Binding in C++.

Unit - V [12 Hours]

Files: File Stream Classes - File Modes - Binary and ASCII Files - Command Line Arguments- C++ Web Programming - Templates: Definition of Class Template –Normal Function Template.

Text Book:

1. Balaguruswamy, “Object Oriented Programming with C++-Tata McGraw Hill Publishers Ltd., 2016, New Delhi.

Reference Books:

1. Brian W. Kernighan” The C++ Programming Language “, 2nd Edition, 2015.
2. Herbert Schilt, “C++- The Complete Reference, 4th Edition, Tata McGraw Hill, Pub Ltd.2011.
3. Bjarne Stroustrup, “he C++ Programming Language” 4th Edition, 2010.

B.Com[CA] Degree Examination – Syllabus for candidates admitted from the academic year 2018-19 onwards

THIRD SEMESTER

PART III - CORE LAB - II - PROGRAMMING IN C++ LAB

Maximum CIA: 40

Maximum CE : 60

Total Hour: 60

Objective: To inculcate knowledge on C++ Programming concepts.

1. Write a C++ program to calculate depreciation under straight line method and diminishing Balance method (using class, defining member functions inside and outside the class).
2. Write a C++ Program to Create Class- Which Consists of EMPLOYEE Detail Like E Number E Name Department- Basic- Salary- and Grade. Write a Member Function to Get and Display Them. Derive a Class PAY from the Above Class and Write a Member Function to Calculate DA- HRA and PF Depending on the Grade.
3. Write a C++ Program to Calculate Sum of Natural Numbers.
4. Create Two Classes Which Consist of Two Private Variable Variables One Float and One Integer Variable in Each Class. Write Member Functions to Get and Display Them. Write Friend Function Common to Both the Classes and Display the Result.
5. Write a C++ Program Using Function Overloading to Read Two Matrices of Different Data Types Such As Integers and Floating Point Numbers Find Out the Sum of the Above Two Matrices Separately and Display the Sum of These Arrays Individually.
6. Write a C++ Program to Read an Integer Number and Find the Sum of All the Digits until It Reduces to a Single Digit Using Constructors- Destructors and Inline Member's Functions.
7. Write a C++ program to get two integer values and sum using Encapsulation.
8. Write a C++ Program to Create a Class SHAPE Which Consists of Two VIRTUAL FUNCTIONS Calculate Area O and Calculate Perimeter O to Calculate Area and Perimeter of Various Figures. Derive Three Classes SQUARE- RECTANGLE. TRIANGLE from Class Shape and Calculate Area and Perimeter of Each Class Separately and Display the Result.
9. Create a Class STRING. Write Member Functions to Initialize Get and Display Strings Overload the + Operator to Concatenate Two Strings Overload the Operator to Compare Whether Two Strings Are Equal. Write a Member Functions to Find the Length of the String.
10. Write a C++ Program to Check Whether the Given Number Is a Palindrome or Not Using Pointers.
11. Write a C++ Program to represent bank account transactions using Inheritance.
12. Write a C++ Program to generate student mark statement using file.

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**THIRD SEMESTER
PART IV – AOC-1- CORPORATE COMMUNICATION**

Maximum CE : 75

Total Hours : 36

Objective: To enhance Students knowledge in Formal Written Communication.

Unit - I (7 Hours)

Communication- Meaning – Objectives - Media of Communication – Written and Oral Communication – Types of Communication – Barriers to Communication – Types of Barriers - Principles of Communication.

Unit - II (8 Hours)

Overview of Corporate – Business Letter – Needs – Functions – Kinds – Layout of Business Letter – Enquiries and Replies –Orders and Execution – Complaints and Adjustments.

Unit - III (7 Hours)

Circular Letter – Objects – Sales Letter - Bank Correspondence – Insurance Correspondence- Agency Correspondence.

Unit - IV (7 Hours)

Application Letter – Form and Contents –Bio-data – Interview Letter – Resignation Letter – Public Relations Letters – Letter to the Editor.

Unit - V (7 Hours)

Reports – Importance – Types – Preparation- Structure & Organization of Reports - Meetings- Kinds of Meetings- Preparing Agenda and Minutes.

Text Book:

1. Rajendra Pal and Korlahalli.J.S, Essentials of Business Communication, Reprint 2015, Vikas Publications, Mumbai.

Reference Books:

1. Ramesh M.S. and Pattanshett, Business Communication, Reprint 2015, TMH Publishing House, Mumbai.
2. Homai Pradhan, Dhende D.S, Vijaya Thakar, Business Communication, Reprint 2015, Himalaya Publishing House, New Delhi.

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**THIRD SEMESTER
PART IV – AOC- 1 INDUSTRIAL LAW**

**Maximum CE : 75
Total Hours : 36**

Objective: To provide good understanding of the role of Industries, Regulations and Development

Unit - I (7 Hours)

Factories Act 1948 – Provisions Relating to Health, Safety and Welfare – Employment of child and young men – Adult workers – Women workers.

Unit - II (7 Hours)

Industrial Disputes Act 1947 – Provision Relating to strike, lockout and retrenchment. Layoff – closure – Machinery to solve dispute

Unit - III (7 Hours)

Trade unions Act 1926 – Definitions registration – Rights and Privileges –cancellations of registration – Political fund – Payment of Wages Act 1926 –Permissible deductions –Time and Mode of payment

Unit - IV (8 Hours)

Payment of Bonus Act 1965 - Meaning of Gross profit – computation of available and allocable surplus – eligibility for bonus – Minimum & Maximum bonus – exemption –applicability of the act – Employees State Insurance Act 1948 – Definition – Medical mode–Purpose for which funds can be spent – Benefit.

Unit - V (7 Hours)

The Minimum wages Act 1948 – Workmen’s Compensation Act 1923 –Employers liability & non-liability – Partial – Permanent - Total Disablement – Accusation diseases

Text Book:

1. N.D.Kapoor, “Elements of Industrial Law”, Sultan Chand & Sons, New Delhi, 35th Edition, 2016

Reference Book :

1. M.C.Kuchhal & Vivek Kucchal, Business and Industrial Law, Reprint 2013, Sulthan Chand & Sons, New Delhi
2. N. D.Kapoor, “Mercantile Law”, Sultan Chand & Sons, New Delhi, 35th Edition, 2014

B.Com [CA] Degree Examination – Syllabus for Candidates admitted from the Academic Year 2018-19 onwards.

**THIRD SEMESTER
PART IV - EDC- I HUMAN RESOURCE MANAGEMENT**

Maximum CE : 50

Total Hours : 24

Objective: On the successful completion of this paper, the students would have acquired the preliminary knowledge in Human Resource Management.

Unit - I **[4 Hours]**

Human Resource Management- Definition, Objectives, Scope and Functions of HRM- Evolution and Development of HRM

Unit - II **[5 Hours]**

Job Analysis- Job Description- Job Specification. Recruitment, Sources - Selection Process- Placement and Induction- Training and Development.

Unit - III **[5 Hours]**

Performance Appraisal – Need, Importance and Methods - Job Evaluation – Methods – Career Planning – Features – Career Planning – Need – Career Planning Vs Human Resource Planning.

Unit - IV **[5 Hours]**

Wages and Salary Administration – Elements of Wage and Salary System - Payment of Wages Act 1936 – Wage Policy – Wage Policy in India – State Regulation of Wages

Unit - V **[5 Hours]**

Grievance Handling, Forms, Measurement Techniques and Steps – Collective Bargaining, Features, Types and Process - Employee's Participation.

Text Book:

1. V.S.P. Rao, Human Resource Management, 4th Edition, 2010, Excel Books, New Delhi

Reference Books:

1. K.Aswathappa, Human Resource Management, 8th Edition 2015, Tata Mc-Graw Hill, New Delhi
2. Dr.J.Jayasankaran, Human Resource Management, Reprint 2016, Margham Publishers, Chennai.
3. L.M.Prasad. Human Resource Management, Reprint 2014, Sultan Chand & Sons, New Delhi.

B.Com [CA] Degree Examination – Syllabus for Candidates admitted from the academic year 2018-19 onwards.

**FOURTH SEMESTER
PART III –CORE 7- CORPORATE ACCOUNTING**

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objective: To enable the students understand the fundamental procedures in the preparation of Company Accounts.

Unit - I **[12 Hours]**

Share Capital- Terms of Issue- Issue of Equity shares – Issue at Par, Premium and at Discount – Under Subscription and Over Subscription-Pro-rata Allotment- Calls in Arrears and Calls in Advance- Forfeiture and Re-issue [including Pro-rata allotment] .

Unit - II **[12 Hours]**

Preference Shares – Types of Preference Shares - Issue of Preference Shares – Redemption of Preference Shares- Computation of Cash available for Redemption- Transfer to Capital Redemption Reserve

Unit - III **[11 Hours]**

Debentures - Types of Debentures - Issue of Debentures – Issue at Par , Premium and Discount – Calculation of Ex Interest & Cum Interest - Underwriting of Shares–Needs- Types- Complete and Partial Underwriting- Firm Underwriting.

Unit - IV **[12 Hours]**

Profits Prior to Incorporation – Meaning – Treatment - Basis of Apportionment – Calculation of Managerial Remuneration - Calculation of Net Profit for Managerial Remuneration - Preparation of Final Accounts of Companies with Managerial Remuneration.

Unit - V **[13 Hours]**

Valuation of Goodwill - Methods for Valuation of Goodwill - Valuation of Shares - Methods for Valuation of Shares - Liquidation of Companies – Meaning –Preparation of Liquidators Final Statement – Preparation of Statement of Affairs and Deficiency Account.

Note: Distribution of Marks between Problems and Theory shall be 80% and 20%.

Text Book:

1. Reddy T.S and Murthy.A, Corporate Accounting, 10th Edition, 2017, Margham Publications, Chennai.

Reference Books:

1. S.P.Jain & K.L.Narang, Corporate Accounting , Reprint 2013, Kalyani Publishers, New Delhi.
2. Gupta R.L. and Radhaswamy M, Corporate Accounts , Theory Method and Application-15th Revised Edition 2013, Sultan Chand and Co., New Delhi.
3. Shukla M.C., Grewal T.S. and Gupta S.L., Advanced Accountancy, 15th Edition 2014, Sulthan Chand and sons, New Delhi

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**FOURTH SEMESTER
PART III – CORE 8 - MERCANTILE LAW**

Maximum CIA: 30

Minimum CE : 70

Total Hours : 60

Objective: To provide good understanding of the role of Mercantile law, Regulations and Development

Unit - I **[12 Hours]**

Introduction – Definition and scope of mercantile law – growth and sources of mercantile law – Nature and Kinds of contracts – Offer and Acceptance – Consideration – Capacity of parties – Free consent – Legality of object and consideration, Void agreements – Contingent Contracts.

Unit - II **[12 Hours]**

Performance of contracts – Devolution of joint rights and liabilities - Discharge of contracts – Remedies for breach including specific performance – Quasi contracts – Free Consent.

Unit - III **[12 Hours]**

Contract of Indemnity and Contract of Guarantee – Distinguish between Contract of Indemnity and Contract of Guarantee - Features of a Contract of Guarantee - Kinds of Guarantee - Bailment and Pledge – Duties of bailor and bailee – Termination of bailment – Contract of Agency – Kinds of agency

Unit - IV **[12 Hours]**

Laws of sale of Goods – Distinction between sale and agreement to sell – Conditions and warranties to sell – Conditions and warranties – Performance of contract of sale – Rights and duties of buyer – Rights of unpaid seller

Unit - V **[12 Hours]**

Law of Negotiable Instruments - Negotiable Instrument Act 1881; Definition of negotiable instruments; Features; Promissory note; Bill of exchange & Cheque; Holder and holder in the due course; Crossing of a cheque, types of crossing; Negotiation; Dishonour and discharge of negotiable instrument.

Text Book:

1. N. D.Kapoor, “Mercantile Law”, Sultan Chand & Sons, New Delhi, 35th Edition, 2014

Reference Book:

1. Dr.P.Srienganayaki, “Business Law”, Charulatha Publications, Chennai, 2nd Edition, 2018
2. R.S.N. Pillai & Bagavathi, Business Law, Reprint 2011, Sulthan Chand, New Delhi

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**FOURTH SEMESTER
PART III - CORE 9 - DATABASE MANAGEMENT SYSTEM**

Maximum CIA : 30

Minimum CE : 70

Total Hours : 60

Objectives: To inculcate knowledge on DBMS concepts and Programming with oracle to students.

Unit- I [12 Hours]

Database System Architecture – Basic Concepts: Database system, Operational data – Data Independence – Architecture of client/server DBMS – Types of DBMS – DBA functions – Storage structure: DBMS Storage system – File Organizations –File operations.

Unit- II [12 Hours]

Introduction to SQL- Types of SQL commands– SQL data types-queries and Sub queries – SQL operators–aggregate functions—joins and Unions-Normalizations –good and bad decomposition.

Unit- III [12 Hours]

Relational approach: Data structure – Domain – Attributes – Keys –Relationships- Relational Algebra: Introduction - Traditional set operation, Special relation operators

Unit- IV [12 Hours]

Hierarchical approach: IMS data structure, physical database description, Hierarchical sequence, External level of IMS: Logical database, the program communication block. IMS data manipulation: Defining the program communication block: DL/I Examples.

Unit- V [12 Hours]

Network Approach: Architecture of DBTG – Data manipulation of DBTG – Data retrieval of DBTG – External level of DBTG.

Text Book:

1. Database Management Systems, 3rd Edition by Raghu Ramakrishnan.

Reference Books:

1. Desai B., "An Introduction to Database Concepts" Galgotia Publications, New Delhi.
2. Ullman. J.D., "Principles of Database Systems", Golgotha Publications, New Delhi.
3. Date C j, "An Introduction to Database System", Addison Wesley.
4. Hanson Gary W. and Hanson James V., "Database Management and Design", Prentice Hall of India Pvt Ltd.

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**FIFTH SEMESTER
PART III CORE LAB –III-DBMS (ORACLE) Lab**

Maximum CIA: 40

Maximum CE : 60

Total Hour: 60

Objective: To inculcate knowledge on DBMS using ORACLE.

1. Create a company database with the following fields and performing queries.

Field name	Field type	Size
Company name	varchar	20
Proprietor	varchar	15
Address	varchar	20
Supplier name	character	10
No of employees	number	5
GP percent	Number	6, 2

- a) Display employee-names as ascending order.
- b) Display the name of the company whose supplier name is Telco.
- c) Display all the details of the company whose GP percent greater than 70.
- d) Display the details of the company having employee ranging from 1000 to 1200.
- e) Display the details of the company whose proprietor is same as the TATA.

2. Create a payroll database the following fields and performing queries.

Field name	Field type	Size
Emp_no	varchar	5
EMP name	character	15
Department	varchar	10
Date of join	date	
Basic pay	number	6,2
DA	number	6,2
HRA	number	6,2
PF	number	6,2
Net pay	number	6,2

- a) Display the employee details those are 'sales' department
- b) Display the employee names that are getting HRA above 4000.
- c) Delete the employee details whose join before apr 2000
- d) Display the employee whose names starts with 'M'
- e) Display the employee id and mane that's getting highest salary.

3. Create a student database with the following fields and the performing queries.

Field name	Field type	Size
Stu name	character	15
Roll no	varchar	10
Dept	character	10
Gender	character	6

Date of birth	date	
Marks %	number	5, 2

- Display the student details those are fails (below 40).
- Display the student names and roll number except 16BCC030.
- Update mark value 75 to roll number 16BCC13
- Find the number of 'Female' students.
- Order the student details based on marks

4. Create a employee table with the given fields and perform the following queries.

Field name	Field type	Size
EMP code	varchar	10
EMP name	varchar	15
Address	character	15
Designation	varchar	10
Date of joining.	Date	
Grade	character	10
Salary	number	8, 2

- Arrange the employees as per their grade level.
- Display the detail of the employees whose earning lowest salary.
- Find the no of employees who's joined before 2010.
- Display the employee details whose grade under 'A' with designation as manager
- Find the employees total salary value.

5. Create a table product with the given fields fields and performs the following queries.

Field name	Field type	Size
Product no	number	8
Product name	character	15
Unit of measure	character	10
Quantity	number	6, 2
Total amount.	Number	8, 2

- Calculate the average quantity of product.
- Display records whose quantity greater than or equal 20.
- Select the records whose unit of measure is "meter".
- Display the details those getting either quantity above 200 total amount below 2000
- Find the number of products those are 'litre' unit.

6. Create a college database with relevant fields

Field name	Field type	Size
College name	character	15
Course	character	10
No of students	number	6
No of students passed	number	6
Pass percentage	Number	6, 2
Organization	varchar	10
Placed students	number	6

- Alter the table.
- Count the number of students were placed on 'CapGemini'.
- Update the placement those getting below 50%.
- Find the numbers of students were placed in BCOM (CA).
- Display the detail which course having highest pass percentage.

7. Create a table 'publisher' and 'book' with relevant fields

Publisher table:

Field name	Field type	Size
Publisher code	varchar	8
Publisher name	varchar	10
Publisher city	character	12
Publisher state	character	10
ISBN	varchar	8

Book table:

Title	varchar	15
Author	character	10
Publisher name	varchar	10
Book code	varchar	6
Prize	number	4, 2

- Display the details of the book with the title 'DBMS'
- Display the details of the book with publisher name as 'MacMillan'
- Select the book code, title, publisher name from 'Delhi'.
- Display the publisher details of 'programming in C++'.
- Find the average book prize from publisher state 'Tamilnadu'

8. Create a table Deposit and Loan with relevant fields.

Deposit table:

Field name	Field type	Size
Account no	varchar	16
Customer name	character	12
Bank name	character	10
Branch name	varchar	10
Balance amount	number	8, 2

Loan table:

Account no	varchar	16
Loan number	varchar	16
Loan amount	number	8, 2
Bank name	character	10
Branch name	character	10

- List the customer name whose getting loan from 'Syndicate bank'.
- Find the customer name to having minimum balance amount
- Update deposits to add interest at 15% to the balance.
- Display the details whose having loan above 2lakhs and balance below 2lakhs.
- Find the number of customer whose getting loan above 5lakhs.

9. Create a table supplier part table with relevant fields

Supplier table:

Field name	Field type	Size
Supplier number	varchar	16
Supplier name	character	12
Part number	number	14
Address	varchar	12
Supplier city	character	10

Part table:

Part number	varchar	14
Part name	character	16
Quantity	number	6, 2
Price	number	6, 2
Total	number	8, 2

- Display the part name and supplier name from supplier city 'Trichy' or 'Chennai'.
- Display the part number and part name those prize not less than 400.
- Find the average prize.
- Change prize that's quantity not less than 352.
- Delete the details whose prize is greater than average prize.

10. Create a table producer, agent and customer with relevant fields.

Producer table:

Field name	Field type	Size
Producer id	varchar	10
Producer name	character	12
Part number	number	14
Address	varchar	12
City	character	10

Agent table:

Agent id	varchar	8
Agent name	character	12
Part number	varchar	12
Address	varchar	14
Phone number	number	12

Customer table:

Customer id	varchar	10
Customer name	character	16
Agent id	varchar	8
Address	varchar	14
Part number	number	14

- Display the agent id, phone number and customer name whose producer city 'Salem'.
- Display the name of the agent whose producer names same as the 'L&T'.
- Display producer names and customer names.
- Display part number and address whose producer city 'Tirupur'
- Find the agent name and phone number whose customer address 'kuniyamuthur'.

11. Create a table Flight, Reservation and passenger with relevant fields.

Flight table:

Field name	Field type	Size
Flight number	varchar	10
Flight name	character	12
Country	character	10
Flight date	date	

Reservation table:

Flight number	varchar	10
Passenger name	character	12
Date of journey	date	
Date of Reserve	date	
PNR Number	varchar	10
Boarding place	varchar	15

Passenger table:

PNR Number	varchar	10
Passenger name	character	12
Flight number	varchar	10
Age	number	3
Gender	character	6
Phone number	number	14
Date of journey	date	
Departure	varchar	15
Arrival place	varchar	15

- Alter the table and set relevant key constraint.
- Sort the passenger list by the date of journey.
- Find the total number of Female passengers.
- Display the name of passengers who's reserved for 'Jet Airways'.
- Get the passenger details whose reserved Indian Flight

12. Create a table project, employee and Assigned with relevant fields.

Project table:

Field name	Field type	Size
Organization	varchar	10
Project id	varchar	10
Project name	varchar	12
Project lead	character	14
No of members	number	4

Employee table:

Employee id	varchar	8
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Employee name	character	12
Project id	varchar	10
Designation	varchar	12
Salary	number	8, 2
Phone number	number	12

Assigned table:

Project id	varchar	10
Employee id	varchar	8
Assigned date	date	
Employee name	character	12

- a) Find the average salary of employees whose involve in 'AT&T' project.
- b) Get the details of employee working on more than one project.
- c) Find the total salary of project lead.
- d) Get the name of employee who is having the project lead 'Siva'.
- e) Display the employee name & Project name those assigned date before Aug-2019.

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**FOURTH SEMESTER
PART IV- AOC 2 – MOBILE COMPUTING**

Maximum CE : 75

Total Hours : 36

Objectives: To enlighten the students' knowledge in the basic application of Mobile computing and technologies.

Unit - I (8 Hours)

Introduction: Mobility of Bits and Bytes –Wireless the Beginning – Mobile Computing-Dialogue Control – Networks – Middleware and Gateways – Application and services-Developing Mobile computer Applications – security in mobile computing – Standards –Why is it necessary – Standard bodies-History of computers and Internet.

Unit – II (7 Hours)

Mobile Computing Architecture: – Architecture for mobile computing – Three-tier architecture – Design considerations for mobile computing Mobile computing through Internet – Making exiting applications mobile enabled.

Unit- III (7 Hours)

Mobile Computing Through Telephony: Evaluation of telephony – Multiple access procedures – Mobile computing through telephone – IVR Application – Voice XML – TAPI

Unit - IV (7 Hours)

Emerging Technologies: Blue Tooth – RFID – WiMAX – Mobile IP – IPv6 – Java Card. GSM : Global System for mobile communications – GSM Architecture – GSM Entities – Call routing in GSM – PLMN Interfaces – GSM Addresses and Identifiers – Network Aspects in GSM – GSM Frequency allocations – Authentications and Security. SMS

Unit - V (7 Hours)

GPRS – GPRS and packet data network – GPRS network architecture – GPRS network operations – Data services in GPRS – Application for GPRS-Limitations – Billing and Charging. WAP : MMS – GPRS Applications

Text Book:

1. Mobile Computing, Asoke K Talukder , Roopa R Yavagal, TMH, 2005

Reference Books:

1. Mobile Computing, Raj Kamal, OXFORD Higher Education
2. Fundamentals Of Mobile Computing, Pattnaik, Mall, PH Publication

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**FOURTH SEMESTER
PART IV- AOC 2 – CYBER LAW**

Maximum CE : 75

Total Hours : 36

Objectives: To enlighten the students' knowledge in the basic application of Cyber Law in E - Commerce.

Unit – I

[8 Hours]

Cyber Law: Introduction- Concept of Cyberspace-E-Commerce in India-Privacy factors in E – Commerce – Cyber law in E-Commerce Contract.

Unit – II

[7 Hours]

Security Aspects: Introduction-Technical Aspects of Encryption-Digital Signature - Data Security. Intellectual Property Aspects: WIPO-GII-ECMS-Indian Copyrights Act on Soft Propriety Works-Indian Patents Act on Soft Propriety Works.

Unit – III

[7 Hours]

Evidence Aspects: Evidence as part of the Law of Procedures –Applicability of the Law of Evidence on Electronic Records-The Indian Evidence Act1872.Criminal Aspect: Computer Crime-Factors influencing Computer Crime- Strategy for Prevention of Computer Crime-Amendments to Indian Penal Code 1860.

Unit – IV

[7 Hours]

Global Trends- Legal Framework for Electronic Data Interchange: EDI Mechanism-Electronic Data Interchange Scenario in India.

Unit – V

[7 Hours]

The Information Technology Act 2000-Definitions-Authentication of Electronic Records-Electronic Governance-Digital Signature Certificates.

Text Book:

1. Dr.B.Kirubhashini & P.Kavitha, 1st Edition 2013, Nandhini Pathippagam, Coimbatore.

Reference Books:

1. Aparna Viswanathan, Cyber Law Indian and International Perspectives, 2013, Lexis Nexis butterworth wadhwa, Nagpur.
2. Chander H, Cyber Laws and it Protection, Reprint 2012, PHI Learning Private Limited, New Delhi.
3. Suresh T.Viswanathan, The Indian Cyber Law, Reprint 2012, Bharat Law House, New Delhi.

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**THIRD SEMESTER
PART III - AC1- PRINCIPLES OF INTERNATIONAL TRADE**

Maximum CE : 100

Objective : On the successful completion of this paper the students should have gained knowledge about International Trade and legal provisions.

Unit - I

The Global Economy – Perspective on the theory of International Trade – The importance of International trade – Counter Trade – Forms of Counter Trade – Reasons for Growth of Counter Trade – Global Trade and Developing Countries.

Unit - II

International commodity Agreements – Quota agreements, Buffer stock Agreements – Carts – State Trading – Bilateral and Multilateral contracts. Gains from Trade – Terms of Trade – Factors influencing the terms of trade.

Unit - III

Tariff – Meaning – Tariffs, Taxes and Distortions – Imports Tariffs and Export Taxes – Export Subsidies – Arguments for free Trade – Arguments for protection – Demerits of protection – Trade barriers.

Unit - IV

International Investments – Types of Foreign Investment – significance of Foreign Investments – Limitations and Dangerous of Foreign Capital – Factors affecting International Investment – Foreign Investment by Indian companies.

Unit -V

Multinational Corporation – Definition and Meaning – Importance of MNCS – Benefits of MNCs – Criticism – Globalizations – Meaning – stages – Essential conditions for Globalization – Implications and Importance of Globalization – Benefits – Obstacles to Globalization in India – Factors favoring Globalization.

Text Book:

1. G.S.Batra & R.C.Dangwal, International Business - New trends, Reprint 2010, Deep & Deep Publications Private ltd, New Delhi.

Reference Books:

1. Justin Paul, International Business, 5th Edition 2011 , PHI learning Private limited, New Delhi.
2. Vyuptakesh Sharan, International Business: Concept, Environment And Strategy,2011, Pearson, New Delhi.

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**FOURTH SEMESTER
PART III – AC2- BUSINESS FINANCE**

Maximum CE : 100

Objectives : On successful completion of this course, the student should be well versed in the concept of Business Finance and the Application of Finance to Business

Unit - I

Business Finance – Meaning – Concepts -Scope – Function of Finance – Traditional concepts Vs Modern Concepts

Unit - II

Financial Plan: Meaning – Concept – Objectives – Types – Steps – Significance – Fundamentals.

Unit - III

Capital Structure – Cardinal Principles – Trading on Equity – Cost of Capital – Concept – Importance – Calculation of Individual and Composite Cost of Capital.

Unit - IV

Sources and Forms of Finance: Equity Shares – Preference Shares – Bonds – Debentures - Fixed Deposits – Lease Financing

Unit - V

Capitalization – Bases of Capitalization – Cost Theory – Earning Theory – Over Capitalization – Under Capitalization – Symptoms – Causes – Remedies – Watered Stock – Watered Stock Vs. Over Capitalization.

Text Books:

1. Prasanna Chandra – Fundamentals of Financial Management , 1st Edition, Tata Mc Grawhill 2012.
2. Pandey I.M – Financial Management, 1st Edition, Vikas Publication,2015

Reference Books:

1. Khan M.Y and Jain P.K – Problems of Financial Management Text, Problems and Cases, 7th Edition, Tata Mc Grawhill 2014.
2. James Van. C – Financial Management and Policy , 1st Edition, Prentice Hall Publications

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FIFTH SEMESTER

PART III – AC3- EXPORT AND IMPORT TRADE PROCEDURES

Maximum CE : 100

Objective: On successful completion of this paper the students should have gained knowledge about Export and Import Trade Procedures.

Unit - I

Exports – Recent measures to boost Country’s Exports – Rules for successful exporting – Preliminaries for starting export business – Deemed exports and its benefits – Finance for Exports.

Unit -II

Different Categories of exporters - Registration of Exports – Appointing Overseas agents – Obtaining an export license – Arranging finance for exports – Packing goods for exports – Marketing goods for export.

Unit - III

Excise procedure – Insuring goods against Marine risks – Preparing export documents – Institutional support for Exports – Compulsory quality control and pre-shipment Inspection – Labeling – Shipping and customs clearance of goods.

Unit - IV

Import Trade law in India – Preliminaries for starting Import Business – Registration of Importers – arranging finance for Import – Arranging letter of Credit for Imports – Balance of Payments – Liberalization of Imports.

Unit - V

Retirement of Import Documents and RBI’s directives for making payment for Imports –Customs clearance of Imported Goods and payments of customs Duty – Imports under special schemes.

Text Books:

1. How to Export and How to Import – Nabhi publications
2. Export management – P.K. Khurana

Reference Books:

1. Export Management – T.A.S. Balagobal
2. A Guide on Export Policy, Procedure and Documentation – M.I.Mahajan – Snow white Publications

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**FOURTH SEMESTER
PART III – IDC 4 : BUSINESS ACCOUNTING**

Maximum CE : 70

Maximum CIA: 30

Total Hours : 60

Objective: Enabling student to acquire basic accounting knowledge in Business Accounting

Unit-I **[12 Hours]**

Fundamentals of Accounting– Objectives, Advantages and Limitation of Accounting - Accounting Concepts and Conventions – Journal – Ledger – Subsidiary books – Trial Balance.

Unit-II **[12 Hours]**

Final accounts – Trading, Profit and Loss Account- Balance Sheet - Adjustments

Unit -III **[12 Hours]**

Bill of Exchange – Advantages of Bill of Exchange- Honoring and Dishonoring of Bill (excluding dishonoring of bills Accommodation Bill)– Average Due Date – Determination of Due Date- Average Due Date as basis for Calculation of Interest- Account Current- Product Method- Red Ink Interest Method- Daily Balance Method.

Unit-IV **[12 Hours]**

Consignments – Features– Account Sales – Accounting Treatment of Consignment Transactions – Consignor’s Books – Consignee Books. (Excluding abnormal loss)-Valuation of Unsold stock - Joint Ventures - Features – Distinction between Joint Venture and Consignment (Theory Only).

Unit-V **[12 Hours]**

Bank Reconciliation Statement-Necessary for preparation of BRS – Problems in BRS -Accounting for Non-Trading Organizations-Receipts and Payments Account- Income and Expenditure Account and Balance Sheet.

Note : Distribution of Marks between Problems and Theory shall be 80% and 20%.

Text Book:

1. Reddy T.S and Murthy.A, Financial Accounting, Reprint 2017, Margham Publications, Chennai.

Reference Books:

1. S.P.Jain & K.L.Narang, Principles Of Accountancy, Reprint 2014, Kalyani Publishers, New Delhi.
2. T.S.Grewal Double Entry Book Keeping , Reprint 2014, Sultan Chand & Sons, New Delhi.
3. Gupta .R.L, Gupta.V.K, Financial Accounting, Reprint 2013, Sultan Chand & Sons, New Delhi

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**THIRD SEMESTER
PART III – IDC III : BUSINESS ACCOUNTING**

Maximum CE : 70

Maximum CIA: 30

Total Hours : 60

Objective: Enabling student to acquire basic accounting knowledge in Business Accounting

Unit -I **[12 Hours]**

Fundamentals of Accounting– Objectives, Advantages and Limitation of Accounting - Accounting Concepts and Conventions – Journal – Ledger – Subsidiary books – Trial Balance.

Unit -II **[12 Hours]**

Final accounts – Trading, Profit and Loss Account- Balance Sheet - Adjustments

Unit -III **[12 Hours]**

Bill of Exchange – Advantages of Bill of Exchange- Honoring and Dishonoring of Bill (excluding dishonoring of bills Accommodation Bill)– Average Due Date – Determination of Due Date- Average Due Date as basis for Calculation of Interest- Account Current- Product Method- Red Ink Interest Method- Daily Balance Method.

Unit -IV **[12 Hours]**

Consignments – Features– Account Sales – Accounting Treatment of Consignment Transactions – Consignor’s Books – Consignee Books. (Excluding abnormal loss)-Valuation of Unsold stock - Joint Ventures - Features – Distinction between Joint Venture and Consignment (Theory Only).

Unit -V **[12 Hours]**

Bank Reconciliation Statement-Necessary for preparation of BRS – Problems in BRS -Accounting for Non-Trading Organizations-Receipts and Payments Account- Income and Expenditure Account and Balance Sheet.

Note : Distribution of Marks between Problems and Theory shall be 80% and 20%.

Text Book:

1. Reddy T.S and Murthy.A, Financial Accounting, Reprint 2017, Margham Publications, Chennai.

Reference Books:

1. T.S.Grewal Double Entry Book Keeping , Reprint 2014, Sultan Chand & Sons, New Delhi.
2. Gupta .R.L, Gupta.V.K, Financial Accounting, Reprint 2013, Sultan Chand & Sons, New Delhi.
3. S.P.Jain & K.L.Narang, Principles Of Accountancy, Reprint 2014, Kalyani Publishers, New Delhi.

B.Com [Computer Applications] Degree Examination – Syllabus for Candidates admitted from the academic year 2018-19 onwards**SECOND SEMESTER`****PART III: IDC 2 - PRINCIPLES OF MANAGEMENT**

Maximum CIA: 30

Minimum CE: 70

Total Hours: 72

Objective:

To make the students to understand the elements of effective management

Unit I (15 HOUR)

Definition of Management – Management and Administration – Nature and Scope of Management - Functions of Management - Contribution of F.W. Taylor – Henry Fayol – Mary Parker Follet – Mc Gregor and Peter F. Drucker.

Unit II (14 HOUR)

Planning – Meaning – Nature and Importance of Planning – Planning promises – Methods and Types of plans

Unit III (15 HOUR)

Organization – Meaning, Nature and Importance – Process of Organization – Principles of Sound Organization – Organization Structure – Span of Control – Organization Chart - Departmentation – Delegation and Decentralization – Authority relationship Line, Functional and Staff.

Unit IV (14 HOUR)

Motivation – Need – Determinants of behaviour – Maslow's Theory of Motivation – Motivation Theories in Management – X, Y and Z theories – Leadership styles – MBO – Management by Exception.

Unit V (14 HOUR)

Communication in Management – Co-Ordination – Need and Techniques – Control – Nature and process of Control – Techniques of Control – Decision Making.

TEXT BOOK

1. Gupta C.B, Management Principles and Practice, 19th Edition, SultanChand&Sons, Year- 2010, New Delhi.

REFERENCE BOOKS

1. Dinkar Pagare, Principles of Management, 19th Edition, S.Chand & Company Ltd., Year- 2011, New Delhi.
2. L.M Prasad, Principles of Management, 5th Edition, SultanChand&Sons., Year- 2011, New Delhi.

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FIFTH SEMESTER

PART III - CORE 10: COST ACCOUNTING

Maximum CIA: 30

Maximum CE: 70

Total Hour: 60

Objective: To enable the student to have a thorough knowledge on the cost accounting principles and the methods of accounting for cost.

Unit- I [12Hour]

Cost Accounting – Definition – Meaning and Scope – Concept and Classification – Costing an aid to Management — Types and Methods of Cost – Preparation of Cost Sheet – Cost accounting vs Financial accounting

Unit - II [12Hour]

Material Control: Need for Material Control – Levels of material Control [Maximum, Minimum and Reorder Level] – Economic Order Quantity. Purchase and stores Control. Methods of valuing material issue [FIFO, LIFO, Simple Average Method, Weighted Average Method and Standard Price and Base Stock Method].

Unit – III [12 Hour]

Labour: Systems of wage payment [Piece Rate, Time Rate, Taylor’s Differential Piece Rate System, Rowan’s plan, – Idle time – Control over idle time – Labour turnover.

Unit - IV [12 Hour]

Process costing – Features of process costing – process losses, wastage, scrap, normal process loss – abnormal loss, abnormal gain.

Unit - V [12 Hour]

Marginal Costing – Meaning, Definition, Benefits and Limitations of Marginal Costing – Break Even Analysis.

NOTE: Distribution of marks: Theory 20% and Problems 80%

Text Book

1. Jain.S.P and Narang.K.L , Cost Accounting Principles and Practice, 12th edition, Kalyani Publishers, 2015, New Delhi.

Reference Books

1. T.S.Reddy and Y.Hari Prasad Reddy, Cost Accounting Margham Publications, Chennai, 2018.
2. Pillai.R.S.N and Bagavathi.V , Cost Accounting, 9th edition, S. Chand and Company,2015

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FIFTH SEMESTER

PART III CORE 11: INCOME TAX LAW AND PRACTICE

Maximum CIA: 30

Maximum CE: 70

Total Hour: 60

Objective :

To familiarize the students with the basic provisions of the Income -Tax

Unit I [12Hour]
Income tax-Definition of Income tax – Tax Planning-Authorities – Assessment year - previous year-Assesses Scope of Income-Charge of tax Residential status-Exempted Income.

Unit II [12 Hour]
Heads of income- Income from salaries – Income from house property.

Unit III [12 Hour]
Profits and Gains of business or Profession – Income from other sources.

Unit IV [12 Hour]
Capital gains- Exception and Provisions - Deductions from Gross Total Income – Set -off and Carry Forward of losses

Unit V [12Hour]
Aggregation of Income- Computation of tax Liability- Assessment of Individuals – E – Filing.

NOTE: Distribution of marks: Theory 20% and Problems 80%

TEXT BOOK

- 1.Gaur.V.P and Narang.D.B, Puja Gahai,Rajeev Puri , Income Tax , Revised edition, Kalyani Publishers , 2020, New Delhi.

REFERENCE BOOKS

1. Hariharan.N, Income Tax, Revised edition, Tata McGraw hill, 2020, New Delhi.
2. Singhanian, Income Tax Revised edition, Tax Mann Publishers, New Delhi – 2020.

FIFTH SEMESTER
PART III -CORE 12: ENTREPRENEURIAL DEVELOPMENT

Maximum CIA: 30

Maximum CE: 70

Total Hour: 60

Objectives: To enable the students to learn the fundamentals of being a good entrepreneur and the Concept of entrepreneurship, Knowledge about the financing institutions, project report, incentives and subsidies.

Unit - I [12 Hour]

Concept of Entrepreneurship: Definition Nature and Characteristics Of Entrepreneurship– Function and Type Of Entrepreneurship - Development Of Women Entrepreneur & Rural Entrepreneur – Self Employment of Women - Problem of Women Entrepreneur.

Unit–II [12 Hour]

The Start-Up Process, Project Identification–Selection of the Product–Project Formulation– Evaluation – Feasibility Analysis - Project Report.

Unit - III [13 Hour]

Institutional service to entrepreneur –DIC, SIDO, NSIC, SISI, SSIC, SIDCO, IIC, KUIC and commercial bank - Institutional finance to entrepreneurs: IFCI, SFC, IDBI, ICICI, TIIC, SIDCS, LIC and GIC, UTI, SIPCOT –SIDBI

Unit - IV [12 Hour]

Incentives and Subsidies–Subsidies Services –Subsidy for Market - Transport –Seed Capital Assistance -Taxation Benefit to SSI - Role of Entrepreneur in Export Promotion and Import Substitution - Industrial Sickness- Symptoms- Remedies – Causes.

Unit –V [11 Hour]

Franchising – Meaning – Definition – Types- Advantages – Evaluation of Franchise Agreement Industrial Sickness- Symptoms- Remedies – Causes

Text Book:

1. S. Khanka, Entrepreneurial Development
2. P. Saravanavel,. Entrepreneurial Development –5th edition, Essae Chandra Institute, 2015

Reference Books:

1. Gupta.C.B and Srinivasan N.P, Entrepreneurial Development, Revised Edition 2017 SultanChand and Co., New Delhi.
2. Renu Arora & S.KI.Sood, Fundamentals of Entrepreneurship and Small Business

B.Com [CA] Degree Examination – Syllabus – for candidates admitted Academic year from 2018-19 onwards**FIFTH SEMESTER****PART III-CORE 13: VISUAL PROGRAMMING**

Maximum CIA: 30

Maximum CE: 70

Total Hour: 6

Objectives: To enable the students to learn the computer programming using Visual Basic.Net. It emphasis on the fundamentals of structured design, development testing and implementation.

Unit I [12 Hour]

Introduction To .NET, .NET Framework Features & Architecture, CLR, Common Type System, MSIL, Assemblies and Class Libraries. Introduction To Visual Studio, Project Basics, Types Of Project In .Net, IDE Of VB.NET- Menu Bar, Toolbar, Solution Explorer, Toolbox, Properties Window, Form Designer, Output Window, Object Browser. The Environment Editor Tab, Format Tab, General Tab, Docking Tab. Visual Development & Event Drive Programming -Methods and Events.

Unit II [12 Hour]

Data Types-Keywords, Declaring Variables and Constants, Operators, Understanding Scope and accessibility of variables, Conditional Statements-, Looping Statement- Operators- Arrays-Types of Arrays-Control Array, Collections, Subroutines, Functions, Passing Variable Number Of Argument Optional Argument, Returning Value From Function.

Unit-III [12 Hour]

Properties, Events and Methods of Form, Label, Textbox, List Box, Combo Box, Radio Button, Button, Check Box, Progress Bar, Date Time Picker, Calendar, Picture Box, Scrollbar, Scrollbars, Group Box, Tooltip, Timer

Unit IV [12 Hour]

Menus and toolbars- Menu Strip, Tool Strip, Status Strip, Built-In Dialog Boxes – Open File Dialogs, Save File Dialogs, Font Dialogs, Color Dialogs, Print Dialogs, Input Box, Message Box, Interfacing With End user- Creating MDI Parent and Child, Functions and Procedures- Built-In Functions- Mathematical and String Functions, User Defined Functions and Procedures.

Unit V [12 Hour]

Object Oriented Programming- Creating Classes , Objects, Fields, Properties, Methods, Events , Constructors and destructors, Exception Handling- Modals, Statements,

Data Access with ADO.Net – What are Databases?, Data Access with Server Explorer, Data Adapter and Datasets, ADO.NET Objects and Basic SQL-Data Base Applications

Text Book:

1. Visual Basic.Net Black Book by Steven Holzner Dreamtech Press the Complete Reference Visual Basic .NET Jeffery R. Shapiro Tata McGraw Hills.

Reference Books:

1. Practical Database Programming with Visual Basic.NET by Ying Bai, 2012 Edition, Wiley Publication.
2. Programming VB.NET by Dave Grundgeiger, O'Reilly publications 1st edition
3. Beginning VB.NET, 2nd Edition by Richard Blair, Jonathan Crossland.
4. Microsoft Visual Basic .NET Deluxe Learning Edition by Michael Halvorson, Microsoft Press publications.

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FIFTH SEMESTER

PART III-CORE LAB IV – VISUAL PROGRAMMING LAB

Maximum CIA: 40

Maximum CE: 60

Total Hour: 60

Objective: Impairing professional skills in Visual Basics designing after the successful completion of the course the student must be able to develop an application using Visual Basic.Net.

1. Develop a VB.Net Form to calculate area and perimeter of circle using constant declaration.
2. Develop a VB.Net Form to prepare student mark statement using conditional statement.
3. Develop a VB.Net Form to sort the numbers by declaring array function.
4. Develop a VB.Net Form for adding menus and sub-menus in an application
5. Develop a VB.Net form in to Calculate your age using Calendar and DTP control.
6. Designing a form to display advertisement banner using image control with string function.
7. Develop a VB.Net application to perform timer based quiz.
8. Designing a VB.Net Form to display simple calculator using control array.
9. Develop a VB.Net database application to store the detail of students using ADO.NET.
10. Develop a VB.Net database application to display pay slip for an employee using ADO.NET.
11. Develop a VB.Net database application to display Super market bill using ADO.NET to insert, modify .update and delete operations.
12. Develop a VB.Net database application to display bank customer statement using ADO.NET to insert, modify .update and delete operations.

B.Com [CA] Degree Examination – Syllabus for Candidates admitted from the Academic year 2018-19 onwards

**FIFTH SEMESTER
PART – III ELECTIVE I: BANKING AND INSURANCE LAW**

Maximum CIA: 30

Maximum CE: 70

Total Hour: 60

Objective: To enable the students to have better understanding and knowledge on Banking functions and Instruments. To Gain the knowledge of different kinds of Insurance and the regulating authority

Unit – I [12Hour]

Banker and Customer – Definition – Relationship - Functions of Commercial Banks – Deposits – Loans offered – Recent Developments in banking : ATM, Credit card, Debit card, NEFT, RTGS, Internet banking.

Unit - II [12Hour]

Negotiable Instruments Act 1881 – Definition and Features : Promissory Note , Bill of Exchange, and Cheque – Crossing of Cheque – Endorsement - Material Alteration – Payment of cheques: Circumstances for dishonour -Types of crossing - Precautions and Statutory Protection of Paying and Collecting Banker.

Unit – III [12Hour]

Insurance : Meaning , Functions - Role and Importance of Insurance – Essentials of contract of insurance- Principles of Insurance: Classification of Insurance Based on Nature, Business and Risk

Unit - IV [12Hour]

Life Insurance – Meaning, Nature – Various Policies - Procedure for taking life Insurance policy- Surrender and Revival of policy - Assignment and Nomination – Procedures- Settlement of claim - Reinsurance General Insurance- Fire Insurance , Marine insurance , Health Insurance and Personal accident Insurance - Characteristics .

Unit –V [12Hour]

IRDA -Mission -Composition of Authority -Duties, Powers and Functions - Powers of Central Government in IRDA Functioning

Text Books:

1. Varshney, “Banking Theory, Law and Practice”, Sultan & Chand Ltd, 2016
2. M.N. Mishra, “Insurance –Principles and Practice”, S.Chand & Company Ltd., New Delhi, 2018.

Reference Books:

1. M.L. Tannan, "Banking Law and Practice", Thacker & Co Ltd, 2018
2. B.S Bodla, M.C. Garg & K.P. Singh, "Insurance -Fundamentals, Environment & Procedures", Deep & Deep Publications Pvt. Ltd., New Delhi, 2014 (Last Edition).

B.Com [CA] Degree Examination – Syllabus for Candidates admitted from the Academic year 2018-19 onwards

FIFTH SEMESTER

PART – III ELECTIVE I: MANAGEMENT INFORMATION SYSTEM

Maximum CIA: 30

Maximum CE: 70

Total Hour: 60

Objective: After the successful completion of the course the student must be aware of utilization of business information for decision making.

Unit I [12 Hour]

Management Information System : Meaning–Features –Requisites of an effective MIS–MIS Model Components –Subsystems of an MIS–Role and Importance –Corporate Planning for MIS–Growth of MIS in an Organization –Centralization Vs. Decentralizations of MIS. support –Limitations of MIS.

Unit II [12 Hour]

System Concepts–Elements of System-Characteristics of system-Types of System–Categories of Information System –System Development Life Cycle –System Enhancement.

Unit III [12 Hour]

Information Systems in Business and Management: Transaction Processing System: Information Repeating and Executive Information System.

Unit IV [12 Hour]

Database Management Systems –Conceptual Presentation –Client Server Architectures Networks –Business Process Re–Engineering [BPR].

Unit V [12 Hour]

Functional Management Information System: Financial –Accounting–Marketing–Production –Human resource –Business Process Outsourcing.

Text Book:

1.Gorden B. Davis & Margrethe H. Olson, “Management Information System”,Mc Graw–Hill Publishing, New Delhi.

Reference Books:

1. Aman Jindal,“Management Information System”, Kalyani Publishers, New Delhi, 2013.
2. Dr. S.P. Rajagopalan, “Management Information System”, Margham Publications, Chennai

B.Com[CA] Degree Examination – Syllabus for Candidates admitted from the Academic year 2018-19 onwards

FIFTH SEMESTER

PART – III ELECTIVE I: RETAIL BUSINESS MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hour: 60

Objective:

On successful completion of this course, the student should be well versed in the principles involved in managing the retail business.

Unit I [12 Hour]

Nature and Significance of Management – Objectives of Management - Functions of Management - Setting up a Retail Organization- Factors to be considered in Planning, Assessing a Retail Organization.

Unit II [12 Hour]

Human Resources Environment of Retailing- Recruiting and Selecting Retail Personnel. Compensating Retail Personnel, Supervision of Retail Personnel.

Unit III [12 Hour]

Financial Dimensions of Operations Management – Profit Planning – Asset Management- Preliminary Budget Decisions and Ongoing Budgeting Process.

Unit IV [12 Hour]

Operational Dimensions – Store Security – Insurance– Credit Management – Computerization - Outsourcing – Risk Management.

Unit V [12 Hour]

Ethics in Retail Management – Ethical Values –Social Responsibility, Ethical Values in relation to Customers, Community & General Public, Employees, Business Partners and Shareholders – Consumerism.

Text Book:

1. Retail Management - Gribson G. Vedamani, Jaico publishing House, 2018

Reference Books:

- 1.. Retailing Management Text & Cases- Swapna Pradhan, The Mc Graw- Hill Companies, 2016
- 2.. Retail Management Strategic Approach - Barry, Berman, Joel R Evam- Pearson Education (Singapore) 2015 .

B.Com [CA] Degree Examination – Syllabus for Candidates admitted from the Academic year 2018 2019 - onwards

SIXTH SEMESTER

PART III- CORE 14: MANAGEMENT ACCOUNTING

Maximum CIA: 30

Maximum CE: 70

Total Hour: 60

Objective:

To enable the students understand the practical usage of Management Accounting

Unit I [10Hour]

Management Accounting – Meaning, Definition, Nature, Scope, Functions, Objectives, Importance and Limitations of Management Accounting – Comparison of Management Accounting with Financial and Cost Accounting – Management Accountant – Qualification, Duties and Liabilities of a Management Accountant.

Unit II [13 Hour]

Financial Statement Analysis and Interpretation – Common Size Statement Analysis, Comparative Statement Analysis and Trend Analysis. Working Capital Management- Meaning Definition- Determinants of working capital.

Unit III [12 Hour]

Ratio Analysis – Liquidity Ratios – Activity Ratios – Profitability Ratios – Solvency Ratios – Preparation of Balance Sheet.

Unit IV [13 Hour]

Funds Flow Statement –Schedule of changes in working capital – Preparation of Funds Flow Statement.–Preparation of Cash Flow Statement.

Unit V [12 Hour]

Budgeting and Budgetary Control – Definition – Importance, Essentials – Classification of Budgets –Cash Budget, Sales Budget, Purchase Budget, Production Budget, Production Cost Budget, Flexible Budget and capital budgeting

NOTE : Distribution of marks : Theory 20% and Problems 80%

Text Book:

1.Shashi K. Gupta and R.K. Sharma, Neeti Gupta, Management Accounting, Revised Edition, Kalyani Publishers, 2017, New Delhi.

Reference Books:

1. Dr. R. Ramachandran and Dr. R. Srinivasan, Management Accounting – Theory, Problems and Solutions, 14th Revised Edition, Sri Ram Publications, 2018, Trichy.
2. S.N. Maheswari. and S.K.Maheswari, A Text Book of Accounting for Management, Vikas Publishing House, 2017, Mumbai.

B.Com [CA] Degree Examination – Syllabus – for candidates admitted Academic year from 2018-19 onwards

SIXTH SEMESTER

PART III-CORE 15: INTERNET AND HTML PROGRAMMING

Maximum CIA: 30

Maximum CE: 70

Total Hour: 60

Unit I [12 Hour]

Networking-LAN-MAN-WAN-Internet access-Configuration the machine for TCP/IP Account-Internet Addressing-IP Address-Domain name-Uniform Resource Locator-Inter Protocol-Internet Service- -E-mail messages-Customizing Email programs-Managing mails- Address Book- E-mail and its uses-Gopher-WAIS

Unit II [12 Hour]

Web page-Hyper text-Hyper link-world wide web-Web index-Web browsing-web search engine-Web meta-Meta search site-Directories and Indexes- Specified Directories-Telnet-FTP-HTTP-mobile Computers.

Unit-III [12 Hour]

HTML-HTML tags-Basics-Setup and display a webpage-Heading-Pre Format text-Comment-Special Character-Text Format-Font style-color-Sup script and Super script-Margins-Lists-Images.

Unit IV [12 Hour]

Tables-Alignment-Column and row group-Text Wrapping-Cell space-Cell padding-Nested Table-Links - Create Keyboard Shortcuts-Tables-Table border-Caption-Color-Background Image.

Unit V [12 Hour]

Frame-Link to Frame-Scroll bars-Nested Frame-Inline frames -Form-Setup a Form-Textbox-check Box-Radio Bottom-Menu-Organizing Form elements-Label from Elements- -Handling Audios and Videos.

Text Book:

1. Craigaaldred,” Learn Basic HTML and Web Designers- A beginners guide”, Kindle Edition, 2015.

Reference Books:

- 1.Mike McGrath, “HTML in Easy Steps”, 2009 Publications.
- 2.Jeremy Keith , “HTML5 For Web Designers”, 2014 Publications.
3. Thomas A. Powell, “HTML & CSS: The Complete Reference”, Fifth Edition, 1 Jan 2018.

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SIXTH SEMESTER

PART III CORE LAB V - HTML PROGRAMMING

Maximum CIA: 40

Maximum CE: 60

Total Hour: 60

Objective: Impairing professional skills in Internet and Web designing

1. Creating a program using HTML Tag to display the lists of departmental stores.
2. Design a webpage to display image and text using HTML tag for advertisement of a company
3. Creating a table to display list of products using HTML tag.
4. Creating a document using formatting and alignment to display sales letter
5. Design a webpage for our College with minimum five links using HTML
6. Creating Web pages for a business organization using HTML image links and internal links.
7. Creating a website of your department using formatted HTML Tags and Frames.
8. Creating a resume using HTML tag.
9. Creating a document using form to support local processing of order form.
10. Create a form for university exam fee payment.
11. Create a Multiform for quiz portal.
12. Creating a multiform document to display Survey Report.

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SIXTH SEMESTER

PART III-ELECTIVE II: E- COMMERCE

Maximum CIA: 30

Maximum CE: 70

Total Hour: 60

Objective: On the successful completion of this paper the students should have gained knowledge about E.Commerce Trade and legal provisions.

Unit I [12 Hour]

Telecommunication Networks : Introduction - LAN - WAN- Internet - What is Electronic Commerce - Brief history of Electronic Commerce - Advantages and Limitations of Electronic Commerce - Types of Electronic commerce - Integrating Electronic Commerce- Key questions for Management

Unit II [12 Hour]

The Internet and the World Wide Web: The Internet Today - History of the Web - Unique benefits of the Internet - Internet Architecture - World Wide Web - Concepts and Technology - Creating Web pages - Launching a Business on the Internet.

Unit III [12 Hour]

Electronic Payment Systems: Overview of the Electronic payment Technology - Requirements for Internet Based payments - Electronic payment Medias - Electronic commerce and banking.

Unit IV [12 Hour]

E-security: Security in the cyberspace - Designing for security - Virus - Security Protection and Recovery - Encryption - The Basic Algorithm System - Authentication and Trust - Key management - Internet Security Protocols and Standards - Other Encryption issues.

Unit V [12 Hour]

Web based Business: Business-to-Business Electronic Commerce-Intranets and Extranets - Intranets and Supply Chain Management - Legal and Ethical issues - Case studies.

Text books:

1. Elias. M. Awad, "Electronic Commerce", Prentice - Hall of India Pvt Ltd, 2016.
2. Ravi Kalakos, Andrew B. Whinstone, "Electronic Commerce - A Manager's guide", Addison - Wesley, 2017

Reference Books:

1. Efraim Turban, Jae Lee, David King, H.Michael Chung, —Electronic Commerce – A Managerial Perspective", Addison - Wesley, 2017.
2. Elias M Award, —Electronic Commerce from Vision to Fulfillment, 3rd Edition, PHI, 2016

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SIXTH SEMESTER

PART III-ELECTIVE-II: PRINCIPLES OF INTERNATIONAL TRADE

Maximum CIA: 30

Maximum CE: 70

Total Hour: 60

Objective: On the successful completion of this paper the students should have gained knowledge about International Trade and legal provisions.

Unit I (12 Hour)

The Global Economy – Perspective on the Theory of International Trade – The Importance of International Trade – Counter Trade – Forms of Counter Trade – Reasons for Growth of Counter Trade – Global Trade and Developing Countries.

Unit II (12 Hour)

International Commodity Agreements – Quota Agreements, Buffer Stock Agreements – Carts – State Trading – Bilateral and Multilateral contracts. Gains from Trade – Terms of Trade – Factors Influencing the Terms of Trade.

Unit III (12 Hour)

Tariff – Meaning – Tariffs, Taxes and Distortions – Imports Tariffs and Export Taxes – Export Subsidies – Arguments for Free Trade – Demerits of Protection – Trade Barriers – Basic Concept of Balance of Payment.

Unit IV (12 Hour)

International Investments – Types of Foreign Investment – Significance of Foreign Investments – Limitations and Dangers of Foreign Capital – Factors affecting International Investment – Foreign Investment by Indian companies.

Unit V (12 Hour)

Multinational Corporation – Definition and Meaning – Importance of MNCS – Benefits of MNCs – Criticism – Globalizations – Meaning – Stages – Essential Conditions for Globalization – Implications and Importance of Globalization – Benefits – Obstacles to Globalization in India – Factors Favoring Globalization.

Text Book

1. G.S.Batra & R.C.Dangwal, International Business - New trends, Reprint 2017, Deep & Deep Publications Private ltd, New Delhi.

Reference Book:

1. Justin Paul, International Business, 5th Edition 2018 , PHI learning Private limited, New Delhi.
2. Roger Bennett, International Business, 2016, Pearson, New Delhi.
3. Vyuptakesh Sharan, International Business: Concept, Environment And Strategy,2016, Pearson, New Delhi.

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SIXTH SEMESTER

PART III- ELECTIVE II: INVESTMENT MANAGEMENT

Maximum CIA: 30
Maximum CE: 70
Total Hour: 60

Objective: To explain the concept of investments with special reference to securities market.

Unit-I [12Hour]
Investment – Meaning – Nature – Types – Features – Factors Influencing Investments – Risk and Return – Financial Markets – Financial Institutions.

Unit-II [12Hour]
Capital Market and Stock Exchange in India – Structure – Primary Markets and Secondary Markets – Mechanics of Trading – SEBI and Its Role.

Unit-III [12Hour]
Investment Alternatives: Bonds – Preference and Equity Shares – LIC – UTI – Mutual Funds – National Saving Scheme.

Unit-IV [12 Hour]
Fundamental and Technical Analysis and Evaluation: Economic Analysis – Industrial Analysis – Company Analysis – Technical Analysis.

Unit-V [12 Hour]
Portfolio Analysis and Management – Scope – Types – Portfolio Evaluation – Portfolio Selection – Portfolio Revision.

Distribution of Marks: 80%for Theory, 20% for Problem

Text Books

1. Dr. Preeti Singh- Investment Management- Himalaya Publishing House Pvt.
2. Investment Management, V.K.Bhall, 2017 Edition, S. Chand and Co.

Reference Books

1. Alexander- Gordon J. and Sharpe, William, Fundamental of Investment, Prentice Hall Inc- Englewood Cliffs [Pearson Education], New Jersey.
2. Ballad- V. K, Investment Management Security Analysis and Portfolio Management, 8th Edition- Sulthan and Chand, 2017, New Delhi.

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**SIXTH SEMESTER
PART III- ELECTIVE-III: PRINCIPLES OF AUDITING**

Maximum CIA: 30

Maximum CE: 70

Total Hour: 60

Objective: On successful completion of this paper the students should have gained knowledge about auditing functions and classifications and acquired knowledge about vouching and verification of assets.

Unit I [10 Hour]
Origin of Auditing – Definition of Auditing – Objectives of Auditing- Tax Audit and Management Audit.

Unit II [14 Hour]
Classification of Audit –Scope and nature of Statutory Audit and continuous Audit – Periodical Audit, Partial Audit, Balance sheet Audit, Performance Audit and Proprietary Audit.

Unit III [10 Hour]
Qualification of an Auditor – Appointment of an Auditor – Duties, Rights and Liabilities of an Auditor.

Unit IV [14 Hour]
Audit plan- Developing an Audit plan- Vouching – Meaning – Objectives, Importance of Voucher – Types of Vouchers.

Unit V [12 Hour]
Verification and valuation of Assets and Liabilities – Audit Approach- EDP and mechanical system- Audit with the aid of computers- Recent trends in Auditing.

Text Books

1. Tandon.B.N, Practical Auditing, Revised edition, S Chand Company Ltd, 2018, New Delhi.
2. Aruna Jha, Auditing (University Edition), Taxmann Publication Pvt Ltd, 3rd Edition 2016

Reference Books

1. F.R.M De Paula, The Principles of Auditing-the English language Society and Sir Isaac Pitman and Sons Ltd,London,2016
2. Spicer and Pegler, Practical Auditing, Vikas publishing House, 2016, New Delhi.

SIXTH SEMESTER

PART III- ELECTIVE III: NETWORK MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hour: 60

Objective: The paper aims to combine the fundamental concepts of data communications

Unit - I [12 Hour]

Data Communication Concepts and Applications: Introduction to Data Communications, Components of Data Communications, Trends in Computer Communications and Networking, Network Applications.

Unit - II [12 Hour]

Fundamentals of Data Communications and Networking: Physical Layer: Architectures, Devices and Circuits, and Data Transmission., Data Link Layer: Media Access Control, Error Control in Networks.

Unit - III [12 Hour]

Networking: Network Layer: Network Protocols, Network Addressing and Routing. Local Area Network (LAN): LAN Components, Ethernet, Token Ring, Selecting a LAN, Improving LAN Performance

Unit - IV [12 Hour]

Back Bone Networks: Backbone Network Components, Fast Ethernet, FDDI. Metropolitan Area Network (MAN) & Wide Area Network (WAN): Dialed Circuit Services, Dedicated Circuit Services, Circuit-switched and Packet-switched Services, Improving MAN & WAN Performance.

Unit - V [12 Hour]

Network Management: Design of Business Networks, Network Management, and Network, Security.

Text book:

1. Jerry, FitzGerald and Alan, Dennis (2016). Business Data Communications & Networking. John Wiley & Sons.

Reference books:

- 1.. Tanenbaum, A. S. (2016). Computer Networks. Pearson Education.
- 2.. David A Stamper (2017). Business Data Communications. Addison Wesley.

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**SIXTH SEMESTER
PART III- ELECTIVE III: BRAND MANAGEMENT**

Maximum CIA: 30

Maximum CE: 70

Total Hour: 60

Objective: To teach the importance of brand and its impacts among the customers

Unit I [12 Hour]

Introduction-Basic understanding of brands –concepts and process –significance of a brand – Brand mark and trade mark –different types of brands –family brand, individual brand, private brand –selecting a brand name –functions of a brand –branding decisions –influencing factors.

Unit II [12 Hour]

Brand Associations: Brand vision –brand ambassadors –brand as a personality, as trading asset, Brand extension –brand positioning –brand image building

Unit III [12 Hour]

Brand Impact: Branding impact on buyers –competitors, Brand loyalty –loyalty programmes –Brand equity –role of brand manager –Relationship with manufacturing-marketing-finance - Purchase and R & D –brand audit

Unit IV [12 Hour]

Brand Rejuvenation: Brand rejuvenation and re-launch, brand development through acquisition takes over and merger –Monitoring brand performance over the product life cycle. Co-branding.

Unit V [12 Hour]

Brand Strategies: Designing and implementing branding strategies

Text Book:

1. Lan Batey Asian Branding –“A great way to fly”, Prentice Hall of India, Singapore 2016.
2. Jean Noel, Kapferer, “Strategic brand Management”, The Free Press, New York.

References Books:

1. Kevin Lane Keller, “Strategic brand Management”, Person Education, New Delhi, 2018.
2. Paul Tmeporal, Branding in Asia, John Wiley & sons (P) Ltd., New York.

All UG Degree Examination - Syllabus for candidates admitted from the academic year 2019 – 2020 and onwards.

**THIRD SEMESTER
CERTIFICATE COURSE – ADVERTISING AND SALES PROMOTION**

Total Hours: 30

Course Objective:

To familiarize the student with the practice of promoting market for products through advertisements and sales promotion.

Unit I (6Hours)

Advertising – Origin and Development –Advertising- an element of Marketing mix- Objectives – Advertising and Salesmanship – Role and Importance – Planning for Advertisement communication process

Unit II (6 Hours)

Advertisement – Kinds of Advertisements– Economic and social affects of advertising – Advertising mix – Advertising budget and relevant decisions.

Unit III (6 Hours)

Advertising Agencies - Role – Types of Advertising – Measuring the effectiveness of Advertisement - Managing agency -Evaluation of Advertising

Unit IV (6 Hours)

Sales Promotion – Objectives – Advantages - Tools and their effectiveness – Aggressive selling.

Unit V (6 Hours)

Sales promotion –Objectives- Planning, implementation Control-Consumer sales promotion- Trade sales promotion-Measuring the effectiveness of promotion company- Evaluation of Sales Promotion

Text Books:

1. S.A.Chunawalla, Advertising and Sales Promotion Management, Himalaya Publishing House; Sixth Edition edition (2015)
2. Mr.Pankhuri Bhagat , Advertising & Sales Promotion ,SBPD Publishing House (2015)

Reference Books :

1. Mr. Ritu Narang , Advertising, Selling & Promotion, Pearson Education(2020)

All UG Degree Examination - Syllabus for candidates admitted from the academic year 2019 – 2020 and onwards.

**THIRD SEMESTER
CERTIFICATE COURSE – PRACTICAL BANKING**

Total Hours: 30

Course Objective:

The objective of this course is to acquaint students with the theoretical and practical aspects of modern banking.

Unit-I

(6Hours)

Definition of Banker and Customer-General Relationship-Special Relationship-Nationalized Banks-Private Banks -Evolution of Commercial Banks-Functions of modern Commercial Banks.

Unit-II

(6Hours)

Opening of New Bank Account-Precautions-Types-Savings Account-Current Account-Fixed Deposit-Recurring Deposit-Cumulative Deposit-TL-Cash Credit-Overdraft-Joint Account-KYC-Closure of bank Account.

Unit-III

(6Hours)

Negotiable Instruments-Meaning-Characteristics- Bills of Exchange-Promissory Note-Cheque- Features- Crossing of a Cheque- Cancellation of Cheque –Types of Crossing-Endorsement- Dishonour of a Cheque – Stop the Payment of a Cheque - Demand Draft.

Unit-IV

(6 Hours)

Funding of Corporate seeds-Types of Finance-Seed Capital-Bank Finance of seed capital - Venture Capital- Procedures for loans.

Unit-V

(6Hours)

Electronic Payments: CIBIL-Concept of Security-Primary vs Collateral-Application Forms-Annexure-Electronic Payment-NEFT-RTGS-IMPS- Cardless withdrawals

Text Book

- 1) Sundaram and Varshney , Banking Theory Law and Practice, 20th Revised Edition, Sultan Chand & Sons,Year 2014.

Reference Books

- 1) H.R. Gupta, Practical Banking in India, Gyan Publishing House, 2011.
- 2) Gurusamy, S., Banking Theory: Law and Practice, 2ndEdition, Tata McGraw Hill, Year 2010.

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Year 2019– 2020 onwards**

THIRD SEMESTER

CERTIFICATE COURSE- ENTREPRENEURSHIP DEVELOPMENT PROGRAMME

Total Hours: 30

Course Objectives:

To enable the students to learn the fundamentals of being a good entrepreneur and the Concept of entrepreneurship.

Unit I

Concept of entrepreneurship : Definition Nature and characteristics of entrepreneurship – function and type of entrepreneur. Development of women entrepreneur and rural entrepreneur. (6 Hours)

Unit II

The start-up process, Project identification – Business Idea – Sources of Business Idea – Selection of the product – project formulation - evaluation , Project Report. (6 Hours)

Unit III

Institutional services to entrepreneurs – DIC, SIDO, NSIC, SISI, SIDCO and KVIC, Institutional finance to entrepreneurs : IFCI, SFC, IDBI, ICICI, TIIC and SIPCOT. (6 Hours)

Unit IV

Incentives and subsidies – Subsidised services – subsidy for market - Transport – seed capital assistance - Taxation benefit to SSI. (6 Hours)

Unit V

Industrial Sickness- Symptoms- Remedies – Causes. (6 Hours)

Text Book

1. Gupta.C.B and Srinivasan N.P, Entrepreneurial Development, 4th Edition 2005, Sultan Chand and Co., New Delhi.

Reference Book

1. Saravanavel.P, Entrepreneurial Development, 2nd edition, Essae Chandra Institute, 2005, Mumba

All UG Degree Examination-Syllabus -For Candidates admitted from the Academic Year 2019– 2020 onwards

**FOURTH SEMESTER
CERTIFICATE COURSE- E-COMMERCE**

Total Hours: 30

Course Objectives:

Enabling the Students to Acquire Theoretical knowledge to be successful in E-Commerce.

Unit I (6 Hours)

E Commerce: The Revolution is just beginning ,E Commerce: A Brief History-Electronic Commerce-Electronic Commerce Models-Types of Electronic Commerce-Value Chains in Electronic Commerce-E-Commerce in India-Introduction to E-Business-Internet-World Wide Web-Internet Architectures-Internet Applications-Web Based tools for Electronic Commerce.

Unit II (6 Hours)

E-Commerce Business models and concepts-The Internet and World Wide Web - E Commerce Business models, Major Business to consumer (B2C) Business models, Major Business to Business (B2B) business models, Business models in emerging Ecommerce areas, Intranet-Composition of Intranet- Business Applications on Intranet-Extranets Electronic Data Interchange-Components of Electronic Data Interchange-Electronic Data Interchange (Communication Process).

Unit III (6 Hours)

Security Threats to E-Business- Security Overview- Electronic Commerce Threats-Encryption- Cryptography- Public Key and Private Key Cryptography- Digital Signatures-Digital Certificates- Security Protocols over Public Networks- HTTP- SSL- Firewall as Security Control- Public Key Infrastructure (PKI) for Security- Prominent Cryptographic Applications.

Unit IV (6 Hours)

Electronic Payment System- Concept of Money-Electronic Payment System- Types of Electronic Payment Systems-Smart Cards and Electronic Payment Systems- Infrastructure Issues in EPS, Electronic Fund Transfer.

Unit V (6 Hours)

Ecommerce Marketing concepts –Online Retailing and Services-Consumer online: The Internet Audience and Consumer Behavior-Basic Marketing concepts-Internet Marketing– The Service sector of offline and online, Online financial services-online travel services-Online career –Social networks and Online communities, Online auctions, E Commerce Portals

Text Book

1. Whitley, David. E-Commerce Strategy, Technologies and Applications. Tata McGraw Hill, Reprint 2014.

Reference Books:

1. C.Laudon, E- Commerce :Business Technology Society, 4th Edition, Pearson Education, Reprint 2011.
2. Balaji, Kamlesh K and Nag, Debjani, E-Commerce: The Cutting Edge of Business, Tata McGraw Hill, Publishing Company Ltd., New Delhi. Reprint 2011.

All UG Degree Examination - Syllabus for candidates admitted from the academic year 2019 – 2020 and onwards.

**FOURTH SEMESTER
CERTIFICATE COURSE – OFFICE MANAGEMENT**

Total Hours: 30

Course Objective:

To prepare Students in managing the day-to-day activities related to administration activities in offices.

Unit I (6 Hours)

Office and office Management – meaning of office, function of office, primary and Administrative functions, importance of office. Relation of office with other departments of business Organization. Concept of paperless office, virtual office, back and front office, open and private office.

Unit II (6 Hours)

Filing and Indexing – Meaning and importance of filing, essential of good filing system. Centralized and decentralized filing system. Meaning, need and types of indexing used in the business organization.

Unit III (6 Hours)

Office forms– Meaning and types of forms used in business organization, advantages, forms controls, objectives, form designing, principles of forms designing and specimens of forms used in office. Office Record Management – Meaning, importance of record keeping management, principles of record management and types of records kept in a business organization- Office Automation

Unit IV (6 Hours)

Office Machines and equipments – Importance, objectives of office machines. Office Safety and Security – Meaning, importance of office Safety, safety hazards and steps to improve office safety. Security hazards and steps to improve office security.

Unit V (6 Hours)

Measurement of Office Work – Importance, purpose, difficulty in measuring office work. Different ways of measurement, setting of work standards, benefits of work standards. Techniques of setting standards. Office Manuals – Meaning, need, types of office manuals and steps in preparing of office manuals.

Text Books

1.Chhabra, T.N., Modern Business Organisation, New Delhi, Dhanpat Rai & Sons.

Reference Books

1.P.K. Ghosh, “Office Management”, Sultan Chand & Sons. New Delhi

2.R.K. Chopra, Office Management, Himalaya Publishing House

All UG Degree Examination – Syllabus for Candidates admitted from the Academic Year 2019-2020 onwards.

**FOURTH SEMESTER
CERTIFICATE COURSE - PRINCIPLES OF INSURANCE**

Total Hour: 30 hours

Course Objective:

The student gains the ability to apply the knowledge and understanding, in simple situations, to the operation, on sound financial lines of life insurance companies.

Unit I [6 Hours]

Insurance: Meaning, Functions - Role and Importance of Insurance – Essentials of contract of insurance Principles of insurance.

Unit II [6 Hours]

Life Insurance – Meaning, Nature – Various Policies - Procedure for taking life Insurance policy- Surrender and revival of policy - Assignment and Nomination – Procedures, - Settlement of claim – Loan on policy

Unit III [6 Hours]

General Insurance- Fire Insurance, Marine insurance , Health Insurance , Personal accident Insurance , Motor Insurance and miscellaneous Insurance – Characteristics , Procedure for claim.

Unit IV [6 Hours]

Agent- Meaning, Procedures for Becoming an Agent: Pre- requisite for obtaining a license: Duration of license; Cancellation or suspension/termination of agency Appointment; Code of conduct; Unfair practices. Functions of the Agent

Unit V [6 Hours]

IRDA - Mission - Composition of Authority - Duties, Powers and Functions - Powers of Central Government in IRDA Functioning.

Text Book:

1. M.N. Mishra, “Insurance –Principles and Practice”, S.Chand & Company Ltd., New Delhi, 2016.

Reference Book:

1. B.S Bodla, M.C. Garg & K.P. Singh, “Insurance -Fundamentals, Environment & Procedures” , Deep & Deep Publications Pvt. Ltd., New Delhi, 2014 (Last Edition)
2. P.Periyasamy, Principles and Practice of Insurance, Himalaya Publication House, Year -2017

B.Com – PA (Professional Accounting)
Scheme of Examination (CBCS Pattern)

For the Candidates Admitted during the Academic Year 2018-2019 Onwards

Part	Subject Code	Subject Title	Ins.Hrs/Week	Examination					
				Dur. Hrs.	CIA	CE	Total	Credit	
SEMESTER-I									
I	16LATA01/ 18LAHI01/ 15LAMY01/ 15LAFR01	Language-I Tamil/Hindi/ Malayalam/French	5	3	30	70	100	3	
II	16ENG001	English-I	5	3	30	70	100	3	
III	18BCP101	Core-1 Fundamentals of Accounting-I	6	3	30	70	100	4	
III	15BCP102	Cor-2 Management Principles and Practices	6	3	30	70	100	4	
III	15BCPID1	IDC-1 Mathematics for Business	6	3	30	70	100	4	
IV	18UFCA01	Foundation Course-I : Environmental Studies #	2	2	-	50	50	2	
		Total	30				550	20	
SEMESTER -II									
I	16LATA02/ 18LAHI02/ 15LAMY02/ 15LAFR02	Language-II Tamil/Hindi/ Malayalam/French	5	3	30	70	100	3	
II	16ENG002	English – II	5	3	30	70	100	3	
III	15BCP201	Core-3 Fundamentals of Accounting-II	6	3	30	70	100	4	
III	15BCP202	Core-4 Business Law	6	3	30	70	100	4	
III	15BCPID2	IDC-2 Statistics for Business	6	3	30	70	100	4	
IV	18UFCA02	Foundation Course-II: Value Education #	2	2	-	50	50	2	
		Total	30				550	20	
SEMESTER-III									
III	19BCP301	Core-5 Advanced Accountancy	6	3	30	70	100	4	
III	19BCP302	Core-6 Company Law & Secretarial Practice	5	3	30	70	100	4	
III	19BCP303	Core-7 Practical Banking	T	4	3	50	50	100	4
			P	1					
III	15BCP304	Core-8 General Economics	5	3	30	70	100	4	
III	15BCPID3	IDC-3 Introduction to Information Technology	4	3	30	70	100	4	
IV	15BCPAO1/ 15BCPAO2	AOC-I Principles of Marketing	3	3	-	75	75	3	
IV	16BTA001/ 16ATA001 15BCPED1	Basic Tamil-I/ Advanced Tamil-I / EDC-I : Web Designing #	2	2	-	50	50	2	
		Total	30				625	25	

SEMESTER-IV									
III	19BCP401	Core-9 Corporate Accounting-I	6	3	30	70	100	4	
III	19BCP402	Core-10 Cost Accounting	6	3	30	70	100	4	
III	19BCP403	Core-11 Practical Auditing	T	4	3	50	50	100	4
			P	1					
III	19BCP404	Core-12 Industrial and Labour Laws	5	3	30	70	100	4	
III	15BCPID4	IDC-4 M.S. Office and Tally (Practical)	3	3	40	60	100	4	
IV	15BCPA03/ 15BCPA04	AOC-II Management of Financial Markets and services	3	3	-	-	75	3	
IV	16 BTA002/ 16 ATA002/ 15EDC002	Basic Tamil-II/ Advanced Tamil-II / EDC – II: Communicate English #	2	2	-	50	50	2	
V	15NSS001/ 15NCC001/ 15SPT001 15EXT001	NSS/NCC/SPORTS/ Extension Activities @	-	-	50	-	50	2	
Total			30				675	27	
SEMESTER-V									
III	15BCP501	Core-13 Corporate Accounting-II	5	3	30	70	100	4	
III	15BCP502	Core-14 Strategic Management	5	3	30	70	100	4	
III	15BCP503	Core-15 Business Ethics and Corporate Social Responsibility	5	3	30	70	100	4	
III	15BCP504	Core-16 Taxation-I	5	3	30	70	100	4	
III	15BCP505	Core-17 Research Methodology	5	3	30	70	100	4	
III	15BCPE01/ E02/E03	Elective-I – Entrepreneurial Development / Corporate Governance / Brand Management	5	3	30	70	100	4	
III	15BCPIT1	Institutional Training	-	-	-	-	-	-	
Total			30				600	24	
SEMESTER-VI									
III	15BCP601	Core-18 Management Accounting	5	3	30	70	100	4	
III	15BCP602	Core-19 Investment Management	5	3	30	70	100	4	
III	15BCP603	Core-20 Taxation - II	5	3	30	70	100	4	
III	15BCPE04/ 15BCPE05/ 15BCPE06	Elective-II – Financial Management / Micro Finance / Supply Chain Management	5	3	30	70	100	4	
III	15BCPE07/ E08/E09	Elective-III – Human Resource Management / Business Environment / Materials Management	5	3	30	70	100	4	
III	15BCPPR1	Project and Viva Voce	5	3	50	50	100	4	
Total			30				600	24	
Total							3600	140	

No Continuous Internal Assessment (CIA) , only Comprehensive Examination (CE)

@ No Continuous Internal Assessment (CIA) and Comprehensive Examination (CE)
 IDC- Inter disciplinary Course ,EDC – Extra disciplinary Course, AOC–Application Oriented Course

List of Elective papers

Elective I	15BCPE01	Entrepreneurial Development
	15BCPE02	Corporate Governance
	15BCPE03	Brand Management
Elective II	15BCPE04	Financial Management
	15BCPE05	Micro Finance
	15BCPE06	Supply Chain Management
Elective III	15BCPE07	Human Resource Management
	15BCPE08	Business Environment
	15BCPE09	Material Management

List of AOC Papers

AOC –I	15BCPA01	Principles of Marketing
	15BCPA02	E Business
AOC-II	15BCPA03	Management of Financial Markets and services
	15BCPA04	Exim Trade & Forex Management

Additional Credit Course

Semester	Code	Subject Title	Credits
III	15BCPAC1	Organizational Behaviors	2
IV	15BCPAC2	Contemporary Issues in Business	2
V	15BCPAC3	Insurance and Risk Management	2
			6

Summary

Part	No. of Papers	Total Credits	Total Marks
I	2	6	200
II	2	6	200
III –Core	20	80	2000
III – IDC	4	16	400
III – Elective	3	12	300
III –Project	1	4	100
IV –Foundation Course	2	4	100
IV – EDC	2	4	100
IV – Application Oriented Course	2	6	150
V Extension Activities	-	2	50
Total	38	140	3600

REGULATIONS

(Effective from the academic year 2018-2019 onwards)

1. Project and Viva Voce :

Each student in the UG final year shall compulsorily undergo Project Work in the 6th semester. Projects shall be done individually. Project Coordinators shall allocate the project title and the guide for each group. Project work shall be done only in the lab provided by the college, including Project Record Preparation. Project Reviews shall be conducted thrice in which the progress of project work shall be strictly evaluated by respective Project Guides and Project Coordinators. Viva-Voce shall be conducted only in the presence of Industrialists or academicians. Out of the Total of 100 marks, 50% of mark shall be allocated for CIA and 50% for CE VIVA VOCE.

2. Submission of Record Note Books for practical examinations

Candidates appearing for practical examinations shall submit bonafide Record work for the concerned practical examinations. If not the candidate has to submit a bonafide certificate issued by the concerned subject in charge duly signed by the Head of the Department in order to be permitted to take up the practical examinations. The candidate so permitted will not eligible for the record work mark.

3. Distribution of Marks: The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum (Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	28	30	40
	75	75	30	-	30
	50	50	20	-	20
Practical Paper	100	60	24	40	40
Project	100	50	20	50	40

4. Distribution of Internal Mark for Theory :
(No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10

Total	180/6=30
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Breakup for Attendance:

65% - 74 %	- 4 Marks
75% - 80%	- 6 Marks
81% - 90%	- 8 Marks
91% - 100%	- 10 Marks

5. Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 40		
S No	CIA	Distribution of Marks
1	For Completion of the Practical List	20
2	Test –I	10
3	Test –II	10
Total		40

6. Distribution of Comprehensive Exam Mark for Practical :

MAXIMUM MARKS : 60		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	10
2	Program – I a) Algorithm b) Coding c) Execution	5 10 10 TOTAL (25)
3	Program – II a) Algorithm b) Coding c) Execution	5 10 10 TOTAL (25)
Total		60

7. Distribution of Mark for Project VIVA-VOCE:

S.No	CIA	Distribution of Marks
1	INTERNAL a) Review –I b) Review –II c) Documentation & Final Review	10 10 30 Total (50)
2	EXTERNAL * a) Presentation b) Viva	30 20 Total (50)
Total		100

*Marks to be awarded by both External and Internal Examiners.

8. Question Paper Pattern

Time: 3 Hour

Max marks: 70

SECTION – A

(10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B

(5×4=20)

Answer ALL questions

Each Question carries Four Marks

(INTERNAL CHOICE)

SECTION – C

(5×8=40)

Answerer ALL questions

Each Question carries Eight Marks

(INTERNAL CHOICE)

9. Question Paper Pattern

Time: 3 Hour

Max marks: 75

SECTION – A

(10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B

(5×5=25)

Answer ALL questions

Each Question carries Five Marks

(INTERNAL CHOICE)

SECTION – C

(5×8=40)

Answerer ALL questions
Each Question carries Eight Marks
(INTERNAL CHOICE)

10 Question Paper Pattern

Time: 3 Hour

Max marks: 50
(10×1=10)

SECTION – A

Answer ALL questions
Each Question carries One Mark
(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B

(5×3=15)

Answer ALL questions
Each Question carries Three Marks
(INTERNAL CHOICE)

SECTION – C

(5×5=25)

Answerer ALL questions
Each Question carries Five Marks
(INTERNAL CHOICE)

11. Question Paper Pattern

Time: 3 Hour

Max marks: 60
(10×1=10)

SECTION – A

Answer ALL questions
Each Question carries One Mark
(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B

(5×3=15)

Answer ALL questions
Each question carries Three Marks
(INTERNAL CHOICE)

SECTION – C

(5×5=25)

Answerer ALL questions
Each question carries Five Marks
(INTERNAL CHOICE)

SECTION – D

(1×10=10)

Compulsory Question

12. Question Paper Pattern

Time: 3 Hour

Max marks: 100
(10×1=10)

SECTION – A

Answer ALL questions
Each Question carries One Mark
(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B

(5×8=40)

Answer ALL questions
Each Question carries Eight Marks
(INTERNAL CHOICE)

SECTION – C**(5×10=50)**

Answerer ALL questions
Each Question carries Ten Marks
(INTERNAL CHOICE)

NOTE:

1. The questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the unit in the syllabus in all the sections of the question paper.
3. While framing questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

13. Conduct of Practical Examinations:

Practical examinations shall be conducted with one internal examiner and one external examiner and the question paper for practical examination shall be set by both Internal and External examiners.

14. Institutional Training

The students may be deputed to attend an Institutional Training Programme for 30 days during the second year Summer Holidays to work in auditor's office. The teachers of the department will make periodical visits to monitor the progress of the students. They have to submit a Training Report during Fifth Semester for further processing. This programme aims to impart practical knowledge to the students in institutions of high repute.

15. Conduct of Practical Training:

Every student admitted in B.Com PA course has to undergo a practical training in order to gain working knowledge in the following subjects.

- A. Practical Banking
- B. Practical Auditing

The above specified papers will have 4 hrs of technical hours and 1 hour of practical schedule every week. (Practical schedule may range between 10-12 hours per semester).

In case of practical Banking and Auditing, the practical components will include various activities done by the Bankers and by the Auditors.

In case of practical Banking and Auditing, the student is required to submit the record work in form of a spiral binding to the department before the conduction of the practical examination.

16. Distribution of Internal Mark for Practical Banking and Auditing

MAXIMUM MARKS : 10		
S No	CIA	Distribution of Marks
1	Record	5
2	Presentation in the Viva Voce examination	5
Total		10

It has been proposed that the student who has been admitted to the above program has to undergo Practical Training in Banking and Auditing during the 3rd and 4th semester respectively.

In order to make the Practical Training more productive and result oriented it has been unanimously decided by the board to provide Internal Viva-voce for the students prior to the Model Examination for 20 marks.

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2018-19 onwards

**FIRST SEMESTER
PART III: CORE 1: FUNDAMENTALS OF ACCOUNTING –I**

Maximum CIA: 30

Maximum CE: 70

Total Hours : 72

OBJECTIVE: On successful completion of this course, the student should have understood Basic Accounting framework Concepts and conventions of Accounting.

UNIT – I [14HOURS]

Fundamentals of Book Keeping – Branches of Accounting – Methods of Accounting – Types of Accounts – Accounting Rules - Accounting Concepts and Conventions –Accounting Standards – Concepts – objectives – Benefits and limitations – overview of Accounting Standards in India - Role of an Accountant - Journal – Ledger –Subsidiary books – Trial balance.

UNIT – II [14HOURS]

Final accounts of a sole trader with adjustments - Bank Reconciliation statement - Errors and Rectification.

UNIT – III [14HOURS]

Bill of exchange- Accommodation bills – Average due date.

UNIT – IV [15HOURS]

Accounting for consignments - calculation of commission, Valuation of unsold stock- Joint ventures – Joint Bank account -Joint Venture Account and Memorandum Joint Venture Account.

UNIT – V [15HOURS]

Accounts of Non- Profit Organisation– Receipts and Payments and income and expenditure account and Balance sheet.

Note : Distribution of Marks between problems and theory shall be 80% and 20%.

TEXT BOOK

1. T.S .Reddy-A.Murthy , Financial Accounting , 11th Edition, Margham Publications,2015, Chennai

REFERENCE BOOKS

1. Jain S.P, Narang K.L, Advanced Accountancy, 6th Edition , Kalyani Publishers, Chennai
2. P.C.Tulsian, Financial Accounting, 2nd Edition , Tata Mc Graw Hill, 2007, New Delhi
3. Gupta R.L, Radhaswamy, Advanced Financial Accounting, 4th Edition, Sultan chand & Sons,2009, Chennai

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2018-19 onwards

FIRST SEMESTER

PART III: CORE 2: MANAGEMENT PRINCIPLES AND PRACTICES

Maximum CIA: 30

Maximum CE: 70

Total Hours: 72

OBJECTIVE: To enable the students to acquire basic theoretical knowledge in Principles of Management.

UNIT – I (14HOURS)

Introduction to management- meaning – Administration vs. Management –Management, Science or an art –Theories of Management - Taylor, Fayol, peter F.Drucker – Levels and Functions of management.

UNIT – II (15 HOURS)

Planning: Meaning and Definition – Nature of Planning – Objectives – Importance – Steps in Planning – Types of Planning – Essentials of sound plan –Methods of Planning.

UNIT – III (15 HOURS)

Organizing: Meaning and Definition – Types of Organization – Organizational structure – Span of Control – Delegation: Delegation and Decentralization – Line and Staff relationship.

UNIT – IV (14 HOURS)

Directing: Nature and purpose of Directing – Essentials elements of directing – Supervision – Motivation and Morale – Decision Making – Leadership.

UNIT – V (14HOURS)

Co-Ordinating: Definition – Features – Need for Co-Ordination – Elements of Co-Ordination – Types of Co-Ordination. Controlling: Definition – Characteristics of control – Steps in Controlling – Techniques of control – Effective control.

TEXT BOOK

1. Dinkar Pagare, Principles of Management , 5th Edition, Sultan Chand & Sons, 2011

REFERENCE BOOKS

1. Gupta C.B, Management Principles and Practice, 2nd Edition, Sultan Chand & Sons, 2010, New Delhi
2. C.N.Sontakki, Principles of Management, Kalyani Publications
3. S.A.Sherlekar, Principles of Business Management, Himalaya Publishing House
4. Gupta C.B , Business Management, seventh edition , Sultan Chand & Sons, 2009, New Delhi

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2018-19 onwards

SECOND SEMESTER

PART III: CORE 3: FUNDAMENTALS OF ACCOUNTING –II

Maximum CIA: 30

Maximum CE: 70

Total Hours: 72

OBJECTIVE: Enabling the students to acquire basic accounting knowledge in Financial Accounting.

UNIT-I [14 HOURS]

Accounting for Depreciation – Needs - Objectives of depreciation - Methods - Causes– Reserves and Provisions.

UNIT-II [14 HOURS]

Single entry system - Meaning – Features – Methods of single entry system - Statement of affairs - Conversion Method.

UNIT-III [14 HOURS]

Hire Purchase and Installment System - Including Hire purchase Trading Accounts.

UNIT-IV [15 HOURS]

Branch Accounts (Excluding Foreign Branches) – Inland Branches –Dependent and Independent Branches – Departmental accounts –Transfer at cost or selling prices.

UNIT-V [15 HOURS]

Self balancing ledger – Meaning and advantages – Accounting aspects – Transfers. (Theory & Problems) International Accounting Standards - International Financial Reporting Standard (IFRS) Overview of International Reporting Interpretation Committee (IFRIC), significant difference vis-avis Indian Accounting Standards. (Theory Only)

Note: Distribution of Marks between problems and theory shall be 80% and 20%.

TEXT BOOK

1. T.S .Reddy-A.Murthy , Financial Accounting , 5th Edition, Margham Publications, 2008, Chennai

REFERENCE BOOKS

1. Jain S.P, Narang K.L, Advanced Accountancy, 6th Edition , Kalyani Publishers, Chennai
2. P.C.Tulsian, Financial Accounting, 2nd Edition , Tata Mc Graw Hill, 2007, New Delhi
3. Gupta R.L, Radhaswamy, Advanced Financial Accounting, 4th Edition, Sultan chand & Sons,2009, Chennai
4. Accounting Standards Institute of Chartered Accountants of India

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2018-19 onwards

**SECOND SEMESTER
PART – III – CORE – IV – BUSINESS LAW**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 72

OBJECTIVE: Enabling the students to know about the Mercantile Law.

UNIT-I [14 HOURS]

Sources of Law- Law of Contract – Nature –Kinds - Essentials of Valid Contract Offer-Acceptance- Intention to create Legal Relations – Considerations- Capacity to a Contract.

UNIT-II [14 HOURS]

Free Consent – Mistake – Misrepresentations – Fraud – Coercion and Undue Influence – Lawful Object – Agreement not declared Void – Legal Formalities.

UNIT-III [14 HOURS]

Contingent Contract – Performance of Contract – Remedies for Breach of Contract – Quasi Contracts.

UNIT-IV [15 HOURS]

Special Contracts – Indemnity and Guarantee – Agency – Bailment and Pledge.

UNIT-V [15 HOURS]

Law relating Sale of Goods Act – 1930 – Right of Unpaid Seller – Caveat Emptor – Auction Sale - Condition and Guarantees – Sales and Agreement to Sales.

TEXT BOOK

1. N.D.Kapoor, Commercial Law, 7th Edition, Sulthan Chand and Sons, Year 1995, New Delhi

REFERENCE BOOKS

1. S.M.Sundaram, Commercial Law, 1st Edition, Sulthan Chand and Sons, Year 1993, New Delhi
2. S.Kathiresan V.Radha, Commercial Law, Prasanna publication, year 2002, Chennai,
3. N.Premadevi, Business Law, Sri Vishnu publication, year 2003, Chennai.

B.Com (PA) Degree Examination – Syllabus for Candidates admitted from the academic year 2018-19 Onwards

**THIRD SEMESTER
PART III – CORE-5 - ADVANCED ACCOUNTANCY**

**Maximum CE: 70
Maximum CIA: 30
Total Hours: 72**

Objective:

To have an understanding of the conceptual frame work for the preparation and presentation of financial statements

Unit-I (15 Hours)

Partnership- Definition- Meaning- Types of partner- Features – Admission of Partner – Treatment of Goodwill – Revaluation of Assets and Liabilities – Calculation of Ratios for Distribution of Profits – Capital Adjustments.

Unit-II (15 Hours)

Retirement and Death of a partner – Calculation of Gaining Ratio - Revaluation of Assets and Liabilities – Calculation of Ratios for Distribution of Profits – Capital Adjustments. (Memorandum Method Excluded).

Unit-III (14 Hours)

Dissolution – Insolvency of partners – Garner vs. Murray –Insolvency of Two partner - Insolvency of all partners – Deficiency A/C – Piecemeal Distribution-Propportionate Capital Method –Maximum loss method.

Unit-IV (14 Hours)

Insolvency Accounts, Meaning of Insolvent – Relevant Acts – Difference between Balance sheet and Statement of Affairs – Preparation of statement of affairs – Deficiency Accounts.

Unit-V (14 Hours)

Fire Claims for Loss of stock – Computation of Claim- Gross profit Ratio-Normal Loss – Abnormal Loss-Average clause – Loss of Profit.

Text Book

- 1) R.S.Reddy and Moorthy, Financial Accounting, 6th Edition 2011, Margham Publication, Year 2015.

Reference Books

- 1) R.L.Gupta, Advanced Accountancy Theory , Methods and Applications, Volume 1, 1st Edition, Sulthan Chand & Sons, Year 2013.
- 2) Amitabha Mukherjee, Advanced Accountancy, Volume 1, Mc Graw Hill Education India Private Ltd, Year 2011.

B.Com (PA) Degree Examination – Syllabus for Candidates admitted from the academic year 2018-19 Onwards

THIRD SEMESTER

PART III – CORE-6 - COMPANY LAW AND SECRETARIAL PRACTICE

Maximum CE: 70

Maximum CIA: 30

Total Hours: 60

Objective:

This course aims to enlighten the students on the provisions of the Companies Act, 2013 along with relevant case laws.

Unit-I (12 Hours)

Company – Definition – Characteristics – Kinds of Companies – Doctrine of Lifting the Veil- Promotion of a Company- Company Secretary – Appointment , Legal Position –Qualification – Duties and Liabilities of a Secretary.

Unit-II (12 Hours)

Memorandum of Association- Forms – Contents – Procedures for Alteration – Secretarial Duties – Articles of Association – Forms and Contents- Procedures for Alteration. Doctrine of Indoor Management- Distinguish between Memorandum And Articles. Prospectus – Contents – Statement in Lieu of Prospectus – Legal Formalities.

Unit-III (12 Hours)

Share Capital – Kinds of share Capital –Issue and Allotment of Shares - Alteration –Increase and Reduction of share capital– Share Certificate- legal provisions - Transfer and Transmission of Shares – legal provisions- Secretarial duties.

Unit-IV (12 Hours)

Directors –Women Directors- EKYC Directors- Appointment – Qualification – Powers, Duties, Liabilities – Managing Director – Appointment – Rights and Duties - Company Meeting – Kinds of Meetings – Requisites of a Valid Meeting – Minutes - Proxy – Voting – Resolution .

Unit-V (12Hours)

Winding Up-Meaning-Modes of Winding Up-Consequences of Winding Up-Auditor Appointment- Rights and duties-Qualification and Disqualification.

Text Book

- 1) N.D.Kapoor, Company Law and Secretarial Practice, 13th Edition, Sulthan Chand & Sons, Year 2014.

Reference Books

- 1) P.P.S. Gogna, A Textbook of Company Law, Latest edition, Sulthan Chand & Sons, Year 2015.
- 2) K.L. Maheswari, R.K. Maheswari, Company Law and Secretarial Practice, New Royal Book Company, Year 2013.

B.Com (PA) Degree Examination – Syllabus for Candidates admitted from the academic year 2018-19 Onwards

**THIRD SEMESTER
PART III – CORE-7 - PRACTICAL BANKING**

**Maximum CE: 50
Maximum CIA: 50
Total Hours: 60**

Objective:

The objective of this course is to acquaint students with the theoretical and practical aspects of modern banking.

Unit-I (12 Hours)
Definition of Banker and Customer-General Relationship-Special Relationship-Nationalized Banks-Evolution of Commercial Banks-Functions of modern Commercial Banks-Branch Banking-CRM in Banking-Multinational Banking-Customer Service.

Unit-II (12 Hours)
An Account-Opening of New Account-Precautions-Types-Savings Account-Current Account-Fixed Deposit-Recurring Deposit-Cumulative Deposit-TL-Cash Credit-Overdraft-Joint Account-Partnership Account-Public limited Account-KYC-Closure of bank Account- Procedure for closure- Role of RBI-Objectives- Functions and powers.

Unit-III (12 Hours)
Negotiable Instruments-Meaning-Characteristics-Uses-Types-Bills of Exchange-Promissory Note-Essentials- Cheque - Endorsements-Crossing of a Cheque- Cancellation of Cheque – Dishonour of a Cheque – Stop the Payment of a Cheque - Demand Draft.

Unit-IV (12 Hours)
Funding-Types of Finance-Seed Capital-IPO-Bank Finance -Venure Capital-Loans-Procedures-CIBIL-Concept of Security-Primary vs Collateral-Application Forms-Annexure-Electronic Payment-NEFT-RTGS-Creating On-line Account-Fund Transfer.

Unit-V (Hands on Training) (12 Hours)
PAN Card application-Opening of New Account- Physical Form issues-Pay-in Slips-Filling of Cheques and Demand Draft-Crossing of Cheques-Online Account activation-Live Fund transfer-NEFT and RTGS forms-Filling- Bank Reconciliation Statement-Bank Stock Statement.

Text Book

- 1) Sundaram and Varshney , Banking Theory Law and Practice, 20th Revised Edition, Sultan Chand & Sons, Year 2014.

Reference Books

- 1) H.R. Gupta, Practical Banking in India, Gyan Publishing House, 2011.
- 2) Gurusamy, S., Banking Theory: Law and Practice, 2nd Edition, Tata McGraw Hill, Year 2010.

B.Com (PA) Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

**THIRD SEMESTER
PART III – CORE 8 - GENERAL ECONOMICS**

**Maximum CIA: 30
Maximum CE: 70
Total Hours: 60**

Objective:

To enable the students to understand various economic strategies in business decision making.

Unit-I (12 Hours)

Introduction to Economics: definition, nature and scope of Economics –Economic theories applied to business analysis-decision making in business –objectives of a business firm.

Unit-II (12 Hours)

Demand – Meaning – Definition – Determinants of Demand – Distinction of Demand – Law of Demand – Elasticity of Demand – Price, Income and Cross Elasticity – Meaning and Determinants of supply – Law of supply and Elasticity of supply.

Unit-III (12 Hours)

Production – Meaning – Factors of production – Laws of Production – The Law of variable proportions – Laws of returns to scale – Meaning of cost – Concepts of Costs – Short-run and long-run costs.

Unit-IV (12 Hours)

Market – Definition – Classification –Various forms of Markets – Perfect Competition – Monopoly – Monopolistic Competition – Oligopoly – Price determination in these markets.

Unit-V (12 Hours)

Indian Economy – Nature of the Indian economy – role of different sectors – national income of India – Economic Reforms in India – Features of economic reforms since 1991 - The aspects of Indian Economy – Population – Poverty – Unemployment – Infrastructure.

Text Book::

1. R.L.Varshney and K.L.Maheswari, Managerial Economics, 22nd Edition, Sultan Chand & Sons, Year 2014.

Reference Books::

1. S.K.Agarwal, General Economics, Sultan Chand & Sons, Year 2011.
2. Dr.S.Sankaran, Managerial Economics, Margham Publication, Year 2013.

B.Com (PA) Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

THIRD SEMESTER

PART IV – AOC 1 - PRINCIPLES OF MARKETING

Maximum CE: 75

Total Hours: 36

Objective:

To help students to understand the concept of marketing and its applications. Also to expose the students to the latest trends in marketing.

UNIT – I

(8Hours)

Introduction to Market - Meaning, Definition and Concept – Traditional and modern marketing - Role and importance of Market - Classification of Market, Marketing function - Marketing process.

UNIT – II

(7 Hours)

Marketing mix - Product mix – meaning of products, Product mix – Expansion and Contraction – PLC – Price mix, Importance of price – Pricing objectives -Kinds o f pricing – methods of price determination.

UNIT – III

(7 Hours)

Promotion - Advertisement – Personal Selling and Sale promotion - Distribution - Importance of channels of distribution – Meaning – Functions of middlemen – Elimination of middlemen.

UNIT – IV

(7 Hours)

Market Segmentation – Benefits – Bases – Requisites of sound market segmentation – Market Segments and marketing mix – Buyer Behaviour – Significance – Buying Process – Steps in Buying Process – Buyer Behaviour Models.

UNIT – V

(7 Hours)

Recent trends in marketing – E-marketing, direct marketing, online marketing, market research, marketing information system, Consumerism and consumer rights.

Text Book::

1. Philip Kotler , Principles of Marketing, 15th Edition, Pearson Publications, Year 2015.

Reference Books::

1. C.B.Gupta, Principles of Marketing, Sultan Chand & Sons, Year 2013.
2. R.S.N. Pillai and Bagavathi, Modern Marketing Principles and Practices, Sultan Chand & Sons, Year 2010.

B.Com (PA) Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

THIRD SEMESTER

PART IV – AOC I - E-BUSINESS

Maximum CE: 75

Total Hours: 36

Objective: Enabling the Students to Acquire Theoretical knowledge to be successful in

E-business.

UNIT I (8 Hours)

Introduction to E-Business- Electronic Business- Electronic Commerce- Electronic Commerce Models- Types of Electronic Commerce-Value Chains in Electronic Commerce- E-Commerce in India- Internet.

UNIT II (7 Hours)

Intranet- Composition of Intranet- Business Applications on Intranet- Extranets Electronic Data Interchange- Components of Electronic Data Interchange-Electronic Data Interchange(Communication Process).

UNIT III (7 Hours)

Security Threats to E-Business- Security Overview- Electronic Commerce Threats-Encryption-Cryptography- Public Key and Private Key Cryptography- Digital Signatures-Digital Certificates.

UNIT IV (7 Hours)

Electronic Payment System- Concept of Money-Electronic Payment System- Types of Electronic Payment Systems.

UNIT V (7 Hours)

Internet Basics –WWW–Web Pages–Web Browsers–Searching Web Internet Access. **Electronic Mail:** Introduction – E-Mail– Basics – Advantages Creating E-Mail Id.

Text Book::

1. Whitley, David. E-Commerce Strategy, Technologies and Applications. TataMcGraw Hill, 2000.

Reference Books::

1. Schneider Gary P. and Perry, James T ,Electronic Commerce. Thomson Learning, 2000.
2. Bajaj, Kamlesh K and Nag, Debjani, E-Commerce: The Cutting Edge of Business, Tata McGraw Hill, Publishing Company Ltd., New Delhi. 1999.

B.Com (PA) Degree Examination – Syllabus for Candidates admitted from the academic year 2018-19 Onwards

**FOURTH SEMESTER
PART III – CORE-9 - CORPORATE ACCOUNTING I**

**Maximum CE: 70
Maximum CIA: 30
Total Hours: 72**

Objective:

This course aims to enlighten the students on the accounting procedures followed by the Companies.

Unit-I (15 Hours)

Issue of Equity shares – Issue at Par, Premium and at Discount – Forfeiture and Re-issue (including Pro-rata allotment) Surrender of shares – Right Issue.

Unit -II (15 Hours)

Redemption of Preference shares- Issue of Debentures – Par , Premium and Discount - Redemption of Debentures- Ex Interest & Cum Interest Quotations –Conversion Method – Installment Method - Sinking Fund Method

Unit-III (14 Hours)

Underwriting of shares –Complete Underwriting – Partial Underwriting -Firm underwriting – Valuation of Goodwill –Factors Affecting Goodwill –Methods of Valuating Goodwill –Shares- Methods of valuating Shares.

Unit-IV (14 Hours)

Profits prior to incorporation – Preparation of Final Accounts of companies – Preparation of Profit and Loss Appropriation Account - New Format including Managerial Remuneration Calculation.

Unit-V (14 Hours)

Liquidation of Companies- Liquidators final Statement- Deficiency Account.

Text Book

- 1) T.S.Reddy and Murthy, Corporate Accounting, Volume 1, Revised Edition, Margham Publications, Year 2013.

Reference Books

- 1) S N Maheshwari & Suneel K Maheshwari, Corporate Accounting, Vikas Publishing, Year 2013.
- 2) R.S. Singal, Corporate Accounting, Latest Edition 2011, VK Publication, Year 2011.

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**FOURTH SEMESTER
PART III – CORE-10 - COST ACCOUNTING**

**Maximum CE: 70
Maximum CIA: 30
Total Hours: 72**

Objective:

On successful completion of this course, the student should be well versed in the concepts, methods and principles in cost accounting.

Unit-I (15 Hours)
Cost Accounting – Definition – Meaning and Scope – Concept and Classification – Costing an aid to Management — Types and Methods of Cost – Elements of Cost Preparation of Cost Sheet and Tender.

Unit-II (15 Hours)
Material Control: Levels of material Control – Need for Material Control – Economic Order Quantity – ABC analysis – Perpetual inventory – Purchase and stores Control: Purchasing of Materials – Procedure and documentation involved in purchasing – Requisition for stores –Stores Control – Methods of valuing material issue.

Unit-III (14 Hours)
Labour: System of wage payment – Idle time – Control over idle time – Labour turnover. Overhead – Classification of overhead – allocation and absorption of overhead.

Unit-IV (14 Hours)
Process costing – Features of process costing – process losses, wastage, scrap, normal process loss – abnormal loss, abnormal gain. (Excluding inter process profits and equivalent production)-Job Costing- Batch Costing.

Unit-V (14 Hours)
Operating Costing - Contract costing – Reconciliation of Cost and Financial accounts.

Note: Distribution of Marks: Theory 20% and Problems 80%

Text Book

- 1) Jain.S.P and Narang.K.L , Cost Accounting, Revised Edition, Kalyani Publishers, Year 2014.

Reference Books

- 1) Ashish Kalra, Cost Accounting, IGP Publications, Year 2015.
- 2) Pillai.R.S.N and Bagavathi.V , Cost Accounting, Reprint, Sultan Chand & Sons , Year 2013.

B.Com (PA) Degree Examination – Syllabus for Candidates admitted from the academic year 2018-19 Onwards

**FOURTH SEMESTER
PART III – CORE-11 – PRACTICAL AUDITING**

**Maximum CE: 50
Maximum CIA: 50
Total Hours: 60**

Objective:

To understand objective and concepts of auditing and gain working knowledge of generally accepted auditing procedures and of techniques and skills needed to apply them in audit.

Unit-I (12 Hours)

Auditing – Origin – Definition – Objectives – Types – Advantages and Limitations – Qualities of an Auditor – Audit Evidence – Audit Procedure – Audit Programmes – Audit Working papers – Test checking.

Unit-II (12 Hours)

Internal Control – Internal Check and Internal Audit – Audit Note Book – Vouching – Vouching of Cash Book – Vouching of Trading Transactions – Vouching of Impersonal Ledger.

Unit-III (12 Hours)

Verification and Valuation of Assets and Liabilities – Auditor's position – Depreciation – Reserves and Provisions – Secret Reserves – Investigation – Objectives of Investigation – Audit of Computerised Accounts – Investigation under the provisions of Companies Act.

Unit-IV (12 Hours)

Audit of Joint Stock Companies – Appointment of Company Auditor – Qualification and Disqualifications – Rights and Duties – Liabilities of a Company Auditor – Share Capital and Share Transfer Audit – Audit Report – Contents and Types.

Unit-V (Hands on Training) (12 Hours)

Engagement letter – Practical auditing of Payments/Receipts/Purchase/Sales – Difference between Vouching and Verification – Process of verification of Assets and Liabilities – Audit Report procedure and specimen – Special Audits (Practical procedure of different industries) – Professional Ethics of an Auditor.

Text Books

- 1) Tandon.B.N, Practical Auditing, 15th edition, Sultan Chand & Sons, Year 2012.

Reference Books

- 1) Spicer and Pegler, Auditing, 11th Edition, Vikas publishing House, 2010.
- 2) Kamal Gupta, Auditing, 12th edition, Tata Mc Graw Hill, 2011.

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**FOURTH SEMESTER
PART III – CORE-12 - INDUSTRIAL AND LABOUR LAW**

**Maximum CE: 70
Maximum CIA: 30
Total Hours: 60**

Objective:

Enabling the students to know about the Industrial and Labour law.

Unit-I (12 Hours)

Factories Act 1948 - Provision Relating to Health, Safety, Welfare-Employment of Children and Young People-Adult Welfare and Women Workers.

Unit-II (12 Hours)

Payment of Wages Act, 1936: Objects – Responsibilities - Fixation of wage periods - Time payment deduction and fines - Maintenance of records and registers – Inspectors – Labour union and practices in India.

Unit-III (12 Hours)

Payment of Bonus Act, 1965: Objects - Computation and determination of Bonus - Eligibility and payment - Provisions for new companies.

Unit-IV (12 Hours)

Employee's Provident Fund Act 1952 – objects – Application of the Act – Definitions – scheme - Employee's state Insurance Act 1948: object registration of factories and establishments of ESI, Standing Committee and Medical Benefit Council- Provisions relating to contribution - inspectors – their functions and disputes - benefits - adjudication of disputes and claims- offences and penalties.

Unit-V (12 Hours)

Workers Compensation Act, 1923: objects- Employer's liability for compensation- Amount of compensation- Methods of calculating wages – Review, distribution of compensation - Notice and claims - Commissioner for workmen's compensation.

Text Book

- 1) N.D.kapoor, Elements of Industrial Law, Revised Edition, Sultan Chand & Sons, Year 2013.

Reference Books

- 1) N.D.kapoor, Elements of Mercantile Law, Revised Edition, Sultan Chand & Sons, Year 2014.
- 2) S. N. Mishra, Labour and Industrial Law, 27th Edition, Central Law publications, Year 2013.

B.Com (PA) Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards.

**FOURTH SEMESTER
PART – III – IDC 4 – M.S. OFFICE AND TALLY (PRACTICAL)**

Maximum CIA: 40

Maximum CE: 60

Total Hours: 36

Objective:

To enable the students to gain the in depth skill in business automation tools.

MS - Word

1. Create the front page of a News Paper.
2. Prepare a mail merge for an interview call letter.
3. Create a resume wizard.
4. Create a table with the following field name:
EMP-no, Emp-name, designation, department, experience.

MS - Excel

5. Develop the Students Mark List worksheet and calculate total, average and save it. Specify the Result also (Field names: S.NO, Name of the student, course, mark1, mark2, mark3, total, average and result).
6. Design a chart projecting the cash estimate of a concern in the forth coming years.

MS - PowerPoint

7. Design slide for a product of your choice, includes the picture of the product and demonstration and working (minimum three slides)
8. Prepare an organization chart for a company.
9. Create a show projecting the activities of your department during the academic year.

MS - Access

10. Create a Student database with the following Tables:
i). Students Personal Details ii) Students Mark Details
Perform the following:
 - a). Relate the Tables
 - b). Create a query to the students passed in all subjects.
 - c). Create a form and report

Tally

11. Create a company With VAT options.
12. Create Single ledgers and Multiple Ledgers
13. Create stock items, stock groups, sales categories, godowns, units of measure
14. Create Vouchers
15. Preparation of Profit& Loss A/c and Balance Sheet.

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FOURTH SEMESTER

PART IV – AOC II – MANAGEMENT OF FINANCIAL MARKETS AND SERVICES

Maximum Marks: 70

Total Hours: 36

Objective:

On successful completion of this course, the student should know about the methods of financing by this agencies and the key role played by them in Corporate Financing.

Unit – I

(7 Hours)

Financial Markets – Structure of Financial Markets –Money Market in India – Indian Capital Markets – Difference between Money Market and Capital Market –Participants and instruments of money market and capital market.

Unit – II

(7 Hours)

Markets for Corporate Securities – New Issue Markets – Functions- Issue Mechanism – Merchant Banking - Role - Functions of Merchant Bankers in India – Under writing.

Unit – III

(7 Hours)

Secondary Markets – Stock Exchange – Role of Secondary Market – Trading in Stock Exchange – Various Speculative Transactions – Role of SEBI – Regulation of Stock Exchange.

Unit – IV

(7Hours)

Mutual fund – meaning and definition- features – types of mutual fund- SEBI guidelines on mutual fund- present status of mutual fund.

Unit – V

(8 Hours)

New Modes of Financing –Venture Capital – Dimension Functions – Venture Capital in India – Factoring – Types – Modus Operandi of Factoring – Factoring as Source of Finance.

Text Book:

1. Gardon and Natarajan.K, Financial Markets and Services, 9th Edition, Himalaya Publications, Year 2015.

Reference Books:

1. P.Pandian, Financial Markets and Services, 1st Edition, Sultan Chand & Sons, Year 2010.
2. Dr.S.Guruswamy, Financial Markets and Institutions, 4th Edition, Vijay Nicole Imprints Pvt Ltd, Year 2015.

B.Com (PA) Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

FOURTH SEMESTER

PART IV – AOC II - EXIM TRADE AND FOREX MANAGEMENT

Maximum CE: 75

Total Hours: 36

UNIT I

(7 Hours)

International Trade and Globalization - Introduction- Meaning - Emerging global economy - Process of globalization - Drivers of globalization - Trends in international trade, trade in-services - Review of international Business Environment .

UNIT II

(7 Hours)

Export Marketing and Management - Introduction-definition and segmentation - importance of export marketing -benefits from export marketing - export market planning and strategy demand - management-obstacles to exporting pricing.

UNIT III

(7 Hours)

Foreign Trade Control and Exim Policy - Objectives and strategies of foreign trade policy- EXIM regulations - EXIM bank - objectives role safeguards required in EXIM business import regulations– export and import of goods and services- Realization and repatriation of foreign exchange procedure for payment of import.

UNIT –IV

(7 Hours)

Balance of Payment - Balance of Trade - Components of Balance of Payments - Balance of Payment disequilibrium – Methods of correcting disequilibrium.

UNIT –V

(8 Hours)

Forex Management: Nature- Significance and Scope of Forex management – Foreign exchange Market and its Structure- Foreign Exchange Rate and its Determination- Exchange Rate Quotes- Types of Exchange rates- Forex Trading.

Text Book:

1. Francis Cherunilam, International Trade and Export Management, 4th Edition, Sultan Chand & Sons, Year 2010.

Reference Books:

1. Esha Sharma, Foreign exchange management, 1st Edition, USP, Year 2011.
2. Sangeet Kedia and Abhishek Mittal, Financial Treasury and Forex Management, Pooja Law Publishing, Year 2013.

B.Com (PA) Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

**THIRD SEMESTER
ADDITIONAL CREDIT - ORGANIZATIONAL BEHAVIOR**

Maximum CE: 100

UNIT – I

Introduction - Definition – nature scope – contributing disciplines to the field of organizational behaviour - Historical evolution of organizational behaviour.

UNIT – II

The individuals - Major personality attributes influencing OB – Organizational application of learning – application of perception in the organization – decision making – values – attitudes.

UNIT – III

The Group -Definition – classification – group development –group structure – group decision – making – teams , power – policies – conflicts.

UNIT – IV

Motivation and Leadership -Motivation – meaning – process – early theories –contemporary theories-application of motivation techniques – leadership –definition – characteristics – functions – styles – theories : Trait theories – behavioural theories – contingency theories – recent approaches.

UNIT – V

Organizational System and Dynamics -System approach to organization – organizational culture – management of change : Need – resistance – organizational development : Meaning – characteristics – Techniques – organizational effectiveness.

Text Book:

1. L. M. Prasad, Organizational Behaviour, 5th Revised Edition Reprint 2014, Sultan Chand & Sons, Year 2014.

Reference Books:

1. Robbins, Organizational Behavior, 7th Edition, McGraw Hill, Year 2010.
2. Ramasami.N, Organizational Behavior, 6th Edition, T.R.Publications, 2011.

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**FOURTH SEMESTER
ADDITIONAL CREDIT - CONTEMPORARY ISSUES IN BUSINESS**

Maximum CE: 100

Unit I

Knowledge Management: concept, Knowledge Creation and Knowledge Architecture, Knowledge Transfer and Knowledge Sharing, related issues (Information asymmetry, information overflow, etc.), Information and Communications technologies – Concept and Application.

Unit II

Issues in Banking: Technology Inclusion in Banking, Financial Inclusion and Banking, Global Perspectives of Banking, Ban assurance, Concept and Genesis of Micro Financing.

Unit III

Quality Management: Definitions – TQM framework, benefits, awareness and obstacles-Quality – vision, mission and policy statements -Customer Focus – customer perception of quality, translating needs into requirements, customer retention-Dimensions of product and service quality, Cost of quality.

Unit IV

Marketing Management: Concepts of E-Marketing, Social Marketing, Green Marketing, Services Marketing, Global Marketing and Rural Marketing.

Unit V

Customer Relationship Management: Definition of CRM – Need - CRM from a business strategy perspective -Relevance of strategic CRM -Customer value management approach -Evolution and growth of CRM.

Reference Books:

1. Dale H.Besterfield et al, Total Quality Management, Third edition, Pearson Education, Year 2004.
2. Phatak, Deepak B, Kochhar, Sameer and Chandrashekhar R, Financial Inclusion, Academic Foundation, Year 2012.
3. Philip Kotler, Marketing Management, 15th Edition, Prentice Hall of India Ltd, Year 2015.
4. Tapan K Panda, Knowledge Management, Excel Books India, Year 2010.
5. V.Kumar, Customer Relationship Management - Concept, Strategy, and Tools, Springer Berlin Heidelberg, Year 2010.

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FIFTH SEMESTER

PART – III – CORE – 13 – CORPORATE ACCOUNTING-II

Maximum CIA: 30

Maximum CE: 70

Total hours: 60

Objective:

Enabling students to acquire theoretical knowledge to be successful in Corporate Accounting.

UNIT-I (12 HOURS)
Holding Companies [Excluding Inter Company Holding] – Application of 1st 9 Rule.

UNIT-II (12 HOURS)
Inflation Accounting – Features - Methods — Difference between Inflation and Deflation. (Simple Problems).

UNIT-III (12 HOURS)
Accounts of Electricity Companies [New format] – Treatment of Repairs and Renewals – Disposal of Surplus – Replacement of Capital Assets.

UNIT-IV (12 HOURS)
Banking Company Accounts [New format] – Rebate on Bills Discounted.

UNIT-V (12 HOURS)
Insurance Company Accounts [New Format] – Valuation of Balance Sheet.

NOTE: Theory and Problems 20:80.

TEXT BOOK:

1. T. S. Reddy and Murthy, Corporate Accounting, 3rd Edition, Margham Publications, Year- 2016, Chennai.

REFERENCE BOOKS:

1. Gupta, R.L and Radhawsamy. M, Advanced Accounting, 8th Edition, Sulthan Chand and Co, Year- 2012, New Delhi.
2. Dr.S.K. Singh, Corporate Accounting, SBPD Publications, Latest Edition Year 2017.

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

FIFTH SEMESTER

PART – III – CORE – 14 – STRATEGIC MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total hours: 60

Objective:

To develop an understanding of Strategic Management concepts and techniques.

UNIT- I (12 HOURS)

Business Environment: General Environment – Demographic, Socio- cultural, Macro – economic, Legal / political, Technological and Global Competitive Environment. Business Policy and Strategic Management: Meaning and nature; Strategic management imperative; Vision, Mission and Objective; Strategic levels in organizations.

UNIT -II (12 HOURS)

Strategic Analyses: Situational Analysis – SWOT Analysis, TOWS Matrix, Portfolio Analysis– BCG Matrix. Strategic Planning: Meaning, stages, alternatives, strategy formulation.

UNIT -III (12 HOURS)

Formulation of Functional Strategy: Marketing strategy, financial strategy, Production strategy, Logistics strategy, Human resource strategy.

UNIT- IV (12 HOURS)

Strategy Implementation and Control: Organizational structures; establishing strategic business units; Establishing profit centres by business, product or service, market segment or customer; Leadership and behavioral challenges.

UNIT- V (12 HOURS)

Reaching Strategic Edge: Business Process Reengineering, Benchmarking, Total Quality Management, Six Sigma Contemporary Strategic Issues.

TEXT BOOK:

1. L.M. Prasad, Strategic Management, 16th Edition, Sulthan Chand and Co, Year- 2014, New Delhi.

REFERENCE BOOKS:

1. Francis Cherunilam, Strategic Management, 16th Edition, Himalaya Publications, Year- 2014, New Delhi.
2. Dr. S. Senthil Kumar, Marutha Durai, A. Sharmila, J. Poornima, Business Strategic Management and Policy, 1st Edition, Sulthan Chand and Co, Year- 2014, New Delhi.

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

**FIFTH SEMESTER
PART – III – CORE – 15 - BUSINESS ETHICS AND CORPORATE SOCIAL
RESPONSIBILITY**

Maximum CIA: 30

Maximum CE: 70

Total hours: 60

Objective:

To develop an understanding of business ethics and corporate social responsibility concepts.

UNIT- I (12 HOURS)

Business ethics; Definition and nature, The Importance of Business Ethics, Emerging Business Ethics Issues, Business Ethics in a Global Economy. Environmental ethics, Marketing Ethics, Corporate Ethics, Ethical Issues in HRM.

UNIT -II (12 HOURS)

Ethical theories; Ethical Dilemmas, Sources and Their Resolutions. Individual Factors: Moral Philosophies, Organizational Factors: The Role of Ethical Culture and Relationships. Value based organizations.

UNIT- III (12 HOURS)

Concept of Corporate Social Responsibility (CSR), - Meaning -Features – Significance - Historical phases of CSR - Perspectives on CSR - CSR models - Drivers of CSR.

UNIT- IV (12 HOURS)

Corporate Social Responsibility Practices in India. CSR- Within the Organisation, CSR and Society.

UNIT- V (12 HOURS)

Corporate Governance: Principles, Issues and Trend - Ethical Decision Making in Business and Ethical leadership

TEXT BOOK:

1. V. Balachandran and V. Chandrasekaran, “Corporate Governance and Social Responsibility”, PHI Learning Private Limited, New Delhi. Year 2011.

REFERENCE BOOKS:

1. Bhatt, K. and Sumitha, A., Business Ethics and Corporate Social Responsibility, 2nd Edition , Himalaya Publications , Year 2011, New Delhi.
2. C.V. Baxi, Rupamanjari, Sinha Ray, Corporate Social Responsibility, Vikas Publishing House Pvt Ltd, Year 2012.

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

**FIFTH SEMESTER
PART – III – CORE – 16 – TAXATION I**

Maximum CIA: 30

Maximum CE: 70

Total hours: 60

OBJECTIVE:

To gain the knowledge of the provisions of Income- tax law relating to the topics mentioned in the contents below; and To gain ability to solve simple problems concerning assesses with the status of “Individual” and covering the areas mentioned in the contents below.

UNIT- I (12 HOURS)

Important definitions in the Income –tax Act, 1961 – Basis of charge; Rates of taxes-applicable for different types of assesses – Concepts of pervious year and assessment year – Residential status and scope of total income; Income deemed to be received / deemed to accrue or arise in India – Incomes which do not form part of total income.

UNIT- II (12 HOURS)

Income from salary – Income from House Property.

UNIT -III (12 HOURS)

Income from Business or Profession.

UNIT -IV (12 HOURS)

Income from Capital Gains – Income from other sources.

UNIT -V (12 HOURS)

Income of other persons included in assesses total income – Aggregation of income; Set –off or carry forward and set off of losses – Deductions from gross total income – Computation of total income and tax payable; Rebates and relief’s – Provisions concerning advance tax and tax deducted at source.E-Filing - Meaning of E-filing-Benefits & Limitations-Difference between Regular Filing & E-Filing-Types- Process.(E-Filing Theory Only)

TEXT BOOK:

1. Gaur.V.P and Narang.D.B, Puja Gahai, Rajeev Puri , Income Tax ,40th edition, Kalyani Publishers , 2016, New Delhi.

REFERENCE BOOKS:

1. Hariharan.N, Income Tax, 4th edition, Tata McGraw hill, 2015, New Delhi.
2. Girish Ahuja Ravi Gupta, Direct tax law and practice, 34th Edition Bharat Law House Pvt Ltd.year 2014.

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

FIFTH SEMESTER

PART III – CORE 17 – RESEARCH METHODOLOGY

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

Enabling the students to acquire knowledge in Research Methodology.

UNIT-I (12 HOURS)

Research - Meaning - Definition – Nature – Scope and Objective – Types of Research - Experimental Research - Survey Research - Case study methods.

UNIT-II (12 HOURS)

Research Design - Defining Research Problem and Formulation of Hypothesis - Experimental Design.

UNIT-III (12 HOURS)

Research Process - Steps in the process of Research, Data Collection and Measurement : Sources of Secondary Data - Methods of primary data collection - Questionnaire Construction - Attitude measurement and Scales - Sampling and Sampling Designs - Philosophy and Pre-testing.

UNIT-IV (12 HOURS)

Data Presentation and Analysis - Data Processing - Methods of Statistical Analysis and Interpretation of Data - Testing of Hypothesis and Theory of Inference.

UNIT-V (12 HOURS)

Report Writing and Presentation - Steps in Report Writing - Substance of Reports - Formats of Reports - Presentation of a Report.

TEXT BOOK:

1. C.R. Kothari, Research Methodology, 5th Edition , Wiley Eastern Ltd, New Delhi, Year 2016.

REFERENCE BOOKS:

1. P. Saravanavel, Research Methodology, 5th Edition , Kitab Mahal, Allahabad, Year 2012
2. Dr.C.Paramasivan, Research Mothodology for Commerce and Management, Regal Publications, year 2011.

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

FIFTH SEMESTER

PART – III – ELECTIVE I – ENTREPRENEURIAL DEVELOPMENT

Maximum CIA: 30

Maximum CE: 70

Total hours: 60

OBJECTIVE:

To enable the students to learn the fundamentals of being a good entrepreneur and the Concept of entrepreneurship, Knowledge about the financing institutions, project report, incentives and subsidies.

UNIT -I (12 HOURS)

Concept of entrepreneurship : Definition Nature and characteristics of entrepreneurship – function and type of entrepreneur. Development of women entrepreneur and rural entrepreneur – self employment- Problem of Women Entrepreneur.

UNIT- II (12 HOURS)

The start-up process, Project identification – Business Idea – Sources of Business Idea – Selection of the product – project formulation - evaluation – feasibility analysis, Project Report.

UNIT- III (12 HOURS)

Institutional services to entrepreneurs – DIC, SIDO, NSIC, SISI, SIDCO and KVIC, Institutional finance to entrepreneurs : IFCI, SFC, IDBI, ICICI, TIIC and SIPCOT.

UNIT- IV (12 HOURS)

Incentives and subsidies – Subsidised services – subsidy for market - Transport – seed capital assistance - Taxation benefit to SSI role of entrepreneur in export promotion and import substitution.

UNIT -V (12 HOURS)

Industrial Sickness- Symptoms- Remedies – Causes.

TEXT BOOK:

1. Gupta.C.B and Srinivasan N.P, Entrepreneurial Development, Sultan Chand and Co., 2015, New Delhi.

REFERENCE BOOKS:

1. Vasant Desai ,Dynamics Of Entrepreneurial Development Management, Himalaya Publishing House,2011
2. Dr. S. S. Khanka.,Entrepreneurial Development, Sulthan Chand and Co, Year- 2012, New Delhi.

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

FIFTH SEMESTER

PART III - ELECTIVE I - CORPORATE GOVERNANCE

Maximum CIA: 30

Maximum CE: 70

Total hours: 60

Objective:

Enabling students to acquire theoretical knowledge in Corporate Governance.

UNIT I (12 HOURS)

Corporate Governance – Meaning – Features – Importance – Macro Issues – Micro Issues – Board of Governance– SEBI Committee on Corporate Governance.

UNIT II (12 HOURS)

Corporate Governance and the Role of the Board [BOD] – Corporate Governance System Worldwide – The Board, CEO and the Chairman – Non-executive Directors –Legal Position and Liabilities of Directors.

UNIT III (12 HOURS)

Company Audit – Auditor’s Independence – Audit Committees – Audit Committees and Corporate Governance – Management Audit – Tool for value addition –[Economic value addition] Corporate Disclosures – Disclosures Norms and Investors Interest - Corporate Governance Report of Infosys.

UNIT IV (12 HOURS)

New Companies Bill – Companies Act 2013 – Classification of Companies – Corporate Restructuring – Mergers and Takeovers – Desirable Corporate Governance in India.

UNIT V (12 HOURS)

E – Governance – Trends in E-governance – Business Process Reengineering - Value Based Management – Ethical Imperatives in Corporate Governance – Environmental Reporting - Corporate Governance Rating - Models of Rating.

TEXT BOOK:

1. N. Gopalsamy, Corporate Governance, The new paradigm, 3rd Edition, Wheeler Publishing, New Delhi, year 2014

REFERENCE BOOKS:

1. Corporate Governance, Principles & Policies, Practices, Fernando A.C, Prentice Hall Publications, 2nd Edition, Year 2011.
2. Dr.S.Singh, Corporate Governance, Excel Books ,Chennai.

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

**FIFTH SEMESTER
PART III - ELECTIVE I - BRAND MANAGEMENT**

Maximum CIA: 30

Maximum CE: 70

Total hours: 72

Objective:

To teach the importance of brand and its impacts among the customers

UNIT -I (12 HOURS)

Introduction- Basic understanding of brands – concepts and process – significance of a brand –brand mark and trade mark – different types of brands – family brand, individual brand, private brand – selecting a brand name – functions of a brand – branding decisions – influencing factors.

UNIT -II (12 HOURS)

Brand Associations: Brand vision – brand ambassadors – brand as a personality, as trading asset, Brand extension – brand positioning – brand image building.

UNIT- III (12 HOURS)

Brand Impact: Branding impact on buyers – competitors, Brand loyalty – loyalty programmes –brand equity – role of brand manager – Relationship with manufacturing - marketing- finance -purchase and R & D – brand audit

UNIT- IV (12 HOURS)

Brand Rejuvenation: Brand rejuvenation and re-launch, brand development through acquisition takes over and merger – Monitoring brand performance over the product life cycle. Co-branding.

UNIT- V (12 HOURS)

Brand Strategies: Designing and implementing branding strategies

TEXT BOOK:

1.S.Ramesh Kumar, “Managing Indian Brands”, Vikas publishing House (P) Ltd., New Delhi,2012.

REFERENCE BOOKS:

1.Jean Noel, Kapferer, “Strategic brand Management”, The Free Press, New York, 5th Edition 2012.

2. Paul Tmeporal, Branding in Asia, John Wiley & sons (P) Ltd., New York, 2010.

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

**SIXTH SEMESTER
PART – III – CORE -18 – MANAGEMENT ACCOUNTING**

Maximum CIA: 30

Maximum CE: 70

Total hours: 60

OBJECTIVE: To acquaint the students with the Management Accounting Techniques that facilitate managerial decision – making.

UNIT-I (12 HOURS)

Management Accounting-Meaning, Objective and scope-Relationship between management accounting, cost accounting and financial accounting-Need and significance of management accounting in organization - Financial statements-Analysis-Financial statements and their importance-Tools for analysis and interpretation.

UNIT-II (12 HOURS)

Analysis and interpretation of financial statement-Ratio analysis-Significance of ratios and long term financial position-Profitability – Uses and limitations of ratios.

UNIT-III (12 HOURS)

Working capital-Concepts, kinds, importance of working capital-Working capital requirements and their computation-Sources of working capital-Fund flow and cash flow analysis.

UNIT-IV (12 HOURS)

Cost-volume-profit analysis-Marginal costing and break-even analysis, managerial applications of marginal costing-Significance and limitations of marginal costing.

UNIT-V (12 HOURS)

Budgeting and budgetary control- Definition, importance, essentials, classifications of budgets, master budget, preparation of different, budgets-Steps in budgetary control, standard costing-Material and labour variances.

NOTE : Distribution of marks : Theory 20% and Problems 80%

TEXT BOOK:

1. Shashi K. Gupta and R.K. Sharma, Neeti Gupta, Management Accounting, 3rd Revised Edition, Kalyani Publishers, 2012, New Delhi.

REFERENCE BOOKS:

1. Dr. R. Ramachandran and Dr. R. Srinivasan, Management Accounting – Theory, Problems and Solutions, 14th Revised Edition, Sri Ram Publications, 2014, Trichy.
2. S.N. Maheswari. and S.K. Maheswari, A Text Book of Accounting for Management, 7th Reprint, Vikas Publishing House, 2012, Mumbai.

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

**SIXTH SEMESTER
PART – III – CORE 19 – INVESTMENT MANAGEMENT**

Maximum CIA: 30

Maximum CE: 70

Total hours: 60

OBJECTIVE: The objective of this course is to impart knowledge to students regarding the theory and practice of Security Analysis and Investment Decision Making Process, including Portfolio Management.

UNIT -I (12 HOURS)

Investment – Meaning and Definition- Concept- Nature and Scope of Investment-Types of Investment- Stages of Investment- Speculation- Types of speculators – Difference between Investment and Speculation- Importance- Basic principles of investment.

UNIT- II (12 HOURS)

Risk – Meaning of Risk- Causes of Risk- types of risk- systematic and unsystematic risk- Return Analysis- Factors analyzing the return on investment.

UNIT -III (12 HOURS)

Introduction of security analysis- Approaches to Security Analysis- Fundamental Analysis- Economic Analysis- Industry Analysis- Company Analysis- Technical Analysis.

UNIT -IV (12 HOURS)

Stock Market Analysis- Technical Approach; Efficient Market Theory; Weak and Semi-strong form of Efficient Market; Investment decision making under Efficient market Hypothesis.

UNIT -V (12 HOURS)

Introduction to Portfolio Management – An Optimum portfolio Selection Problem, Markowitz Portfolio Theory, Sharpe: Single Index Model; Capital Asset Pricing Model.

TEXT BOOK:

1.Dr.L.Natarajan, Investment Management, Margam Publishers, 3rd Edition, Year 2011

REFERENCE BOOKS:

1. Reilly and Brown, Investment Analysis and Portfolio Management, Cengage Learning publications, 8th edition, 2011.
2. S. Kevin, Securities Analysis and Portfolio Management, PHI Learning, 2015.

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

**SIXTH SEMESTER
PART – III – CORE 20 – TAXATION II**

Maximum CIA: 30

Maximum CE: 70

Total hours: 60

Objective: To gain knowledge of the provisions of service tax as mentioned below and basic concepts of Value Added Tax (VAT) in India.

UNIT-I (12 HOURS)

Constitutional back ground of taxes-Types of taxes – Direct and Indirect taxes- Indirect taxation – nature – Advantages- Disadvantages – Excise, Sales, Customs and Service taxes – Contribution to State Exchequer - Tax evasion – Tax avoidance – Cause and Consequences .

UNIT-II (12 HOURS)

The Central Excise Act 1944 - Important definitions - Nature and Levy of Excise Duty-Types- Definitions- Manufacture-Production- Excisable goods under Central Excise Tariff Act (CETA)- Valuation of Excisable Goods.

UNIT-III (12 HOURS)

The Customs Act 1962-Customs Duty- Important Definitions – Types - Negative list of items of Import and Export- Assessment of Duty-Valuation of Dutiable goods.

Unit - IV (12 HOURS)

Service Tax – Concepts and general principles. Charge of service tax and Taxable services . Valuation of taxable services. Payment of service tax and filing of returns.

UNIT – V (12 HOURS)

VAT – Concepts and general principles Calculation of VAT Liability including input Tax Credits- Small dealers and Composition Scheme- VAT Procedures.

TEXT BOOKS:

1. Dinkar Pagare, Business Taxation , 6th edition, Sultan Chand & Sons, 2012, New Delhi.
2. Radha and Parameswaran. R, Business Taxation and Indirect Taxes, 5th edition, Prasanna Publishers, 2011, New Delhi.

REFERENCE BOOKS:

1. Balachandra.V, Indirect Taxation, 6th edition, Sultan Chand & Co, 2012, New Delhi.
2. Radhakrishnan.P , Indirect Taxation, 8th edition, Kalyani Publishers, 2013, New Delhi.

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

SIXTH SEMESTER

PART III - ELECTIVE II- FINANCIAL MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total hours: 60

Objective:

To acquaint knowledge about the budgetary controls used in the corporate.

UNIT-I (12 HOURS)

Financial Management – Meaning – Nature and Scope –Functions – Objective – Profit Maximization – Wealth Maximization- Importance of Financial Management – Finance Manager – Role.

UNIT-II (12 HOURS)

Sources of Long term funds: Equity shares, Preference shares, Debentures, Public deposits, factors affecting long term funds requirements.

UNIT-III (12 HOURS)

Lease financing: Concept, types. Advantages and disadvantages of leasing. Capital Structure: Determinants of Capital Structure, Capital Structure Theories, Cost of Capital, Operating and Financial Leverage.(Problems)

UNIT-IV (12 HOURS)

Capital budgeting: Capital Budgeting Process, Project formulation & Project Selection, Introduction to Various Capital Budgeting Techniques; Payback Period Method, Average rate of return, Net Present Value method, IRR, Benefit-Cost Ratio, Capital Rationing. (Problems)

UNIT-V (12 HOURS)

Management of Retained Earnings: Retained earnings & Dividend Policy, Consideration in dividend policy, Forms of Dividends, Dividend Theories, Bonus Shares, .EVA, MVA, and CAPM.

Note : Distribution of Marks - Theory 60% and Problems 40%.

TEXT BOOK:

1. I.M. Pandey, Financial Management, 3rd Edition, Vikas Publications House, Year 2010,Chennai.

REFERENCE BOOKS:

1. Dr. V. R. Palanivelu, Financial Management, 5th Edition, Sulthan chand &Co Pvt Ltd, Year -2012, New Delhi.
2. S N Maheshwari, Financial Management Principles and Practice, Vikas Publications House, Year 2013,Chennai.

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

**SIXTH SEMESTER
PART III - ELECTIVE II- MICRO FINANCE**

Maximum CIA: 30

Maximum CE: 70

Total hours: 60

OBJECTIVE: To acquire conceptual knowledge of the micro financing system in India.

UNIT-1 (12 HOURS)

Overview of Microfinance - Indian Rural financial system, introduction to Microfinance, Microfinance concepts, products, Microfinance models - Emerging practices of Microfinance in India state wise cases, Emerging Global Microfinance practices - Need of Microfinance.

UNIT- II (12 HOURS)

Microfinance, Development, Income generating activities and Micro enterprise :Market (demand) analysis, financial analysis including sources. Technological analysis, Socioeconomic analysis, Environmental analysis. Logical framework, Implementation & Monitoring.

UNIT-III (12 HOURS)

Credit Delivery Methodology : Credit Lending Models : Associations; Bank Guarantees Community Banking, Cooperatives, Credit Unions, Grameen Model, SHG, Individual, Intermediaries, Could be individual lenders, NGOs, micro credit programmes, and Commercial banks)

UNIT-IV (12 HOURS)

Pricing of Microfinance products: Purpose base, Activity base, Economic class base Open bidding, etc. Pricing saving products, Amount of savings base, Attendance at periodical meeting Adding to corpus. Gender issues in Microfinance and Conflict resolution in Microfinance –Client impact studies measuring impact of Microfinance and Micro enterprises

UNIT-V (12 HOURS)

Commercial Microfinance: MFIs: Evaluating MFIs- Social and performance metrics, fund structure, value-added services The Rise of Commercial Microfinance-: Transforming NGOs. Structure of Microfinance Industry and Constraints on MFI Growth. The partnership model – MFI as the servicer.

TEXT BOOK:

1. Panda .K. Debadutta and John, Understanding Micro Finance, Wiley India Pvt Ltd, Year – 2012, New York.

REFERENCE BOOK:

1. Beatnz Armaondariz, Johathan Marduch, the Economics of Micro Finance, 8th Edition, Prentice Hall of India ,Year – 2007,U.S.

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

SIXTH SEMESTER

PART III - ELECTIVE II- SUPPLY CHAIN MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total hours: 60

Objective:

To create awareness about the supply chain activities taken in order to deliver the goods

UNIT-I (12 HOURS)

Supply Chain Management – Global Optimisation – importance – key issues – Inventory management – economic lot size model. Supply contracts – centralized vs. decentralized system.

UNIT-II (12 HOURS)

Supply chain Integrates- Push, Pull strategies – Demand driven strategies – Impact on grocery industry – retail industry – distribution strategies.

UNIT-III (12 HOURS)

Strategic Alliances: Frame work for strategic alliances – 3PL – merits and demerits – retailer – supplier partnership – advantages and disadvantages of RSP – distributor Integration.

UNIT-IV (12 HOURS)

Procurement and Outsourcing: Outsourcing – benefits and risks – framework for make/buy decision – e-procurement – frame work of e-procurement.

UNIT-V (12 HOURS)

Dimension of customer Value – conformance of requirement – product selection – price and brand – value added services – strategic pricing – smart pricing – customer value measures.

TEXT BOOK:

1. G. Raghugam, N, Rangar, Logistics and Supply Chain Management, Mac Millan Publications, Year 2012, U.S

REFERENCE BOOKS:

1. Donald Waters, logistics : An introduction to Supply Chain Management, Palgrave publications, Year 2010.
2. R.P. Mohanty, C,G, Deshmukh , Supply Chain Management, Biztantra Year 2012.

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

SIXTH SEMESTER

PART – III - ELECTIVE III- HUMAN RESOURCE MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total hours: 60

OBJECTIVE:

To enable students learn the various concepts and functions of HRM

UNIT-I (12 HOURS)

Introduction - Evolution of HRM -- Importance of HRM- Personnel Management vs Human Resource Management- Strategic Human Resource Management.

UNIT-II (12 HOURS)

Employment Planning and Forecasting -Job analysis- – Process of Job analysis – Job description- Job specification.

UNIT-III (12 HOURS)

Interview, Common Interviewing Mistakes, Designing and Conducting the Effective Interview, Small Business Application, Computer Aided Interview

UNIT-IV (12 HOURS)

Job Evaluation-.Performance Appraisal- Essential characteristics of an effective appraisal system

UNIT- V (12 HOURS)

Industrial Relations- Trade Unions- Collective Bargaining- Employee grievance.

TEXT BOOK:

1. VSP Rao, Human Resource Management : Text And Cases, First Edition, Excel Books , New Delhi- 2014

REFERENCE BOOKS:

1. Gary Dessler –Human Resource Management, 7th Edition, Prentice Hall Of India Private Ltd, Year 2011, New Delhi.
2. Dr. R. Venkatapathy And Assissi Menacheri, Industrial Relations &Labour Welfare, Adithya Publication ,Year 2013, Coimbatore.

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

**SIXTH SEMESTER
PART – III - ELECTIVE III- BUSINESS ENVIRONMENT**

Maximum CIA: 30

Maximum CE: 70

Total hours: 60

Objective:

To acquaint knowledge about the Business Environment.

UNIT –I (12 HOURS)

Concept of Business Environment- Significance-Types of Environment-External and Internal – Inter - Relationship between economic and non-economic environment - Impact of environment on business and Strategic Decisions - Culture and business - Social Responsibilities of Business .

UNIT-II (12 HOURS)

Industrial Policies and Regulations - New Industrial Policy 2013 - Public, Private, Joint and Co-operative Sectors - Privatization and Disinvestment - Ways of Privatization- Benefits and Arguments against Privatization - Privatization in India.

UNIT-III (12 HOURS)

Economic Systems – Meaning – Characteristics -Types of economic systems Capitalism-Socialism-Mixed economy - Economic planning - Nature, Scope and Significance of Economic Planning in India - Achievements and Failures of Economic Planning.

UNIT-IV (12 HOURS)

Technological environment-Factors Governing Technological Environment - Management of Technology - Patents and Trademarks - Financial Institution in India - IFCI-ICICI-IDBI-IIBI-SIDBI-SFC's.

UNIT-V (12 HOURS)

Globalisation - Meaning and Dimensions - Features of Current Globalisation - Essential Conditions for Globalisation - Globalisation of Indian business - Foreign Direct Investment - Concept, Advantages, Disadvantages and Determinants- India's policy towards FDI - Multinational Corporation – Meaning - Merits and Demerits - Control over MNC's-MNC in India.

TEXT BOOK:

1. Francis Cherunilam, Business Environment, 4th Edition, Himalaya Publications, Year 2012, New Delhi.

REFERENCE BOOKS:

1. Dr. C. B. Gupta, Business Environment, 10th Edition, Sulthan chand &Co Pvt Ltd, Year -2017, New Delhi.
2. Raj , Business Environment, Agarwal Excel Books, Year 2012.

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

**SIXTH SEMESTER
PART – III - ELECTIVE III- MATERIAL MANAGEMENT**

Maximum CIA: 30

Maximum CE: 70

Total hours: 72

Objective

To acquaint knowledge about the Material management.

UNIT-I (12 HOURS)

Material Management: Nature, Scope, Definition, Benefits and Objective. Materials Planning. An Integrated system, Approach organization for Materials Management, forecasting.

UNIT-II (12 HOURS)

Purchasing Management: Functions of purchasing, organization for purchasing quality determination and control Selecting sources of supply Vender Rating. Price determination, contracts, purchase timing. Purchase of Capital equipment and replacement make-but decisions. Buyer-seller negotiations. Import Purchasing. Government purchasing.

UNIT-III (12 HOURS)

Inventory Management: Inventories defined, Types of Inventories, Objective of inventory control. Inventory Costs. Inventories classification ABC, VED, FSM, Inventory models. Economic order quantity, Replenishment system, fix quantity variable Quantity system (P.Q. system), Inventory performance measurement. Quantity Discounts, Economic Batch Size.

UNIT-IV (12 HOURS)

Stores Management: Definition, Functions of Stores, organization for stores,- Receiving section, Inspection Quality Control.

UNIT-V (12 HOURS)

Classification and Codification of Materials: Stock verification Stores, Accounting and adjustments of discrepancies. Material Movement-handling Equipment, storing equipment Layout and Location of stores. Storage and preservation methods. Theft, malpractices and loss.

TEXT BOOK:

1. Gopalakrishnan.P, handbook of Material Management, 5th Edition, Prentice Hall Of India Private Ltd, Year 2010, New Delhi.

REFERENCE BOOKS:

1. M.M. Varma, Material Management, Sulthan chand &Co Pvt Ltd, Year -2012, New Delhi.
2. J.R. Tony Arnold, Stephen N. Chapman, Introduction to Material Management, 10th Edition, Pearson Education, Year 2011, Asia.

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

**FIFTH SEMESTER
ADDITIONAL CREDIT COURSE PART-III - INSURANCE AND RISK
MANAGEMENT**

Maximum CE: 100

OBJECTIVE:

To acquaint knowledge about the Insurance and Risk Management

UNIT-I

Principles of Insurance: Principle of Indemnity, Principle of Insurable Interest, Principle of Subrogation, Principle of utmost good faith, Proximate cause, contribution - Salient Feature of IRDA Act 1999, Privatization of insurance industry.

UNIT-II

Life Insurance: Nature, Annuities, Surrender Value, Calculation of Premium and measurement of risk.

UNIT-III

Concepts of Fire, Marine and Motor insurance (nature and significance), Concept of reinsurance.

UNIT-IV

Risk: Concept, Types of risk - Risk Management – Objective, risk identification, evaluation, strategies for risk management (avoidance or reduction of risk, risk transfer, risk financing).

UNIT-V

Corporate and personal Risk Management - Meaning, nature, Role and Importance of Insurance, Insurance and risk management

TEXT BOOK:

1. M.N. Mishra, Insurance Principles and Practice, 4th Edition, Sultan Chand and Company Ltd Publications, Year 2011.

REFERENCE BOOKS:

1. P.Periysamy, Principles and Practice of Insurance, Edition-2001, Himalaya Publication House, Year-2007.
2. S.B.Mishra, M.N.Mishra, Insurance Principles and Practice S.Chand Publication, Year-2016.

BCOMCS
Scheme of Examination (CBCS Pattern)
For the Candidates Admitted From the Academic year 2018-2019 onwards

Part	Sub Code	Subject Title	Ins.Hrs/Week	Examination				
				Dur. Hrs.	CIA	CE	Total	Credit
SEMESTER I								
I	16LATA01/ 18LAHI01/ 15LAMY01/ 15LAFR01	Language – I	5	3	30	70	100	3
II	16ENG001	English –I	5	3	30	70	100	3
III	15BCS101	Core 1 Fundamentals of Accounting	6	3	30	70	100	4
III	15BCS102	Core 2 Management Concepts	6	3	30	70	100	4
III	15BCSID1	IDC 1 Managerial Economics	6	3	30	70	100	4
IV	18UFCA01	Foundation Course I : EVS #	2	2	-	50	50	2
		Total	30				550	20
SEMESTER II								
I	16LATA02/ 18LAHI02/ 15LAMY02/ 15LAFR02	Language –II	5	3	30	70	100	3
II	16ENG002	English – II	5	3	30	70	100	3
III	15BCS201	Core 3 Financial Accounting - I	6	3	30	70	100	4
III	18BCS202	Core 4 Law of Insurance	6	3	30	70	100	4
III	15BCSID2	IDC 2 – Fundamentals of Information Technology	6	3	30	70	100	4
IV	18UFCA02	Foundation Course II: Value Education #	2	2	-	50	50	2
		Total	30				550	20
SEMESTER III								
III	18BCS301	Core 5 Financial Accounting -II	6	3	30	70	100	4
III	15BCS302	Core 6 Elements of Business Laws	5	3	30	70	100	4
III	18BCS303	Core 7 Company Law & Secretarial Practice –I	5	3	30	70	100	4
III	18BCS304	Core 8 Corporate Practice- I	4	3	30	70	100	4
III	15BCSID3	IDC 3 Business Mathematics	5	3	30	70	100	4
IV	18BCSA01/ 15BCSA02	AOC I Principles of Marketing/ Entrepreneurial Development	3	3	-	75	75	3
IV	16BTA001/ 16ATA001/ 15BCSED1	Basic Tamil-I/ Advanced Tamil-I/ EDC : Multimedia #	2	2	-	50	50	2
		Total	30				625	25

SEMESTER IV								
III	18BCS401	Core 9 Corporate Accounting-I	6	3	30	70	100	4
III	18BCS402	Core 10 Company Law and Secretarial Practice –II	5	3	30	70	100	4
III	15BCS403	Core 11 General Law	5	3	30	70	100	4
III	18BCS404	Core 12 Corporate Practice -II	4	3	30	70	100	4
III	15BCSID4	IDC 4 Business Statistics	5	3	30	70	100	4
IV	18BCSAO3/ 15BCSAO4	AOC II Corporate Communication/ Human Resource Management	3	3		75	75	3
IV	16BTA002/ 16ATA002 15EDC002	Basic Tamil-II / Advanced Tamil-II / EDC: Communicative English #	2	2	—	50	50	2
V	15NSS001/ 15NCC001/ 15SPT001/ 15EXT001	NCC/NSS/Sports/Extension Activities @	—	—	50	-	50	2
Total			30				675	27
SEMESTER V								
III	15BCS501	Core 13 Higher Corporate Accounting	6	3	30	70	100	4
III	17BCS502	Core 14 Cost Accounting	5	3	30	70	100	4
III	15BCS503	Core 15 Industrial and Labour Laws	5	3	30	70	100	4
III	17BCS504	Core 16 Corporate Governance	4	3	30	70	100	4
III	15BCSP01	IDC Lab I Ms Office and Tally	5	3	40	60	100	4
III	15BCSE01/ 15BCSE02/ 17BCSE03	Elective I	5	3	30	70	100	4
III	15BCSITI	Institutional Training	-	-	-	-	-	-
Total			30				600	24
SEMESTER VI								
III	17BCS601	Core 17 Accounting For Management	6	3	30	70	100	4
III	15BCS602	Core 18 Corporate Law	5	3	30	70	100	4
III	15BCS603	Core 19 Securities Law and Financial Markets	5	3	30	70	100	4
III	15BCSE04/ 17BCSE05/ 17BCSE06	Elective II	5	3	30	70	100	4
III	17BCSE07/ 15BCSE08/ 15BCSE09	Elective III	5	3	30	70	100	4
III	7BCSPR1	Project and Viva Voce	4	3	50	50	100	4
Total			30				600	24
Total							3600	140

@ No Continuous Internal Assessment (CIA) and Comprehensive Examination (CE) IDC- Inter disciplinary Course, EDC – Extra Disciplinary Course , AOC–Application Oriented Course

List of AOC Papers

AOC -I	1	18BCSAO1	Principles Of Marketing
	2	15BCSAO2	Entrepreneurial Development
AOC-II	1	18BCSAO3	Corporate Communication
	2	15BCSAO4	Human Resource Management

List of Elective Papers			
ELECTIVE -I	A	15BCSE01	Taxation –I
	B	15BCSE02	Financial Management
	C	17BCSE03	Organizational Behavior
ELECTIVE -II	A	15BCSE04	Taxation –II
	B	17BCSE05	Investment Management
	C	17BCSE06	Retail Business Management
ELECTIVE -III	A	17BCSE07	Auditing Practice and Principles
	B	15BCSE08	Business Environment
	C	15BCSE09	Working Capital Management

List of EDC Papers

EDC -I	1	15BCSED1	Multimedia
EDC-II	1	15EDC002	Communicative English

Additional Credit Course

Sem	Code	Subject Title	Marks	Credits
III	14BCSAC1	Principles of International Trade	100	2
IV	14BCSAC2	Export And Import Trade Procedures	100	2
V	15BCSAC3	Institutions Facilitating International Trade	100	2
Total			300	6

Summary

Part	No of Papers	Total Credits	Total Marks
I	2	6	200
II	2	6	200
III –Core	20	80	2000
III – IDC	4	16	400
III – Elective	3	12	300
III –Project	1	4	100
IV –Foundation Course	2	4	100
IV – EDC	2	4	100
IV – Application Oriented Course	2	6	150
V Extension Activities	-	2	50
Total	38	140	3600

**REGULATIONS FOR BOARD OF COMMERCE WITH CORPORATE
SECRETARYSHIP
(FOR UG COURSES ONLY)
(With effect from the academic year 2015-2016 onwards)**

1. Project and Viva Voce :

Each student in the UG final year shall compulsorily undergo Project Work in the 6th semester. Projects shall be done individually. Project Coordinators shall allocate the project title and the guide for each student. Project work shall be done only in the lab provided by the college, including Project Record Preparation. Project Reviews shall be conducted thrice in which the progress of project work shall be strictly evaluated by respective Project Guides and Project Coordinators. Viva-Voce shall be conducted only in the presence of Industrialists or academicians. Out of the Total of 100 marks, 50% of mark shall be allocated for CIA and 50% for CE -VIVA VOCE.

2. Submission of Record Note Books for practical examinations

Candidates appearing for practical examinations shall submit bonafide Record work for the concerned practical examinations. If not the candidate has to submit a bonafide certificate issued by the concerned subject in charge duly signed by the Head of the Department in order to be permitted to take up the practical examinations. The candidate so permitted will not eligible for the record work mark.

3. Distribution of Marks:

The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum (Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	28	30	40
	75	75	30	-	30
	50	50	20	-	20
Practical Paper	100	60	24	40	40
Project	100	50	20	50	40

4. Distribution of Internal Mark for Theory :

(No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6=30

Breakup for Attendance:

Up to -74 %	- 4 Marks
75% - 84%	- 6 Marks
85% - 94%	- 8 Marks
95% - 100%	- 10 Marks

SEMINAR MARKS SPLIT UP

Content	-10 Marks
Flow of the Presentation	-10 Marks
Stage Management	-10 Marks

	30 Marks

5. Distribution of Internal Mark for Corporate Practical:

MAXIMUM MARKS : 40		
S No	CIA	Distribution of Marks
1	For Completion of the Practical List	20
2	Test –I	10
3	Test –II	10
Total		40

6. Distribution of Comprehensive Exam Mark for Corporate Practical:

MAXIMUM MARKS : 60		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	10
2	Pratice– I Description Form Filling	5 10 TOTAL (15)
3	Pratice– II Description Form Filling	5 10 TOTAL (15)
4	Viva Voce	20
Total		60

7. Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 40		
S No	CIA	Distribution of Marks
1	For Completion of the Practical List	20
2	Test –I	10
3	Test –II	10
Total		40

8. Distribution of Comprehensive Exam Mark for Practical :

MAXIMUM MARKS : 60		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	10
2	Program – I a) Algorithm b) Coding c) Execution	5 10 10 TOTAL (25)
3	Program – II a) Algorithm b) Coding c) Execution	5 10 10 TOTAL (25)
Total		60

9. Distribution of Mark for Project VIVA-VOCE :

S.No	CIA	Distribution of Marks
1	INTERNAL a) Review –I b) Review –II c) Documentation & Final Review	10 10 30 Total (50)
2	EXTERNAL * a) Presentation b) Viva	30 20 Total (50)
Total		100

***Marks to be awarded by both External and Internal Examiners.**

10. Question Paper Pattern

Time: 3 Hour

Max marks: 70

SECTION – A (10×1=10)

Answer ALL questions
Each question carries One Mark
(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B (5×4=20)

Answer ALL questions
Each question carries Four Marks
(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answerer ALL questions
Each question carries Eight Marks
(INTERNAL CHOICE)

11. Question Paper Pattern

Time: 3 Hour

Max marks: 75

SECTION – A (10×1=10)

Answer ALL questions

Each question carries One Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B (5×5=25)

Answer ALL questions

Each question carries FIVE Marks

(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answerer ALL questions

Each question carries EIGHT Marks

(INTERNAL CHOICE)

12. Question Paper Pattern

Time: 3 Hour

Max marks: 50

SECTION – A (10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B (5×3=15)

Answer ALL questions

Each question carries THREE Marks

(INTERNAL CHOICE)

SECTION – C (5×5=25)

Answerer ALL questions

Each question carries FIVE Marks

(INTERNAL CHOICE)

13. Question Paper Pattern

Time: 3 Hour

Max marks: 100

SECTION – A

(10×1=10)

Answer ALL questions

Each question carries One Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B

(5×8=40)

Answer ALL questions

Each question carries EIGHT Marks

(INTERNAL CHOICE)

SECTION – C

(5×10=50)

Answerer ALL questions

Each question carries Ten Marks

NOTE:

1. The questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the unit in the syllabus in all the sections of the question paper.
3. While framing questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

14. Conduct of Practical Examinations:

Practical examinations shall be conducted with one internal examiner and one external examiner and the question paper for practical examination shall be set by both Internal and External examiners.

15. Institutional Training:

Each student in the UG II year shall compulsorily undergo institutional training in the 5th semester for 30 days. Training shall be done individually for the purpose of course completion.

Note: Students who fails to complete their Practical examination /project viva voce/ institutional training in the concern semester they can appear in the subsequent semesters

B.Com[Corporate Secretaryship] Degree Examination – Syllabus – for candidates admitted from the Academic 2015 – 2016 onwards

**FIRST SEMESTER
PART III: CORE 1 – FUNDAMENTALS OF ACCOUNTING**

Maximum CIA :30
Maximum CE: 70
Total Hours: 72

Objective:

To enable the students to learn principles, Conventions and concepts of Accounting

UNIT – I (14HOUR)
Meaning and scope of Accounting, Basic Accounting Concepts and Conventions -Objectives of Accounting - Accounting Transactions - Double Entry Book keeping - Journal, Ledger, Preparation of Trial Balance - Preparation of Cash Book.

UNIT – II (14HOUR)
Preparation of Final Accounts of a Sole Trading Concern - Adjustments - Closing Stock, Outstanding and Prepaid items, Depreciation, Provision for Bad Debts, Provision for Discount on Debtors, Interest on Capital and Drawings - Preparation of Receipts and Payments Account, Income & Expenditure Account (simple problems)

UNIT – III (14HOUR)
Classification of errors - Rectification of errors - Preparation of Suspense Account. Bank Reconciliation Statement (Only simple problems).

UNIT – IV (15HOUR)
Bill of Exchange-parties to bill of exchange – Distinction between bill and promissory note-Recording transaction relating to bill- Recording bill transaction in journal and ledger- Dishonor of bill – Renewal of bill-Average due date- Average due date on basis of calculation of interest – Account current.

UNIT – V (15HOUR)
Consignment – features – Accounting treatment of consignment transaction – Entries in books of Consignee – Entries in books of consignor. Joint venture – meaning – Treatment when separate book is maintained – Entries when separate book is not maintained- Sale of goods on approval or return basis. Professional Accounting- introduction.

NOTE : Distribution of marks : Theory 20% and Problems 80%

TEXT BOOK

1. T. S. Reddy and Murthy, Financial Accounting, 3rd Edition, Margham Publications, Year- 2016, Chennai.

REFERENCE BOOKS

1. N.Vinayakam, P.L.Mani, K.L.Nagarajan, Principles of Accountancy, 8th Edition, S.Chand & Company Ltd., Year- 2012, New Delhi.
2. S.P.Jain ,K.L.Narang, Financial Accounting,6th Edition , Kalyani publishers, Year- 2012, New Delhi.

B.Com[Corporate Secretaryship] Degree Examination – Syllabus – for candidates admitted from the Academic 2015 – 2016 onwards

**FIRST SEMESTER
PART III: CORE 2 – MANAGEMENT CONCEPTS**

MaximumCIA :30
Maximum CE: 70
Total Hours: 72

Objective:

To enable the students to acquire basic theoretical knowledge in Principles of Management.

UNIT – I (14HOUR)

Introduction to management- meaning – Administration vs. Management –Management, Science or an art –Theories of Management - Taylor, Fayol, peter F.Drucker – Levels and Functions of management.

UNIT – II (15HOUR)

Planning: Meaning and Definition – Nature of Planning – Objectives – Importance – Steps in Planning – Types of Planning – Essentials of sound plan –Methods of Planning.

UNIT – III (14HOUR)

Organizing: Meaning and Definition – Types of Organization – Organizational structure – Span of Control – Delegation: Delegation and Decentralization – Line and Staff relationship.

UNIT – IV (14HOUR)

Directing: Nature and purpose of Directing – Essentials elements of directing – Supervision – Motivation Theories- Maslow’s Theory and Herzberg’s Theory– Decision Making – Leadership. Staffing- recruitment process- selection: training and development.

UNIT – V (15HOUR)

Co-Ordinating: Definition – Features – Need for Co-Ordination – Elements of Co-Ordination – Types of Co-Ordination. Controlling: Definition – Characteristics of control – Steps in Controlling – Processes, Techniques-PERT/CPM-Total Quality Management. Techniques of control – Effective control.

TEXT BOOK

1. Gupta C.B, Management Principles and Practice, 19th Edition, SultanChand&Sons, Year- 2010, New Delhi.

REFERENCE BOOKS

1. Dinkar Pagare, Principles of Management, 19th Edition, S.Chand & Company Ltd., Year- 2011, New Delhi.
2. L.M Prasad, Principles of Management, 5th Edition, SultanChand&Sons., Year- 2011, New Delhi.

B.Com[Corporate Secretaryship] Degree Examination – Syllabus – for candidates admitted from the Academic 2015 – 2016 onwards**FIRST SEMESTER
PART III: IDC 1 – MANAGERIAL ECONOMICS**

Maximum CIA :30

Maximum CE: 70

Total Hours: 72

Objective:

To enable the students to understand the applications of economic principles in business management.

UNIT I (15 HOUR)

Introduction to Economics: definition, nature and scope of Economics –Economic theories applied to business analysis-decision making in business –objectives of a business firm.

UNIT II (15 HOUR)

Demand and supply functions: Meaning of demand – determinants of demand – distinctions of demand –Law of demand –Elasticity of demand – supply concepts – Equilibrium.

UNIT III (15 HOUR)

Consumer behavior: Meaning of utility –Law of Diminishing Marginal Utility – Equi-Marginal Utility – Indifference curve analysis –Definition –properties –consumer's surplus-consumer's equilibrium.

UNIT IV (15 HOUR)

Production and cost analysis : meaning and concepts of production –factors of production and production function – law of variable proportion –law of returns to scale – producer's equilibrium – Economies of scale – Theories of wages, Rent, Interest.

UNIT V (12 HOUR)

Market structure and pricing: Types of competition –perfect competition –Monopoly – Monopolistic competition – Oligopoly – price and output determination under different competitive market conditions.

TEXT BOOK

1. Sankaran.S, Managerial Economics, 2nd Edition, Margaham Publication, Year- 2010, Chennai.

REFERENCE BOOKS

1. R.Meenakshi, R.Cavery and U.K Sudha Nayak, Managerial Economics, 2nd Edition, S Chand and Publications., Year- 2007, New Delhi.
2. R.L.Varshney and K.L.Maheswari, Managerial Economics, 19th Edition, Sultan Chand and Publications., Year- 2000, New Delhi.

B.Com[Corporate Secretaryship] Degree Examination – Syllabus – for candidates admitted from the Academic 2015 – 2016 onwards

**SECOND SEMESTER
PART III: CORE 3 – FINANCIAL ACCOUNTING I**

Maximum CIA :30

Maximum CE: 70

Total Hours: 72

Objective:

Enabling the students to acquire basic accounting knowledge in Financial Accounting II.

UNIT I (15 HOUR)

Depreciation Accounting – Meaning – Characteristics –Causes –Objectives –Basics factors affecting the amount of depreciation –Methods of recording depreciation –Straight line method- Diminishing balance method –Annuity method –Depreciation fund /Sinking method –Insurance policy method –Reserves and provisions-Distinction between Reserves and Provisions-Types of Reserves.

UNIT II (15 HOUR)

Accounting from in complete record or single entry system, Meaning, Features, Limitation- Difference between Single entry and Double entry –Ascertainment of profit –Net worth method –Difference between balance sheet and Statement of affairs- Conversion Method

UNIT III (15 HOUR)

Hire Purchase and Installment Purchase System-Definition –Some important terms –Main features –Installment purchase system –Distinction between Hire purchase and Installment system –Accounting treatment for hire purchase system –Calculation of Interest –Default and Repossession-Hire purchase trading accounting –Debtors method-Stock and Debtors method-Installment purchase system-Meaning –Accounting treatment

UNIT IV (15 HOUR)

Branch Accounts –Meaning –Objects –Types of Branches-Dependent Branches –Accounting in respect of Dependent Branches –Debtors system-Goods are Invoiced at cost –Goods are Invoiced at selling price –Stock and Debtors system –Final accounts system-Departmental Accounting –Need for Departmental accounting –Difference between Departmental and Branches –Departmentalization of expenses-Appportionment of expenses-Interdepartmental Transfer at selling price –Stock Reserve.

UNIT V (12 HOUR)

Self balancing ledgers and Sectional Balancing –Debtors ledger –creditors ledger-General ledger-procedure of Self balancing –Adjustment accounts-Advantages of self balancing system-Important points to note –Self balancing accounts at a glance – Sectional balancing system-Total Debtors accounts. IFRS, Meaning- need for IFRS- Challenges for adopting IFRS in India.

NOTE : Distribution of marks : Theory 20% and Problems 80%

TEXT BOOK

2. T. S. Reddy and Murthy, Financial Accounting, 3rd Edition, Margham Publications, Year- 2016, Chennai.

REFERENCE BOOKS

3. N.Vinayakam, P.L.Mani, K.L.Nagarajan, Principles of Accountancy, 8th Edition, S.Chand & Company Ltd., Year- 2012, New Delhi.
4. S.P.Jain ,K.L.Narang, Financial Accounting,6th Edition , Kalyani publishers, Year- 2012, New Delhi.

B.Com[Corporate Secretaryship] Degree Examination – Syllabus – for candidates admitted from the Academic 2018 – 2019 onwards

**SECOND SEMESTER
PART III: CORE4 – LAW OF INSURANCE**

Maximum CIA :30
Maximum CE: 70
Total Hours: 72

Objective:

Enabling students to acquire theoretical knowledge to be successful in Insurance for Business process services.

UNIT I (15 HOUR)

Insurance Generic Overview – Meaning and Definition of Insurance – Purpose and Need of Insurance – The Business of Insurance – Pooling of Risks and Resources – Contract of Insurance – Condition Necessary for a Contract – principles and practices of an insurance contract – important terminology parties in insurance contract – Role of Insurance in Economic Development – IRDA Act ,1938.

UNIT II (15 HOUR)

Types of Insurance – (Personal , Commercial , Health , Life , Etc) – History of Insurance – Types of Insurance Companies – Business Units in an Insurance Company – Insurance Regulators in India – Reinsurance Concepts.

UNIT III (14 HOUR)

Life Insurance – Insight to Insurance – Important Terminologies in a Life Insurance Policy – Parties in a Life Insurance Policy – Individual Life Insurance Plans – Supplementary Benefits – Policy Provisions – Ownerships Rights – Life Insurance Policy Life Cycle (New Business & Underwriting , Policy Servicing , Claims , Etc.) , Popular Life Insurance Plans in India.

UNIT IV (14 HOUR)

Property and Casualty Insurance – Non – Life Insurance Concepts – Hazards, Perils, Catastrophe, Property Damage & Business Interruption, Policy , Exclusions , Indemnity , Deductibles , Retention , Salvage , Subrogation , Insurance Providers – Co- Insurance, Captive Insurance – Underwriting Process – Policy Servicing Process – Claims Process – Property Insurance Plans .

UNIT V (14 HOUR)

Risk Management – Concept of Risks – Risks Management- Basic Concepts - (Hazards, Perils, Assets, Etc) – Types of Risks - Risk Identification – Sources of Risks – Factors affecting Risks - Risk Evaluation – Risk Avoidance.

TEXT BOOK

1. M.N. Mishra, Insurance Principles and Practice, 3rd Edition, Sultan Chand and Company Ltd Publications, Year- 2016, New Delhi.

REFERENCE BOOKS

1. N.Vinayakam, P.L.Mani, K.L.Nagarajan, Principles and Practice of Insurance, 8th Edition, S.Chand & Company Ltd., Year- 2012, New Delhi.
2. P.Periyasamy, Principles and Practice of Insurance, Himalaya Publication House.,

**B.Com[Corporate Secretaryship] Degree Examination – Syllabus – for candidates
admitted from the Academic 2015 – 2016 onwards**

SECOND SEMESTER

PART III: IDC 2 – FUNDAMENTALS OF INFORMATION TECHNOLOGY

Maximum CIA :30

Maximum CE:70

Total Hours: 72

Objective:

To acquire basic knowledge of computers

UNIT I (15 HOUR)

Introduction-Types of Data-Text Data-Image Data-Audio data-Video Data-Simple Organization of Computers-Data Processing using computers-Desktop Computers-Data Acquisition

UNIT II (12 HOUR)

Input Devices: Keyboard-Character Reader-Magnetic Ink Character Reader-Barcodes-Number System-Output Devices

UNIT III (15 HOUR)

Data Storage: Introduction-Storage Cell-Physical Devices used as Storage Cells-Random access Memory –Read Only Memory-Secondary storage-CDROM-Archival Store

UNIT IV (15 HOUR)

Database-Organizing a Database-Structure of a Database-Database Management System-Use of Spreadsheets-Overview of Spreadsheets-Output of Spreadsheets

UNIT V (15 HOUR)

Computer Software-Computer Networks: Introduction-Local Area Network (LAN)-Application of LAN-Wide Area Network (WAN)-Internet

TEXT BOOK

1. V. Rajaraman, Introduction to Information Technology, 3rd Edition, Sami Publications, Year- 2016, New Delhi.

REFERENCE BOOKS

1. Arun Bayeja, Introduction to information Technology, 8th Edition, Kalpaz Publications Ltd., Year- 2012, New Delhi.
2. R.Parameswaran, Introduction to information Technology, Sultan Chand and Company Ltd Publications, Year- 2016, New Delhi.

**B.Com Corporate Secretaryship Degree Examination – Syllabus – for candidates
admitted from 2018 – 2019 onwards**

**THIRD SEMESTER
PART III – CORE 5- FINANCIAL ACCOUNTING II**

Maximum CIA :30

Maximum CE: 70

Total Hours: 72

Objective:

To train the students in solving advanced problems in Accounting.

Unit I (14 Hours)

Introduction – Admission of Partner – Treatment of Goodwill – Revaluation of Assets and Liabilities – Calculation of Ratios for Distribution of Profits – Capital Adjustments.

Unit II (14 Hours)

Retirement and Death of a partner – Calculation of Gaining Ratio - Revaluation of Assets and Liabilities – Calculation of Ratios for Distribution of Profits – Capital Adjustments. [Memorandum Method Excluded] – Settlement.

Unit III (15 Hours)

Dissolution – Insolvency of partners –Insolvency of One and Two Partners – Garner Vs. Murray – Deficiency A/C – Piecemeal Distribution-Proportionate Capital Method – Maximum loss method

Unit IV (15 Hours)

Insolvency Accounts , Meaning of Insolvent – Relevant Acts – Difference between Balance sheet and Statement of Affairs – Preparation of statement of affairs – Deficiency Accounts.

Unit V (14 Hours)

Fire Claims for Loss of stock – Computation of Claim- Gross profit Ratio-Normal Loss – Abnormal Loss-Average clause.

Text Books

1. R.S.Reddy and Moorthy, Financial Accounting, 6th Edition 2011, Margham Publication, Year-2015.

Reference Books

1. R.L.Gupta, Advanced Accountancy Theory , Methods and Applications, Volume 1, 1st Edition, Sulthan Chand & Co, Year 2013.
2. Amitabha Mukherjee, Advanced Accountancy, Volume 1, Mc.Graw Hill Education India Pvt Ltd, Year 2011.

B.Com Corporate Secretaryship Degree Examination – Syllabus for candidates admitted from the academic year 2015 – 2016 onwards

**THIRD SEMESTER
PART III – CORE 6 –ELEMENTS OF BUSINESS LAWS**

MaximumCIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

Enabling the students to know about the essentials elements of Law.

UNIT I [12 HOURS]

Sources of Law- Law of Contract – Nature –Kinds - Essentials of Valid Contract Offer- Acceptance- Intention to create Legal Relations – Considerations- Capacity to a Contract.

UNIT II [12 HOURS]

Free Consent – Mistake – Misrepresentations – Fraud – Coercion and Undue Influence – Lawful Object – Agreement not declared Void – Legal Formalities.

UNIT III [12 HOURS]

Contingent Contract – Performance of Contract – Remedies for Breach of Contract – Quasi Contracts.

UNIT IV [12 HOURS]

Special Contracts – Indemnity and Guarantee – Agency – Bailment and Pledge.

UNIT V [12 HOURS]

Law relating Sale of Goods Act – 1930 – Right of Unpaid Seller – Caveat Emptor – Auction Sale - Condition and Guarantees – Sales and Agreement to Sales.

TEXT BOOK

1. N.D.Kapoor, Elements of Mercantile law, All India 13th Edition- reprint, sulthan chand and Sons, Year2014, New Delhi

REFERENCE BOOKS

1. N.D.Kapoor,General & Commercial Law Text, sulthan chand and Sons, Year 2012, New Delhi.
2. Business Laws - M.V. Dhandapani, Sultan Chand and Sons.

**B.Com Corporate Secretaryship Degree Examination – Syllabus – for candidates
admitted from 2018 – 2019 onwards**

THIRD SEMESTER

PART III – CORE 7- COMPANY LAW AND SECRETARIAL PRACTICE-I

Maximum CIA :30

Maximum CE: 70

Total Hours: 60

Objective:

Enabling the students to know about the Company Law.

Unit I (12 Hours)

Companies Act 2013 – Definition – Characteristics – Kinds of Companies – Doctrine of Lifting the Corporate Veil- Promotion of a Company- Company Secretary – Appointment, Legal Position –Qualification – Duties And Liabilities of A Secretary.

Unit II (12 Hours)

Memorandum of Association- Forms – Contents – Procedures for Alteration – Secretarial Duties – Articles of Association – Forms and Contents- Procedures for Alteration- Doctrine of Indoor Management- Doctrine of Constructive notice- Distinguish between Memorandum and Articles.

Unit III (12 Hours)

Prospectus – Definition-Deemed Prospectus-Shelf Prospectus Red-herring Prospectus- Contents – Statement in Lieu of Prospectus – Legal Formalities –Secretarial Duties with regard to Prospectus.

Unit IV (12 Hours)

Share Capital – Kinds of Capital – Alteration – Reduction – Issue and Allotment of Shares - Share Certificate – Transfer and Transmission of Shares – Secretarial Duties.

Unit V (12 Hours)

Borrowing Powers – Methods of Borrowing – Mortgages and Charges – Registration of Charges – Legal Provisions - Secretarial Duties with regard to Borrowing.

Text Books

1. N.D.Kapoor, Company Law and Secretarial Practice, 13th Edition, Sulthan chand and Co, Year 2016

Reference Books

1. P.P.S. Gogna, A Textbook of Company Law, Latest edition, sulthan chand and Co, Year 2015.
2. K.L. Maheswari, R.K. Maheswari, Company Law and Secretarial Practice, New Royal Book Company, 2013.

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admitted from the Academic 2018 – 2019 onwards**

**THIRD SEMESTER
PART III: CORE 8 –CORPORATE PRACTICE –I**

Maximum CIA :40
Maximum CE : 60
Total Hours :60

Objective: Impairing professional skills in Corporate Sector

1. Banking Formalities[Instruments used in Banking]
2. Manufacturing Trading Account
3. DEMAT Account[ONLINE]And REMAT Account
4. PAN Card and GST Registration
5. ONLINE Booking- Shopping

**B.Com Corporate Secretaryship Degree Examination – Syllabus – for candidates
admitted from 2018 – 2019 onwards**

**FOURTH SEMESTER
PART III – CORE 9-CORPORATE ACCOUNTING**

Maximum CIA :30

Maximum CE: 70

Total Hours: 60

Objective:

Enabling students to acquire theoretical knowledge to be successful in Corporate Accounting.

Unit I (12 Hours)

Issue of Equity shares – Issue at Par, Premium– Forfeiture and Re-issue [including Pro-rata allotment] Surrender of shares – Right Issue.

Unit II (12Hours)

Issue of Preference shares - Redemption of Preference shares – Table showing capital profit & revenue profit- Simple problems in Redemption of Preference shares, Underwriting of shares –Complete Underwriting – Partial Underwriting -Firm underwriting .

Unit III (12Hours)

Issue of Debentures – Par , Premium and Discount - Redemption of Debentures- Ex Interest & Cum Interest Quotations –Conversion Method – Installment Method.

Unit IV (12Hours)

Valuation of Goodwill –Factors Affecting Goodwill –Methods of Valuating Goodwill – Shares-Methods of valuating Shares.-Liquidation of Companies

Unit V (12 Hours)

Profits prior to incorporation – Preparation of Final Accounts of companies – Preparation of Profit and Loss Appropriation Account - –Schedule III of Companies Act 2013-Balance Sheet –Statement of P&L account, Cash Flow Statement

Text Books

1. T.S.Reddy and Murthy, Corporate Accounting, Volume 1, revised edition , Margham Publications, Year 2013.

Reference Books

1. S N Maheshwari&SunbeltK Maheshwari, Corporate Accounting, Vikas Publishing, Year 2013.
2. R.S. Singal, Corporate Accounting, Latest Edition 2011, VK Publication, Year 2001

B.Com Corporate Secretaryship Degree Examination – Syllabus – for candidates admitted from 2018 – 2019 onwards

FOURTH SEMESTER

PART III – CORE-10- COMPANY LAW AND SECRETARIAL PRACTICE – II

Maximum CIA :30

Maximum CE: 70

Total Hours: 60

Objective:

Enabling students to acquire theoretical knowledge to be successful in Company Law.

Unit I (12 Hours)

Company Meeting – Kinds of Meetings – Requisites of a Valid Meeting – Agenda –Minutes – Quorum – Proxy – Voting – Poll – Motion and Resolution – Secretarial Duties in connection with Meetings.

Unit II (12 Hours)

Directors – Appointment – Qualification – Removal – Casual Vacancy – Types of Directors, Powers, Duties, Liabilities, Statutory Provisions, Register of director and their share holdings – Managing Director – Appointment –Statutory provisions of Managing Director– Rights And Duties – Secretarial Duties-KMP(Key Managerial Personnel)

Unit III (12 Hours)

Books of Accounts and Registers – Inspections – Annual Returns – Circulation And Filing – Directors Report – Appointment of Auditors – Qualification of Auditors – Auditors Report – Removable of Auditors – Secretarial Duties.

Unit IV (12 Hours)

Dividend – Definition – Statutory Provision – Power of Board of Directors Regarding Dividend – Interim Dividend – Unclaimed Dividend-IEPF(Investor Education protection Fund) – Dividend Warrant – Payment of Interest out of Capital – Secretarial Duties in connection with Dividend.

Unit V (12 Hours)

Winding Up – Meaning – Modes of Winding Up – Petitions for Winding Up – Consequences of Winding Up – Appointment of Official Liquidator – Duties of Secretary in respect of each Winding Up-NCL(National Company Law Tribunal)

Text Books

1. N.D.Kapoor, Company Law and Secretarial Practice, 13th Edition, Sulthan Chand and Co, Year 2014.

Reference Books

1. P.P.S. Gogna, A Textbook of Company Law, Latest edition, Sulthan Chand and Co, Year 2015.
2. K.L. Maheswari, R.K. Maheswari, Company Law and Secretarial Practice, New Royal Book Company, 2

B.Com Corporate Secretaryship Degree Examination – Syllabus for candidates admitted from the academic year 2015 – 2016 onwards

FOURTH SEMESTER

PART III – CORE 11- GENERAL LAW

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

Enabling students to acquire theoretical knowledge to be successful in General Laws.

UNIT I

[12 HOURS]

Constitution of India – Nature of Indian Constitution – Fundamentals Rights – Directive principles of state policy – Freedom of Trade , Commerce and Intercourse – Constitutional provision relating to State Monopoly.

UNIT II

[12 HOURS]

Transfer of property Act - Important Definitions – Movable and Immovable Property- Properties Which Cannot Be Transferred – Rule against Properties – Lis- Pendence – Provisions Relating To Sale –Mortgage-Charge –Lease-Gift And Actionable Claim.

UNIT III

[12HOURS]

Registration Act - Registrable Documents – Compulsory and Optional – Time and Place of Registration – Consequences of Non-Registration – Description of Property – Miscellaneous Provisions.

UNIT IV

[12 HOURS]

Stamp Act - Methods of Stamping – Consequences of Non-Stamping – Impounding of Instruments- Construction of Instruments for Detention of Stamp Duty Payable – Adjudication Allowances and Refund – Penal Provisions.

UNIT V

[12 HOURS]

Right to Information Act 2005 – Definitions – Features – Objectives – Public Authorities and their Obligations – Designation of Public Officers [PIO] and their Duties – Request for Obtaining Information – Exemption from disclosure are excluded – Information Commission and their Powers – Appellate authorities – penalties – Jurisdiction of courts – role of central / State governments.

TEXT BOOK

1. N.D Kapoor and Rajni Abbi, General and Commercial Laws, 4th Edition, Sulthan chand and Co, Year 2010, New Delhi.

REFERENCE BOOK

1. Taxman.S, General and Commercial Laws, 2nd Edition, Taxman’s Publications Private Ltd, Year- 2007.

**B.Com[Corporate Secretaryship] Degree Examination – Syllabus – for candidates
admitted from the Academic 2018 – 2019 onwards**

**FOURTH SEMESTER
PART III: CORE 8 –CORPORATE PRACTICE –II**

Maximum CIA :40
Maximum CE: 60
Total Hours:60

Objective: Impairing professional skills in Corporate Sector

1. Registration for small scale Industries [Registration of MSME and NABARD]
2. Deed of Partnership/LLP[Limited Liability Partnership 2008]
3. Formation of Incorporation of Companies
4. DIN Formalities[Directors Identification Number]
5. Export and Import Procedure Documents [EXIM]

**B.Com Corporate Secretaryship Degree Examination – Syllabus – for candidates
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THIRD SEMESTER

PART IV – AOC I - PRINCIPLES OF MARKETING

Maximum CE: 75

Total Hours: 36

Objective:

On successful completion of this CORE the students should have basic knowledge of marketing and its functions.

Unit I (8 Hours)

Introduction to Market - Meaning, Definition and Concept – Traditional and modern marketing - Role and importance of Market - Classification of Market, Marketing function - Marketing process.

Unit II (7 Hours)

Marketing mix - Product mix – meaning of products, Dimension of product mix– Expansion and Contraction – PLC – Price mix, Importance of price – Pricing Objectives -Kinds of pricing – methods of price determination.

Unit III (7 Hours)

Promotion - Advertisement – Personal Selling and Sale promotion.Place mix-Meaning of Channels of Distribution - Importance of channels of distribution –Classification — Franchise-Functions of middlemen- Elimination of middlemen.

Unit IV (7 Hours)

Market Segmentation – Benefits – Bases – Requisites of sound market segmentation – Market Segments and marketing mix – Buyer Behaviour – Significance – Buying Process – Steps in Buying Process – Buyer Behaviour Models.

Unit V (7 Hours)

Recent trends in marketing – E-marketing, E-Payment- Organic marketing, Green marketing, CRM –Ethics in marketing and Market research.,

Text Books

1. C.B.Gupta, Principles of Marketing, Sulthan Chand & Co, Year

Reference Books

1. R.S.N. Pillai and Bagavathi, Modern Marketing Principles and Practices, Sulthan Chand & Co, Year 2010.

B.Com Corporate Secretaryship Degree Examination – Syllabus for candidates admitted from the academic year 2015 – 2016 onwards

THIRD SEMESTER

PART IV – AOC I – ENTREPRENEURIAL DEVELOPMENT

Maximum CE: 75

Total Hours: 36

Objectives :

To enable the students to learn the fundamentals of being a good entrepreneur and the Concept of entrepreneurship, Knowledge about the financing institutions, project report, incentives and subsidies.

UNIT I [8 HOURS]

Concept of entrepreneurship : Definition Nature and characteristics of entrepreneurship – function and type of entrepreneur. Development of women entrepreneur and rural entrepreneur – self employment- Problem of Women Entrepreneur.

UNIT II [7 HOURS]

The start-up process, Project identification – Business Idea – Sources of Business Idea – Selection of the product – project formulation - evaluation – feasibility analysis, Project Report.

UNIT III [7 HOURS]

Institutional services to entrepreneurs – DIC, SIDO, NSIC, SISI, SIDCO and KVIC, Institutional finance to entrepreneurs : IFCI, SFC, IDBI, ICICI, TIIC and SIPCOT.

UNIT IV [7HOURS]

Incentives and subsidies – Subsidised services – subsidy for market - Transport – seed capital assistance - Taxation benefit to SSI role of entrepreneur in export promotion and import substitution.

UNIT V [7HOURS]

Industrial Sickness- Symptoms- Remedies – Causes.

TEXT BOOK

1. Gupta.C.B and Srinivasan N.P, Entrepreneurial Development, 4th Edition 2005, Sultan Chand and Co., New Delhi.

REFERENCE BOOK

1. Saravanavel.P, Entrepreneurial Development, 2nd edition, Essae Chandra Institute, 2005, Mumbai.

**B.Com Corporate Secretaryship Degree Examination – Syllabus – for candidates
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**FOURTH SEMESTER
PART IV — AOC II- CORPORATE COMMUNICATION**

Maximum CE: 75

Total Hours: 36

Objective :

On the successful completion of this paper the students should have developed their written and oral Business Communication Skills in the day to day business world.

Unit I (8 Hours)
Meaning of Communication – Objectives – Types – Barriers – Composition of sentences – Structure of Business Letter - Effective Business Letter - Enquiries and Replies.

Unit II (7 Hours)
Layout of a business letters- Orders and Execution Letters- Sales Letters- Circulars- Claims and Adjustments- Collection Letters- Credit and status Enquiries.

Unit III (7 Hours)
Banking Correspondence – Insurance Correspondence- Agency Correspondence- Application for appointment- Company Secretarial Correspondence(including Agenda, Minutes and Report Writing).

Unit IV (7 Hours)
Meaning of Report- Preparing Report- Qualities and functions of a Good Report- Business Report- Types of Report- Reports by individuals- Reports by committee- Reports by sub-committee- Minutes Vs Reports- Drafting Resolution and minutes of company meetings.

Unit V (7 Hours)
Drafting of company meetings notices- Letters to the editor of newspapers- Management Information Systems- Introduction- Need – Definition- Objectives- Components- Differing information for management levels- areas- stages of MIS Design- Guidelines for effective design- current trend.

TEXT BOOKS

1. Rajendra Pal and Koralkhalli .J.S, Essentials of Business Communication, 2nd Edition, Sultan Chand and Co, Year-2002, New Delhi.

REFERENCE BOOKS

1. Ramesh M.S. and Pattanshett, Business Communication, 1st Edition , TMH Publishing House,2000,Mumbai .
2. Rai Urmila, Business Communication, 11th Edition, Himalaya Publication, Year-1999, New Delhi.

B.Com Corporate Secretaryship Degree Examination – Syllabus for candidates admitted from the academic year 2015 – 2016 onwards

**FOURTH SEMESTER
PART IV – AOC II – HUMAN RESOURCE MANAGEMENT**

**Maximum CE: 75
Total Hours: 36**

Objectives:

To enable students learn the various concepts and functions of HRM

UNIT I [8 HOURS]

Introduction - Evolution of HRM -- Importance of HRM- Personnel Management vs Human Resource Management- Strategic Human Resource Management.

UNIT II [7 HOURS]

Employment Planning and Forecasting -Job analysis- – Process of Job analysis – Job description- Job specification.

UNIT III [7 HOURS]

Interview, Common Interviewing Mistakes, Designing and Conducting the Effective Interview, Small Business Application, Computer Aided Interview

UNIT IV [7 HOURS]

Job Evaluation-Performance Appraisal- Essential characteristics of an effective appraisal system

UNIT V [7 HOURS]

Industrial Relations- Trade Unions- Collective Bargaining- Employee grievance.

TEXT BOOK

1. VSP Rao, Human Resource Management : Text And Cases, First Edition, Excel Books , New Delhi- 2010.

REFERENCE BOOKS

- 1.Gary Dessler –Human Resource Management, 7th Edition, Prentice Hall Of India Private Ltd, 2006, New Delhi.
- 2.Dr. R. Venkatapathy And AssissiMenacheri, Industrial Relations &Labour Welfare, Adithya Publication, Cbe 2001

B.Com Corporate Secretaryship Degree Examination – Syllabus for candidates admitted from the academic year 2015 – 2016 onwards

THIRD SEMESTER

ADDITIONAL CREDIT - PRINCIPLES OF INTERNATIONAL TRADE

Maximum CE: 100

UNIT I

The global Economy – Perspective on the theory of International Trade – The importance of International trade – Counter Trade – Forms of Counter Trade – Reasons for Growth of Counter Trade – Global Trade and Developing Countries.

UNIT II

International commodity Agreements – Quota agreements, Buffer stock Agreements – Carts – State Trading – Bilateral and Multilateral contracts. Gains from Trade – Terms of Trade – Factors influencing the terms of trade.

UNIT III

Tariff – Meaning – Tariffs, Taxes and Distortions – Imports Tariffs and Export Taxes – Export Subsidies – Arguments for free Trade – Arguments for protection – Demerits of protection – Trade barriers.

UNIT IV

International Investments – Types of Foreign Investment – significance of Foreign Investments – Limitations and Dangerous of Foreign Capital – Factors affecting International Investment – Foreign Investment by Indian companies.

UNIT V

Multinational Corporation – Definition and Meaning – Importance of MNCS – benefits of MNCs – Criticism – Globalizations – Meaning – stages – Essential conditions for Globalization – Implications and Importance of Globalization – Benefits – Obstacles to Globalization in India – Factors favoring Globalization.

TEXT BOOK

1. International Trade and Export Management – Francis Cherunilam Himalaya publication 2010

REFERENCE BOOKS

1. International Trade – Theory and Evidence – By James R. Markusen, James R. Melvin, William H. Kaempfer & Keith E. Maskus. 1 edition McGraw-Hill.

B.Com Corporate Secretary ship Degree Examination – Syllabus for candidates admitted from the academic year 2015 – 2016 onwards

FOURTH SEMESTER

ADDITIONAL CREDIT - EXPORT AND IMPORT TRADE PROCEDURES

Maximum CE: 100

UNIT I

Exports – Recent measures to boost Country's Exports – Rules for successful exporting – Preliminaries for starting export business – Deemed exports and its benefits – Finance for Exports.

UNIT II

Different Categories of exporters - Registration of Exports – Appointing Overseas agents – Obtaining an export license – Arranging finance for exports – Packing goods for exports – Marketing goods for export.

UNIT III

Excise procedure – Insuring goods against Marine risks – Preparing export documents – Institutional support for Exports – Compulsory quality control and pre-shipment Inspection – Labeling – Shipping and customs clearance of goods.

UNIT IV

Import Trade law in India – Preliminaries for starting Import Business – Registration of Importers – arranging finance for Import – Arranging letter of Credit for Imports – Balance of Payments – Liberalization of Imports.

UNIT V

Retirement of Import Documents and RBI's directives for making payment for Imports – Customs clearance of Imported Goods and payments of customs Duty – Imports under special schemes.

TEXT BOOK

1. Export management – P.K. Khurana Galgotia Publishing 2011

REFERENCE BOOKS

- 1 Export Management – T.A.S. Balagobal Himalaya publishing house.
2. A Guide on Export Policy, Procedure and Documentation – M.I.Mahajan – Snow white Publications

Bachelor of Computer Applications Degree Examination-Syllabus -For Candidates admitted from 2018– 2019 onwards

FOURTH SEMESTER

PART IV – EDC 2- BANKING THEORY

Maximum CE:50

Total Hours:24

Objective :

To Familiarize the students with the Banking Theory

Unit I (5 Hours)

Bank- Meaning and Definition- Features- Classification of Banks- Functions of Commercial Banks- Relationship between Banker and Customer.

Unit II (5 Hours)

Types of Bank Accounts- Procedure for opening and closing of bank accounts-Operation of Bank Accounts

Unit – III (5 Hours)

Special type of Customer- Types of Loans and Advances- Procedures to apply for loan. pass-Pay in slip-statement of accounts- Debit and Credit Card- Meaning- Advantage and disadvantage.

Unit – IV (5 Hours)

Negotiable Instruments: Cheque – Essential Features of Valid Cheque – Crossing – Types of Crossing- Material Alteration- Endorsement of cheque- Circumstances in which a banker should refuse payment.

Unit – V (4 Hours)

Recent Trends in Indian Banking- Internet Banking- ATM- Electronic Fund Transfer- Core Banking Solutions- Tele banking- E-Banking-NEFT-RTGS-SWIFT Code.

Text Books

1. Sundharam and Varshney, Banking theory Law and Practice, Sultan Chand & Sons., 2014, New Delhi.

Reference Books

- 1 Shekhar K.C & Lekshmy Shekhar, Banking theory Law and Practices, 21st Edition, Vikas publishing House, 2013, New Delhi.

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FIFTH SEMESTER

PART III -CORE- 13 -HIGHER CORPORATE ACCOUNTING

Maximum CIA :30

Maximum CE: 70

Total Hours : 72

Objective : To enable the students understand the preparation of accounts of companies

UNIT I (14 HOUR)
Amalgamation, Absorption and Reconstruction of Companies (both Internal and External Reconstruction).

UNIT II (15 HOUR)
Holding Company Accounts (excluding inter-company holdings)

UNIT III (14 HOUR)
Accounts of Electricity companies

UNIT IV (14HOUR)
Accounts of Banking Companies – New Format

UNIT V (15 HOUR)
Accounts of Insurance companies – Life Insurance – General Insurance (both Marine and Fire Insurance Claims)

NOTE : Distribution of marks : Theory 20% and Problems 80%

TEXT BOOK

1. T. S. Reddy and Murthy, Corporate Accounting, 3rd Edition, Margham Publications, Year- 2016, Chennai.

REFERENCE BOOKS

1. Gupta, R.L and Radhawsamy. M, Advanced Accounting, 8th Edition, Sulthan Chand and Co, Year- 2012, New Delhi.
2. Dr S.K.Singh, Corporate Accounting, SBPD Publications, Latest Edition 2017.

B.Com(Corporate Secretary ship) Degree Examination – Syllabus – for candidates admitted from the Academic 2015 – 2016 onwards

**FIFTH SEMESTER
PART III- CORE 14- COST ACCOUNTING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To enable the student to have a thorough knowledge on the cost accounting principles and the methods of accounting for cost.

UNIT I (12 HOUR)

Cost Accounting – Definition – Meaning and Scope – Concept and Classification – Costing an aid to Management — Types and Methods of Cost – Preparation of Cost Sheet – Cost accounting vs Financial accounting

UNIT II (12 HOUR)

Material Control: Need for Material Control – Levels of material Control [Maximum, Minimum and Reorder Level] – Economic Order Quantity – ABC,VED analysis . Purchase and stores Control. Methods of valuing material issue [FIFO, LIFO and Weighted Average Method].

UNIT III (12 HOUR)

Labour: Systems of wage payment [Piece Rate, Time Rate, Taylor’s Differential Piece Rate System , Rowan’s plan ,] – Idle time – Control over idle time – Labour turnover. Overhead – Classification of overhead – Allocation and Absorption of Overhead.

UNIT IV (12 HOUR)

Process costing – Features of process costing – process losses, wastage, scrap, normal process loss – abnormal loss, abnormal gain. Including inter process profit

UNIT V (12 HOUR)

Marginal Costing – Meaning, Definition, Benefits and Limitations of Marginal Costing – Break Even Analysis – Application of Marginal Costing in Business Decision Making.

NOTE : Distribution of marks : Theory 20% and Problems 80%

TEXT BOOK

1. Jain.S.P and Narang.K.L , Cost Accounting, Revised Edition, Kalyani Publishers, Year 2014.

REFERENCE BOOKS

1. Ashish Kalra, Cost Accounting, IGP Publications, Year 2015.
2. Pillai.R.S.N and Bagavathi.V , Cost Accounting, Reprint, Sultan Chand & Sons , Year 2013.

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**FIFTH SEMESTER
PART III- CORE 15 – INDUSTRIAL AND LABOUR LAWS**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To enable the students to acquire theoretical knowledge in Industrial Law.

UNIT I (12 HOUR)

The Factories Act, 1948 - Meaning of Factories – objectives of the act – important definition - Provision Relating to Health, Safety, Welfare-Employment of Children and Young People-Adult Welfare and Women Workers.

UNIT II (12 HOUR)

Industrial Dispute Act, 1947 – Provisions Relating To Strike Lockout-Retrenchment-Layoff-Closure-Machinery to Solve Disputes.

UNIT III (12 HOUR)

Workmen's Compensation Act 1923- Employees Liability – Partial-Permanent-Total Disablement-Accusation-Diseases.- ESI Act1948-Definition-Medical Board-Benefits-Purpose of Which Funds Can Be Spent.

UNIT IV (12 HOUR)

Payment of Wages Act 1936-Permissible Deductions-Time and Mode of Payment – The Minimum Wages Act, 1948- Payment of Bonus Act, 1965-Meaning-Eligibility For Bonus-Minimum And Maximum Bonus-Exemption-Applicability of The Act-

UNIT V (12HOUR)

Trade Unions Act1926- Definitions- Registrations-Rights and Privileges-Cancellation of Registration-.

TEXT BOOK

1. N.D.kapoor, Elements of Industrial Law, Revised Edition, Sultan Chand & Sons, Year 2013.

REFERENCE BOOKS

1. N.D.kapoor, Elements of Mercantile Law, Revised Edition, Sultan Chand & Sons, Year 2014.
2. S. N. Mishra, Labour and Industrial Law, 27th Edition, Central Law publications, Year 2013.

B.Com (Corporate Secretary ship) Degree Examination – Syllabus – for candidates admitted from the Academic 2015 – 2016 onwards

SIXTH SEMESTER

PART III – CORE 16 – CORPORATE GOVERNANCE

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objective: Enabling students to acquire theoretical knowledge in Corporate Governance.

UNIT I (9 HOUR)
Corporate Governance – An Overview – Macro Issues – Micro Issues – Board of Governance – Corporate Social Responsibility - Business Ethics – Corporate Social Reporting.

UNIT II (10 HOUR)
Corporate Governance and the Role of the Board [BOD] – Corporate Governance System Worldwide – The Board, CEO and the Chairman – Non-executive Directors –Legal Position and Liabilities of Directors, Key Management Personnel (KMP)- Independent Directors – Women Directors

UNIT III (10 HOUR)
Company Audit – Auditor’s Independence – Audit Committees – Audit Committees and Corporate Governance – Management Audit – Secretarial Audit Tool for value addition – [Economic value addition] Corporate Disclosures – Disclosures Norms and Investors Interest.

UNIT IV (10 HOUR)
Companies Act 2013 – Classification of Companies – Corporate Restructuring – Mergers and Takeovers – Desirable Corporate Governance in India

UNIT V (9 HOUR)
E – Governance – Trends in E-governance – Business Process Reengineering - Value Based Management – Ethical Imperatives in Corporate Governance – Environmental Reporting - Corporate Governance Rating - Models of Rating.

TEXT BOOK

1. N. Gopalsamy, Corporate Governance, The new paradigm , 3rd Edition, Wheeler Publishing, New Delhi.

REFERENCE BOOKS

1. J.Fred Weston, Mark L, Mitchell, J.Harold Maltherin, Takover, Restructuring, and Corporate Governance, – Pearson Education, New Delhi.
2. Dr.S.Singh, Corporate Governance, Excel Books,Chennai.

**FIFTH SEMESTER
PART-III – IDC LAB-I: MS OFFICE AND TALLY**

MaximumCIA: 40

Maximum CE: 60

Total Hours: 60

Objective: Enabling the students to acquire practical knowledge to be successful in Ms Office and Tally.

I – MS WORD

1. Preparing Chairman's Speech/ Auditors Report Minutes/ Agenda and Perform the Following Operations: Bold- Underline- Font Size- Style- Background Color- Text Color- Line Spacing- Spell Check- Alignment- Header and Footer- Inserting Pages and Page Numbers- Find and Replace.
2. Preparing an Invitation for the College Function Using Text Boxes and Clip arts.
3. Preparing Class Time Table and Perform the Following Operations Inserting the Table- Data Entry- Alignment of Rows and Columns- Inserting and Deleting the Rows and Columns and Change of Table Format.
4. Preparing Shareholders Meeting Letter for 10 Members Using Mail Merge Operation.

II – M S EXCEL

5. Preparing Mark List of Your Class (Minimum of 5 Subjects) and Perform the Following Operations: Data Entry- Total- Average- Result and Ranking by Using Arithmetic and Logical Functions and Sorting.
6. Preparing Statement of Bank Customer's Account Showing Simple and Compound Interest Calculations for 10 Different Customers Using Mathematical and Logical Functions.

III – MS POWERPOINT

7. Designing Presentation Slides for a Product of Your Choice. the Slides Must Include Name- Brand Name- Type of Product- Characteristics- Special Features- Price- Special offer Etc. Add Voice If Possible to Explain the Features of the Product. the Presentation Should Work in Manual Mode.

8. Designing Presentation Slides for Organization Details for 5 Levels of Hierarchy of a Company by Using Organization Chart.

IV MS ACCESS

9. Preparing a Payroll for Employee Database of an Organization with the Following Details: Employee Id- Employee Name- Date of Birth- Department and Designation- Date of Appointment- Basic Pay- Dearness Allowance- and House Rent Allowance and Other Deductions If Any. Perform Queries for Different Categories.
10. Creating Mailing Labels for Student's Database Which Should Include At Least Three Tables Must Have At Least Two Fields with the Following Details-Roll Number- Name- Course- Year- College Name- University- Address- Phone Number.

V TALLY AND INTERNET

11. Creating a New Company- Group- Voucher and Ledger and Record Minimum Ten Transactions and Display the Relevant Results.
12. Creating an Email Id and Check the Mail Inbox

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SIXTH SEMESTER

PART III- CORE 17- ACCOUNTING FOR MANAGEMENT

Maximum CIA :30

Maximum CE: 70

Total Hours:72

Objective : To enable the students understand the practical usage of Management Accounting

UNIT I (14 HOUR)

Management Accounting – Meaning, Definition, Nature, Scope, Functions, Objectives, Importance and Limitations of Management Accounting – Comparison of Management Accounting with Financial and Cost Accounting – Tools and Technique of Management Accounting – Management Accountant – Qualification, Duties and Liabilities of a Management Accountant.

UNIT II (14 HOUR)

Financial Statement Analysis and Interpretation – Common Size Statement Analysis, Comparative Statement Analysis and Trend Analysis.

UNIT III (15 HOUR)

Ratio Analysis – Liquidity Ratios – Activity Ratios – Profitability Ratios – Solvency Ratios – Preparation of Balance Sheet.

UNIT IV (14 HOUR)

Working Capital Management- Meaning Definition- Determinants of working capital. Funds Flow Statement –Schedule of changes in working capital – Preparation of Funds Flow Statement.–Preparation of Cash Flow Statement.

UNIT V (15 HOUR)

Budgeting and Budgetary Control – Definition – Importance, Essentials – Classification of Budgets –Cash Budget, Sales Budget, Purchase Budget, Production Budget, Production Cost Budget, Flexible Budget, Master Budget- Zero Based Budgeting.

NOTE : Distribution of marks : Theory 20% and Problems 80%

TEXT BOOK

- 1.Shashi K. Gupta and R.K. Sharma, Neeti Gupta, Management Accounting, 2nd Revised Edition, Kalyani Publishers, 2009, New Delhi.

REFERENCE BOOKS

1. Dr. R. Ramachandran and Dr. R. Srinivasan, Management Accounting – Theory, Problems and Solutions,14th Revised Edition, Sri Ram Publications, 2010, Trichy.
2. S.N. Maheswari. and S.K.Maheswari, A Text Book of Accounting for Management, 5th Reprint, Vikas Publishing House, 2012, Mumbai.

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SIXTH SEMESTER

PART III-CORE18 -CORPORATE LAW

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: Enabling students to acquire theoretical knowledge to be successful in Corporate Laws.

UNIT I (12 HOUR)

The Competition Act-2002-Objectives Definition-CCI – Anti-Competitive Agreements-Abuse of Dominant Position-Regulation of Combinations-Penalties.

UNIT II (12 HOUR)

Environmental Laws-Water Pollution And Control Of Pollution Act and Air Prevention & Control of Pollution Act-Variou Boards- Functions and Powers. Environment Protection Act,1986- Legal And Regulatory Frame Work-Procedures for obtaining various environmental clearances-Role and Function of Environment / Tribunal Authority.

UNIT III (12 HOUR)

Foreign Exchange Management Act, 1999-Objetives-Definitions Under FEMA-Dealings In Foreign Exchange-Holding of Foreign Exchange-Current Account Transactions, Capital Account Transactions-Export of Goods And Reviewed Realization And Repatriation of Foreign Exchange-Exemption Authorized-Person-Penalties And Enforcement-Appellate Tribunal.

UNIT IV (12 HOUR)

Intellectual Property Rights (IPR) - Trade Marks - Patent Laws -Copyright-Meaning-Objectives - Registration, Infringement.

UNIT V (12 HOUR)

Consumer Protection Act 1986-Definitions-Consumer Protection Councils-Consumer Dispute and Redressal Agencies-Consumer Rights.

TEXT BOOK

1. S.S.Gulshan,G.K. Kapoor, Economic, Labour And Industrial Laws, 2nd edition, Sultan Chand and Sons, Reprint 2011, New Delhi.

REFERENCE BOOKS

1. G.K. Kapoor, Corporate Laws and Secretarial Practice, 1st edition, Tata Mc Graw Hill, Reprint 2011, New Delhi.
2. N.D. Kapoor, Business and Corporate Laws, 2nd edition, Sultan Chand and Sons, Reprint 2013, New Delhi.

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SIXTH SEMESTER

PART III- CORE 19 -SECURITIES LAW AND FINANCIAL MARKETS

MaximumCIA :30

Maximum CE: 70

Total Hours : 60

Objective: Enabling students to acquire theoretical knowledge to be successful in Securities and Financial Markets.

UNIT I (12 HOUR)

Financial Markets-Capital Markets-Money Market-Participants and Instruments in Capital Market and Money Market.

UNIT II (12 HOUR)

Securities Contract [Regulation] Act, 1956-Objectives of The Act Regulatory Framework Governing Indian Capital Market-Role And Powers of SEBI- Recognition of Stock Exchanges-Bye Laws-Membership In Stock Exchanges-Eligibility-Powers of Central Government.

UNIT III (12 HOUR)

New Issue Market-Parties Involved In The New Issue Market-Government And Statutory Agencies-Collection Centers-Placement of Issue-Allotment of Shares-Investors Protection In The Primary Market-Secondary Market-Role of Intermediaries.

UNIT IV (12 HOUR)

Mutual Fund-Meaning-Definitions-Types-Performance, Evaluation-SEBI-Regulations of Mutual Funds-Present Status.

UNIT V (12 HOUR)

Depositories Act 1996-Importance-Definition-Depository Participants -Dematerialization-Opening Of DEMAT- SEBI Regulation.

TEXT BOOK

1. Gardon and Natarajan.K, Financial Markets and Services, 9th Edition, Himalaya Publications, Year 2015.

REFERENCE BOOKS

1. P.Pandian, Financial Markets and Services, 1st Edition, Sultan Chand & Sons, Year 2010.
2. Dr.S.Guruswamy, Financial Markets and Institutions, 4th Edition, Vijay Nicole Imprints Pvt Ltd, Year 2015.

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**FIFTH SEMESTER
PART III – ELECTIVE I - TAXATION-I**

Maximum CIA: 30

Maximum CE: 70

Total Hour: 60

Objective : To familiarize the students with the basic provisions of the Income -Tax

UNIT I (12 HOUR)

Income tax-Definition of Income tax – Tax Planning-Authorities – Assessment year -
previous year-Assessee Scope of Income-Charge of tax Residential status-Exempted Income.

UNIT II (12 HOUR)

Heads of income- Income from salaries – Income from house property.

UNIT III (12 HOUR)

Profits and Gains of business or Profession – Income from other sources.

UNIT IV (12 HOUR)

Capital gains- Exception and Provisions - Deductions from Gross Total Income.

UNIT V (12 HOUR)

Set-off and Carry Forward of losses – Aggregation of Income- Computation of tax Liability-
Assessment of Individuals.

NOTE : Distribution of marks : Theory 20% and Problems 80%

TEXT BOOK

1. Gaur.V.P and Narang.D.B, Puja Gahai,Rajeev Puri , Income Tax ,40th edition,
Kalyani Publishers , 2015, New Delhi.

REFERENCE BOOKS

1. Hariharan.N, Income Tax, 4th edition, Tata McGraw hill, 2015, New Delhi.
2. Prasad, Bhawathi, Direct tax Law and Practice, Wishwa Prakashan Publications ,
Year 2010.

B.Com(Corporate Secretaryship) Degree Examination – Syllabus – for candidates admitted from the Academic 2015 – 2016 onwards

FIFTH SEMESTER

PART III- ELECTIVE I - FINANCIAL MANAGEMENT

MaximumCIA :30

Maximum CE: 70

Total Hours:60

Objective: To acquaint knowledge about the budgetary controls used in the corporate.

UNIT I (12 HOUR)

Evolution of financial-management, scope and objectives of financial management – Capital budgeting: Capital Budgeting Process, Project formulation & Project Selection, Introduction to Various Capital Budgeting Techniques; Payback Period Method, Average rate of return, Net Present Value method, IRR, Benefit-Cost Ratio, Capital Rationing.

UNIT II (12 HOUR)

Sources of Long term funds: Equity shares, Preference shares, Debentures, Public deposits, factors affecting long term funds requirements.

UNIT III (12 HOUR)

Lease financing: Concept, types. Advantages and disadvantages of leasing. Capital Structure: Determinants of Capital Structure, Capital Structure Theories, Cost of Capital, Operating and Financial Leverage.

UNIT IV (12 HOUR)

Working Capital: Concepts, factors affecting working capital requirements, Determining working capital requirements, Sources of working capital.

UNIT V (12 HOUR)

Management of Retained Earnings: Retained earnings & Dividend Policy, Consideration in dividend policy, Forms of Dividends, Dividend Theories, Bonus Shares, .EVA, MVA, and CAPM.

TEXT BOOK

1. I.M. Pandey, Financial Management, 3rd Edition, Vikas Publications House, Year 2010, Chennai.

REFERENCE BOOKS

1. Dr. V. R. Palanivelu, Financial Management, 5th Edition, Sulthan chand &Co Pvt Ltd, Year -2012, New Delhi.
2. S N Maheshwari, Financial Management Principles and Practice, Vikas Publications House, Year 2010, Chennai.

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FIFTH SEMESTER

PART III- ELECTIVE I - ORGANIZATIONAL BEHAVIOR

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To acquaint knowledge about the motivational skills and effectiveness in behavior in corporate sectors

UNIT I (12 HOUR)

Introduction - Definition – nature scope – contributing disciplines to the field of organizational behavior - Historical evolution of organizational behavior.

UNIT II (12 HOUR)

The individuals - Major personality attributes influencing OB – Organizational application of learning – application of perception in the organization – decision making – values – attitudes.

UNIT III (12 HOUR)

The Group -Definition – classification – group development –group structure – group decision – making – teams , power – policies – conflicts.

UNIT IV (12 HOUR)

Motivation and Leadership -Motivation – meaning – process – early theories –contemporary theories- application of motivation techniques – leadership –definition – characteristics – functions – styles – theories : Trait theories – behavioral theories – contingency theories – recent approaches.

UNIT V (12 HOUR)

Organizational System and Dynamics -System approach to organization – organizational culture – management of change : Need – resistance – organizational development : Meaning – characteristics – Techniques – organizational effectiveness.

TEXT BOOK

1. L. M. Prasad, Organizational Behaviour, 5th Revised Edition Reprint 2014, Sultan Chand & Sons, Year 2014.

REFERENCE BOOKS

1. Robbins, Organizational Behavior, 7th Edition, McGraw Hill, Year 2010.
2. Ramasami.N, Organizational Behavior, 6th Edition, T.R.Publications, 2011.

B.Com(Corporate Secretaryship) Degree Examination – Syllabus – for candidates admitted from the Academic 2015 – 2016 onwards**SIXTH SEMESTER****PART III-ELECTIVE II - TAXATION-II**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective : On the successful completion of this paper the students should have gained knowledge about indirect taxes and legal provisions governing them.

UNIT I (12 HOUR)

Origin and importance of Indirect Taxation - Special features of Indirect Taxation - Contribution to Government Revenues – Taxation under the Constitution – Direct Taxes and Indirect Taxes - Advantages and Disadvantages of Indirect Taxes.

UNIT II (12 HOUR)

Central Excise Act 1944 - Levy and Collection - Kinds - Basic conditions for liability to Excise - Excisability and Manufacture - Intermediate Products - Packing, Labelling and Branding of goods - Valuation of Excisable Goods - Registration in Central Excise - Procedure for Registration.

UNIT III (12 HOUR)

Central Sales Tax Act 1956 - Objectives of the CST – Levy and Collection of CST – Sales and Deemed Sales - Subsequent sales - Registration of Dealers - Compulsory Registration - Voluntary Registration - Security from Dealer - Registration Procedure.

UNIT IV (12 HOUR)

Customs Act 1962 - Levy and Collection - Different Types of Customs Import Duties - Abatement of duty in Damaged or Deteriorated Goods - Remission on duty on lost, destroyed or abandoned goods - Customs Tariff Act 1975 – Prevention of illegal Import and Export - Customs Duty Drawback .

UNIT V (12 HOUR)

VAT: Terms and Definitions – Arguments in favour of VAT - CENVAT- MODVAT- Difference System in Tamil nadu – Registration of Dealers – Input and Output Tax – Exempted Sales and Zero Rated Sales – Penalties – Filing of Return – Service Tax – Features. GST- Terms and Definitions –Basics- Advantages of GST.

TEXT BOOK

1. Dinkar Pagare, Business Taxation , 6th edition, Sultan Chand & Sons, 2011, New Delhi.

REFERENCE BOOKS

1. Balachandra.V, Indirect Taxation, 6th edition, Sultan Chand & Co Reprint 2012, New Delhi.
2. Radhakrishnan.P , Indirect Taxation, 8th edition, Kalyani Publishers, Reprint 2013, New Delhi.

B.Com(Corporate Secretaryship) Degree Examination – Syllabus – for candidates admitted from the Academic 2015 – 2016 onwards

SIXTH SEMESTER

PART III- ELECTIVE-II - INVESTMENT MANAGEMENT

Maximum CIA :30

Maximum CE: 70

Total Hours:60

Objective: To explain the concept of investments with special reference to securities market.

UNIT I (12HOUR)

Investment – Meaning – Nature – Types – Features – Factors Influencing Investments – Risk and Return – Financial Markets – Financial Institutions.

UNIT II (12HOUR)

Capital Market and Stock Exchange in India – Structure – Primary Markets and Secondary Markets – Mechanics of Trading – SEBI and Its Role.

UNIT III (12HOUR)

Investment Alternatives: Bonds – Preference and Equity Shares – LIC – UTI – Mutual Funds – National Saving Scheme.

UNIT IV (12HOUR)

Fundamental and Technical Analysis and Evaluation: Economic Analysis – Industrial Analysis – Company Analysis – Technical Analysis.

UNIT V (12HOUR)

Portfolio Analysis and Management – Scope – Types – Portfolio Evaluation – Portfolio Selection – Portfolio Revision.

Distribution of Marks: 80%for Theory, 20% for Problem

TEXT BOOK

1. V.K.Bhalla, Investment Management, 7th Edition, S.Chand and Company Ltd., Reprint 2012, New Delhi.

REFERENCE BOOKS

1. Reilly and Brown, Investment Analysis and Portfolio Management, Cengage Learning, 8th edition, Reprint 2012
2. S. Kevin , Securities Analysis and Portfolio Management , PHI Learning , Reprint 2013.

B.Com(Corporate Secretaryship) Degree Examination – Syllabus – for candidates admitted from the Academic 2015 – 2016 onwards

SIXTH SEMESTER

PART III– ELECTIVE II –RETAIL BUSINESS MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To enabling the students to acquire theoretical knowledge to be successful in retail business management.

UNIT I (12 HOUR)

Nature and significance of management – objectives of management – functions of management – setting up a retail organization – factors to be considered in planning.

UNIT II (12 HOUR)

Human resources environment of retailing – recruiting and selecting retail personnel – compensating retail personnel – supervision of retail personnel.

UNIT III (12 HOUR)

Financial dimensions of operations management – profit planning – preliminary budget decisions and ongoing budgeting process.

UNIT IV (12 HOUR)

Operational dimensions – store security – credit management – computerization – outsourcing.

UNIT V (12HOUR)

Ethics in retail management – ethical values – social responsibility – ethical values in relation to customers – community and general public.

TEXT BOOK

1. Helen Goworek&,Peter McGoldrick ,Retail Marketing Management Principles and Prattice, Pearson Education ,2015.

REFERENCE BOOKS

1. J.K Nayak & Prakash c.Dash , Retail Management Text & Cases – Cengage India Private Limited First Edition 2016.
2. Barry, berman, Joel R Evam, Retail Management Strategic Approach, Pearson Education, Singapore 2013.

B.Com(Corporate Secretaryship)Degree Examination – Syllabus – for candidates admitted from the Academic 2015 – 2016 onwards

SIXTH SEMESTER

PART III – ELECTIVE III -AUDITING PRACTICE AND PRINCIPLES

Maximum CIA :30

Maximum CE: 70

Total Hours: 60

Objective:

On successful completion of this paper the students should have gained knowledge about auditing functions and classifications and acquired knowledge about vouching and verification of assets.

UNIT I (12 HOUR)

Origin of Auditing – Definition of Auditing – Objectives of Auditing- Tax Audit and Management of Audit.

UNIT II (12 HOUR)

Classification of Audit –Scope and nature of Statutory Audit and continuous Audit – Periodical Audit, Partial Audit, Balance sheet Audit, Performance Audit and Proprietary Audit.

UNIT III (12 HOUR)

Qualification of an Auditor – Appointment of an Auditor – Duties, Rights and Liabilities of an Auditor.

UNIT IV (12 HOUR)

Audit plan- Developing an Audit plan- Vouching – Meaning – Objectives, Importance of Voucher – Types of Vouchers.

UNIT V (12 HOUR)

Verification and valuation of Assets and Liabilities – Audit Approach- EDP and mechanical system- Audit with the aid of computers- Recent trends in Auditing.

TEXT BOOK

1. Tandon.B.N, Practical Auditing, 15th edition, Sultan Chand & Sons, Year 2012.

REFERENCE BOOKS

1. Spicer and Pegler, Auditing, 11th Edition, Vikas publishing House, 2010.
2. Kamal Gupta, Auditing , 12th edition, Tata Mc Graw Hill, 2011.

B.Com(Corporate Secretaryship) Degree Examination – Syllabus – for candidates admitted from the Academic 2015 – 2016 onwards

**SIXTH SEMESTER
PART – III - ELECTIVE III – BUSINESS ENVIRONMENT**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective :To acquaint knowledge about the Business Environment.

UNIT I (12 HOUR)

Concept of Business Environment- Significance-Types of Environment-External and Internal – Inter - Relationship between economic and non-economic environment - Impact of environment on business and Strategic Decisions - Culture and business - Social Responsibilities of Business .

UNIT II (12 HOUR)

Industrial Policies and Regulations - New Industrial Policy 2013 - Public, Private, Joint and Co-operative Sectors - Privatization and Disinvestment - Ways of Privatization- Benefits and Arguments against Privatization - Privatization in India.

UNIT III (12 HOUR)

Economic Systems – Meaning – Characteristics -Types of economic systems Capitalism-Socialism-Mixed economy - Economic planning - Nature, Scope and Significance of Economic Planning in India - Achievements and Failures of Economic Planning.

UNIT IV (12 HOUR)

Technological environment-Factors Governing Technological Environment - Management of Technology - Patents and Trademarks - Financial Institution in India - IFCI-ICICI-IDBI-IIBI-SIDBI-SFC's.

UNIT V (12 HOUR)

Globalisation - Meaning and Dimensions - Features of Current Globalisation - Essential Conditions for Globalisation - Globalisation of Indian business - Foreign Direct Investment - Concept, Advantages, Disadvantages and Determinants- India's policy towards FDI - Multinational Corporation – Meaning - Merits and Demerits - Control over MNC's-MNC in India.

TEXT BOOK

1. Aswathappa, Business Environment-,Himalaya Publishing house,10th edition 2015

REFERENCE BOOK

1. Dr.S.Sankaran Business Environment, Margham Publications , edition 2015.

B.Com(Corporate Secretaryship) Degree Examination – Syllabus – for candidates admitted from the Academic 2015 – 2016 onwards

**SIXTH SEMESTER
PART III – ELECTIVE III-- WORKING CAPITAL MANAGEMENT**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To educate the importance of Working Capital Management concepts .

UNIT I (12 HOUR)
Working Capital Management – Meaning – Concept – Classification – Factors – Principles – Importance – Needs – Determinants - New trends in Working Capital.

UNIT II (12 HOUR)
Financing of working capital – Money market instruments – Bank Finance – Managing corporate liquidity and financial flexibility.

UNIT III (12 HOUR)
Receivables Management – Meaning – factors – Forecasting – Objectives – Dimensions – Executing Credit Policy.

UNIT IV (12 HOUR)
Cash Management – Inventory Management.

UNIT V (12 HOUR)
Working Capital Control and Banking policy –Working capital Requirements for Various Industries – New system of assessment of working capital finance.

TEXT BOOK

1. V.K.Bhalla, Working Capital Management, Text and Cases, sixth edition, Anmol publications

REFERENCE BOOKS

1. Prasanna Chandra, Financial Management, Theory and Practice, Reprint 2010. Tata McGraw Hill
2. R.K .Gupta & Himanshu Gupta, Working Capital and Finance
3. Khan and Jain, Financial Management, Reprint 2011Tata McGraw hill.

B.Com[Corporate Secretaryship] Degree Examination – Syllabus – for candidates admitted from the Academic 2015 – 2016 onwards

FIFTH SEMESTER

PART III –ALC-INSTITUTIONS FACILITATING INTERNATIONAL TRADE

Maximum CE :100

Objective: To educate the importance of Institutions Facilitating International Trade

UNIT I

Export promotion in India-Department of Commerce- Functional divisions- Advisory bodies- Commodity organizations-Export promotion councils (EPCs)- Commodity Boards- Autonomous bodies- Service Institutions and organizations-Government trading organizations-State trading corporations- Major STC's in India- State export –Promotion agencies- Impediments in export promotion.

UNIT II

Role of RBI in export finance –Role of commercial banks-Small Industrial Development Bank of India (SIDBI) - Objectives-Schemes-Export and Import bank of India (EXIM) - Objectives-Functions-Export Credit Guarantee Corporation of India (ECGC) – Functions – Special functions of ECGC.

UNIT III

World Trade Organisation – GATT – Objectives-Evolution of WTO-Functions- Principles of WTO- Organisation structure- WTO agreements-GATS-TRIMS-TRIPS-Objectives of IPR benefits-Limitations-Procedure of dispute settlement –WTO and anti dumping measures- Evaluation of WTO- drawbacks/Criticisms.

UNIT IV

International Monetary Fund (IMF)-Objectives- Organisation and management- Resources-Financing facilities- Conditions on borrowers- Special drawing rights-World Bank-Purpose- Organisation structure- Guiding principle- Leading programs.

UNIT V

International Development Association (IDA)-Objectives-Memberships – Loan assistance-International Financial Corporation (IFC)- Objectives-Main features- Asian Development Bank(ADB)- Objectives-UNCTAD-Functions-Basic principles- International trade centre.

Note : The Question Paper shall cover 100% Theory.

TEXT BOOK

1. International Business (Text & cases) : Reprint 2013 Francis cherunilam.

REFERENCE BOOKS

1. International Marketing : Rakesh Mohan Joshi.
2. International Business (Text & cases) : P. Sudha Rao
3. International Business Environment : Francis cherunilam.
4. Export Marketing : Achaya and Jain.
5. Export Marketing : B.S. Rathir & J.S. Rathir

B.COM IT

Scheme of Examination (CBCS Pattern)

For the Candidates admitted from the Academic year 2018-2019 onwards

Part	Sub Code	Subject Title	Ins.Hrs/Week	Examination				
				Dur. Hrs.	CIA	CE	Total	Credits
SEMESTER I								
I	16LATA01/ 18LAHI01/ 15LAMY01/ 15LAFR01	Language – I Tamil/Hindi/Malayalam/French	5	3	30	70	100	3
II	16ENG001	English –I	5	3	30	70	100	3
III	15BCI101	Core 1 Financial Accounting -I	6	3	30	70	100	4
III	18BCI102	Core 2 Introduction to Information Technology	6	3	30	70	100	4
III	15BCIID1	IDC 1 Managerial Economics	6	3	30	70	100	4
IV	18UFCA01	Foundation Course I : EVS #	2	3	-	50	50	2
		Total	30				550	20
SEMESTER II								
I	16LATA02/ 18LAHI02/ 15LAMY02/ 15LAFR02	Language–II Tamil/Hindi/Malayalam/French	5	3	30	70	100	3
II	16ENG002	English – II	5	3	30	70	100	3
III	15BCI201	Core 3 Financial Accounting -II	6	3	30	70	100	4
III	18BCIP01	Core Lab 1 [Information Technology Lab]	6	3	40	60	100	4
III	15BCIID2	IDC 2 Principles of Marketing	6	3	30	70	100	4
IV	18UFCA02	Foundation Course II: Value Education #	2	2	-	50	50	2
		Total	30				550	20
SEMESTER III								
III	18BCI301	Core 4 Financial Accounting-III	5	3	30	70	100	4
III	18 BCI302	Core 5 Networking Management	5	3	30	70	100	4
III	18BCI303	Core 6 Programming With C++	5	3	30	70	100	4
III	15BCIP02	Core Lab 2 Computer Application Practical's [C++]	5	3	40	60	100	4
III	15BCIID3	IDC 3 Business Mathematics	5	3	30	70	100	4
IV	18BCIAO1/O2	AOC I Corporate Communication	3	3	-	75	75	3
IV	16BTA001/ 16ATA001/ 15BCIED1	Basic Tamil -I/ Advanced Tamil-I / EDC :Multimedia #	2	2	-	50	50	2
		Total	30				625	25

SEMESTER IV								
III	18BCI401	Core 7 Corporate Accounting	5	3	30	70	100	4
III	18BCI402	Core 8 Company Law & Secretarial Practice	5	3	30	70	100	4
III	15BCI403	Core 9 Database Management System	5	3	30	70	100	4
III	15BCIP03	Core Lab 3 Database Management System Lab	5	3	40	60	100	4
III	15BCIID4	IDC 4 Business Statistics	5	3	30	70	100	4
IV	18BCIAO3/O4	AOC II Commerce Practical	3	3	-	75	75	3
IV	16BTA002/ 16ATA002 15EDC002	Basic Tamil-II / Advanced Tamil-II / EDC: Communicative English #	2	2	-	50	50	2
V	15NSS001/ 15NCC001/ 15SPT001/ 15EXT001	NCC/NSS/Sports/ Extension Activities @	-	-	50	-	50	2
Total			30				675	27
SEMESTER V								
III	15BCI501	Core 10 Cost Accounting	6	3	30	70	100	4
III	17BCI502	Core 11 Taxation -I	6	3	30	70	100	4
III	17BCI503	Core 12 Legal Business Concepts	3	3	30	70	100	4
III	17BCI504	Core 13 Software Development In Visual Basic	5	3	30	70	100	4
III	17BCIP04	Core Lab 4 Software Development In Visual Basic Lab	5	3	40	60	100	4
III	17BCIE01/ 17BCIE02/ 17BCIE03	Elective I	5	3	30	70	100	4
III	15BCIIT1	Institutional training	-	-	-	-	-	-
Total			30				600	24
SEMESTER VI								
III	17BCI601	Core 14 Accounting for Management	6	3	30	70	100	4
III	15BCI602	Core 15 HTML	5	3	30	70	100	4
III	15BCIP05	Core Lab 5 [HTML Lab]	5	3	40	60	100	4
III	17BCIE04/ 17BCIE05/ 17BCIE06	Elective II	5	3	30	70	100	4
III	17BCIE07/ 17BCIE08/ 17BCIE09	Elective III	5	3	30	70	100	4
III	17BCIPR1	Project and Viva Voce	4	3	50	50	100	4
Total			30				600	24
Total							3600	140

@ No Continuous Internal Assessment (CIA) and Comprehensive Examination (CE)
 IDC- Inter disciplinary Course, EDC – Extra Disciplinary Course , AOC – Application Oriented Course

List of AOC Papers			
AOC –I	18BCIAO1	1	Corporate Communication
	18BCIAO2	2	E Business
AOC-II	18BCIAO3	1	Commerce Practical
	18BCIAO4	2	Brand Management

List of Elective Papers			
ELECTIVE –I	A	17BCIE01	E-Commerce
	B	17BCIE02	Corporate Finance
	C	17BCIE03	Organizational Behavior
ELECTIVE –II	A	17BCIE04	Financial Management
	B	17BCIE05	Software Engineering
	C	17BCIE06	Corporate Governance
ELECTIVE –III	A	17BCIE07	Multimedia & its Applications
	B	17BCIE08	Investment Management
	C	17BCIE09	Working Capital Management

List of EDC Papers

EDC -I	1	15BCSED1	Multimedia
EDC-II	1	15EDC002	Communicative English

Additional Credit Course

Sem	Code	Subject Title	Credits
III	15BCIAC1	Human Resource Management	2
IV	15BCIAC2	Entrepreneurial Development	2
V	15BCIAC3	Institutions Facilitating International Trade	2
Total			6

Summary

Part	No of Papers	Total Credits	Total Marks
I	2	6	200
II	2	6	200
III –Core	20	80	2000
III – IDC	4	16	400
III – Elective	3	12	300
III –Project	1	4	100
IV –Foundation Course	2	4	100
IV – EDC	2	4	100
IV – Application Oriented Course	2	6	150
V – Extension Activities	-	2	50
Total	38	140	3600

**REGULATIONS FOR BOARD OF COMMERCE WITH SECRETARYSHIP
(FOR UG COURSES ONLY)
(with effect from the academic year 2015-2016 onwards)**

1. Project and Viva Voce :

Each student in the UG final year shall compulsorily undergo Project Work in the 6th Semester. Projects shall be done individually. Project Coordinators shall allocate the project title and the guide for each group. Project work shall be done only in the lab provided by the college, including Project Record Preparation. Project Reviews shall be conducted thrice in which the progress of project work shall be strictly evaluated by respective Project Guides and Project Coordinators. Viva-Voce shall be conducted only in the presence of Industrialists or Academicians. Out of the Total of 100 marks, 50% of mark shall be allocated for CIA and 50% for CE VIVA VOCE

2. Submission of Record Note Books for practical examinations

Candidates appearing for practical examinations shall submit bonafide Record work for the concerned practical examinations. If not the candidate has to submit a bonafide certificate issued by the concerned subject in charge duly signed by the Head of the Department in order to be permitted to take up the practical examinations. The candidate so permitted will not be eligible for the record work mark.

3. Distribution of Marks:

The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum (Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	28	30	40
	75	75	30	-	30
	50	50	20	-	20
Practical Paper	100	60	24	40	40
Project	100	50	20	50	40

4. Distribution of Internal Mark for Theory :

(No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6=30

Breakup for Attendance:

65% - 74 %	- 4 Marks
75% - 80%	- 6 Marks
81% - 90%	- 8 Marks
91% - 100%	- 10 Marks

SEMINAR MARK SPLIT UP

Content	-10 Marks
Flow of the Presentation	-10 Marks
Stage Management	-10 Marks

	30 Marks

5. Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 40		
S No	CIA	Distribution of Marks
1	For Completion of the Practical List	20
2	Test –I	10
3	Test –II	10
Total		40

6. Distribution of Comprehensive Exam Mark for Practical :

MAXIMUM MARKS : 60		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	10
2	Program – I Algorithm Coding Execution	5 10 10 TOTAL (25)
3	Program – II Algorithm Coding Execution	5 10 10 TOTAL (25)
Total		60

7. Distribution of Mark for Project VIVA-VOCE :

S.No	CIA	Distribution of Marks
1	INTERNAL Review –I Review –II Documentation & Final Review	10 10 30 Total (50)
2	EXTERNAL * Presentation Viva	30 20 Total (50)
Total		100

*Marks to be awarded by both External and Internal Examiners.

8. Question Paper Pattern

Time: 3 HOURS

Max marks: 70

SECTION – A (10×1=10)

Answer ALL questions

Each question carries One Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B (5×4=20)

Answer ALL questions

Each question carries Four Marks

(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answerer ALL questions

Each question carries EIGHT Marks

(INTERNAL CHOICE)

9. Question Paper Pattern

Time: 3 HOURS

Max marks: 75

SECTION – A (10×1=10)

Answer ALL questions

Each question carries One Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B (5×5=25)

Answer ALL questions

Each question carries FIVE Marks

(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answerer ALL questions

Each question carries EIGHT Marks

(INTERNAL CHOICE)

10. Question Paper Pattern

Time: 3 HOURS

Max marks: 50

SECTION – A (10×1=10)

Answer ALL questions

Each question carries One Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B (5×3=15)

Answer ALL questions

Each question carries Three Marks

(INTERNAL CHOICE)

SECTION – C (5×5=25)

Answerer ALL questions

Each question carries Five Marks

(INTERNAL CHOICE)

11. Question Paper Pattern

Time: 3 HOURS

Max marks: 100

SECTION – A (10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B (5×8=15)

Answer ALL questions

Each question carries EIGHT Marks

(INTERNAL CHOICE)

SECTION – C (5×10=50)

Answerer ALL questions

Each question carries Ten Marks

(INTERNAL CHOICE)

NOTE:

The Questions should be Numbered Continuously running through the Sections A, B and C. Questions should be evenly distributed among the unit in the Syllabus in all the Sections of the Question Paper.

While framing Questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same unit.

The Controller of the Examinations shall arrange for the setting of Question papers on the basis the Syllabus and the pattern of Question Paper duly certified by the Chairpersons of the respective Board of Studies.

12. Conduct of Practical Examinations:

Practical Examinations shall be conducted with one Internal Examiner and one External Examiner and the Question Paper for practical examination shall be set by both Internal and External examiners.

13. Institutional Training:

Each student in the UG II year shall compulsorily undergo Institutional Training in the Vth Semester for 15 days. Training shall be done individually for the purpose of Course completion.

Note: Students who fails to complete their Practical Examination /Project VivaVoce/ Institutional Training in the concern Semester they can appear in the subsequent Semesters

B.Com [Information Technology] Degree Examination – Syllabus – for candidates admitted from the Academic 2015 – 2016 onwards

**FIRST SEMESTER
PART III: CORE 1 – FINANCIAL ACCOUNTING – I**

Maximum CIA :30

Maximum CE:70

Total Hours:72

Objective:

To enable the students to learn principles, Conventions and concepts of Accounting

UNIT –I (14HOUR)

Meaning and scope of Accounting, Basic Accounting Concepts and Conventions -Objectives of Accounting - Accounting Transactions - Double Entry Book keeping - Journal, Ledger, Preparation of Trial Balance - Preparation of Cash Book.

UNIT – II (14HOUR)

Preparation of Final Accounts of a Sole Trading Concern - Adjustments - Closing Stock, Outstanding and Prepaid items, Depreciation, Provision for Bad Debts, Provision for Discount on Debtors, Interest on Capital and Drawings - Preparation of Receipts and Payments Account, Income & Expenditure Account (simple problems)

UNIT – III (14HOUR)

Classification of errors - Rectification of errors - Preparation of Suspense Account. Bank Reconciliation Statement (Only simple problems).

UNIT – IV (15HOUR)

Bill Of Exchange-parties to bill of exchange – Distinction between bill and promissory note-Recording transaction relating to bill- Recording bill transaction in journal and ledger- Dishonour of bill – Renewal of bill-Average due date- Average due date on basis of calculation of interest – Account current.

UNIT – V (15HOUR)

Consignment – features – Accounting treatment of consignment transaction – Entries in books of Consignee – Entries in books of consignor. Joint venture – meaning – Treatment when separate book is maintained – Entries when separate book is not maintained- Sale of goods on approval or return basis. Professional Accounting-introduction.

NOTE : Distribution of marks : Theory 20% and Problems 80%

TEXT BOOK

1. T. S. Reddy and Murthy, Financial Accounting, 3rd Edition, Margham Publications, Year- 2016, Chennai.

REFERENCE BOOKS

1. N.Vinayakam, P.L.Mani, K.L.Nagarajan, Principles of Accountancy, 8th Edition, S.Chand & Company Ltd., Year- 2012, New Delhi.
2. S.P.Jain ,K.L.Narang, Financial Accounting,6th Edition , Kalyani publishers, Year- 2012, New Delhi.

B.Com [Information Technology] Degree Examination – Syllabus – for candidates admitted from the Academic 2018 – 2019 onwards

FIRST SEMESTER

PART III: CORE 2 – INTRODUCTION TO INFORMATION TECHNOLOGY

Maximum CIA :30

Maximum CE:70

Total Hours:72

Objective:

To acquire basic knowledge of Microsoft office and usage of c programming instruction .

UNIT I

(15 HOUR)

MS Word: Creating a new Document- Finding and replacing formatting-checking Spelling and Grammar-Adding headers and Footers-Arranging Text in columns-inserting a table of contents-Creating a Table-Modifying and Formatting a table-Creating a Form letter. MS Excel: Creating a simple formula-Editing a Formula-Performing Calculation using Functions-Entering data-Selecting ranges-Editing entries-Formatting entries-Simple Calculation-More calculation-Creating Chart

UNIT II

(12 HOUR)

MS Power point: Creating a new Presentation- choosing a Template-Adding actions Buttons-Creating slide transitions-Adding animation-timing a presentation-setting up a slide show-Creating a custom slide show.MS Access: Creating a database-working with a table-Creating table using a wizard-Working with table in Design view-Specifying data types and field properties-Planning and defining Table Relationships-Filtering out Records-creating a query using a wizard-Creating a form using wizard-Editing Data in a form-Creating report using a wizard.

UNIT III

(15 HOUR)

Overview of C-Introduction-Character Set-C Tokens-Keyword and Identifiers-Constant-Variables-Data Types-Declaration of Variables-Assigning Values to Variables-Defining Symbolic Constants-Operators-Arithmetic Expression-Evaluation of Expressions-Precedence of Arithmetic Operators-Type Conversion in Expression.

UNIT IV

(15 HOUR)

Decision Making and Branching: Decision Making with IF Statements- the Switch Statements-the Operator-the GOTO Statement –Decision Making and Looping-Jumps in Loops-Arrays-Character and String Handling-String Handling Functions-Table of Strings.

UNIT V

(15 HOUR)

ANSI Functions-Return Values and Their Types-Function Calls and Declaration-No Arguments and No Return Values-Arguments But No Return Values- No Arguments But Returns a Value- Functions That Return Multiple Values-Recursion- Structures & Union-Pointers-Introduction

TEXT BOOK

1. E.Balagurusamy, Programming in ANSI C, 7th Edition, Tata McGraw Hill, Year-2016, New Delhi.
2. Microsoft office XP simply visual 1st Edition, BPB publications, Year-2001, New Delhi

REFERENCE BOOKS

1. V.Rajaraman, Introduction to Information Technology, 3rd Edition, Sami Publications., Year- 2018, New Delhi.
2. Yashavant Kanetkar, Let us C, 11th Edition , Kalyani publishers ., Year-2016.

B.Com [Information Technology] Degree Examination – Syllabus – for candidates admitted from the Academic 2015 – 2016 onwards**FIRST SEMESTER
PART III: IDC 1 – MANAGERIAL ECONOMICS**

Maximum CIA :30

Maximum CE: 70

Total Hours: 72

Objective:

To enable the students to understand the applications of economic principles in business management.

UNIT I (14HOUR)

Introduction to Economics: definition, nature and scope of Economics –Economic theories applied to business analysis-decision making in business –objectives of a business firm.

UNIT II (15HOUR)

Demand and supply functions: Meaning of demand – determinants of demand – distinctions of demand –Law of demand –Elasticity of demand – supply concepts – Equilibrium.

UNIT III (14HOUR)

Consumer behavior: Meaning of utility –Law of Diminishing Marginal Utility – Equi-Marginal Utility – Indifference curve analysis –Definition –properties –consumer's surplus-consumer's equilibrium.

UNIT IV (14HOUR)

Production and cost analysis : meaning and concepts of production –factors of production and production function – law of variable proportion –law of returns to scale – producer's equilibrium – Economies of scale – Theories of wages, Rent, Interest.

UNIT V (15HOUR)

Market structure and pricing: Types of competition –perfect competition –Monopoly – Monopolistic competition – Oligopoly – price and output determination under different competitive market conditions.

TEXT BOOK

1. Sankaran.S, Managerial Economics, 2nd Edition, Margaham Publication, Year- 2010, Chennai.

REFERENCE BOOKS

1. R.Meenakshi, Managerial Economics, 2nd Edition, Sultan Chand and Publications., Year- 2007, New Delhi.
2. R.L.Varshney and K.L.Maheswari, Managerial Economics, 15th Edition, Sultan Chand and Publications., Year- 2000, New Delhi.

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**SECOND SEMESTER
PART III: CORE 3 – FINANCIAL ACCOUNTING II**

Maximum CIA :30

Maximum CE: 70

Total Hours: 72

Objective:

Enabling the students to acquire basic accounting knowledge in Financial Accounting II.

UNIT I (15 HOUR)

Depreciation Accounting – Meaning – Characteristics –Causes –Objectives –Basics factors affecting the amount of depreciation –Methods of recording depreciation –Straight line method- Diminishing balance method –Annuity method –Depreciation fund /Sinking method –Insurance policy method –Reserves and provisions-Distinction between Reserves and Provisions-Types of Reserves.

UNIT II (15 HOUR)

Accounting from in complete record or single entry system, Meaning, Features, Limitation- Difference between Single entry and Double entry –Ascertainment of profit –Net worth method –Difference between balance sheet and Statement of affairs- Conversion Method.

UNIT III (15 HOUR)

Hire Purchase and Installment Purchase System-Definition –Some important terms –Main features –Installment purchase system –Distinction between Hire purchase and Installment system –Accounting treatment for hire purchase system –Calculation of Interest –Default and Repossession-Hire purchase trading accounting –Debtors method-Stock and Debtors method-Installment purchase system-Meaning –Accounting treatment

UNIT IV (15 HOUR)

Branch Accounts –Meaning –Objects –Types of Branches-Dependent Branches –Accounting in respect of Dependent Branches –Debtors system-Goods are Invoiced at cost –Goods are Invoiced at selling price –Stock and Debtors system –Final accounts system-Departmental Accounting –Need for Departmental accounting –Difference between Departmental and Branches –Departmentalization of expenses-Appportionment of expenses-Interdepartmental Transfer at selling price –Stock Reserve.

UNIT V (12 HOUR)

Self balancing ledgers and Sectional Balancing –Debtors ledger –creditors ledger-General ledger-procedure of Self balancing –Adjustment accounts-Advantages of self balancing system-Important points to note –Self balancing accounts at a glance – Sectional balancing system-Total Debtors accounts. IFRS, Meaning- need for IFRS- Challenges for adopting IFRS in india.

NOTE : Distribution of marks : Theory 20% and Problems 80%

TEXT BOOK

1. T. S. Reddy and Murthy, Financial Accounting, 3rd Edition, Margham Publications, Year- 2016, Chennai.

REFERENCE BOOKS

1. N.Vinayakam, P.L.Mani, K.L.Nagarajan, Principles of Accountancy, 8th Edition, S.Chand & Company Ltd., Year- 2012, New Delhi.
2. S.P.Jain ,K.L.Narang, Financial Accounting,6th Edition , Kalyani publishers, Year- 2012, New Delhi.

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SECOND SEMESTER

PART-III – CORE PRACTICAL –I [INFORMATION TECHNOLOGY LAB]

MaximumCIA: 40

Maximum CE: 60

Total Hours: 60

Objective:

Enabling the students to acquire practical knowledge to be successful in Ms Office and Internet

MS - Word

1. Create the front page of a News Paper.
2. Prepare a mail merge for an interview call letter.

MS - Excel

3. Develop the Students Mark List worksheet and calculate total, average and save it. Specify the Result also (Field names: S.NO, Name of the student, course, mark1, mark2, mark3, total, average and result).
4. Design a chart projecting the cash estimate of a concern in the forth coming years.

MS - PowerPoint

5. Design slide for a product of your choice, includes the picture of the product and demonstration and working (minimum three slides)
6. Prepare an organization chart for a company.

MS - Access

7. Create a Student database with the following Tables:
 - i). Students Personal Details
 - ii) Students Mark Details

Perform the following:

- a). Relate the Tables
- b). Create a query to the students passed in all subjects.
- c). Create a form and report

8. Writing a Program to Generate Fibonacci Series.

9. Writing a Program to calculate simple and compound interest.

10. Writing a Program to Find the Factorial of the Given Number Using Recursive Function.

11. Writing a Program to Check Whether the Given String Is a Palindrome or Not Using Pointers.

12. Programming to Sort the Given Set of Number in Ascending Order

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PART III: ID2 – PRINCIPLES OF MARKETING**

Maximum CIA :30

Maximum CE: 70

Total Hours: 72

Objective:

On the successful completion of this paper the students should have required the basic knowledge of marketing and its functions.

UNIT I (14 HOUR)

Introduction to Market - Meaning, Definition and Concept – Traditional and modern marketing - Role and importance of Market - Classification of Market, Marketing function - Marketing process – Functions of Exchange.

UNIT II (15 HOUR)

Marketing mix - Product mix – meaning of products, Product mix – Expansion and Contraction – PLC – Price mix, Importance of price – Pricing Objectives -Kinds of pricing – methods of price determination personal selling and sales promotion – place mix.

UNIT III (15 HOUR)

Promotion - Advertisement – Personal Selling and Sale promotion - Distribution - Importance of channels of distribution – Meaning – Functions of middlemen – Elimination of middlemen.

UNIT IV (14 HOUR)

Market Segmentation – Benefits – Bases – Requisites of sound market segmentation – Market Segments and marketing mix – Buyer Behaviour – Significance – Buying Process – Steps in Buying Process – Buyer Behaviour Models.

UNIT V (14 HOUR)

Recent trends in marketing – E-marketing, direct marketing, online marketing, organic marketing, green marketing and market research.

TEXT BOOK

1. Philip Kotler, Gary Armstrong Principles of Marketing, 5th Edition, Prentice Hall of India Pvt Ltd , Year- 2010, New Delhi.

REFERENCE BOOKS

1. Gupta.C.B and Rajan Nair.N, Marketing Management, 8th Edition Sultan Chand and Sons., Year- 2012, New Delhi.
2. Varshney R.L and Gupta S.L, Marketing Management, Sultan Chand and Sons., Year- 2012, New Delhi

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**THIRD SEMESTER
PART III – CORE4- FINANCIAL ACCOUNTING III**

Maximum CIA :30
Maximum CE: 70
Total Hours: 60

Objective:

To train the students in solving advanced problems in Accounting.

Unit – I (12 Hours)

Introduction – Admission of Partner – Treatment of Goodwill – Revaluation of Assets and Liabilities – Calculation of Ratios for Distribution of Profits – Capital Adjustments.

Unit – II (12 Hours)

Retirement and Death of a partner – Calculation of Gaining Ratio - Revaluation of Assets and Liabilities – Calculation of Ratios for Distribution of Profits – Capital Adjustments. [Memorandum Method Excluded] – Settlement.

Unit – III (12 Hours)

Dissolution – Insolvency of partners - Insolvency of One and Two Partners – Garner Vs. Murray – Deficiency A/C – Piecemeal Distribution-Proportionate Capital Method – Maximum loss method

Unit – IV (12 Hours)

Insolvency Accounts - Meaning of Insolvent – Relevant Acts – Difference between Balance sheet and Statement of Affairs – Preparation of statement of affairs – Deficiency Accounts

Unit – V (12 Hours)

Fire Claims for Loss of stock – Computation of Claim- Gross profit Ratio-Normal Loss – Abnormal Loss-Average clause

Text Books

1. R.S.Reddy and Moorthy, Financial Accounting, 6th Edition 2011, Margham Publication, Year-2015.

Reference Books

1. R.L.Gupta, Advanced Accountancy Theory , Methods and Applications, Volume 1, 1st Edition, Sulthan Chand & Co, Year 2013.
2. Amitabha Mukherjee, Advanced Accountancy, Volume 1, Mc.Graw Hill Education India Pvt Ltd, Year 2011.

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THIRD SEMESTER

PART III – CORE5-NETWORKING MANAGEMENT

Maximum CIA :30

Maximum CE: 70

Total Hours: 60

Objective:

Enabling Students to Acquire Theoretical knowledge in fundamental concepts of data communications.

Unit I (12 Hours)

Data Communication Concepts and Applications-Components of Data Communications-Trends in Computer Communications and Networking- Network Applications.

Unit II (12 Hours)

Fundamentals of Data Communications and Networking- Architectures- Devices and Circuits- Data Link Layer-Media Access Control, Error Control in Networks.

Unit III (12 Hours)

Networking- Network Layer and its Protocols- Network Addressing and Routing- Local Area Network (LAN)- LAN Components-Selecting a LAN- Improving LAN Performance.

Unit IV (12 Hours)

Back Bone Networks- Backbone Network Components-FDDI- Metropolitan Area Network (MAN) and Wide Area Network (WAN)

Unit V (12 Hours)

Network Management- Designing of Business Networks- Network Security.

Text Book

1. Jerry, Fitzgerald And Alan,Dennis,Business Data Communications and Networking, John Wiley & Sons Reprint 2012

Reference Books

1. David A Stamper , Business Data Communications, Addison Wesley, 2013
2. Bagad V.S and Dhotre I.A, Computer Networks, 1st Edition, TCH publications Pvt Ltd, 2012.

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THIRD SEMESTER

PART III CORE VII- PROGRAMMING WITH C++

Maximum CIA :30

Maximum CE: 70

Total Hours: 60

Objective:

Enabling the Students to Acquire the OOPS concept and various syntaxes used in

C++.

Unit – I

(12 Hours)

Introduction to C++- Input and Output in C++: OOP Paradigm – Concepts- Benefits- Object Oriented Languages and Applications - Formatted and Unformatted Console I/O Operations. Formatted Console I/O Operations-Bit Fields-Manipulators C++. Declarations: Parts of C++ Program- Type of Tokens-Data Types in C++-Type Casting –constants-Operators in C and C++.

Unit – II

(12 Hours)

Control Structures –Function in C++: Parts of Function-Inline Functions Overloading-classes and Objects: Classes in C++-Declaring Objects-Defining Member Function-Static Member Variables and Function- Static Object-Friend Function-Overloading Member Function.

Unit -III

(12 Hours)

Constructors and Destructors-Operator Overloading Unary-Binary Operators-Overloading with Friend Function-Type Conversion- Inheritance – Single Inheritance – Multiple Inheritance – Hierarchical- Hybrid Inheritance – Polymorphism – Pointers – Virtual Functions –Virtual Base Classes-Abstract Classes.

Unit –IV

(12 Hours)

Pointer and Arrays-C++ and Memory Models-the New and Delete Operator-Dynamic Objects-Binding in C++-Polymorphism and Virtual Functions. Exception Handling-Working with Strings

Unit –V

(12 Hours)

Files: File Stream Classes-File Modes-Binary and ASCII Files-Command Line Arguments Templates: Definition of Class Template –Normal Function Template-Inheritance-Difference between Templates and Macros.

Text Book

1. Balaguruswamy, “Object Oriented Programming with C++-Tata McGraw Hill Publishers Ltd., 1995, New Delhi.

Reference Books

1. Report Lafore, “Object Oriented Programming with C++” 1994, Galgotha.
2. Herbert Schilt, “C++- The Complete Reference, 3rd Edition, Tata McGraw Hill, Pub Ltd, 1999.
3. YeswantKanetkar, “Let us C++”, BPB Publications, 1999

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**THIRD SEMESTER
PART III-CORE LAB 2- [C++ PROGRAMMING]**

**Maximum CE: 60
Maximum CIA: 40
Total Hours: 60**

Objective: To inculcate knowledge on C++ Programming concepts.

1. Write a C++ program to calculate basic arithmetic operations on two complex numbers using menu driven approach.
2. Write a C++ Program to check whether the given string is a palindrome or not using Pointers.
3. Write a C++ program to generate student mark list using class, and write member functions to read values, to compute total of 5 subjects, percentage obtained by the student and display grade based on the percentage of marks obtained.
4. Write a C++ program to calculate depreciation under straight line method and diminishing Balance method [using class, defining member functions inside and outside the class].
5. Write a C++ Program to Create Class- Which Consists of EMPLOYEE Detail Like E Number E Name Department- Basic- Salary- and Grade. Write a Member Function to Get and Display Them. Derive a Class PAY from the Above Class and Write a Member Function to Calculate DA- HRA and PF Depending on the Grade.
6. Create Two Classes Which Consist of Two Private Variable Variables One Float and One Integer Variable in Each Class. Write Member Functions to Get and Display Them. Write Friend Function Common to Both the Classes and Display the Result.
7. Write a C++ Program Using Function Overloading to Read Two Matrices of Different Data Types Such As Integers and Floating Point Numbers Find Out the Sum of the Above Two Matrices Separately and Display the Sum of These Arrays Individually.
8. Write a C++ Program to Read an Integer Number and Find the Sum of All the Digits Until It Reduces to a Single Digit Using Constructors- Destructors and Inline Member's Functions.
9. Write a C++ Program to Create a Class SHAPE Which Consists of Two VIRTUAL FUNCTIONS Calculate Area O and Calculate Perimeter O to Calculate Area and

Perimeter of Various Figures. Derive Three Classes SQUARE- RECTANGLE. TRIANGLE from Class Shape and Calculate Area and Perimeter of Each Class Separately and Display the Result.

10. Create a Class STRING. Write Member Functions to Initialize Get and Display Strings Overload the + Operator to Concatenate Two Strings Overload the Operator to Compare Whether Two Strings Are Equal. Write a Member Functions to Find the Length of the String.
11. Write a C++ Program to Create a File and to Display the Contents of that File with Line Numbers.
12. Write a C++ Program to merge two different files into a single file.

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**THIRD SEMESTER
PART IV – AOC I – CORPORATE COMMUNICATION**

Maximum CE: 75

Total Hours: 36

Objective :

On the successful completion of this paper the students should have developed their written and oral Business Communication Skills in the day to day business world.

Unit I (8 Hours)

Meaning of Communication – Objectives – Types – Barriers – Composition of sentences – Structure of Business Letter - Effective Business Letter - Enquiries and Replies.

Unit II (7 Hours)

Layout of a business letters- Orders and Execution Letters- Sales Letters- Circulars- Claims and Adjustments- Collection Letters- Credit and status Enquiries.

Unit III (7 Hours)

Banking Correspondence – Insurance Correspondence- Agency Correspondence- Application for appointment- Company Secretarial Correspondence(including Agenda, Minutes and Report Writing).

Unit IV (7 Hours)

Meaning of Report- Preparing Report- Qualities and functions of a Good Report- Business Report- Types of Report- Reports by individuals- Reports by committee- Reports by sub-committee- Minutes Vs Reports- Drafting Resolution and minutes of company meetings.

Unit V (7 Hours)

Drafting of company meetings notices- Letters to the editor of newspapers- Management Information Systems- Introduction- Need – Definition- Objectives- Components- Differing information for management levels- areas- stages of MIS Design- Guidelines for effective design- current trend.

TEXT BOOKS

1. Rajendra Pal and Koralkhalli .J.S, Essentials of Business Communication, 2nd Edition, Sultan Chand and Co, Year-2002, New Delhi.

REFERENCE BOOKS

1. Ramesh M.S. and Pattanshett, Business Communication, 1st Edition , TMH Publishing House,2000,Mumbai .
2. Rai Urmila, Business Communication, 11th Edition, Himalaya Publication, Year-1999, New Delhi.

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**THIRD SEMESTER
PART IV – AOC I – E-BUSINESS**

Maximum CE: 75

Total Hours: 36

Objective: Enabling the Students to Acquire Theoretical knowledge to be successful in e-business.

Unit I (8 Hours)
Introduction to E-Business- Electronic Business- Electronic Commerce- Electronic Commerce Models- Types of Electronic Commerce-Value Chains in Electronic Commerce- E-Commerce in India- Internet.

Unit II (7 Hours)
Intranet- Composition of Intranet- Business Applications on Intranet- Extranets Electronic Data Interchange- Components of Electronic Data Interchange-Electronic Data Interchange(Communication Process).

Unit III (7 Hours)
Security Threats to E-Business- Security Overview- Electronic Commerce Threats- Encryption- Cryptography- Public Key and Private Key Cryptography- Digital Signatures- Digital Certificates.

Unit IV (7 Hours)
Electronic Payment System- Concept of Money-Electronic Payment System- Types of Electronic Payment Systems.

Unit V (7 Hours)
E-Business communication-Importance of E-Technology - E-Business conferencing-Audio conferencing-Tele conferencing-Video Conferencing-Advantages and disadvantages of types of conferencing-Need for Electronic mail-Meaning-Nature- Application and uses of E-mail-E-Business advertising-Marketing an E-Business

Text Book

1. Whitley, David. E-Commerce Strategy, Technologies and Applications. TataMcGraw Hill, 2000.

Reference Books

1. Schneider Gary P. and Perry, James T ,Electronic Commerce. Thomson Learning, 2000.
2. Bajaj, Kamlesh K and Nag, Debjani, E-Commerce: The Cutting Edge of Business, Tata McGraw Hill, Publishing Company Ltd., New Delhi. 1999.

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FOURTH SEMESTER

PART III – CORE –7- CORPORATE ACCOUNTING

Maximum CIA :30

Maximum CE: 70

Total Hours: 60

Objective:

Enabling students to acquire theoretical knowledge to be successful in Corporate Accounting.

Unit I (12 Hours)

Issue of Equity shares – Issue at Par, Premium– Forfeiture and Re-issue [including Pro-rata allotment] Surrender of shares – Right Issue.

Unit II (12Hours)

Issue of Preference shares - Redemption of Preference shares – Table showing capital profit & revenue profit- Simple problems in Redemption of Preference shares, Underwriting of shares –Complete Underwriting – Partial Underwriting -Firm underwriting .

Unit III (12Hours)

Issue of Debentures – Par , Premium and Discount - Redemption of Debentures- Ex Interest & Cum Interest Quotations –Conversion Method – Installment Method.

Unit IV (12Hours)

Valuation of Goodwill –Factors Affecting Goodwill –Methods of Valuating Goodwill – Shares-Methods of valuating Shares.-Liquidation of Companies

Unit V (12 Hours)

Profits prior to incorporation – Preparation of Final Accounts of companies – Preparation of Profit and Loss Appropriation Account - –Schedule III of Companies Act 2013-Balance Sheet –Statement of P&L account, Cash Flow Statement

Text Books

1. T.S.Reddy and Murthy, Corporate Accounting, Volume 1, revised edition ,Margham Publications, Year 2013.

Reference Books

1. S N Maheshwari&Suneel K Maheshwari, Corporate Accounting, Vikas Publishing, Year 2013.
2. R.S. Singal, Corporate Accounting, Latest Edition 2011, VK Publication, Year 2011.

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FOURTH SEMESTER

PART III – CORE8- COMPANY LAW AND SECRETARIAL PRACTICE

Maximum CIA :30

Maximum CE: 70

Total Hours: 60

Objective:

Enabling the students to know about the Company Law.

Unit I (12 Hours)
Company Act 2013 – Definition – Characteristics – Kinds of Companies – Doctrine of Lifting the Veil- Promotion of a Company- Company Secretary – Appointment , Legal Position –Qualification – Duties And Liabilities of a Secretary.

Unit II (12 Hours)
Memorandum of Association- Forms – Contents – Procedures for Alteration – Secretarial Duties – Articles of Association – Forms and Contents- Procedures for Alteration-Doctrine of Indoor Management- Distinguish between Memorandum And Articles.

Unit III (12Hours)
Prospectus – Definition-Deemed Prospectus-Shelf Prospectus- Red-Herring Prospectus- Contents – Statement in Lieu of Prospectus – Legal Formalities –Secretarial Duties with regard to Prospectus.

Unit IV (12 Hours)
Share Capital – Kinds of Capital – Alteration – Reduction – Issue and Allotment of Shares - Share Certificate – Transfer and Transmission of Shares – Secretarial Duties.

Unit V (12 Hours)
Borrowing Powers – Methods of Borrowing – Mortgages and Charges – Registration of Charges – Legal Provisions - Secretarial Duties with regard to Borrowing.

Text Books

1.N.D.Kapoor, Company Law and Secretarial Practice, 13th Edition, Sulthan Chand and Co, Year 2016

Reference Books

1.P.P.S. Gogna, A Textbook of Company Law, Latest edition,sulthanchand and Co, Year 2015.

2.K.L. Maheswari, R.K. Maheswari, Company Law and Secretarial Practice, New Royal Book Company, 2013.

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FOURTH SEMESTER

PART III – CORE 9 - DATABASE MANAGEMENT SYSTEM

Maximum CE: 70

Maximum CIA: 30

Total Hours: 72

Objective:

Enabling Students to Acquire Theoretical knowledge to be successful in Database Management System.

Unit – I

[12 HOUR]

An overview of Database Management – Introduction – Definition of Database System – Operational Data- Data Independence – Relational Systems-Database System Architecture – Three Levels of the Architecture – Database Administrator – Role of Database Administrator-Storage Structure: Representation of data. Data Structures and Corresponding Operators: Introduction to Relational Approach, Hierarchical Approach, Network Approach.

Unit – II

[12 HOUR]

An Introduction To Relational Database – Introduction – Relational Model – An Introduction to SQL – Domains, Relations and Base Relvars- Relational Approach- Data Structures- Domain- Attributes- Keys- Relational algebra: Introduction- Traditional Operators-Special Relational Operators.

Unit – III

[12 HOUR]

Database Designing- Normalization- Types- Good and Bad Decomposition- BOYCE/CODD Normal Form.

Unit – IV

[12 HOUR]

Hierarchical Approach:IMS data structure. Physical database, database description, Hierarchical sequence. External level of IMS: Logical Databases, the program communication block. IMS data manipulation: Defining the program communication block: DL/I Examples.

UNIT V

[12 HOUR]

Network Approach-Architecture of DBTG-External Level of DBTG-Data Manipulation. Hierarchical Approach :IMS data structure. Physical database, database description, Hierarchical sequence. External level of IMS: Logical Databases, the program communication block. IMS data manipulation: Defining the program communication block: DL/I Examples.

TEXT BOOKS

1. C.J. Date, “An Introduction to Database system”,
2. Abraham Ailberschatz, Henry F. Korth, S. Sudarshan “Database System Concepts.Sixth Edition 2010

REFERENCE BOOKS

- 1.RaghuRamakrishnan and GehrkeJohannes, Database Management Systems, 6th Edition,McGrawHill, 2010.
2. Nilesh Shah, Database Systems Using Oracle- PHI- Publisher, Reprint ,2013.(Unit IV, Unit V)

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FOURTH SEMESTER

PART III – CORE LAB 3 - DATABASE MANAGEMENT SYSTEM

Maximum CE: 60

Maximum CIA: 40

Total Hours: 60

Objective: Enabling Students to Acquire Practical knowledge to be successful in DBMS using oracle.

ORACLE – SQL

1. Create a table "Company" with the following fields and insert the values for 10 employees.

Field Name	Field Type	Field size
Company Name	Character	15
Proprietor	Character	15
Address	Character	25
Supplier Name	Character	15
No of employees	Number	4
GP Percent	Number	6 with 2 decimal places

Queries:

- Display all the records of the company which are in the ascending order of GP percent.
- Display the name of the company whose supplier name is "Telco".
- Display the details of the company whose GP percent is greater than 20 and Order by GP Percent.
- Display the detail of the company having the employee ranging from 300 to 1000.
- Display the name of the company whose supplier is same as the Tata's.

2. Create a table named "Employee" with the following fields and insert the values.

Field Name	Field Type	Field Size
Employee Name	Character	15
Employee Code	Number	6
Address	Character	25
Designation	Character	15
Grade	Character	1
Date of Joining	Date	
Salary	Number	10 with 2 decimal places

Queries

- Display the name of the employee whose salary is greater than Rs.10-000
- Display the details of employees in ascending order according g to Employee Code.
- Display the total salary of the employees whose grade is "A"
- Display the details of the employee earning the highest salary.
- Display the names of the employees who earn more than "Ravi"

3. Create a table "Student" with the following fields and insert the values:

Field Name	Field Type	Field Size
------------	------------	------------

Student Name	Character	15
Gender	Character	6
Roll No	Character	10
Department Name	Character	15
Address	Character	25
Percentage	Number	4 with 2 decimal places

Queries:

- Calculate the average percentage of students.
- Display the names of the students whose percentage is greater than 80.
- Display the details of the student who got the highest percentage.
- Display the details of the students whose percentage is between 50 and 70.
- Display the details of the students whose percentage is greater than the Percentage of the roll no=12CA01.

4. Create a table "Product" with the following fields and insert the values:

Field Name	Field Type	Field Size
Product No	Number	6
Product Name	Character	15
Unit of Measure	Character	15
Quantity	Number	6 with decimal places
Total Amount	Number	8 with decimal places

Queries:

- Using update statements calculate the total amount and then select the record.
- Select the records whose UNIT of measure is "Kg".
- Select the records whose quantity is greater than 10 and less than or equal to 20.
- Calculate the entire total amount by using sum operation.
- Calculate the number of records whose UNIT price is greater than 50 with count operation.

5. Create the table PAYROLL with the following fields and insert the values:

Field Name	Field Type	Field Size
Employee No	Number	8
Employee Name	Character	8
Department	Character	10
Basic Pay	Number	8 with 2 decimal places
HRA	Number	6 with 2 decimal places
DA	Number	6 with 2 decimal places
PF	Number	6 with 2 decimal places
Net Pay	Number	8 with 2 decimal places

Queries:

- Update the records to calculate the net pay.
- Arrange the records of the employees in ascending order of their net pay.
- Display the details of the employees whose department is "Sales".
- Select the details of employees whose HRA >= 1000 and DA <= 900.
- Select the records in descending order.

6. Create a Table Publisher and Book with the following fields:

Publisher Table:

Field Name	Field Type	Field Size
Publisher Code	Varchar	5

Publisher Name	Varchar	10
Publisher city	Varchar	12
Publisher State	Varchar	10

Book Table:

Field Name	Field Type	Field Size
Title of book	Varchar	15
Book Code	Varchar	5
Book Price	Varchar	5

Queries:

- Insert the records into the table publisher and book.
- Describe the structure of the tables.
- Show the details of the book with the title "DBMS".
- Show the details of the book with price>300.
- Show the details of the book with publisher name "Kalyani".
- Select the book code- book title- publisher city is "Delhi".
- Select the book code- book title and sort by book price.
- Count the number of books of publisher starts with "Sultan chand".
- Find the name of the publisher starting with "S".

7. Create a table Deposit and loan with the following fields:

Deposit Table:

Field Name	Field Type	Field Size
Account No	Varchar	6
Branch Name	Varchar	15
Customer Name	Varchar	20
Balance Amount	Varchar	10

Loan Table:

Field Name	Field Type	Field Size
Loan Number	Varchar	7
Account No	Varchar	6
Loan Amount	Varchar	6

Queries:

- Insert the records into the table.
- Describe the structure of the table.
- Display the records of Deposit and Loan.
- Find the number of loans with amount between 10000 and 50000.
- List in the alphabetical order the names of all customers who have a loan at the Coimbatore branch.
- Find the average account balance at the Coimbatore branch.
- Update deposits to add interest at 5% to the balance.
- Arrange the records in descending order of the loan amount.
- Find the total amount of deposit in 'Erode' branch.

8. Create a flight and reservation table with the following fields:

Flight Table:

Field Name	Field Type	Field Size
Flight Number	Varchar	10
Flight Name	Varchar	20
Country	Varchar	20
Flight Date	Date	

Reservation:

Field Name	Field Type	Field Size
Flight Number	Varchar	10
PNR No	Varchar	10
Passenger Name	Varchar	20
Date of Journey	Date	
Date of Reservation	Date	
Boarding Place	Varchar	20

Passenger Table:

Field Name	Field Type	Field Size
PNR No	Varchar	10
Flight Number	Varchar	10
Passenger Name	Varchar	20
Age	Number	3
Gender	Char	6
Ph.No	Number	10
Date of Journey	Date	
Departure	Varchar	20
Arrival Place	Varchar	20

Queries:

- 1] Alter the table and set relevant key constraint.
- 2] Sort the passenger list by the date of journey
- 3] Find the names of all the passengers reserved for the flight named “SPICEJET”
- 4] Find the total number of female passengers reserved on 27th July 2012
- 5] Display the passenger details and reservation details using nested query.
- 6] Display the reservation details of the flight “AIR 21085” using complex query.

9. Create a project database with given relations:

Project (Project#, Project Name, Chief Architect)
Employee (Empno#,Empname,Designation,Salary)
Assigned (Project#, Empno)

Queries:

- 1] Identify and set the primary key with concerned relations
- 2] Get details of employees working on both projects IHL and CME
- 3] Get names of all the employees who are assigned to the projects designed by the chief architect ‘GORKY’
- 4] Get employee numbers of employees who work at least all those projects that employee ‘KAWAS’ works on.

10. Create a library database with relevant fields

Library (Book Code, ISBN NO, Title, Author, Co-Author, Publisher, Edition, Price, No of volumes, type)

Queries:

- 1] Get the details of the book with minimum number of copies.
- 2] Alter the table and set primary key constraint.
- 3] Find the book title, author name, co author with ISBN NO ‘Qe234903’
- 4] Find the total number of volumes available in the library.

11. Create a supplier part database with the following table names and field names.

- 1] Supplier table S (S#,sname, status,city)
- 2] Part table P(P#,pname,color,weight,city)
- 3] Project table PR(PR#, Pname,Pcity)
- 4] Shipment table SP(S#,P#,PR#,Qty)

Queries:

- 1] Get the part number for parts, such that no other parts has a smaller weight value. Use appropriate aggregate function if necessary.
- 2] Get S# values for suppliers who supplied to projects BT and IMS
- 3] Change the color of all red parts to orange.

12. Create a college table with relevant fields and create a view on college table which contains five fields Dept code, Dept name, HOD, Number Staff and Students

TEXT BOOK

1. Leon Alexis and Leon Mathews, Database Management Systems, 2 nd Edition, Vikas Publishing House, 2001.

REFERENCE BOOKS

1. RaghuRamakrishnan and Gehrke Johannes, Database Management Systems, 3 rd Edition, McGrawHill, 2003.
2. R.Panneer Selvam, Database Management Systems, 1 st Edition PHI Pvt Ltd, 2002.
3. C.J.Date and Addison, An Introduction to Database Systems, 7 th Edition, Wesley Publications, 2000.
4. Mark L.Gillenson, Fundamentals of DBMS, John Wiley India Pvt Ltd, 2008.
5. Atul Kahate, Introduction to DBMS, Pearson Education, 2006.

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**FOURTH SEMESTER
PART IV – AOC II – COMMERCE PRACTICAL**

Maximum CIA: 40

Maximum CE: 60

Total Hours: 36

Objective: Impairing professional skills in Corporate Sector

1. Banking Formalities[Instruments used in Banking]
2. Manufacturing Trading Account
3. DEMAT Account[ONLINE]And REMAT Account
4. PAN Card and GST Registration
5. ONLINE Booking- Shopping
6. Registration for small scale Industries[Registration of MSME and NABARD]

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**FOURTH SEMESTER
PART IV – AOC II – BRAND MANAGEMENT**

Maximum CE: 75

Total Hours: 36

Objective

To teach the importance of brand and its impacts among the customers

UNIT I

[8 HOURS]

Introduction- Basic understanding of brands – concepts and process – significance of a brand –brand mark and trade mark – different types of brands – family brand, individual brand, private brand – selecting a brand name – functions of a brand – branding decisions – influencing factors.

UNIT II

[7 HOURS]

Brand Associations: Brand vision – brand ambassadors – brand as a personality, as trading asset, Brand extension – brand positioning – brand image building.

UNIT III

[7 HOURS]

Brand Impact: Branding impact on buyers – competitors, Brand loyalty – loyalty programmes –brand equity – role of brand manager – Relationship with manufacturing - marketing- finance -purchase and R & D – brand audit

UNIT IV

[7 HOURS]

Brand Rejuvenation: Brand rejuvenation and re-launch, brand development through acquisition takes over and merger – Monitoring brand performance over the product life cycle. Co-branding.

UNIT V

[7 HOURS]

Brand Strategies: Designing and implementing branding strategies

TEXT BOOK

1.S.Ramesh Kumar, “Managing Indian Brands”, Vikas publishing House (P) Ltd., New Delhi,2012.

REFERENCE BOOKS

- 1.Jean Noel, Kapferer, “Strategic brand Management”, The Free Press, New York, 2012.
2. Paul Tmeporal, Branding in Asia, John Wiley & sons (P) Ltd., New York, 2010.

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THIRD SEMESTER

ADDITIONAL CREDIT - HUMAN RESOURCE MANAGEMENT

Maximum CE: 100

Objectives:

To enable students learn the various concepts and functions of HRM

UNIT I

Introduction - Evolution of HRM -- Importance of HRM- Personnel Management vs Human Resource Management- Strategic Human Resource Management.

UNIT II

Employment Planning and Forecasting -Job analysis- – Process of Job analysis – Job description- Job specification.

UNIT III

Interview, Common Interviewing Mistakes, Designing and Conducting the Effective Interview, Small Business Application, Computer Aided Interview

UNIT IV

Job Evaluation-.Performance Appraisal- Essential characteristics of an effective appraisal system

UNIT V

Industrial Relations- Trade Unions- Collective Bargaining- Employee grievance.

TEXT BOOK

1. VSP Rao, Human Resource Management : Text And Cases, First Edition, Excel Books , New Delhi- 2010

REFERENCE BOOKS

- 1.Gary Dessler –Human Resource Management, 7th Edition, Prentice Hall Of India Private Ltd, 2006, New Delhi.
- 2.Dr. R. Venkatapathy And AssissiMenacheri, Industrial Relations &Labour Welfare, Adithya Publication, Cbe 2001

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**FOURTH SEMESTER
ADDITIONAL CREDIT - ENTREPRENEURIAL DEVELOPMENT**

Maximum CE: 100

Objectives :

To enable the students to learn the fundamentals of being a good entrepreneur and the Concept of entrepreneurship, Knowledge about the financing institutions, project report, incentives and subsidies.

UNIT I

Concept of entrepreneurship : Definition Nature and characteristics of entrepreneurship – function and type of entrepreneur. Development of women entrepreneur and rural entrepreneur – self employment- Problem of Women Entrepreneur.

UNIT II

The start-up process, Project identification – Business Idea – Sources of Business Idea – Selection of the product – project formulation - evaluation – feasibility analysis, Project Report.

UNIT III

Institutional services to entrepreneurs – DIC, SIDO, NSIC, SISI, SIDCO and KVIC, Institutional finance to entrepreneurs : IFCI, SFC, IDBI, ICICI, TIIC and SIPCOT.

UNIT IV

Incentives and subsidies – Subsidised services – subsidy for market - Transport – seed capital assistance - Taxation benefit to SSI role of entrepreneur in export promotion and import substitution.

UNIT V

Industrial Sickness- Symptoms- Remedies – Causes.

TEXT BOOK

1. Gupta.C.B and Srinivasan N.P, Entrepreneurial Development, 2010, Sultan Chand and Co., New Delhi.

REFERENCE BOOK

1. Saravanavel.P, Entrepreneurial Development, 2nd edition, Essae Chandra Institute, Mumbai.

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**FIFTH SEMESTER
PART III- CORE 10- COST ACCOUNTING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 72

Objective: To enable the student to have a thorough knowledge on the cost accounting principles and the methods of accounting for cost.

UNIT I (13 HOURS)
Cost Accounting–Definition–Meaning and Scope Concept and Classification–Costing an aid to Management—Types and Methods of Cost–Preparation of Cost Sheet–Cost accounting vs. Financial accounting.

UNIT II (17 HOURS)
Material Control: Need for Material Control–Levels of material Control [Maximum, Minimum and Reorder Level]–Economic Order Quantity–ABC,VED analysis . Purchase and stores Control. Methods of valuing material issue [FIFO, LIFO and Weighted Average Method].

UNIT III (17 HOURS)
Labour: Systems of wage payment [Piece Rate, Time Rate, Taylor’s Differential Piece Rate System , Rowan’s plan ,]–Idle time–Control over idle time–Labour turnover. Overhead – Classification of overhead–Allocation and Absorption of Overhead.

UNIT IV (12 HOURS)
Process costing–Features of process costing–process losses, wastage, scrap, normal process loss–abnormal loss, abnormal gain. Including inter process profit.

UNIT V (13 HOURS)
Marginal Costing–Meaning, Definition, Benefits and Limitations of Marginal Costing–Break Even Analysis–Application of Marginal Costing in Business Decision Making.

NOTE : Distribution of marks : Theory 20% and Problems 80%

TEXT BOOK:

1. Jain.S.P and Narang.K.L , Cost Accounting, Revised Edition, Kalyani Publishers, Year 2014.

REFERENCE BOOKS:

1. Ashish Kalra, Cost Accounting, IGP Publications, Year 2015.
2. Pillai.R.S.N and Bagavathi.V , Cost Accounting, Reprint, Sultan Chand & Sons , Year 2013.

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**FIFTH SEMESTER
PART III -CORE 11- TAXATION -I**

Maximum CIA :30
Maximum CE: 70
Total Hours:72

Objective : To familiarize the students with the basic provisions of the Income Tax

UNIT I (14 HOURS)

Income Tax-Definition of Income tax–Tax Planning-Authorities–Assessment year-previous year-Assessee Scope of Income-Charge of tax Residential status-Exempted Income.

UNIT II (16 HOURS)

Heads of income-Income from salaries–Income from house property.

UNIT III (14 HOURS)

Profits and Gains of business or Profession–Income from other sources.

UNIT IV (14 HOURS)

Capital gains-Exception and Provisions-Deductions from Gross Total Income.

UNIT V (14 HOURS)

Set-off and Carry Forward of losses–Aggregation of Income-Computation of tax Liability-Assessment of Individuals.

NOTE : Distribution of marks : Theory 20% and Problems 80%

TEXT BOOK:

1. Gaur.V.P and Narang.D.B, Puja Gahai,Rajeev Puri , Income Tax ,40th edition, Kalyani Publishers , 2015, New Delhi.

REFERENCE BOOKS:

1. Hariharan.N, Income Tax, 4th edition, Tata McGraw hill, 2015, New Delhi.
2. Prasad, Bhawathi, Direct tax Law and Practice, Wishwa Prakashan Publications , Year 2000.

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**FIFTH SEMESTER
PART III- CORE 12- LEGAL BUSINESS CONCEPTS**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 36

Objective: To enable the students to know about the Legal processes involved in Business operations.

UNIT I (7 HOURS)

Sources of Law-Law of Contract–Nature–Kinds–Essentials of Valid Contract Offer-Acceptance- Intention to create Legal Relations.

UNIT II (7 HOURS)

Considerations-Capacity to a Contract. Free Consent–Mistake–Misrepresentations–Fraud–Coercion and Undue Influence.

UNIT III (7 HOURS)

Lawful Object–Agreement not declared Void.

UNIT IV (8 HOURS)

Indian Partnership Act 1932–Definition–formation–registration–partnership deed, minor as partner–rights, duties and liabilities of partners.

UNIT V (7 HOURS)

Consumer protection Act-1986-Definitions–consumer protection council –consumer rights.

TEXT BOOK:

1. N.D.kapoor, Elements of Industrial Law, Revised Edition, Sultan Chand & Sons, Year 2013.

REFERENCE BOOKS:

1. N.D.kapoor, Elements of Mercantile Law, Revised Edition, Sultan Chand & Sons, Year 2014
2. S. N. Mishra, Labour and Industrial Law, 27th Edition, Central Law publications, Year 2013.

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FIFTH SEMESTER

PART III -CORE 13- SOFTWARE DEVELOPMENT IN VISUAL BASIC

Maximum CIA :30

Maximum CE: 70

Total Hours:60

Objective: Enabling the students to acquire theoretical and practical knowledge to be successful in Visual Basic.

UNIT-I (12 HOURS)

Introduction to Visual Basic–Steps in VB Applications–Integrated Development Environment [IDE]–Menu Bar–Toolbar–Project Explorer Window–Property Window–Toolbox–Properties- Methods and Event Driven Programming–Working with Forms.

UNIT-II (12 HOURS)

Variables–Scope of Variable–Constants–Data Types–Function Procedures–Control Structures: If–Switch–Select–for–While–Do While–Array–User Defined Data Types–Data Type Conversions–Operators–String Function–Date and Time Function.

UNIT-III (12 HOURS)

Creating and Using Standard Control: Form-Label-Textbox- Command Button-Checkbox- Option Button-List Box- Combo Box- Picture Box-Image Control-Scrollbars–Drive List Box – Directory List Box–Time Control- Frame-Shape and Line Controls.

UNIT-IV (12 HOURS)

Control Arrays–Working with Control Array–Adding and Removing Controls in Control Array–the Flex Grid Control: Properties-Events and Methods of Grid Control–Dialog Boxes –Single Document Interface [SDI]–Multiple Document Interface[MDI]–Menus–Menu Editor – Menu Creation.

UNIT-V (12 HOURS)

Data Controls–Data Access Objects[DAO]–Accessing and Manipulation Databases–Record Set. Types of Record Set–Creating a Record Set–Modifying- Deleting-Finding Record–Data Report–Data Report–Data Environment–Report Designer–Connection Objects–Command Objects–Section of Data Report Designer–Data Report Controls.

TEXT BOOK:

1. Mohammed Azam, Programming With Visual Basic 6.0, IKAS Publishing House [P] Ltd Reprint 2014.

REFERENCE BOOKS:

1. CORNELL GRAY, VB 6 Form Ground Up, 1st Edition, Tata Mc Graw Hill, Reprint 2013.
2. Rob Thayer, VB 6 Unleashed Comprehensive Solution, Reprint 2012

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FIFTH SEMESTER

PART III- CORE LAB - 4 -SOFTWARE DEVELOPMENT IN VISUAL BASIC

Maximum CIA :40

Maximum CE: 60

Total Hours:60

Objective: Imparting professional Skills in Visual Basic.

1. Designing a form with textbox to perform the alignment and format function
2. Designing a form to compute simple interest and compound interest.
3. Designing a form to compute student mark list, validate the marks and display the result accordingly.
4. Designing a form to display the list of products by declaring array function
5. Designing a form to calculate capital budgeting techniques by declaring finance function and variable declaration using option button.
6. Designing a form to display an advertisement banner using image box control with string function.
7. Designing a form to display Break – even analysis using line and chart control by declaring variable.
8. Designing a form to present product details like purchases- sales- and profit by declaring array function and present in Rich Textbox.
9. Designing a pay slip for an organization and create a database using SQL and Data Control
10. Designing the form to display the highlights of the budget using option button and animation.
11. Designing a supermarket bill to display the sales invoice- and create a database using data control- option button- checkbox- date picker etc.
12. Designing the form to create a bank customer database by declaring simple and multiple arrays using data control.

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SIXTH SEMESTER

PART III- CORE 14 – ACCOUNTING FOR MANAGEMENT

Maximum CIA :30

Maximum CE: 70

Total Hours:72

Objective : To enable the students understand the practical usage of Management Accounting

UNIT I (14 HOURS)

Management Accounting–Meaning, Definition, Nature, Scope, Functions, Objectives, Importance and Limitations of Management Accounting–Comparison of Management Accounting with Financial and Cost Accounting–Tools and Technique of Management Accounting–Management Accountant–Qualification, Duties and Liabilities of a Management Accountant.

UNIT II (14 HOURS)

Financial Statement Analysis and Interpretation–Common Size Statement Analysis, Comparative Statement Analysis and Trend Analysis.

UNIT III (15 HOURS)

Ratio Analysis–Liquidity Ratios–Activity Ratios–Profitability Ratios–Solvency Ratios–Preparation of Balance Sheet.

UNIT IV (14 HOURS)

Working Capital Management-Meaning Definition-Determinants of working capital, Fund Flow Statement–Schedule of changes in working capital–Preparation of Funds Flow Statement.–Preparation of Cash Flow Statement.

UNIT V (15 HOURS)

Budgeting and Budgetary Control–Definition–Importance, Essentials–Classification of Budgets–Cash Budget, Sales Budget, Purchase Budget, Production Budget, Production Cost Budget, Flexible Budget, Master Budget-Zero Based Budgeting.

NOTE : Distribution of marks : Theory 20% and Problems 80%

TEXT BOOK:

1. Shashi K. Gupta and R.K. Sharma, Neeti Gupta, Management Accounting, 2nd Revised Edition, Kalyani Publishers, 2012, New Delhi.

REFERENCE BOOKS:

1. Dr. R. Ramachandran and Dr. R. Srinivasan, Management Accounting – Theory, Problems and Solutions, 14th Revised Edition, Sri Ram Publications, 2010, Trichy.
2. S.N. Maheswari. and S.K. Maheswari, A Text Book of Accounting for Management, 5th Reprint, Vikas Publishing House, 2012, Mumbai.

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**SIXTH SEMESTER
PART III-CORE 15 - HTML**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: Enabling students to acquire theoretical and practical knowledge to be successful in internet and web designing.

UNIT-I (12 HOURS)

Internet–Internet Access / Dial-Up Connection–Internet Service and Features–TCP/IP–Configuration the Machine for TCP/IP Account and Shell Account–Telnet–World Wide Web –Webpage–Hypertext–HTML Tags–NetSurfing–Internet/Web Browsing–Internet Addressing –IP Address–Domain Name–Uniform Resource Locator[URL]–Internet Protocol–TCP/IP–FTP HTTP–Telnet–Gopher–WAIS.

UNIT-II (12 HOURS)

Searching the Web–Web Index–Web Search Engine–Web Meta–Search–Meta Search Site–Directories and Indexes–Specified Directories–Email–Email Messages–Customizing Email Programs–Managing Mails–Zen of Emailing–Address Book

UNIT-III (12HOURS)

HTML–HTMLCode–Basics–SetupandDisplayaWebPage–Heading–PreFormatTextComment –Special Character–Format Text–Emphasize–Super and Subscript–Font Style–Size and Color–Margins Lists Types–Images.

UNIT-IV (12 HOURS)

Links–Create Keyboard Shortcuts–Change the Tab Order–Tables Creating a Table–Add a Border–Caption–Column and Row Group–Color–Background Image–Alignment–Text Wrapping–Nested Table–Warp Text Around a Table.

UNIT-V (12 HOURS)

Sound and Videos–Introduction to Form–Setup a Form–Text Box–Checkbox–Radio Button – Menu–Organize from Elements–Label from Elements–Introduction to Form–Creating Frames–Link to a Frame–Scrollbar–Nested Frames–Inline Frames.

TEXT BOOK:

1. Alexis Leon and Mathews Leon- Internet for Everyone- Leon Tech World, Chennai Reprint 2014.

REFERENCE BOOKS:

1. Eric Ladd and Jim O’Donnell -Using HTML 4- XML and JAVA ,Platinum Edition, PHI. Reprint 2012
2. Elizabeth Castro- PERL and CGI, Pearson Education Reprint 2013.

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**SIXTH SEMESTER
PART III- CORE LAB - 5 –HTML LAB**

Maximum CIA :40
Maximum CE: 60
Total Hours:60

Objective: Impairing professional skills in Internet and Web designing

1. Creating Web pages for a business organization using HTML image as links.
2. Creating a program using HTML to display the ordered list and unordered list of departmental stores.
3. Programming to display image and text using HTML tag for advertisement of a company product.
4. Creating a table to display list of products using HTML tag.
5. Creating a document using formatting and alignment to display sales letter.
6. Creating a resume using HTML tag.
7. Creating a website of your department with minimum five links using HTML
8. Creating a document using form to support local processing of order form.
9. Create a form for bus ticket reservation system.
10. Create a form for quiz portal.
11. Create a form for university exam fee payment.
12. Creating a frame to display a multiform document.

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FIFTH SEMESTER

PART III- ELECTIVE I - E COMMERCE

Maximum CIA: 30

Maximum CE: 70

Total Hours:60

Objective:

Enabling the Students to Acquire Theoretical knowledge to be successful in E-Commerce.

UNIT I (12HOURS)

E Commerce: The Revolution is just beginning ,E Commerce: A Brief History-Electronic Commerce-Electronic Commerce Models-Types of Electronic Commerce-Value Chains in Electronic Commerce-E-Commerce in India-Introduction to E-Business-Internet-World Wide Web-Internet Architectures-Internet Applications-Web Based tools for Electronic Commerce.

UNIT II (12 HOURS)

E-Commerce Business models and concepts-The Internet and World Wide Web - E Commerce Business models, Major Business to consumer (B2C) Business models, Major Business to Business (B2B) business models, Business models in emerging Ecommerce areas, Intranet-Composition of Intranet- Business Applications on Intranet-Extranets Electronic Data Interchange-Components of Electronic Data Interchange-Electronic Data Interchange (Communication Process).

UNIT III (12 HOURS)

Security Threats to E-Business- Security Overview- Electronic Commerce Threats-Encryption-Cryptography- Public Key and Private Key Cryptography- Digital Signatures-Digital Certificates-Security Protocols over Public Networks- HTTP- SSL- Firewall as Security Control- Public Key Infrastructure (PKI) for Security- Prominent Cryptographic Applications.

UNITIV (12HOURS)

Electronic Payment System- Concept of Money-Electronic Payment System- Types of Electronic Payment Systems-Smart Cards and Electronic Payment Systems- Infrastructure Issues in EPS, Electronic Fund Transfer.

UNITV (12HOURS)

Ecommerce Marketing concepts –Online Retailing and Services-Consumer online: The Internet Audience and Consumer Behavior-Basic Marketing concepts-Internet Marketing–The Service sector of offline and online, Online financial services-online travel services-Online career –Social networks and Online communities, Online auctions, E Commerce Portals

TEXT BOOK:

1. Whitley, David. E-Commerce Strategy, Technologies and Applications. Tata McGraw Hill, Reprint 2014.

REFERENCE BOOKS:

1. C.Laudon, E- Commerce :Business Technology Society, 4th Edition, Pearson Education, Reprint 2011.
2. Balaji, Kamlesh K and Nag, Debjani, E-Commerce: The Cutting Edge of Business, Tata McGraw Hill, Publishing Company Ltd., New Delhi. Reprint 2011.

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**FIFTH SEMESTER
PART III- ELECTIVE I - CORPORATE FINANCE**

Maximum CIA: 30
Maximum CE: 70
Total Hours:60

Objective: Enabling students to acquire theoretical knowledge to be successful in Business Finance.

UNIT I (12 HOURS)
Corporate Finance–Meaning–Nature and Scope of Corporate Finance–Functions–Objectives –Profit Maximization–Wealth Maximization–Importance of Financial Management–Finance Manager–Role.

UNIT II (12 HOURS)
Financial Planning–Characteristics of a Sound Financial Plan–Factors affecting Financial Plan –Need for Financial Plan–Capitalization–Over Capitalization–Undercapitalization–Capital Gearing .

UNIT III (12 HOURS)
Capital Structure–Business and Financial Risks–Financial and Operating Leverage–Sources of Funds–Share Capital–Best Capital.

UNIT IV (12 HOURS)
Working Capital–Determinants of Working Capital–Sources of Working Capital–Financial Markets Money Markets–Capital market–Recent trends in Capital Market.

UNIT V (12 HOURS)
Term Loans–Institutional Finance–Unit Trust of India–Industrial Finance Corporation–State Finance Corporation–IDBI.

TEXT BOOK:

1. Pandey.I.M., Financial Management, 1st Edition, Vikas Publishing house, Year- 2011, New Delhi.

REFERENCE BOOKS:

1. Prasanna Chandra, Fundamentals of Financial Management, Reprint 2013, Tata McGraw Hill, Year- New Delhi.
2. Khan M.Y., Jain.P.K. Theory and Problems of Financial Management, Reprint 2013 Tata McGraw Hill, , New Delhi.

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FIFTH SEMESTER

PART III- ELECTIVE I - ORGANIZATIONAL BEHAVIOR

Maximum CIA :30

Maximum CE: 70

Total Hours:60

Objective: To Acquaint knowledge about the motivational skills and effectiveness in behavior in corporate sectors.

UNIT I (12 HOURS)

Introduction-Definition–nature scope–contributing disciplines to the field of organizational behavior-Historical evolution of organizational behavior.

UNIT II (12 HOURS)

The individuals-Major personality attributes influencing OB–Organizational application of learning–application of perception in the organization–decision making–values–attitudes.

UNIT III (12 HOURS)

The Group-Definition–classification–group development–group structure–group decision-making–teams, power–policies–conflicts.

UNIT IV (12 HOURS)

Motivation and Leadership -Motivation–meaning–process–early theories–contemporary theories- application of motivation techniques–leadership–definition–characteristics–functions–styles–theories: Trait theories–behavioral theories–contingency theories–recent approaches.

UNIT V (12 HOURS)

Organizational System and Dynamics -System approach to organization – organizational culture – management of change : Need – resistance – organizational development : Meaning – characteristics – Techniques – organizational effectiveness.

TEXT BOOK:

1. L. M. Prasad, Organizational Behavior, 5th Revised Edition Reprint 2014, Sultan Chand & Sons, Year 2014.

REFERENCE BOOKS:

1. Robbins, Organizational Behavior, 7th Edition, McGraw Hill, Year 2010.
2. Ramasami.N, Organizational Behavior, 6th Edition, T.R.Publications, 2011.

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**SIXTH SEMESTER
PART III- ELECTIVE II - FINANCIAL MANAGEMENT**

Maximum CIA: 30
Maximum CE: 70
Total Hours:60

Objective: To acquaint knowledge about the budgetary controls used in the corporate.

UNIT I (12 HOURS)
Evolution of Financial Management-scope and objectives of financial management–Capital budgeting: Capital Budgeting Process, Project formulation & Project Selection, Introduction to Various Capital Budgeting Techniques; Payback Period Method, Average rate of return, Net Present Value method, IRR, Benefit-Cost Ratio, Capital Rationing.

UNIT II (12 HOURS)
Sources of Long term funds: Equity shares, Preference shares, Debentures, Public deposits, factors affecting long term funds requirements.

UNIT III (12 HOURS)
Lease financing: Concept, types. Advantages and disadvantages of leasing. Capital Structure: Determinants of Capital Structure, Capital Structure Theories, Cost of Capital, Operating and Financial Leverage.

UNIT IV (12 HOURS)
Working Capital: Concepts, factors affecting working capital requirements, Determining working capital requirements, Sources of working capital.

UNIT V (12 HOURS)
Management of Retained Earnings: Retained earnings & Dividend Policy, Consideration in dividend policy, Forms of Dividends, Dividend Theories, Bonus Shares, .EVA, MVA, and CAPM.

TEXT BOOK:

1. I.M. Pandey, Financial Management, 3rd Edition, Vikas Publications House, Year 2010,Chennai.

REFERENCE BOOKS:

1. Dr. V. R. Palanivelu, Financial Management, 5th Edition, Sultan chand &Co Pvt Ltd, Year -2012, New Delhi.
2. S N Maheshwari, Financial Management Principles and Practice, Vikas Publications House, Year 2010,Chennai.

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**SIXTH SEMESTER
PART III- ELECTIVE II - SOFTWARE ENGINEERING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: Enabling the students with the software project management concepts, techniques and issues Related to implementation.

UNIT I (12 HOURS)

Software Product and Process-Software Characteristics and Applications-Software Process-Software Process Models-Linear Sequential Model-Prototyping Model-RAD Model-Evolutionary Software Process Models-Software Development Process.

UNIT II (12 HOURS)

Software Project Planning and Scheduling: Software Requirement-Software requirements – Specification-Requirements Validation-Software Design Principles-Software Project Estimation : Size Oriented-Function Oriented-Software Metrics-Software Cost Estimation.

UNIT III (12 HOURS)

COCOMO Model-Project Scheduling-Software Staff and Personnel Planning-Rayleigh Curve-Software Team Organization and Control Structure-Project Monitoring and Control Techniques.

UNIT IV (12 HOURS)

Software Quality Assurance and Configuration Management: Software Quality-Software Quality Assurances-Software Testing-Formal Technical Reviews-ISO Software Quality-Standards-Software Configuration Management-SCM Process-Configuration Audit.

UNIT V (12 HOURS)

Risk Management-Software Risks-Reactive and Pro-active Risk Strategies-Risk Identification-Risk Projection and Mitigation-Risk Monitoring and Management.

TEXT BOOK:

1. Roger. S. Pressman, Software Engineering, A Practioner's Approach, 5th Edition, McGraw Hill, Reprint 2014, New Delhi.

REFERENCE BOOKS:

1. Aggarwal, K.K and Singh, Yogesh. Software Engineering, New Age International, Reprint 2011.
2. Walker Royce, Software Project Management, A Unified Framework, Pearson Education Asia, Reprint 2012 Singapore.

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**SIXTH SEMESTER
PART III- ELECTIVE II - CORPORATE GOVERNANCE**

Maximum CIA :30
Maximum CE: 70
Total Hours:60

Objective: Enabling students to acquire theoretical knowledge in Corporate Governance.

UNIT I (12 HOURS)
Corporate Governance – An Overview – Macro Issues – Micro Issues – Board of Governance
– Corporate Social Responsibility - Business Ethics – Corporate Social Reporting.

UNIT II (12 HOURS)
Corporate Governance and the Role of the Board [BOD] – Corporate Governance System
Worldwide – The Board, CEO and the Chairman – Non-executive Directors –Legal Position
and Liabilities of Directors-Key Management Personnel(KMP)-Independent Directors-
Women Directors.

UNIT III (12 HOURS)
Company Audit – Auditor’s Independence – Audit Committees – Audit Committees and
Corporate Governance – Management Audit – Secretarial Audit- Tool for value addition –
[Economic value addition] Corporate Disclosures – Disclosures Norms and Investors Interest
.

UNIT IV (12 HOURS)
Companies Act 2013 – Classification of Companies – Corporate Restructuring – Mergers and
Takeovers – Desirable Corporate Governance in India.

UNIT V (12 HOURS)
E – Governance – Trends in E-governance – Business Process Reengineering - Value Based
Management – Ethical Imperatives in Corporate Governance – Environmental Reporting -
Corporate Governance Rating - Models of Rating.

TEXT BOOK:

1. N. Gopal samy, Corporate Governance, The New Paradigm , 3rd Edition, Wheeler Publishing, New Delhi.

REFERENCE BOOKS:

1. J.Fred Weston, Mark L, Mitchell, J.Harold Maltherin, Takover, Restructuring, and Corporate Governance, – Pearson Education, New Delhi.
2. Dr.S.Singh, Corporate Governance, Excel Books,Chennai.

B.Com (Information Technology) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015 – 2016 onwards

SIXTH SEMESTER

PART III- ELECTIVE III - MULTIMEDIA & ITS APPLICATIONS

Maximum CIA :30

Maximum CE: 70

Total Hours:60

Objective: On successful completion of the course, the students should have learnt the concepts of Graphics, the concepts of two and three dimensional objects, the multimedia concepts, image, animation and Video.

UNIT I (12 HOURS)

Overview of Graphics System - Bresenham Technique – Line Drawing and Circle-Drawing Algorithms - DDA - Line Clipping - Text Clipping.

UNIT II (12 HOURS)

Two Dimensional Transformations – Scaling and Rotations - Interactive Input Methods - Polygons - Splints – Bezier Curves - Window View Port Mapping transformation.

UNIT III (12 HOURS)

3D Concepts - Projections – Parallel Projection - Perspective Projection – Visible Surface Detection Methods - Visualization and Polygon Rendering – Color Models – XYZ-RGB-YIQ-CMY-HSV Models - Animation – Key Frame Systems – General Animation functions - Morphing.

UNIT IV (12 HOURS)

Multimedia Hardware & Software - Components of Multimedia – Text, Image –Graphics – Audio – Video – Animation – Authoring.

UNIT V (12 HOURS)

Multimedia Communication Systems – Data Base Systems – Synchronization Issues – Presentation Requirements – Applications – Video Conferencing – Virtual Reality – Interactive Video – Video on Demand.

TEXT BOOKS:

1. Hearn D and Baker M.P, Computer Graphics – C Version, 2nd Edition, Pearson Education, Reprint 2012 (unit 1, 2 &3).
2. Ralf Steinmetz, Klara Stein Metz, Multimedia Computing, Communications and Applications, Pearson Education, Reprint 2012(unit 4 & 5).

REFERENCE BOOKS:

1. Siamon J. Gibbs and Dionysius C. Tsichritzis, Multimedia Programming, Addison Wesley, Reprint 2011.
2. John Villain, Casanova and Leony Fernanadez, Eliar, Multimedia Graphics, PHI, Reprint 2012.

B.Com (Information Technology) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015 – 2016 onwards

**SIXTH SEMESTER
PART III- ELECTIVE III - INVESTMENT MANAGEMENT**

Maximum CIA :30
Maximum CE: 70
Total Hours:60

Objective: To explain the concept of investments with special reference to securities market.

UNIT I (12HOURS)
Investment – Meaning – Nature – Types – Features – Factors Influencing Investments – Risk and Return – Financial Markets – Financial Institutions.

UNIT II (12HOURS)
Capital Market and Stock Exchange in India – Structure – Primary Markets and Secondary Markets – Mechanics of Trading – SEBI and Its Role.

UNIT III (12HOURS)
Investment Alternatives: Bonds – Preference and Equity Shares – LIC – UTI – Mutual Funds – National Saving Scheme.

UNIT IV (12HOURS)
Fundamental and Technical Analysis and Evaluation: Economic Analysis – Industrial Analysis – Company Analysis – Technical Analysis.

UNIT V (12HOURS)
Portfolio Analysis and Management – Scope – Types – Portfolio Evaluation – Portfolio Selection – Portfolio Revision.

Distribution of Marks: 80%for Theory, 20% for Problem

TEXT BOOK:

1. V.K.Bhalla, Investment Management, 7th Edition, S.Chand and Company Ltd., Reprint 2012, New Delhi.

REFERENCE BOOKS:

1. Reilly and Brown, Investment Analysis and Portfolio Management, Cengage Learning, 8th edition, Reprint 2012
2. S. Kevin , Securities Analysis and Portfolio Management , PHI Learning , Reprint 2013.

B.Com (Information Technology) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015 – 2016 onwards

SIXTH SEMESTER

PART III- ELECTIVE III - WORKING CAPITAL MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours:60

Objective: To educate the importance of Working Capital Management concepts .

UNIT I (12 HOURS)

Working Capital Management – Meaning – Concept – Classification – Factors – Principles – Importance – Needs – Determinants - New trends in Working Capital.

UNIT II (12 HOURS)

Financing of working capital – Money market instruments – Bank Finance – Managing corporate liquidity and financial flexibility.

UNIT III (12 HOURS)

Receivables Management – Meaning – factors – Forecasting – Objectives – Dimensions – Executing Credit Policy.

UNIT IV (12 HOURS)

Cash Management – Inventory Management.

UNIT V (12 HOURS)

Working Capital Control and Banking policy –Working capital Requirements for Various Industries – New system of assessment of working capital finance.

TEXT BOOK:

1. V.K.Bhalla, Working Capital Management, Text and Cases, sixth edition, Anmol publications

REFERENCE BOOKS:

1. Prasanna Chandra, Financial Management, Theory and Practice, Reprint 2010. Tata McGraw Hill
2. R.K .Gupta & Himanshu Gupta, Working Capital and Finance
3. Khan and Jain, Financial Management, Reprint 2011 Tata McGraw hill.

**B.Com (Information Technology) Degree Examination – Syllabus for Candidates
admitted from the Academic Year 2015 – 2016 onwards**

**FIFTH SEMESTER
ADDITIONAL CREDIT PAPER
INSTITUTIONS FACILITATING INTERNATIONAL TRADE**

Objective: To educate the importance of International trade.

UNIT I

Export promotion in India-Department of Commerce- Functional divisions- Advisory bodies- Commodity organizations-Export promotion councils (EPCs)- Commodity Boards- Autonomous bodies- Service Institutions and organizations-Government trading organizations-State trading corporations- Major STC's in India- State export –Promotion agencies- Impediments in export promotion.

UNIT II

Role of RBI in export finance –Role of commercial banks-Small Industrial Development Bank of India (SIDBI) - Objectives-Schemes-Export and Import bank of India (EXIM) - Objectives-Functions-Export Credit Guarantee Corporation of India (ECGC) – Functions – Special functions of ECGC.

UNIT III

World Trade Organisation – GATT – Objectives-Evolution of WTO-Functions- Principles of WTO- Organization structure- WTO agreements-GATS-TRIMS-TRIPS-Objectives of IPRs benefits-Limitations-Procedure of dispute settlement –WTO and anti dumping measures-Evaluation of WTO- drawbacks/Criticisms.

UNIT IV

International Monetary Fund (IMF)-Objectives- Organization and management- Resources-Financing facilities- Conditions on borrowers- Special drawing rights-World Bank-Purpose- Organisation structure- Guiding principle- Leading programs.

UNIT V

International Development Association (IDA)-Objectives-Memberships – Loan assistance-International Financial Corporation (IFC)- Objectives-Main features- Asian Development Bank(ADB)- Objectives-UNCTAD-Functions-Basic principles- International trade centre.

Note : The Question Paper shall cover 100% Theory.

TEXT BOOK:

1. International Business (Text & cases) : Reprint 2013 Francis cherunilam.

REFERENCE BOOKS:

1. International Marketing : Rakesh Mohan Joshi.
2. International Business (Text & cases) : P. Sudha Rao
3. International Business Environment : Francis cherunilam.
4. Export Marketing : Achaya and Jain.
5. Export Marketing : B.S. Rathir & J.S. Rathir

**BACHELOR OF COMPUTER APPLICATIONS(BCA)
SCHEME OF EXAMINATIONS(CBCS PATTERN)**

For Candidates Admitted During The Academic Year 2018 – 2019 onwards

Part	Subject Code	Subject Title	Ins. Hrs/ Week	Examination				
				Dur. Hrs	CIA	CE	Total	Credit
Semester - I								
I	16LATA01/ 18LAHI01/ 15LAMY01/ 15LAFR01	Tamil-I/ Hindi-I/ Malayalam-I/ French-I	5	3	30	70	100	3
II	16ENG001	English –I	5	3	30	70	100	3
III	15BCA101	Core 1 : Introduction to Office Automation	6	3	30	70	100	4
III	15BCAP01	Core Lab 1 : Office Automation and Internet Programming	6	3	40	60	100	4
III	15BCAID1	IDC 1 : Numerical Methods And Statistics	6	3	30	70	100	4
IV	18UFCA01	Foundation Course - I : Environmental Studies #	2	2	—	50	50	2
			30				550	20
Semester - II								
I	16LATA02/ 18LAHI02/ 15LAMY02/ 15LAFR02	Tamil-II/ Hindi-II/ Malayalam-II/ French-II	5	3	30	70	100	3
II	16ENG002	English –II	5	3	30	70	100	3
III	15BCA201	Core 2 : Programming in C	6	3	30	70	100	4
III	15BCAP02	Core Lab 2 : Programming in C	6	3	40	60	100	4
III	15BCAID2	IDC 2 : Operations Research	6	3	30	70	100	4
IV	18UFCA02	Foundation Course- II : Value Education#	2	2	—	50	50	2
			30				550	20
Semester - III								
III	15BCA301	Core 3 : Object Oriented	5	3	30	70	100	4

		Programming With C++						
III	15BCA302	Core 4 : Operating System	5	3	30	70	100	4
III	15BCA303	Core 5 : Data Structures	5	3	30	70	100	4
III	18BCAP03	Core Lab 3 : Data Structures & C++ Lab	5	3	40	60	100	4
III	18BCAID3	IDC 3 : Business Accounting	5	3	30	70	100	4
IV	18BCAAO1/ 18BCAAO2	AOC Lab I : Web Designing Using HTML/Photoshop#	3	3	-	75	75	3
IV	16BTA001/ 16ATA001/ 15EDC002	EDC I: BT I/AT I/Communicative English#	2	2	-	50	50	2
			30				625	25
Semester – IV								
III	15BCA401	Core 6: Java Programming	5	3	30	70	100	4
III	18BCA402	Core 7 : Relational Database Management System	5	3	30	70	100	4
III	18BCAP04	Core Lab 4 : Programming in Java	5	3	40	60	100	4
III	18BCAP05	Core Lab 5 :RDBMS Lab	5	3	40	60	100	4
III	15BCAID4	IDC 4 : Human Resource Management	5	3	30	70	100	4
IV	15BCAAO3/ 15BCAAO4	AOC II : Multimedia/Graphic Design using CorelDraw#	3	3	-	75	75	3
IV	16BTA002/ 16ATA002/ 15BCAED1	EDC II: BT II/AT II /Banking Theory#	2	2	-	50	50	2
V	15NCC001/ 15NSS001/ 15SPT001/ 15EXT001	NCC / NSS /Sports/Extension Activities@	-	-	50	-	50	2
			30				675	27
Semester – V								
III	15BCA501	Core 8 : .Net Programming	5	3	30	70	100	4

III	18BCA502	Core 9 : Computer Networks	5	3	30	70	100	4
III	18BCA503	Core 10 : Python Programming	5	3	30	70	100	4
III	15BCAE01/ 18BCAE02/ 18BCAE03	Elective I: E-Commerce/ Client Server Computing /Software Engineering And Software Testing	5	3	30	70	100	4
III	18BCAP06	Core Lab 6: .Net Programming	5	3	40	60	100	4
III	18BCAP07	Core Lab 7: Python Programming Lab	5	3	40	60	100	4
			30				600	24
Semester – VI								
III	15BCA601	Core 11 : Information Security	5	3	30	70	100	4
III	15BCA602	Core 12 :PHP Programming	5	3	30	70	100	4
III	15BCAP08	Core Lab 8 : PHP Programming Lab	5	3	40	60	100	4
III	15BCAE04/05/ 06	Elective II : Mobile Computing/Introduction to android Technology /Cloud Computing	5	3	30	70	100	4
III	15BCAE07/08/ 09	Elective III : Software Project Management/Web Technology/Distributed Computing	5	3	30	70	100	4
III	15BCAPR01	Project and Viva Voce	5	3	50	50	100	4
			30				600	24
TOTAL							3600	140
LIST OF ELECTIVES								
ELECTIVE I								
1	15BCAE01	E-Commerce						
2	18BCAE02	Client Server Computing						
3	18BCAE03	Software Engineering And Software Testing						

ELECTIVE II		
1	15BCAE04	Mobile computing
2	15BCAE05	Introduction to Android Technology
3	15BCAE06	Cloud Computing
ELECTIVE – III		
1	15BCAE07	Software Project Management
2	15BCAE08	Web Technology
3	15BCAE09	Distributed Computing

ADDITIONAL CREDIT COURSE(ACC)

S.NO	SEMESTER	SUB CODE	SUBJECT TITLE	CREDI T
1	III	16BCAAC1	Linux OS	2
2	IV	16BCAAC2	Introduction to New Media	2
3	V	16BCAAC3	Flash	2

LIST OF AOC

1	18BCAAO1	Web Designing using HTML
2	18BCAAO2	Photoshop
3	15BCAAO3	Multimedia
4	15BCAAO4	Graphic Designing using CorelDraw

Summary

Part	No of Papers	Total Credits	Total Marks
I	2	6	200
II	2	6	200
III –Core	20	80	2000
III – IDC	4	16	400
III – Elective	3	12	300
III –Project	1	4	100
IV –Foundation Course	2	4	100
IV – EDC	2	4	100
IV – AOC	2	6	150
V Extension Activities	-	2	50
Total	38	140	3600

REGULATIONS FOR BOARD OF BACHELOR OF COMPUTER APPLICATIONS (FOR UG COURSES ONLY)

(Effective from the academic year 2018-2019 onwards)

1. Project and Viva Voce :

Each student in the UG final year shall compulsorily undergo Project Work in the 6th semester. Projects shall be done individually. Project Coordinators shall allocate the project title and the guide for each group. Project work shall be done only in the lab provided by the college, including Project Record Preparation. Project Reviews shall be conducted thrice in which the progress of project work shall be strictly evaluated by respective Project Guides and Project Coordinators. Viva-Voce shall be conducted only in the presence of Industrialists or academicians. Out of the Total of 100 marks, 50% of mark shall be allocated for CIA and 50% for CE VIVA VOCE.

2. Submission of Record Note work for practical examinations

Candidates appearing for practical examinations shall submit Bonafide Record Note Books prescribed for practical examinations. If not the candidate has to submit a Bonafide Certificate issued by the concerned subject in charge duly signed by the Head of the department. In such case, the record marks will not be provided.

3. Distribution of Marks: The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum (Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	28	30	40
	75	75	30	-	30
	50	50	20	-	20
Practical Paper	100	60	24	40	40
Project	100	50	20	50	40

4. Distribution of Internal Mark for Theory :
(No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6=30

Breakup for Attendance:

Upto 74 %	- 4 Marks
75% - 84%	- 6 Marks
85% - 94%	- 8 Marks
95% - 100%	- 10 Marks

Breakup for Seminar

Content	10marks
Flow of Presentation	10marks
Stage management and Body Language	10marks

5. Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 40		
S No	CIA	Distribution of Marks
1	For Completion of the Practical List	20
2	Test –I	10
3	Test –II	10
Total		40

6. Distribution of Comprehensive Exam Mark for Practical :

MAXIMUM MARKS : 60		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	10
2	Program – I a) Algorithm b) Coding c) Execution	5 10 10 TOTAL (25)

3	Program – II a) Algorithm b) Coding c) Execution	5 10 10 TOTAL (25)
Total		60

7. Distribution of Mark for Project VIVA-VOCE :

S.No	CIA	Distribution of Marks
1	INTERNAL a) Review –I b) Review –II c) Documentation & Final Review	10 10 30 Total (50)
2	EXTERNAL * a) Presentation b) Viva	30 20 Total (50)
Total		100

***Marks to be awarded by both External and Internal Examiners.**

8. Question Paper Pattern

Time: 3 Hour

Max marks: 70

SECTION – A (10×1=10)

Answer ALL Questions
Each Question carries One Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B (5×4=20)

Answer ALL Questions
Each Question carries Four Marks
(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answerer ALL Questions
Each Question carries EIGHT Marks
(INTERNAL CHOICE)

9. Question Paper Pattern

Time: 3 Hour

Max marks: 75

SECTION – A

(10×1=10)

Answer ALL Questions
Each Question carries One Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B

(5×5=25)

Answer ALL Questions
Each Question carries FIVE Marks
(INTERNAL CHOICE)

SECTION – C

(5×8=40)

Answerer ALL Questions
Each Question carries EIGHT Marks
(INTERNAL CHOICE)

10. Question Paper Pattern

Time: 3 Hour

Max marks: 50

SECTION – A

(10×1=10)

Answer ALL Questions
Each Question carries One Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B

(5×3=15)

Answer ALL Questions
Each Question carries Three Marks
(INTERNAL CHOICE)

SECTION – C

(5×5=25)

Answerer ALL Questions
Each Question carries EIGHT Marks
(INTERNAL CHOICE)

11. Question Paper Pattern

Time: 3 Hour

Max marks: 100

SECTION – A (10×1=10)
Answer ALL Questions
Each Question carries One Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B (5×8=40)
Answer ALL Questions
Each Question carries EIGHT Marks
(INTERNAL CHOICE)

SECTION – C (5×10=50)
Answer ALL Questions
Each Question carries TEN Marks
(INTERNAL CHOICE)

NOTE:

1. The Questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the unit in the syllabus in all the sections of the Question paper.
3. While framing Questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

12. Conduct of Practical Examinations:

Practical examinations shall be conducted with one internal examiner and one external examiner and the question paper for practical examination shall be set by both Internal and External examiners.

BCA Degree Examination–Syllabus for Candidates Admitted from the Academic Year 2018-2019 Onwards.

FIRST SEMESTER

PART III-CORE 1: INTRODUCTION TO OFFICE AUTOMATION

Maximum CIA : 30

Maximum CE : 70

Total Hours: 72

Objective: To inculcate knowledge on computer fundamentals and office automation tools

UNIT-I: (14 HOURS)

Overview Of Computers And Programming - Electronic Computer Then And Now- Computer Hardware–Computer Software – Binary Systems - Digital Computers And Digital Systems, Binary Numbers, Number Base Conversion, Octal And Hexadecimal Numbers.

UNIT-II: (14 HOURS)

MS Word: Creating A New Document- Finding And Replacing Formatting-Checking Spelling And Grammar-Adding Headers And Footers-Arranging Text In Columns-Inserting A Table Of Contents-Creating A Table-Modifying And Formatting A Table-Creating A Form Letter.

UNIT-III: (14 HOURS)

MS Excel: Creating A Simple Formula-Editing A Formula-Performing Calculation Using Functions- Creating A Chart-Editing A Chart-Creating A List-Sorting Data In List- Inserting Page Breaks-Printing Worksheets.

UNIT-IV: (15 HOURS)

MS Power Point: Creating A New Presentation- Choosing A Template-Adding Action Buttons-Creating Slide Transitions-Adding Animation-Timing A Presentation-Setting Up A Slide Show-Creating A Custom Slide Show-Printing A Presentation.

UNIT-V: (15 HOURS)

MS Access: Creating A Database-Working With A Table-Creating Table Using A Wizard-Working With A Table In Design View-Specifying Data Types And Field Properties-Planning And Defining Table Relationships-Filtering Out Records-Creating A Query Using A Wizard-Creating A Form Using Wizard-Editing Data In A Form-Creating Report Using A Wizard. Creating Web Pages with Office XP Programs: Designing Web Pages-Opening Web Pages -Creating_Web Pages- Inserting Hyperlinks-Removing Hyperlinks-Enhancing Web Pages-Publishing Web Pages.

TEXT BOOKS:

1. Microsoft Office Xp Simply Visual Perspection, Inc. Edition 2001.
- 2.M.Morris Mano, Computer System Architecture , 3rd Edition , Pearson Prentice Hall, First Impression , 2007.
3. Jeri .R. Hanly, Elliot B.Koffman – Problem Solving and Program Design in C, 5th Edition, Second Impression 2009, Dorling Kindersley(India) Pvt Ltd., Pearson Education in South Asia.

BCA Degree Examination–Syllabus for Candidates Admitted from the Academic Year 2018-2019 Onwards.

**FIRST SEMESTER
PART III-CORE LAB 1: OFFICE AUTOMATION AND INTERNET
PROGRAMMING**

Maximum CIA : 40

Maximum CE : 60

Total Hours: 72

Objective: To impart knowledge on MS-Office

1. Create A Time Table Document For BCA I Semester Using MS-Word.
2. Create A Document Using Mail Merge In Ms-Word.
3. Create A Document To Use Mathematical Equations In MS-Word.
4. Create A Presentation With Text And Images Effects Using MS-PowerPoint.
5. Create A Presentation To Display Our College Information Using Animation And Sound Effects Using MS-Power Point.
6. Create An Employee Work Details Using MS-Excel.
7. Create A Student Mark Details And Perform Sort And Filter Using Ms-Excel.
8. Create A Student Database In Ms-Access.
9. Create
 - a) Queries Using Ms-Access,
 - b) A Form To The Database For Giving The Input Using MS-Access.
10. Generate A Report For The Student Table Using MS-Access.
11. Display the information about Wonders of the world using Google Search Engine.
12. Create an email regarding leave application to HR of a company.

**BCA Degree Examination–Syllabus for Candidates Admitted from the Academic
Year 2018-2019 Onwards.**

SECOND SEMESTER

PART III - CORE 2: PROGRAMMING IN C

Maximum CIA : 30

Maximum CE : 70

Total Hours: 72

Objective: To impart knowledge about C programming language concepts.

UNIT – I (14 HOURS)
Overview of C language:-Constants, Variables and Data Types – Operators and Expressions-
Decision Making and Branching

UNIT – II (14 HOURS)
Decision Making and Looping- Arrays:-One Dimensional Array-Declaration And
Initialization Of One Dimensional Arrays-Initializing Two Dimensional Arrays-Dynamic
Arrays-More About Arrays-Character Arrays-Strings.

UNIT – III (14 HOURS)
User Defined Functions-Elements of user defined functions-Category of functions-Recursion

UNIT – IV (15 HOURS)
Structure And Union:- Defining A Structure-Defining Structure variables-Accessing
Structure Members- Array Of Structures –Structures Within Structures. Unions. Pointers:
Declaring Pointer Variables-Initialization Of Pointer Variables-accessing A Variable
Through The Pointer-Chain Of Pointers- Pointer Increments And Scale Factor- Pointers And
Character Strings-Array Of Pointers-Troubles with Pointers.

UNIT – V (15 HOURS)
File Management in C-Defining and opening a file-closing a file-I/O operations on files-
Random access to Files-Command Line arguments-Dynamic Memory Allocation: Dynamic
Memory Allocation-Malloc, Calloc Free and Realloc.

TEXT BOOK:

1. E.Balagurusamy, Programming in ANSI C – Tata Mc Graw Hill – 6th edition-2012.

**BCA Degree Examination–Syllabus for Candidates Admitted from the Academic
Year 2018-2019 Onwards.**

SECOND SEMESTER

PART III - CORE LAB 2: PROGRAMMING IN C

Maximum CIA : 40

Maximum CE : 60

Total Hours: 72

Objective: To impart knowledge on C programming

1. Write A Simple Program To Find The Size Of Different Basic Data Types In C.
2. Develop A C Program To Check Whether The Given Input Alphabet Is Vowel Or Not.
3. Develop A C Program To Generate And Print Armstrong Numbers
4. Develop A C Program To Perform Matrix Operations
 - a) Addition Of Two Matrices
 - b) Subtraction Of Two Matrices
 - b) Transpose Matrix
5. Developing A C Program To Sort The Given Set Of Numbers In Ascending Order
6. Develop A C Program To Convert Decimal To Binary
7. Develop A C Program To Perform Basic Arithmetic Operations Using Pointers.
8. Develop A C Program To Perform String Operation
 - a) String Length
 - b) String Copy
 - c) String Compare
 - d) Reverse The String
9. Developing A C Program To Find The Factorial Of A Given Number Using Recursive Function.
10. Developing A C Program To Print The Student's Mark Sheet Assuming Rno, Name, And Marks In 5 Subjects In A Structure. Create An Array Of Structures And Print The Mark Sheet.
11. Developing A C Program Which Receives Two Filenames As Arguments And Check Whether The File Contents Are Same Or Not. If Same Delete The Second File.

12. Developing A C Program Which Takes A File As Command Line Argument And Copy It To Another File. At The End Of The Second File Write I) No. Of Chars II) No. Of Words And III) No. Of Lines.

SEMESTER III

PART III-CORE III- OBJECT ORIENTED PROGRAMMING WITH C++

MAXIMUM CIA: 30

MAXIMUM CE: 70

Total Hours: 60

OBJECTIVE: To inculcate knowledge on C++ programming concepts.

UNIT –I [12 HOURS]

Beginning To C++ - Basic Concepts of OOPS - **Input And Output In C++** Formatted And Unformatted Console I/O Operations-Formatted Console I/O Operations-Bit Fields- Manipulators - **C++ Declarations** Parts Of C++ Program-Type Of Tokens - Data Types In C++ - Type Casting – Constants - Operators In C And C++

UNIT-II [12 HOURS]

Control Structures- **Function In C++** Parts Of Function-Inline Functions - Functions Overloading - **Classes And Objects** Classes In C++ - Declaring Objects - Defining Member Function - Static Member Variables And Function - Static Object - Friend Function - Overloading Member Function

UNIT-III [12 HOURS]

Constructors And Destructors - **Operator Overloading-** Overloading Unary, Binary Operators - Overloading With Friend Function - Type Conversion - **Inheritance** Types Of Inheritance - Virtual Base Classes - Abstract Classes

UNIT-IV [12 HOURS]

Pointer And Arrays - C++ And Memory Models -The New And Delete Operator - Dynamic Objects - Binding In C++ - Polymorphism And Virtual Functions

UNIT –V [12 HOURS]

Files File Stream Classes - File Modes - Binary And ASCII Files - Command Line Arguments -**Templates** Definition Of Class Template - Normal Function Template - Inheritance - Exception Handling - Working With Strings –STL

TEXT BOOK

1.Ashok N.Kamthane, Object-Oriented Programming With ANSI & Turbo C++ ,Pearson Education ,2011.

REFERENCE BOOKS

1.Herbert Schildt, C++ A Beginner's Guide, Tata McGraw-Hill, Seventh Edition, 2013.

2.E.Balagurusamy, Object-Oriented Programming With C++, Tata McGraw-Hill Education,6th Edition,2013.

SEMESTER III
PART III-CORE IV: OPERATING SYSTEM

MAXIMUM CIA: 30

MAXIMUM CE: 70

TOTAL HOURS: 60

OBJECTIVE: To Knowledge on Operating System Concepts and functioning of modern Operating System

UNIT-I **[10 HOURS]**

Introduction: What Is Operating System?-Mainframe Systems-Desktop Systems-Multiprocessor System-Distributed System-Real Time System-Handheld System.**Computer System Structures:-**Computer System Operation-I/O Structure-Storage Structure- Storage Hierarchy.

UNIT-II **[10 HOURS]**

Process Management:-Process Concept-Process Scheduling-Operations on Process-Co Operating Process-Inter Process Communication-Communication in Client Server System. **Threads:-**Overview-Multithreading Models.

UNIT-III **[15 HOURS]**

CPU Scheduling:-Basic Concepts-Scheduling Criteria-Scheduling Algorithm-Multiple Processor Scheduling-Real Time Scheduling. **Semaphore:-**Usage-Implementation. **Deadlock:-**System Model-Deadlock Characterization-Methods for Handling Deadlock-Deadlock Prevention-Deadlock Avoidance-Deadlock Detection-Recovery from Deadlock.

UNIT-IV **[10 HOURS]**

Memory Management:-Introduction-Swapping-Contiguous Memory Allocation-Paging-Segmentation-Segmentation with Paging. **Virtual Memory:-**Introduction-Demand Paging-Page Replacement.

UNIT-V **[15 HOURS]**

File-System Interface:-File concepts-Access methods-Directory structure. **File System implementation:-**File System Structure-File System Implementation-Directory Implementation-Allocation Methods.

TEXT BOOK

1. Achyut Godbole, Operating Systems, 2nd Edition, Tata McGraw Hill ,2011.

REFERENCE BOOKS

1. Silberschatz, Galvin, Gagne, Operating Systems Concepts, 6th Edition, 2013.
2. William Stallings, Operating Systems, Internals and Design Principles, 6th Edition, Prentice Hall, 2010.

**BCA Degree Examination–Syllabus for candidates admitted from the Academic Year
2015-2016 Onwards**

**SEMESTER III
PART III-CORE V: DATA STRUCTURES**

MAXIMUM CIA: 30

MAXIMUM CE: 70

Total Hours : 60

OBJECTIVE: Enabling Students To Acquire Theoretical Knowledge And To Be Successful In Data Structures

UNIT- I [12 HOURS]

Basics Terminologies – Data Structures – Data Structure Operation – Algorithms - Algorithmic Notation – Control Structures – Complexity Of Algorithm

UNIT- II [12 HOURS]

Stacks – Queues – Recursion –Stacks – Array Representation Of Stacks – Linked Representation Of Stacks – Polished Notation – Recursion – Towers Of Hanoi – Queues – Linked Representation Of Queues – D Queues - Priority Queues.

UNIT –III [12 HOURS]

Linked List-Representation Of Linked List In Memory-Traversing A Linked List-Searching A Linked List-Memory Allocation-Insertion Into A Linked List-Deletion From A Linked List-Header Linked List-Two Way List.

UNIT –IV [12 HOURS]

Trees: Introduction-Binary Tree-Representing Binary Trees In Memory-Traversing Binary Tree-Binary Search Tree-Searching And Inserting In Binary Search Tree-Graphs: Introduction-Graph Theory Terminology-Sequential Representation Of Graph-Operations On Graphs.

UNIT – V [12 HOURS]

Sorting and Searching: Introduction-Sorting-Insertion Sort-Selection Sort-Merging-Merge Sort. Files: File Organization-Sequential File-Random File-Linked Organization File.

TEXT BOOK

1. Seymour Lipchitz, “Data Structures”, 6th edition, Tata McGraw Hill,2011.

REFERENCE BOOKS

1. Bhagat Singh T , Introduction to Data structures , Tata McGraw Hill, New Delhi,2010.
2. Trembley and Sorenson , Introduction To Data Structures With Applications, Mc Graw Hill,2012.

BCA Degree Examination–Syllabus for candidates admitted from the academic year 2018-2019 Onwards.

THIRD SEMESTER

PART III-CORE LAB 3: DATA STRUCTURES & C++ LAB

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Objective: To impart knowledge on C++ programming by using Object Oriented Programming concept and Data structures concepts.

1. Create a program to read an integer number and find the sum of all the digits until it reduces to a single digit using constructors, destructors and inline member functions.
2. Create two classes which consist of two private variables, a integer and a float variable. Write member functions to get and display them. Write a FRIEND Function common to both classes, which takes the object of above two classes as arguments and the integer and float values of both objects separately and display the result.
3. Programming using Function Overloading to read two Matrices of different Data Types such as integers and floating point numbers. Find out the sum of the above two matrices separately and display the sum of these arrays individually.
4. Create a class STRING. Write a Member Function to initialize, get and display strings. Overload the Operator “+” to Concatenate two Strings, “=” to Compare two strings and a member function to find the length of the String
5. Create a class which consists of EMPLOYEE Detail like ENumber, E-Name, Department, Basic, Salary, and Grade. Write a member function to get and display them. Derive a class PAY from the above class and write a member function to calculate DA, HRA and PF depending on the grade.
6. Create a program which takes a file as argument and copies in to another file with line numbers using Command Line Arguments.
7. Develop a C++ program to experiment the following operations of stack.
 - a)Push b)Pop c)List
8. Develop a C++ program to create menu driven program to implement QUEUE to perform the following
 - a)Insertion b) Deletion c)Modification d)Listing of elements
9. Develop a C++ program to insert an element at the end of the list.
10. Develop a C++ program to insert nodes into binary tree and display the items in the following order:
 - a. Preorder
 - b. Postorder
 - c. Inorder
11. Develop C++ program to demonstrate linear search.
12. Develop a C++ program to arrange set of numbers in ascending order using selection sort.

BCA Degree Examination–Syllabus for candidates admitted from the academic year 2018-2019 Onwards.

THIRD SEMESTER

PART IV- AOC LAB I: WEB DESIGNING USING HTML

Maximum CE: 75

Total Hours: 36 hrs

Objective: To impart knowledge on Webpage designing using HTML.

1. Write a HTML Program display a webpage using basic HTML tags.
2. Write a HTML Program to design a webpage using Formatting tags
3. Write a HTML Program to use different heading levels.
4. Write a HTML Program to display a webpage using ordered and un ordered list.
5. Write a HTML Program to create a page link using anchor tag.
6. Write a HTML Program to display the class time table using Table tags.
7. Write a HTML Program to display the image using img tag.
8. Write a HTML Program to display the student biodata using form tag.
9. Write a HTML Program to separate the webpage using frame tag.
10. Write a HTML Program to design a webpage using CSS .

BCA Degree Examination–Syllabus for candidates admitted from the academic year 2018-2019 Onwards.

**THIRD SEMESTER
PART IV- AOC LAB I: PHOTOSHOP**

Maximum CE: 75
Total Hours: 36 hrs

Objective: To impart knowledge on Designing using Photoshop.

1. Create Sun Flower using Photoshop.
2. Create Water Drops using Photoshop.
3. Animate Plane Flying the Clouds using Photoshop.
4. Create Plastic Surgery for Nose using Photoshop.
5. Create See thru text using Photoshop.
6. Create Military Clothe using Photoshop.
7. Create Rollover Buttons using Photoshop.
8. Convert Black and White to Color Photo using Photoshop
9. Design a visiting card using Photoshop.
10. Design a Invitation card using Photoshop.

BCA Degree Examination-Syllabus- for candidates admitted from the academic year 2015 – 2016 onwards

SEMESTER IV

PART III -CORE VI: JAVA PROGRAMMING

MAXIMUM CIA: 30

MAXIMUM CE: 70

Total Hours: 60

OBJECTIVE: To inculcate knowledge on java programming concepts and to implement in real time applications.

UNIT - I [12 HOURS]

The Java Language - Variable Declarations and Arrays - Operators in Java - Control Statements

UNIT - II [12 HOURS]

Opening To Classes - Classes and Methods in Detail – Inheritance - Abstract Classes and Interfaces

UNIT - III [12 HOURS]

Exception Handling - Multithreaded Programming - Packages and Access Modifiers - Handling Strings

UNIT - IV [12 HOURS]

The Language Packages - Collections And Utilities - Input Output Classes – Networking

UNIT - V [12 HOURS]

Applets - AWT - Components and Containers - Layout Management and Event Handling

TEXT BOOK

1. Instructional Software Research And Development Group, Introduction To Object Oriented Programming Through Java, 4th Edition, Tata McGraw Hill, 2010.

REFERENCE BOOKS

1. Herbert Schildt, The Complete Reference JAVA 2,7th Edition, Tata McGraw Hill.2010.
2. E.Balagurusamy , Programming With Java, 5th Edition, Tata McGraw Hill,2014.

BCA Degree Examination–Syllabus for candidates admitted from the academic year 2018-2019 Onwards.

FORTH SEMESTER

PART III -CORE 7: RELATIONAL DATABASE MANAGEMENT SYSTEM

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective: To encourage the students to gain knowledge on RDBMS concepts and programming skills with Oracle.

Unit I (12 Hours)

INTRODUCTION: DBMS Applications – Purpose of Database System –View of Data – Database Models- Database Languages – Data Storage and Querying – Transaction Management – Database Architecture – Database Users and Administrator

Unit II (12 Hours)

Relational Database : Structure of Relational Database – Database Schema – Keys – Fundamentals of Relational Algebraic Operations – Formal Definitions and Additional Relational Algebra Operations – Extended Relational Algebra Operations – Null Value – Modifications of Database – Relational Database Design : Features of Good Relational Design – Functional Dependency Theory – Normalization : 1NF – 2NF – 3NF and BCNF.

Unit III (12 Hours)

Entity Relationship Model – Constraints – Keys – Entity – Relationship Diagrams – ER Design issues – Weak Entity Sets – Extended ER Features. SQL : Data Definition – Structure of SQL Queries – Set Operators – Aggregate Functions – Null Values – Nested Sub Queries – Complex Queries – Views – Modification of the Database – Joint Relations – Integrity Constraints – Assertion.

Unit IV (12 Hours)

PL/SQL Programming : Fundamentals of PL/SQL – Block Structure – Data Types – Variable declaration – Assignment Operation – Bind Variable – Substitution Variable – Printing in PL/SQL – Arithmetic Operation – Control Structures – Nested Blocks – SQL in PL/SQL – Data Manipulation in PL/SQL – Transaction Control Statements.

Unit V (12 Hours)

PL/SQL Cursors – Implicit and Explicit Cursors – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions. PL/SQL Composite Data types : PL/SQL Records – PL/SQL Tables – PL/SQL Varrays – Procedures – Functions – Triggers.

Text books

1. Abraham Silberschatz, Henry F. Korth, S.Sudarshan, Database System Concepts – Mc-Graw Hill , 2006, International.(Unit I,II,III)
2. Nilesh Shah, Database Systems Using Oracle- PHI- Publisher, Second Edition ,2008.(Unit IV, Unit V)

Reference book

1. Rajesh Narang, Database Management Systems , PHI – Publisher,2008

BCA Degree Examination–Syllabus for candidates admitted from the academic year 2018-2019 Onwards.

**FORTH SEMESTER
PART III-CORE LAB 4: PROGRAMMING IN JAVA**

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Objective: To impart knowledge on Java Programming

1. Program for Merging Two Sorted Arrays.
2. Program For Multiple Inheritance
3. Program For Multithreading
4. Program for Creating Your Own Package.
5. Program For User Defined Exception
6. Program for Counting the Number of Characters, Words, Lines In The File.
7. Program to Identify the IP Address of the Local Machine.
8. Program That Displays a Digital Clock Using Applet.
9. Program for Designing Calculator Using Applet.
10. Program to calculate EBill using Java Frames
11. Applet program for handling mouse events
12. Program to display Student Details using AWT Components.

BCA Degree Examination–Syllabus for candidates admitted from the academic year 2018-2019 Onwards.

**FORTH SEMESTER
PART III-CORE LAB 5: ORACLE LAB**

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Objective: To impart knowledge on Data Base

1. Create a table Student-master with the following fields client_no, name, address, city, state, pincode, remarks, bal_due with suitable data types
 - a) Create another table supplier_table from client_master. Select all the fields and rename client_no with supplier_no and name with supplier_name.
 - b) Insert data into client_master
 - c) Insert data into supplier_master from client_master.
 - d) Delete the selected row in the client_master.

2. Create a table sales_order with s_order_no and product_no as primary key. Set other fields to store client number, delivery address, delivery date, order status.
 - a) Add a new column for storing salesman number using ALTER Command.
 - b) Set the s_order_no as foreign key as column constraints.
 - c) Set the s_order_no as foreign key as table constraints.
 - d) Enforce the integrity rules using CHECK.

3. Create a table student_master with the following fields name, regno, dept and year with suitable data types. Use Select command to do the following.
 - a) Select the student's name column.
 - b) Eliminate the duplicate entry in table.
 - c) Sort the table in alphabetical order.
 - d) Select all the Students of a particular department.

4. Create a table sales_order_details with the s_order_no as primary key and with the following fields: product_no, description, qty_ordered, qty_disp, product_rate, profit_percent, sell_price, supplier_name.
 - a) Select each row and compute sell_price*.50 and sell_price*1.50 for each row selected.
 - b) Select product_no, profit_percent, Sell_price where profit_per is not between 10 and 20 both inclusive.
 - c) Select product_no, description, profit_percent, sell_price where profit_percent is not between 20 and 30.
 - d) Select the suppliername and product_no where suppliername has 'r' or 'h' as second character.

5. Write a PL/SQL block to calculate Factorial and Fibonacci Series.

6. Write a PL/SQL block of code to calculate the area of a circle for a value of Radius & store calculated area in a table.

7. Create a table master book to contain the information of magazine code, magazine name, publisher. Weekly/biweekly/monthly, price. Write PL/SQL block to perform insert, update, delete operations on the above table.
8. Create a table to contain phone number, user name, address of the phone user. Write a function to search for a address using phone numbers.
9. Create a table stock to contain the item code, item name, current stock, date of last purchase. Write a stored procedure to seek for an item using item code and delete it, if the date of last purchase is before 1 year from the current date. If not, update the current stock.
10. Create a table to store the salary details of the employees in a company. Declare the Cursor to contain employee number, employee name and net salary. Use Cursor to update the employee salaries.
11. Create a table to contain the information about the voters in a particular constituency. Write a proper trigger to update or delete a row in the table.
12. Create a table to store the details of the Aluminums in an institution. Write a PL/SQL block to change address of particular alumni. Write proper exceptions and appropriate error messages.

SEMESTER IV
PART IV-AOC II: MULTIMEDIA

MAXIMUM CE: 75

Total Hours: 36

Objective: To inculcate knowledge on Media, Text, Image, Audio, Video, Animation and Internet

UNIT-I **[8 HOURS]**

Introduction: Where To Use Multimedia-Delivering Multimedia-**Text:** Using Text in Multimedia about Font and Font Faces-Font Editing and Design Tools-Hypermedia and Hypertext.

UNIT-II **[8 HOURS]**

Image: Before You Start To Create- Making Still Images- Color- Image File Format-
Sound: The Power Of Sound –Digital Audio- Midi Audio Midi Vs Digital Audio-
Multimedia System Sounds-Audio File Formats-Adding Sound To Your Multimedia Project.

UNIT-III **[8 HOURS]**

Animation – The Power Of Motion – Principle Of Animation -Animation By Computer –Making Animation That Work- **Video-** Using Video- How Video Works And Is Displayed-Digital Video Containers-Obtaining Video Clips Shooting And Editing Video.

UNIT-IV **[6 HOURS]**

Making Multimedia – The Stages Of Multimedia Project- What You Need
Multimedia Skills: The Team.

UNIT-V **[6 HOURS]**

The Internet and Multimedia –Internet History – Internetworking – Multimedia on the Web

TEXT BOOK

1. Tay Vaughan, Multimedia: Making It Work – 8th edition, TMH, 2012.

REFERENCE BOOKS

1. Richard E. Mayer – Multimedia Learning, Cambridge University Press 2014.
2. Ralf Steinmetz, Klara Nahrstedt, Multimedia Systems, X Media publications, 2013.

BCA Degree Examination-Syllabus- for candidates admitted from the academic year 2015 – 2016 onwards

**SEMESTER IV
PART IV-AOC II: Graphic Design Using Corel Draw**

MAXIMUM CE: 75

Total Hours: 36

OBJECTIVE: To equip the students with the basic knowledge of CorelDraw Graphics Suite.

UNIT – I [7 HOURS]

Introduction to Corel Draw- Starting corel Draw-The CorelDraw screen-. Managing Files on Disk-Setting up a Multiple-Page File-Importing Files-Exporting Files-Printing Files-Customizing your Desktop-Drawing Lines and Curves-Drawing Dimensional Lines

UNIT – II [7 HOURS]

Manipulating Objects: Moving and Modifying Objects-Filling and Outlining Objects-Shaping Objects-Arranging Object. The write Type: Using Text: Editing, Modifying Text-Paragraph Text-Fitting Text to a path

UNIT – III [7 HOURS]

Color Modeling System-Creating Custom colors-Using and Customizing color palettes- Creating special Effects: Perspective-Envelopes-Blending Objects-File Management Functions-Printing Files in Batches.

UNIT – IV [8 HOURS]

COREL OCR TRACE: Importing Images-Tracing Images-The Basics Toolbox-Managing Corel PHOTO-PAINT Files-The display and selection tools-The Drawing and Painting Tools-The Retouching Tools.

UNIT – V [7 HOURS]

COREL UTILITIES: Corel color manager wizard-Corel Font Master 6-Corel Depth 6-The presentation Screen-Creating a slide show-Corel Dream 3D: The main screen-Scene Options-Rendering

TEXT BOOK

1. Dawn Erdos, CorelDraw 6.0 , First Indian Edition,2010.

REFERENCE BOOK

1. Alan Balfe, Corel Draw 3.0, Prentice Hall International (UK) Ltd,2011.

SEMESTER III

ADDITIONAL CREDIT COURSE: LINUX OS

Maximum Marks:100

Objective: To impart knowledge about Linux Os.

UNIT – I

History of Linux – Features of Linux- Differences between UNIX and Linux – Linux Architecture

UNIT – II

Linux Commands and Utilities :cat, tail, cmp, diff, wc, sort , mkdir, cd, rmdir, pwd, cp, more , passwd, who, whoami, mv, chmod, kill, write, wall, merge , mail, news – pipes, filters and redirection utilities

UNIT-III

Process Management – Process creation – Process states – Running, Wait, Stopped , Zombie - Process scheduling Information

UNIT-IV

Memory Management – Access control – Caches – Buffer cache – Page cache – Swap cache – Hardware caches – Page allocation

UNIT –V

System Administration: Installing Linux – Booting the system – Maintaining user accounts – File systems and Special Files – Backups and Restoration.

Text Book:

1. Richard Peterson ,Linux - The Complete Reference, Tata McGraw Hill, New Delhi,2012.

Reference Books:

1. Mark G. Sobell ,A Practical Guide to Linux Commands, Editors, and Shell Programming ,Prentice Hall, 2010.
2. Pramod Chandra P. Bhatt, An Introduction To Operating Systems Concepts And practice (Gnu/Linux) ,4th Edition,2014.

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SEMESTER IV

ADDITIONAL CREDIT COURSE: INTRODUCTION TO COMPUTER GRAPHICS

Maximum Marks:100

Objectives: On the successful completion of the course the students should have

- Learnt the concepts of Graphics.
- Learnt the concepts of two and three dimensional objects.

UNIT – I

Overview of Graphics System - Bresenham technique – Line Drawing and Circle Drawing Algorithms - DDA – Cohen Sutherland Line Clipping - Text Clipping.

UNIT – II

2D Geometric Transformations: Basic Transformations – Matrix Representations – Composite Transformations – Other Transformations.3D Geometric Modeling and Transformations: Translation – Rotation –Scaling.

UNIT–III

3D Concepts - Projections – Parallel Projection - Perspective Projection.

UNIT IV

Visible Surface Detection Methods: Depth- Buffer Method - Scan-Line Method-

UNIT V

Color models: XYZ-RGB-YIQ-CMY-HSV Models.

TEXT BOOK

1. Donald Hearn and M.Pauline Barker, Computer Graphics – C version, 2nd edition, PEARSON Education, 2011

REFERENCE BOOKS

1. Dawara, Sudhir ,Mastering Graphics Programming In C Paperback,2010.
2. Nobuhiko Mukai, Computer Graphics, InTech publishers,2012.

15BCIED1/15BCSED1

**BCOM Information Technology/Corporate Secretaryship Degree Examination–Syllabus
for Candidates Admitted from the Academic Year 2015-2016 Onwards**

**SEMESTER III
EDC I: MULTIMEDIA**

MAXIMUM CE: 50

Total Hours: 24

Objective: To inculcate knowledge on Media, Text, Image, Audio, Video, Animation and Internet

UNIT-I: [4 HOURS]

Introduction: Where To Use Multimedia-Delivering Multimedia-**Text:** Using Text in Multimedia about Font and Font Faces-Font Editing and Design Tools-Hypermedia and Hypertext.

UNIT-II: [5 HOURS]

Image: Before You Start To Create- Making Still Images- Color- Image File Format-**Sound:** The Power Of Sound –Digital Audio- Midi Audio Midi Vs Digital Audio-Multimedia System Sounds-Audio File Formats-Adding Sound To Your Multimedia Project.

UNIT-III: [5 HOURS]

Animation – The Power Of Motion – Principle Of Animation -Animation By Computer – Making Animation That Work.

UNIT-IV: [5 HOURS]

Video- Using Video- How Video Works And Is Displayed-Digital Video Containers-Obtaining Video Clips Shooting And Editing Video.

UNIT-V: [5 HOURS]

Making Multimedia – The Stages Of Multimedia Project- What You Need Multimedia Skills: The Team-The Internet and Multimedia –Internet History.

TEXT BOOK:

1. Tay Vaughan, MULTIMEDIA:Making It Work –Mc Graw Hill Professional, 2014.

REFERENCE BOOKS:

1. Andy Bull, Multimedia Journalism:A Practical Guide-,2010.
- 2.John Villain, Casanova & Leony fernanadez,Eliar, Multimedia Graphics, PHI,2012.

BA ENGLISH Degree Examination-Syllabus- for candidates admitted from the academic year 2015 – 2016 and onwards

SEMESTER III

PART IV -EDC I: PC SOFTWARE

MAXIMUM. CE: 50

TOTAL HOURS: 24

OBJECTIVE: To Gain Knowledge on Computer Basics And Pc Software Tools.

UNIT-I [4 hours]

Introduction – Introduction to computers – Evolution – Generation of Computers – Computers Hierarchy – Applications of Computers – Number System – Binary, Hexa, Octal.

UNIT-II [5 hours]

Windows Basics – Introduction to word – Editing a document - Move and Copy text - Formatting text & Paragraph – Enhancing document – Columns, Tables and Other features.

UNIT-III [5 hours]

Introduction to worksheet and shell – getting started with Excel – Editing cell & using Commands and functions – Moving & Copying , Inserting & Deleting Rows & Columns - Printing work sheet.

UNIT-IV [5 hours]

Creating charts – Naming ranges and using statistical, math and financial functions, database in a worksheet – Additional formatting commands and drawing toolbar – other commands & functions – multiple worksheet and macros.

UNIT-V [5 hours]

Overview of Power point – presenting shows for corporate and commercial using Power point – Introduction to Desktop publishing – Computer viruses – Introduction to Internet – Web features.

TEXT BOOKS:

1. Raja Raman, Neerahika Adabala, Computer Fundamentals — Prentice Hall of India 2014.
2. Steve Johnson, “Office 2013 on demand”, Perspection Inc. – 2013.

REFERENCE BOOKS:

1. A. Anand Kumar, Fundamental of Digital Circuits, 3rd Edition - Prentice Hall of India. 2014.
2. R.K. Taxali, PC Software for Windows 98’ made simple, Tata McGraw Hill Publishers, 2005.

BA ENGLISH Degree Examination–Syllabus for Candidates Admitted from the Academic Year 2015-2016 Onwards

SEMESTER –IV

PART IV-EDC II:-INTRODUCTION TO INFORMATION SECURITY

MAXIMUM CE: 50

Total Hours: 24

OBJECTIVE:To create awareness among the students regarding security mechanism

UNIT - I [4 HOURS]

Introduction - Basic Concepts : Attacks : Threats - Controls - Vulnerabilities – Method, Opportunity & Move –Security Goals: Confidentiality – Integrity - Availability - Vulnerabilities - Computer Criminals.

UNIT - II [5 HOURS]

Methods of Defence : Hacking as Defence Mechanism – The Methodology of Hacking – Classification of Hackers – Controls – Encryption – Software Controls – Hardware Controls. Basic Cryptographic Terms – Terminology and Background – Substitution Ciphers: The Caesar Cipher – Other Substitutions – One time Pads – Summary of Substitutions.

UNIT – III [5 HOURS]

Transpositions : Columnar Transposition – Combination of Approaches – Symmetric & Asymmetric Encryption Systems – Stream & Block Ciphers – Cryptanalysis – Breaking Encryption Scheme – The Data Encryption Standard : Background & History – Overview of the DES Algorithm – Fundamental Concepts of DES – Double and Triple DES.

UNIT - IV [5 HOURS]

Secure Programs : Fixing Faults – Unexpected behavior – Types of Flaws - Nonmalicious Program Errors : Buffer Overflows – Time-of-Check to Time-of-Use Errors.

UNIT - V [5 HOURS]

Viruses and other Malicious Code : Kinds of Malicious Code – How Viruses Attach – How Viruses Gain Control – Homes for Viruses - Virus Signatures – The Source of Viruses – Prevention of Virus Infection – Trojans – Salami Attack.

TEXT BOOK

1. Charles P. Pfleeger and Shari Lawrence Pfleeger, Security in Computing – Pearson Education , 5th Edition, 2015.

REFERENCE BOOKS

1. Atul Kahate, Cryptography and Network Security, Tata McGraw-Hill, 2nd Edition, 2010.
2. Bruce Schneier, Applied Cryptography: Protocols, Algorithms and Source Code in C, 20th Anniv. 2015.

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THIRD SEMESTER

PART – IV – AOC - I - PC SOFTWARE AND INTERNET LAB [PRACTICAL]

MAXIMUM CE: 75

TOTAL HOURS: 36

OBJECTIVE: Imparting Professional skills in Personal Computer software.

MS WORD

1. Type the Text and Perform the Following:

(i) Bullets and Numbering (ii) Align the Text to Left, Right, Justify, and Centre

2. Prepare a Job Application Letter enclosing Detailed Resume.

3. Create a Call Letter for Interview by using Mail Merge.

MS EXCEL

4. Prepare a Student Mark List [Minimum of 5 Subjects] and Perform Sorting Operation.

5. Prepare Statement of Bank Customer's Account Showing Simple and Compound Interest Calculations for 10 Different Customers Using Mathematical and Logical Functions.

6. Prepare a Result Analysis Chart with Subject Details, Staff details and Pass percentage details.

MS ACCESS

7. Generate a Payroll for Employee Database of an Organization with the Following Details: Employee Id- Employee Name- Date of Birth- Department and Designation- Date of Appointment- Basic Pay- Dearness Allowance- and House Rent Allowance and Other Deductions. Perform Queries for Different Categories.

8. Prepare a Report Based on Invoice details such as Product Number, Quantity, Price for Five Products.

MS POWER POINT

9. Draw an Organization Chart for Courses Offered in College with Minimum Three Hierarchical Levels.

10. Design an Advertisement Campaign with Minimum Three Slides.

INTERNET

11. Search Information from Bharathiar University Website.

12. Create an Email Account , Compose and Send mail by using CC and BCC Options with Attachments.

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THIRD SEMESTER

PART – IV - EDC - BASICS OF ANIMATION

MAXIMUM CE: 50

TOTALHOURS: 24

OBJECTIVE: On the successful completion of the course, the students should have understood the key features of Animation Technique, Learn the Animation Development for Future Development of Application.

UNIT- I [5 HOURS]

Introduction to Flash CS5 - New Features in Flash CS5 - Creating a New Flash File - Exploring Flash CS5 Interfaces - Working With Workspace - Setting the Stage - Saving the Flash File - Closing the Flash File - Opening an Existing Flash File.

Getting Started with Drawing Tools - Exploring Drawing Modes in Flash - Working with Drawing Tools in Flash - Using Colors in Flash.

UNIT -II [5 HOURS]

Selecting Object in Flash – Moving – Copying - Deleting & Editing an Object-Transforming Object - Working with Text in Flash - Editing Text Field - Working with Timeline - Frames & Key Frames - Layer & Layer Folder .

UNIT –III [6 HOURS]

Using Symbols, Instance and the Library – Creating – Modifying Symbols - Instance- About Library - Working With Sound and Video.

UNIT- IV [4 HOURS]

Creating Animation –Creating Motion Tweens - Editing the Motion Path - Motion Presets in Flash - Frame by Frame Animation – Shape Tweening in Flash.

UNIT -V [4 HOURS]

Working with Advanced Animation - Understanding Bones - Animating an Armature- Exploring 3D Animation – Working with Action Script - Action Panel Overview -Resizing the Action Toolbox or Script Pane.

TEXT BOOKS

1. Kogent, Flash CS5 in Simple Steps, Second Edition, 2012, Dreamtech Press.
2. Ashok Banerji, Ananda Mohan Ghosh, Multimedia Technologies, First Reprint 2010.

REFERENCE BOOKS

1. Nigel Chapman and Jenny Chapman, Digital Multimedia, Second Edition 2013.
2. Ze-Nianli-Marks.Prew, Fundamental of Multimedia, 2012, Tata-McGraw Hill Publications.

**Bachelor of Business Administration with Computer Applications Degree Examination-
Syllabus for Candidates admitted from the Academic Year 2015-2016 Onwards****THIRD SEMESTER****PART - III – CORE 6 – PROGRAMMING IN C [THEORY]****MAXIMUM CIA:30****MAXIMUM CE: 70****TOTAL HOURS: 60**

OBJECTIVE: On the Successful Completion of the Course, the Students should have Understood the Concepts of C programming, Decision Making, Operators, Arrays and Functions and have the Ability to Work with C programs.

UNIT - I [12 HOURS]

Introduction – History of C - Importance of C – Basic Structure of C - Programming Style – Executing a C Program - Character set - Tokens - Keywords and Identifiers - Constants, Variables and Data Types – Defining Symbolic Constants - Operators .

UNIT –II [12 HOURS]

Decision Making and Branching: If Statement and Types – Switch Statement - Decision Making & Looping: While – Do-While – For Loop - Array and its Types - Strings: Declaring and Initializing String Variables – String Handling Functions.

UNIT – III [12 HOURS]

Functions: Elements of User Defined Functions - Definition of Functions - Features of Functions - Category of Functions – Function Calls and Return Values – Nesting of Functions .

UNIT – IV [12 HOURS]

Pointers: Declaring Pointer Variables - Accessing a Variable Through its Pointer – Array of Pointers - Structures and Unions: Defining a Structure – Accessing a Structure – Array of Structures - Unions.

UNIT – V [12 HOURS]

File Management – Introduction – Defining and Opening a File – Closing the File - I/O Operations on Files – Error Handling During I/O Operations – Command Line Arguments.

TEXT BOOKS

- 1.E.Balagurusamy, “Programming in ANSI C”, 6th Edition, 2012, Tata McGraw Hill Publications.
- 2.Yashavant Kanetkar, “ Let us C”, 10th Edition, 2010, BPB Publications.

REFERENCE BOOKS

1. Robert.A.Radcliffe, “ Encyclopedia C “, First Edition, 2010, BPB Publications.
2. SalimY.Ambani, “C Programming”, First Edition, 2009, Laxmi Publications.

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**THIRD SEMESTER
PART - III - CORE LAB 2 - PROGRAMMING IN C [PRACTICAL]**

MAXIMUM CIA: 40

MAXIMUM CE: 60

TOTAL HOURS: 60

PROGRAM LIST:

1. Write a C Program to Find the Sum, Average for a Given Set of Numbers.
2. Write a C Program to Generate N Prime Numbers.
3. Write a C Program to Generate Fibonacci Series.
4. Write a C Program to Find the Reverse of the Given Number.
5. Write a C Program to Find the Sum of Digits.
6. Write a C Program to Find the Biggest of N Numbers.
7. Write a C Program to Sort the Given Set of Numbers in Ascending Order.
8. Write a C Program to Check Whether the Given String is a Palindrome or not using Pointers.
9. Write a C Program to Count the Number of Vowels in the Given Sentence.
10. Write a C Program to Find the Factorial of a Given Number using Recursive Function.
11. Write a C Program to Print the Student's Mark Sheet Assuming Roll No, Name, and Marks in 5 Subjects in a Structure. Create an Array of Structures and Print the Mark Sheet in the University Pattern.
12. Write a Function using Pointers to Add Two Matrices and to Return the Resultant Matrix to the Calling Function.

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Onwards**

**THIRD SEMESTER
PART- IV - EDC- BASICS OF ANIMATION**

MAXIMUM CE: 50

TOTAL HOURS: 24

OBJECTIVE: On the successful completion of the course, the students should have understood the key features of Animation Technique, Learn the Animation Development for Future Development of Application.

UNIT- I [5 HOURS]

Introduction to Flash CS5 - New Features in Flash CS5 - Creating a New Flash File - Exploring Flash CS5 Interfaces - Working With Workspace - Setting the Stage - Saving the Flash File - Closing the Flash File - Opening an Existing Flash File.

Getting Started with Drawing Tools - Exploring Drawing Modes in Flash - Working with Drawing Tools in Flash - Using Colors in Flash.

[5 HOURS]

UNIT -II

Selecting Object in Flash – Moving – Copying - Deleting & Editing an Object- Transforming Object - Working with Text in Flash - Editing Text Field - Working with Timeline - Frames & Key frames - Layer & Layer Folder .

UNIT -III [6 HOURS]

Using Symbols, Instance and the Library – Creating – Modifying Symbols - Instance-about Library - Working With Sound and Video.

UNIT- IV [4 HOURS]

Creating Animation –Creating Motion Tweens - Editing the Motion Path - Motion Presets in Flash - Frame by Frame Animation – Shape Tweening in Flash.

UNIT -V [4 HOURS]

Working with Advanced Animation - Understanding Bones - Animating an Armature- Exploring 3D Animation – Working with Action Script - Action Panel Overview -Resizing the Action Toolbox or script pane.

TEXT BOOKS

1. Kogent, Flash CS5 in Simple Steps, Second Edition, 2012, Dreamtech Press.
2. Ashok Banerji, Ananda Mohan Ghosh, Multimedia Technologies, First Reprint 2010.

REFERENCE BOOKS

1. Nigel chapman and Jenny Chapman, Digital Multimedia, 2013, Second Edition.
2. Ze-Nianli-Mark S.Prew, Fundamental of Multimedia, 2012, Tata-McGrawHill Publications.

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FOURTH SEMESTER

PART – III – CORE 9 – OBJECT ORIENTED PROGRAMMING USING C++

MAXIMUM CIA:30

MAXIMUM CE:70

TOTAL HOURS: 60

OBJECTIVE: On the successful completion of the course, the students should have understood the concepts of C++ programming, and have the ability to work with C++ programs.

UNIT-I [10 HOURS]

Introduction - Object-Oriented Paradigm - Basic Concepts of Object - Oriented Programming – Benefits of OOP - Object Oriented Languages – Applications of OOP - Applications of C++ .

UNIT-II [14 HOURS]

Structure of C++ Program - Tokens – Keywords - Identifiers and Constants - Basic Data Types – Operators - Scope Resolution Operator – The Main Function - Function Prototyping - Call By Reference - Return By Reference - Inline Functions - Function Overloading .

UNIT-III [11 HOURS]

Classes and Objects: Specifying a Class - Defining Member Functions - Private, Static Member Functions - Arrays of Objects – Friend Functions - Pointers To Members - Constructors – Parameterized Constructors – Destructors.

UNIT-IV [14 HOURS]

Operator Overloading – Rules for Operator Overloading - Inheritance – Types of Inheritance Polymorphism – Pointers – Pointers to Objects – This Pointer – Virtual Functions.

UNIT-V [11 HOURS]

Managing Console I/O Operations – C++ Stream Classes - Classes for File Stream Operations-Opening and Closing a File-Sequential-Random Access File-Error Handling.

TEXT BOOKS

1. E.Balagurusamy, "Object-oriented programming with C++", 5th Edition, 2011, Tata McGraw Hill Publishing Company Ltd.
2. D.Ravichandran, "Programming with C++", 3rd Edition, 2011, Tata McGraw Hill.

REFERENCE BOOKS

1. John R Hubbard,"Programming with C++", Second Edition , 2000, Tata McGraw Hill Publishing Company Ltd.,
2. Mahesh Bhave, Sunil Patekar, "Object-Oriented Programming with C++", 2012, Pearson Education .

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FOURTH SEMESTER

**PART - III - CORE LAB - 3 – OBJECT ORIENTED PROGRAMMING USING
C++ [PRACTICAL]**

MAXIMUM CE: 60

MAXIMUM CIA:40

TOTAL HOURS:60

OBJECTIVES: On the Successful Study of this Subject the Students should have Acquired the Professional Skills in Developing C++ Programs.

PROGRAM LIST:

1. Write a C++ Program to Illustrate the Use of a Class.
2. Write a C++ Program for Developing Student Mark List and Display the Result .
3. Write a C++ Program to Print the Number of Days in a Month.
4. Write a C++ Program for Swapping of Two Numbers Using Call by Reference.
5. Write a C++ Program to Find Area of Rectangle by using Constructors.
6. Write a C++ Program to Display the Reverse of String using String Functions.
7. Write a C++ Program to Perform Arithmetic Operations using Operator Overloading.
8. Write a C++ Program to Display Patient Details By using Single Inheritance.
9. Write a C++ Program to Create Employee Payroll by using Multilevel Inheritance.
10. Write a C++ Program to Display Book Details with Price using Polymorphism.
11. Write a C++ Program to Find the Smallest of n Numbers using Array of Pointers.
12. Write a C++ Program to Copy the Text from One File to Another File using Command Line Arguments.

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**THIRD SEMESTER
PART – IV – AOC - I - PC SOFTWARE [PRACTICAL]**

MAXIMUM CE: 75

TOTAL HOURS: 36

OBJECTIVE: Imparting Professional skills in Personal Computer software.

MS WORD

1. Type the Text and Perform the Following:
 - (i) Bullets and Numbering
 - (ii) Align the Text to Left, Right, Justify, and Centre
2. Prepare a Job Application Letter enclosing Detailed Resume.
3. Create a Call Letter for Interview by using Mail Merge.

MS EXCEL

4. Prepare a Student Mark List [Minimum of 5 Subjects] and Perform Sorting Operation.
5. Prepare Statement of Bank Customer's Account Showing Simple and Compound Interest Calculations for 10 Different Customers Using Mathematical and Logical Functions.
6. Prepare a Result Analysis Chart with Subject Details, Staff details and Pass percentage details.

MS ACCESS

7. Generate a Payroll for Employee Database of an Organization with the Following Details: Employee Id- Employee Name- Date of Birth- Department and Designation- Date of Appointment- Basic Pay- Dearness Allowance- and House Rent Allowance and Other Deductions. Perform Queries for Different Categories.
8. Prepare a Report Based on Invoice details such as Product Number, Quantity, Price for Five Products.

MS POWER POINT

9. Draw an Organization Chart for Courses Offered in College with Minimum Three Hierarchical Levels.
10. Design an Advertisement Campaign with Minimum Three Slides.

INTERNET

11. Search Information from Bharathiar University Website.
12. Create an Email Account , Compose and Send mail by using CC and BCC Options with Attachments.

**Bachelor of Business Administration Degree Examination-Syllabus for Candidates
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THIRD SEMESTER

PART – IV - EDC - BASICS OF ANIMATION

**MAXIMUM CE: 50
TOTAL HOURS: 24**

OBJECTIVE: On the successful completion of the course, the students should have understood the key features of Animation Technique, Learn the Animation Development for Future Development of Application.

UNIT- I [5 HOURS]

Introduction to Flash CS5 - New Features in Flash CS5 - Creating a New Flash File - Exploring Flash CS5 Interfaces - Working With Workspace - Setting the Stage - Saving the Flash File - Closing the Flash File - Opening an Existing Flash File.
Getting Started with Drawing Tools - Exploring Drawing Modes in Flash - Working with Drawing Tools in Flash - Using Colors in Flash.

UNIT -II [5 HOURS]

Selecting Object in Flash – Moving – Copying - Deleting & Editing an Object-Transforming Object - Working with Text in Flash - Editing Text Field - Working with Timeline - Frames & Key Frames - Layer & Layer Folder .

UNIT –III [6 HOURS]

Using Symbols, Instance and the Library – Creating – Modifying Symbols - Instance- About Library - Working With Sound and Video.

UNIT- IV [4 HOURS]

Creating Animation –Creating Motion Tweens - Editing the Motion Path - Motion Presets in Flash - Frame by Frame Animation – Shape Tweening in Flash.

UNIT -V [4 HOURS]

Working with Advanced Animation - Understanding Bones - Animating an Armature- Exploring 3D Animation – Working with Action Script - Action Panel Overview -Resizing the Action Toolbox or Script Pane.

TEXT BOOKS

1. Kogent, Flash CS5 in Simple Steps, Second Edition, 2012, Dreamtech Press.
2. Ashok Banerji, Ananda Mohan Ghosh, Multimedia Technologies, First Reprint 2010.

REFERENCE BOOKS

1. Nigel Chapman and Jenny Chapman, Digital Multimedia, Second Edition 2013.
2. Ze-Nianli-Marks.Prew, Fundamental of Multimedia, 2012, Tata-McGraw Hill Publications.

**B.Sc(Catering Science and Hotel Management) Degree Examination - Syllabus – for
Candidates Admitted from the Academic Year 2015-2016 Onwards**

SEMESTER III

PART IV-AOC I:-COMPUTER APPLICATIONS

MAXIMUM CE: 75

Total Hours: 36

OBJECTIVE:

To inculcate knowledge on application of computers.

UNIT- I

[7 HOURS]

Introduction to Computers:-- Characteristics - Generations - Classifications - Application Of Computer - Hardware and Software - Operating Systems - Computer Languages.

UNIT- II

[7 HOURS]

Word - Introduction To Word - Editing A Document - Move And Copy Text And Help System - Formatting Text and Paragraph - Finding and Replacing Text and Spell Checking - Using Tabs - Enhancing Documents - Columns - Tables and Other Features - Using Graphics - Templates and Wizards Using Mail Merge - Miscellaneous Features Of Word.

UNIT- III

[7 HOURS]

Introduction Of Worksheet and Excel - Getting Started With Excel - Editing Cells And Using Commands And Functions - Moving and Copying - Inserting And Deleting Rows and Columns - Getting Help And Formatting A Worksheet - Printing The Worksheet - Creating Charts - Using Date And Time and Addressing Modes - Naming Ranges and Using Statistical - Math And Financial Functions..

UNIT- IV

[7 HOURS]

Power Point Basics Editing Text Adding Subordinate Points - Deleting Slides - Working In Outline View - Using Design Templates - Adding Graphs - Adding Organization Charts - Running An Electronic Slide Show - Adding Special Effects.

UNIT- V

[8 HOURS]

Access Basics - Creating A Table - Entering And Adding Records - Changing A Structure - Working With Records - Creating Forms - Establishing Relationship Using Queries To Extract Information - Using Reports To Print Information.

TEXT BOOK

1. Ed Bott, Carl Sierchert , Microsoft Office:-Inside Out, 2013 Edition.

REFERENCE BOOKS

1. Demystified, Karen Rex, MS Office, 2011.
2. Ron Mansfield, Working In Microsoft Office, 2010.

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SEMESTER IV

PART IV: AOC II:-COMPUTER APPLICATIONS LAB

MAXIMUM CE: 75

Total Hours: 36

OBJECTIVE:

To inculcate practical knowledge on application of computers.

1. Create A Time Table Document For B.Sc CATERING IV Semester Using MS-Word.
2. Create A Document Using Mail Merge In Ms-Word.
3. Create A Document To Use Mathematical Equations In MS-Word.
4. Create A Presentation With Text And Images Effects Using MS-Powerpoint.
5. Create A Presentation To Display Our College Information Using Animation And Sound Effects Using MS-Power Point.
6. Create An Employee Work Details Using MS-Excel.
7. Create A Student Mark Details And Perform Sort And Filter Using Ms-Excel.
8. Create And Display Four Types Of Charts Using MS-Excel.
9. Create A Student Database In Ms-Access.
10. Create Queries Using Ms-Access.
11. Create A Form To The Database For Giving The Input Using MS-Access.
12. Generate A Report For The Student Table Using MS-Access.

**FIFTH SEMESTER
PART III-CORE IX- .NET PROGRAMMING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To inculcate knowledge on .NET Programming.

UNIT I (12 HOURS)

Getting started with .Net Framework 4.0: – Evolution of .Net – Benefits of .Net Framework - Architecture of .Net Framework – Components of .Net Framework - Exploring new features of .Net Framework 4.0 – Introducing Visual Studio 2010: – Exploring New Features of Visual Studio – Installing Visual Studio 2010 – Visual Studio 2010 IDE.

UNIT II (12 HOURS)

Window Forms in Visual Basic 2010: – Exploring Window Forms – Creating main window forms – Adding Controls to Window form application – Disabling and Enabling Window forms – Changing Title – Setting Border – Displaying and Hiding the Maximize, Minimize, and Close Buttons in Window Forms – Specifying Initial Position – Creating Multiple Window Applications – Setting Startup Form – Displaying Messages – Common Operations on Controls – Handling Common Events for Window Forms and Controls. Window Form Controls I: – The Control Class – Button – Label – Text Box – Rich Text Box – Masked Text Box – List Box – Combo Box – Window Form Controls II: – Radio Buttons – Check Box – Tree View – Panel – Window Form Controls III: – Image List – Picture Box – Timer – Progress Bar – Calendar – Window Form Controls IV: – Menu Strip Control.

UNIT III (12 HOURS)

Introducing C#: – Need of C# – C# Pre-Processor Directives – Features of C# - Creating Simple C# Console Application – Identifiers and Keywords – Data Types –Type Conversions - Variables – Constants – Expressions and Operators - ?? Operator – :: Operator – Namespaces – Classes and Objects – Constructors and Destructors – Static Class and Class Member – Structs –Control Flow Statements.

UNIT IV (12 HOURS)

Exception Handling –.Collections and Generics – Understanding Collections - Collection Classes in .Net – Threading: – Thread Class – Difference between Process and Threads – Working with Thread – Multi Threading – Thread Priorities – Thread States – Thread Synchronization – Join Threads.

UNIT V (12 HOURS)

Data Access with ADO.Net : – Understanding Databases – Understanding SQL – Understanding ADO.Net – Creating Connection String – Creating Connection to a Database – Creating Command Object – Data Adapters – Data Readers – Data grid.

TEXT BOOK

1.Net 4.0 Programming (6 in 1) Black Book Kogent Dream Tech Press.

REFERENCE BOOK1..NET Framework Essentials, Hoang Lam, Thuan L. Thai, O'Reilly Media, 2nd Edition

BCA Degree Examination–Syllabus for candidates admitted from the academic year 2018-2019 Onwards.

**FIFTH SEMESTER
PART III -CORE 9: COMPUTER NETWORKS**

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective :To inculcate knowledge on networking concepts and technologies like wireless, broadband and Bluetooth.

Unit – I (12 Hours)

Network Hardware: LAN-WAN-MAN- Wireless Networks-Home Networks. Network Software Protocol Hierarchies-Design Issues For The Layers- Connection-Oriented And Connectionless Services - Service Primitives-The Relationship Of Services To Protocols. Reference Models: OSI Reference Model-TCP/IP References Model – Comparison of OSI and TCP/IP

Unit – II (12 Hours)

Physical Layer: Guided Transmission Media Magnetic Media-Twisted Pair-Coaxial Cable-Fiber Optics. Wireless Transmission Electromagnetic Spectrum-Radio Transmission-Microwave Transmission-Infrared and Millimeter Waves-Light Waves. Communication Satellites: Geostationary, Medium – Earth Orbit, Low Earth Orbit Satellites-Satellites versus Fiber.

Unit – III (12 Hours)

Data Link Layer: Error Detection and Correction-Elementary Data Link Protocols- Sliding Window Protocols. Medium-Access Control Sub Layer: Multiple Access Protocols-Ethernet-Wireless LANs-Broadband Wireless-Bluetooth.

Unit – IV (12 Hours)

Network Layer: Routing Algorithms: The Optimality Principle, Shortest Path Algorithm, Flooding, Distance Vector Algorithm, Link state Routing, Hierarchical Routing, Broadcast Routing, Multicast Routing, Routing for Mobile Hosts, Routing in Adhoc Networks, Node Lookup in peer to peer Networks – Congestion Control Algorithms: General Principles of Congestion Control, Congestion Prevention Polices.

Unit – V (12 Hours)

Transport Layer: Elements of Transport Protocols-Internet Transport Protocols TCP-Application Layer: DNS-Electronic Mail-The World Wide Web- Multimedia.

Text Book:

1. Andrew S.Tanenbaum, Computer Networks, 4th Edition, Tata McGraw-Hill Publishing Company Limited, 2007, India.

Reference Book:

1. Prakash C. Gupta –Data Communications And Computer Networks,2nd Edition,Prentice Hall,2013.
Vilas S. Bagad –Computer Networks,Technical Publications Pune,1st Edition,2008.

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**FIFTH SEMESTER
PART III -CORE 10: PYTHON PROGRAMMING**

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective: To inculcate knowledge of Python Programming. It defines the Conditional Statements & Loops, Functions, Python data structures and Exception & its tools.

Unit-I (12 Hours)

Introduction: History of Python – Executing Python Programs – Commenting in Python – Internal Working of Python - Python Character Set – Token – Python Core Data Type – print() Function – Assigning Values to Variables – Multiple Assignments – input() Function - Python Inbuilt Functions - Decision and Loop Control Statements.

Unit-II (12 Hours)

Functions: Introduction – Syntax and Basics of Function – Use of a Function – Parameters and Arguments in a Function -Recursive Functions.Strings: Introduction – str class – Basic Inbuilt Python Functions for String – Traversing String with for and while Loop.

Unit-III (12 Hours)

Lists: Introduction – Creating Lists – Accessing the Elements of a List – Negative List Indices – List Slicing - List Slicing with Step Size – Python Inbuilt Functions for Lists – List Operator – List Comprehensions – List methods.

Unit-IV (12 Hours)

Tuples : Creating Tuples - tuple() Function - Inbuilt Functions for Tuples - Indexing and Slicing - Operations on Tuples - Passing Variable Length Arguments to Tuples - Lists and Tuples - Sort Tuples.

Sets: Creating Sets - Set in and not in Operator - Python Set Class - Set Operations.

Dictionaries: Need of Dictionaries - Basics of Dictionaries - Creating a Dictionary - Adding and Replacing Values - Retrieving Values - Formatting Dictionaries - Deleting Items - Comparing Two Dictionaries - Methods of Dictionary Class.

Unit-V (12 Hours)

File Handling: Introduction – Need of File Handling – Text Input and Output – seek() Function – Binary Files.

Object-Oriented Programming: Class, Objects and Inheritance: Defining Classes – Self-parameter and Adding Methods to a Class – Constructor and Destructor Methods – Method Overloading – Operator Overloading – Inheritance – Types of Inheritance – Using super() – Method Overriding.

Text Book:

1. Ashok NamdevKamthane, Amit Ashok Kamthane, “Programming and Problem Solving with PYTHON”, McGraw Hill Education (India) Private Limited, First Edition, 2018.

Reference Book:

1. Allen Downey, Jeffrey Elkner, Chris Meyers, “How to Think like a Computer Scientist- Learning with Python”, Dreamtech Press, Reprint Edition 2016.

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**FIFTH SEMESTER
PART –III-ELECTIVE –I: E-COMMERCE**

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective: To inculcate knowledge on E-Commerce concepts in the present IT world.

UNIT I (12 HOURS)

What is e-commerce? – E-Commerce is not E-Business – the drivers – Myths You should know – Advantages and Issues in E-Commerce – Benefits and Limitations of the Internet – Role of E-Strategy – Integrating E-commerce – E-Commerce Business Models – Management Implications

UNIT II (12 HOURS)

Mobile-Commerce-The Business of Time: What is M-Commerce? – Why wireless? – How wireless Technology is employed? – Wireless LAN – Wireless application Protocol - Implications for Management

UNIT III (12 HOURS)

Business-to-Business E-Commerce: What is B2B E-Commerce? – Supply chain Management and B2B – B2B Models – B2B Tools-EDI.

UNIT IV (12 HOURS)

E-Security: Security in Cyberspace – Designing for Security – How much risk you Afford? – The VIRUS – Security Protection and Recovery – Role of Biometrics - How to secure your system? – Security and Terrorism)

UNIT V (12 HOURS)

Getting the money: Real World Cash – Electronic Money – Requirements for Internet-Based Payments – How would you like to pay? – B2B and E-Payment – M-Commerce and M-Payment – General Guide to E-Payment

TEXT BOOK

1. Elias M. Awad, Electronic Commerce from Vision to Fulfillment 3rd edition, PHI.

REFERENCE BOOKS

1. David Whiteley, E-Commerce Strategy, Technologies and Applications, 2001, TMH.
2. Jeffrey F. Rayport, Bernard J. Jaworski, Introduction to E-Commerce, TMH.

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FIFTH SEMESTER

PART III –ELECTIVE -I: CLIENT SERVER COMPUTING

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objectives: To make students gain and understand the client/server computing techniques.

Unit -I (12 Hours)

INTRODUCTION: Server Computing- Benefits-Evolution of client server computing--Client Server Applications- Components, Classes of Client Server Computing – Categories of Client Server Computing.

Unit -II (12 Hours)

CLIENT/SERVER OPERATING SYSTEMS: Dispelling The Myths, Obstacles Upfront And Hidden, Open Systems And Standards, Factors Needed For Success. Standards Setting Organizations

Unit - III (12 Hours)

THE CLIENT: Client Hardware and software, Client components, Client Operating Systems, GUI, X windows and Windowing, Database Access Application Logic, Client Software Products, Client Requirements

Unit - IV (12 Hours)

THE SERVER: Server Hardware, Categories, Features Classes Of Server Machines, Server Environment, Network Management Environment, Network Computing Environment, Network Operating Systems, Server Requirements, Platform Independence, Transaction Processing, Connectivity. Server Data Management And Access Tools

Unit -V (12 Hours)

THE NETWORK : Overview Of Networking - Layers, Interface And Protocol –Standard Architecture – Network Characteristics – Network Management Standards- LAN Characteristics – LAN Hardware And Software –Network Operating System.

Text Book:

1. Dawana Travis Dewire, “Client Server Computing”, Tata Mc-Graw Hill Education Pvt. Ltd.,New Delhi, 2003

Reference Books:

1. Eric J Johnson, “A complete guide to Client / Server Computing”, first edition, Prentice Hall,New Delhi, 2001.
2. Smith & Guengerich, “Client /Server Computing”, Prentice Hall, New Delhi, 2002

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FIFTH SEMESTER

**PART III –ELECTIVE -I: SOFTWARE ENGINEERING AND SOFTWARE
TESTING**

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective: To inculcate knowledge on Software engineering concepts in turn gives a roadmap to design a new software project

Unit -I (12 Hours)

Introduction to Software Engineering: Definitions – Size Factors – Quality and Productivity Factors. Planning a Software Project: Planning the Development Process – Planning an Organizational Structure.

Unit –II (12 Hours)

Software Cost Estimation: Software cost Factors – Software Cost Estimation Techniques – Staffing-Level Estimation – Estimating Software Estimation Costs

Unit -III (12 Hours)

Testing, Verification and Validation - Life Cycle models. White-Box Testing: Static Testing – Structural Testing –Challenges in White-Box Testing -.Black-Box Testing: What is Black-Box Testing? - Why Black-Box Testing? – When to do Black-Box Testing? – How to do Black-Box Testing? – Challenges in White Box Testing - Integration Testing: Integration Testing as Type of Testing – Integration Testing as a Phase of Testing – Scenario Testing – Defect Bash.

Unit-IV (12 Hours)

System and Acceptance Testing: system Testing Overview – Why System testing is done? – Functional versus Non-functional Testing - Functional testing - Non-functional Testing – Acceptance Testing – Summary of Testing Phases - Performance Testing: Factors governing Performance Testing – Methodology of Performance Testing – tools for Performance Testing – Process for Performance Testing –

Unit-V (12 Hours)

What is Regression Testing? – Types of Regression Testing –When to do Regression Testing – How to do Regression Testing – Best Practices in Regression Testing.-Test Planning, Management, Execution and Reporting: Test Planning – Test Management – Test Process – Test Reporting –Best Practices. Test Metrics and Measurements: Project Metrics – Progress Metrics – Productivity Metrics – Release Metrics.

Text Books:

1. Richard Fairley, Software Engineering Concepts, TMH, ,2011.
2. SOFTWARE TESTING Principles and Practices – Srinivasan Desikan & Gopalswamy Ramesh, 2006, Pearson Education.

Reference Books:

1. Roger Pressman, S,Bruce MAXIMUM Mim oftware Engineering: A Practitioner's Approach, McGraw-Hill Education, 2014.
2. Rod Stephens –Beginning Software Engineering,A Wiley Brand,2015.
3. EFFECTIVE METHODS OF SOFTWARE TESTING–William E.Perry, 3rd ed, Wiley India.

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FIFTH SEMESTER

PART III –CORE –LAB -6: .NET PROGRAMMING

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objectives: To make students to understand and apply application designing using .Net Frame Work

1. Create a Console application to calculate the salary of an employee by considering the LOP's, Casual Leaves and Medical Leaves using the class and objects.
2. Create a Console application to demonstrate the Concepts of,
 - i. Hash Table
 - ii. Array List
3. Create a sample application to calculate the university exam fee using the concept of multilevel inheritance.
4. Create a sample application to upload the document file in your own directory.
5. Create a sample application to demonstrate the basic DML Operations.
6. Create a sample application to generate an auto password at the time of user registration.
7. Create a sample application for conducting a general knowledge test.
8. Create a sample application to fetch the records from a table in a Database.
 - i. Display the data in a corresponding textbox which is in a designed form
 - ii. The form should allow the user view the first, last, previous and next records which is available in a table.
9. Create a sample application to perform the basic banking activities.
 - i. Handle the Exceptions that arise at the time of Deposit and withdrawal.
10. Create a sample application to demonstrate the functionality of Data grid
 - i. Design a form with required fields to maintain the patient records.
 - ii. Design a form with a data grid and bind patient record in a data grid without using direct connectivity method.
11. Create a sample application for bus ticket reservation using MDI form
 - i. Ticket Reservation and Cancellation should be done in a same application
 - ii. Passenger and Bus detail should be maintained.
12. Create a sample application to generate a data report.
 - i. Create an application to maintain customer's detail.
 - ii. Create your own data set to generate data report.

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FIFTH SEMESTER

PART III –CORE –LAB -7: PYTHON PROGRAMMING LAB

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective: The emphasis will be on programming techniques and help to develop python programming on Mathematical logic, classes, functions and strings.

1. Write a python program to find the sum of digits in a Number.
2. Write a Python Program to demonstrate the uses of various python built-in functions..
3. Develop a Python program to print the Employee pay slip using eval() function.
4. Write a python program to find the square root of a number (Newton's method)
5. Implement the various string operations in python.
6. Write a program to strip unwanted character from a string.
7. Develop a python program to find the maximum of list of Numbers.
8. Write a function reverse (Lst) to reverse the elements of a list.
9. Write a Python program to perform arithmetic operations on complex numbers using method overloading.
10. Write a program to add the content of a file numbers.txt and display the sum of all numbers present in a file.

BCA Degree Examination-Syllabus- for Candidates admitted from the Academic Year 2015 – 2016 Onwards**SIXTH SEMESTER****PART III -CORE-XIII: INFORMATION SECURITY**

Maximum CIA:30

Maximum CE:70

Total Hours : 60

Objective :To create awareness among the students regarding security mechanisms.

UNIT I (12 HOURS)

Introduction - Basic Concepts : Attacks : Threats - Controls - Vulnerabilities – Method, Opportunity & Move –Security Goals: Confidentiality – Integrity - Availability - Vulnerabilities - Computer Criminals – Methods of Defense : Hacking as Defense Mechanism – The Methodology of Hacking – Classification of Hackers – Controls – Encryption – Software Controls – Hardware Controls.

UNIT II (12 HOURS)

Basic Cryptographic Terms – Terminology and Background – Substitution Ciphers: The Caesar Cipher – Other Substitutions – One time Pads – Summary of Substitutions – Transpositions : Columnar Transposition – Combination of Approaches – Symmetric & Asymmetric Encryption Systems – Stream & Block Ciphers – Cryptanalysis – Breaking Encryption Scheme – The Data Encryption Standard : Background & History – Overview of the DES Algorithm – Fundamental Concepts of DES – Double and Triple DES – Public Key Encryption : Motivation – Characteristics – Rivest – Shamir – Adelman Encryption – Possible Attacks on RSA – The Uses of Encryption : Cryptographic Hash Functions – Digital Signatures – Certificates.

UNIT III (12 HOURS)

Secure Programs : Fixing Faults – Unexpected behavior – Types of Flaws - Non malicious Program Errors : Buffer Overflows – Time-of-Check to Time-of-Use Errors – Viruses and other Malicious Code : Kinds of Malicious Code – How Viruses Attach – How Viruses Gain Control – Homes for Viruses - Virus Signatures – The Source of Viruses – Prevention of Virus Infection – Trojans – Salami Attack – Controls Against Program Threats : Developmental Controls - Testing

UNIT IV (12 HOURS)

Protected Objects and Methods of Protection : A bit of History – Protected Objects – Security methods of Operating Systems - Memory and Address Protection : Fence – Relocation – Base Registers – Tagged Architecture – Segmentation – Paging – Combined Paging with Segmentation - File Protection Mechanisms : Basic Forms of Protection – Individual Permissions – Persistent Permission – Temporary Acquired Permission – Pre-object and Per-User Protection - User Authentication : Passwords as Authenticators – Attacks on Passwords : Loose-Lipped Systems – Exhaustive Attack – Probable Passwords –Password Selection

Criteria –One-time Passwords – The Authentication Process : Fixing Flaws in the Authentication Process.

UNIT V

(12 HOURS)

Introduction to Databases – Security Requirements - Inference - Multilevel Databases – Legal and Ethical Issues in Computer Security : Computer Crime : Why a separate category for Computer Crime is needed – Why Computer crime is hard to define and hard to prosecute – Indian Cyber law offences – Cyber pornography – Accessing Protected System – Tampering with Computer Source code – Why Computer Criminals are hard to catch – What Computer Crime does not address.

TEXT BOOK

1. Charles P. Pfleeger and Shari Lawrence Pfleeger, “Security in Computing” – Pearson Education , 4th Edition, 2007.

REFERENCES BOOKS

1. Atul Kahate, Cryptography and Network Security, Tata McGraw-Hill, 2nd Edition, 2005.
2. Bruce Schneier, "Applied Cryptography", John Wiley & Sons Inc, 2nd Edition, 2006.

SIXTH SEMESTER**PART III -CORE-XIV: PHP PROGRAMMING**

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective: To make the students to get familiarized with the Web designing concepts.

UNIT I (12 HOURS)

The Building Blocks of PHP: Variables - Data Types - Operators and Expressions - Constants – Flow Control Functions in PHP: Switching Flow - Loops - Code Blocks and Browser Output - Working with Functions: What Is a Function? - Calling Functions - Defining a Function - Returning Values from User-Defined Functions - Variable Scope - Saving State between Function Calls with the static Statement - More About Arguments - Testing for the Existence of a Function.

UNIT II (12 HOURS)

Working with Arrays: What Are Arrays? - Creating Arrays - Some Array-Related Functions - Working with Objects: Creating an Object - Object Inheritance - Working with Strings, Dates, and Time: Formatting Strings with PHP - Investigating Strings in PHP - Manipulating Strings with PHP - Using Date and Time Functions in PHP - Other String, Date, and Time Functions - Working with Forms: Creating a Simple Input Form - Accessing Form Input with User-Defined Arrays - Combining HTML and PHP Code on a Single Page - Using Hidden Fields to Save State - Redirecting the User - Sending Mail on Form Submission - Working with File Uploads.

UNIT III (12 HOURS)

Working with Cookies and User Sessions: Introducing Cookies - Setting a Cookie with PHP - Deleting a Cookie with PHP - Session Function Overview - Starting a Session - Working with Session - Passing Session IDs in the Query String - Destroying Sessions and Unsetting Variables - Using Sessions in an Environment with Registered Users - Working with Files and Directories: Including Files with include() - Validating Files - Creating and Deleting Files - Opening a File for Writing, Reading, or Appending - Reading from Files - Writing or Appending to a File - Working with Directories - Opening Pipes to and from Processes Using popen() - Running Commands with exec() - Running Commands with system() or passthru().

UNIT IV (12 HOURS)

Working with Images: Understanding the Image-Creation Process - Necessary Modifications to PHP - Drawing a New Image - Getting Fancy with Pie Charts - Modifying Existing Images - Image Creation from User Input - Using Images Created by Scripts –Understanding the Database Design Process: - The Importance of Good Database Design - Types of Table Relationships - Understanding Normalization - Following the Design Process.

UNIT V (12 HOURS)

Basic SQL Commands - MySQL Data Types - Table Creation Syntax - Using the INSERT Command -Using the SELECT Command - Using WHERE in Your Queries -

Selecting from Multiple Tables - Using the UPDATE Command to Modify Records - Using the REPLACE Command - Using the DELETE Command -Frequently Used String Functions in MySQL - Using Date and Time Functions in MySQL -Using Transactions and Stored Procedures in MySQL: What Are Transactions? - What Are Stored Procedures? Interacting with MySQL Using PHP: MySQL Versus MySQLiFunctions - Connecting to MySQL with PHP - Working with MySQL Data.

TEXT BOOK

1. Julie C. Meloni, PHP MYSQL and APACHE, Pearson Education, 2009, , 2010, India

REFERENCE BOOK

1. Luke Welling, Laura Thomson, PHP and MYSQL, Pearson Education, 2010, India

**SIXTH SEMESTER
PART III -CORE LAB VIII: PHP PROGRAMMING**

Maximum CIA:40

Maximum CE:60

Total Hours:60

Objective: To impart knowledge on PHP Programming

1. Create a program to print Fibonacci series numbers less than 100.
2. Create a program to remember the value of variable between function call using global statement.
3. Create an array and perform
 - a)count number of values in an array.
 - b)print the values using for each
 - c)array_push(),array_pop() and array_merge().
4. Create a birthday countdown script given form input of month ,day and year, output a message that tells the user how many days, hours, min and seconds until the birthday.
5. Create a number guessing program using forms.
6. Create a calculator script that enables the user to submit two numbers and perform arithmetic operation.
7. Create a program using Cookies.
8. Create a program to perform
 - a) Read operation
 - b) Write operation
 - c) Append operation on file.
9. Create a logo using image Functions.
10. Create student table in MySQL and display the content of the table in the browser.
11. Write a program to display the table content using store procedures .
12. Design a college admission form and perform Insert,Update,Delete and Replace operations.

SIXTH SEMESTER

PART III -ELECTIVE- II: MOBILE COMPUTING

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective: To impart knowledge on Mobile Computing Concepts

UNIT I (12 HOURS)

Introduction: Mobility of Bits and Bytes –Wireless The Beginning – Mobile Computing – Dialogue Control – Networks – Middleware and Gateways – Application and services- Developing Mobile computer Applications – security in mobile computing – Standards _ Why is it necessary – Standard bodies. MOBILE COMPUTING ARCHITECTURE: History of computers and Internet – Architecture for mobile computing – Three-tier architecture – Design considerations for mobile computing – Mobile computing through Internet – Making exiting applications mobile enabled.

UNIT II (12 HOURS)

MOBILE COMPUTING THROUGH TELEPHONY: Evaluation of telephony – Multiple access procedures – Mobile computing through telephone – IVR Application – Voice XML – TAPI.

UNIT III (12 HOURS)

EMERGING TECHNOLOGIES: Blue Tooth – RFID – WiMAX – Mobile IP – IPv6 – Java Card. GSM : Global System for mobile communications – GSM Architecture – GSM Entities – Call routing in GSM – PLMN Interfaces – GSM Addresses and Identifiers – Network Aspects in GSM –GSM Frequency allocations – Authentications and Security. SMS

UNIT IV (12 HOURS)

GPRS – GPRS and packet data network – GPRS network architecture – GPRS network operations – Data services in GPRS – Application for GPRS- Limitations – Billing and Charging. WAP : MMS – GPRS Applications

UNIT V (12 HOURS)

CDMA and 3G: Spread spectrum technology – Is 95 – CDMA vs GSM – Wireless Data – Third generation networks – Applications on 3G WIRELESS LAN: Wireless LAN advantages – IEEE 802.11 standards – Architecture – Mobile in Wireless LAN – Deploying wireless LAN – Mobile adhoc networks and sensor networks – Wireless LAN Security – WiFi vs 3G

TEXT BOOK

1. MOBILE COMPUTING, Asoke K Talukder , Roopa R Yavagal, TMH,2005

REFERENCE BOOK

1. PRINCIPLES OF MOBILE COMPUTING, Uwe Hansmann, Lothar Merk, Martin Nicklous 2nd Edition

SIXTH SEMESTER**PART III -ELECTIVE II:- INTRODUCTION TO ANDROID TECHNOLOGY**

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective: To impart the knowledge on mobile application development using Android.

UNIT I (12 HOURS)

Getting started with Android Programming: What is Android: - Versions – Features – Architecture –Devices in the market - Developer Community. Obtaining the Required Tools: Android SDK – Installing Android SDK Tools – Configuring the Android SDK Manager – Eclipse – ADT – Creating Android Virtual Devices. Creating your First Android Application.

UNIT II (12 HOURS)

Activities, Fragments and Intents: Understanding Activities: Applying Styles and Themes – Hiding Activity Title – Displaying Dialog Window – Fragments: Life Cycle of Fragments- Interaction between Fragments. Calling Built-in Applications using Intents: understanding Intent Objects – Intent Filters. Displaying Notifications.

UNIT III (12 HOURS)

Android User Interface: Components of a Screen: Views and View Groups- Linear Layout – Absolute Layout – Table Layout – Relative Layout – Frame Layout – Scroll View. Designing User Interface with Views: Basic View: Textview, Button, Image button, Edit Text, CheckBox, Toggle Button, RadioButton – ProgressBar – Autocomplete TextView. Picker View: Time Picker – Date Picker. Listview view – Spinnerview view.

UNIT IV (12 HOURS)

Displaying Pictures and Menus with Views: Image views to display pictures:- Gallery and imageview – image switcher – Gridview. Using Menus with Views: creating helper methods – Option menu – Context Menu. Analog and Digital Clock view – Web view.

UNIT V (12 HOURS)

Messaging: SMS Messaging:- Sending SMS Programmatically – Getting Feedback after sending a Message – Sending SMS Messages using Intent – Receiving SMS Messages – Caveats and Warnings. Sending E-Mail.

TEXT BOOK

1. Wei-Meng Lee, Beginning Android 4 Application Development, Wiley India PVT.Ltd. Reprint 2015.

REFERENCE BOOKS

1. Jerome (J.F) DiMarzio, Android A Programmer's Guide – Indian Edition, McGraw Hill Education, Seventh Reprint 2014.
2. Corinne Hoisington, Android Boot Camp for Developers Using Java: A Guide to Creating Your First Android Apps,Cengage Learning, 2014.

BCA Degree Examination-Syllabus- for Candidates admitted from the Academic Year 2015 – 2016 Onwards**SIXTH SEMESTER
PART III -ELECTIVE II:-CLOUD COMPUTING**

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objectives: To understand the Cloud Computing fundamentals and to enable learner to use various Cloud computing concepts.

UNIT I (12 HOURS)

Introducing cloud computing- Web 2.0 and the Cloud- Distinguishing Cloud Types- Exploring Uses of the Cloud - Introducing Scalability - Introducing Virtualization - Software as a Service (SaaS): Understanding the Multitenant Nature of SaaS Solution - Understanding OpenSaaS Solution - Understanding Service-Oriented Architecture (SOA).

UNIT II (12 HOURS)

Platform as a Service (PaaS) - IT Evolution Leading to the Cloud - Benefits of PaaS Solutions - Disadvantages of PaaS Solutions. Infrastructure as a Service (IaaS) - Understanding IaaS - Improving Performance Through Load Balancing - System and Storage Redundancy - Utilizing Cloud-Based NAS Devices - Advantages of IaaS Solution - Server Types Within an IaaS Solution.

UNIT III (12 HOURS)

Data Storage in the Cloud - Examining the Evolution of Network Storage - Understanding Cloud Based Data Storage - Advantages and Disadvantages of Cloud-Based Data Storage - Cloud-Based Backup Systems - Industry Specific Cloud-Based Data Storage - Cloud-Based Database Solutions - Cloud-Based Block Storage. Virtualization - Leveraging Blade Servers - Server Virtualization - Desktop Virtualization - Desktop Solutions on Virtualization - Virtual Networks - Data Storage Virtualization - Not All Applications Are Well Suited for Virtualization.

UNIT IV (12 HOURS)

General Security Advantages of Cloud-Based Solutions - Introducing Business Continuity and Disaster. Disaster Recovery and Business Continuity and the Cloud - Understanding the Threats - Understanding Service Level Agreements - Disaster Recovery Plan Template.

UNIT V (12 HOURS)

Mobile cloud computing: Evaluation of Mobile Cloud Computing, Mobile Cloud Eco System, Introducing the Mobile Players, The Future of the Cloud - How the Cloud Will Change Operating Systems - Location-Aware Applications - Intelligent Fabrics, Paints, and More - The Future of Cloud TV - Future of Cloud-Based Smart Devices - Cloud and Mobile - Faster Time to Market for Software Applications - Home-Based Cloud Computing.

TEXT BOOK

1. Kris Jamsa, Cloud Computing, Jones & Bartlett Learning, 2014.

REFERENCE BOOK

1. Anthony T. Velte, Toby J. Velte, Robert Elsenpeter, Cloud Computing – A Practical Approach, McGraw Hill Education, 2013.

**BCA Degree Examination-Syllabus- for Candidates admitted from the Academic
Year 2015 – 2016 Onwards****SIXTH SEMESTER****PART III -ELECTIVE III:- SOFTWARE PROJECT MANAGEMENT**

Maximum CIA:30

Maximum CE:70

Total Hours:60

Objective: To impart knowledge about software project management.

UNIT I (12 HOURS)

Introduction To Software Project Management:-Introduction-Why Is Software Project Management Important?-What Is A Project?-Software Projects Versus Other Types Of Project-Contract Management And Technical Project Management-Activities Covered By Software Project Management-Plans, Methods And Methodologies-Someway Of Categorizing Software Projects-What Is Management?-Problem With Software Projects.

UNIT II (12 HOURS)

Overview of Project Planning:-Introduction To Step Wise Project Planning-Select Project-Identify Project Scope And Objectives-Identify Project Infrastructure-Analyze Project Characteristics-Identify Project Product And Activities-Estimate For Each Activity-Identify Activity Risks-Allocate Resources-Review/Publicize Plan-Execute Plan/Lower Levels Of Planning. Programme Management and Project Evaluation:-Introduction-Program Management-Managing Allocation of Resources Within Program-Strategic Program Management-Creating Programme-Aids To Programme Management-Benefits Management-Evaluation Of Individual Projects-Technical Assessment-Cost Benefit Analysis-Cash Flow Forecasting-Cost Benefit Evaluation Techniques-Risk Evaluation

UNIT III (12 HOURS)

Software Effort Estimation:-Introduction-Where Are Estimates Done?-Problems With Over And Under Estimates-The Basis For Estimating-Software Effort Estimation Techniques-Expert Judgment-Estimating By Analogy. Activity Planning:-Introduction-Objectives Of Activity Planning-When To Plan-Project Schedules-Projects And Activities-Sequencing And Scheduling Activities-Network Planning Models-Formulating A Network Model-The Forward Pass-The Backward Pass.

UNIT IV (12 HOURS)

Risk Management:-Introduction-Risk-Categories Of Risk-A Framework for Dealing with Risk-Risk Identification-Risk Assessment-Risk Planning-Risk Management-Evaluation Risk to the Schedule. Resource Allocation: Introduction-The Nature of Risk-Identifying Resource Requirements-Creating Critical Path-Counting the Cost-Being Specific-Publishing the Resource Schedule-Cost Schedule-The Scheduling Sequence.

UNIT V

(12 HOURS)

Monitoring and control:-Introduction-Creating The Framework-Collecting The Data-Visualizing Progress-Cost Monitoring-Earned Value Analysis-Prioritizing Monitoring. Managing and Organizing People.

TEXT BOOK

1. Bob Hughes and Mike Cotterell, Software Project Management, - Tata Mc Graw Hill-4th Edition

REFERENCE BOOK

1. Gopalswamy Ramesh, Software Project Management, - Tata Mc Graw Hill,2nd Edition.

**SIXTH SEMESTER
PART III -ELECTIVE III:-WEB TECHNOLOGY**

Maximum CIA:30

Maximum CE:70

Total Hours:60

Objective: To inculcate knowledge web technological concepts and functioning internet.

UNIT I (12 HOURS)

TCP/IP: TCP/IP Basics – Why IP address – Logical Address - TCP/IP Example- The concept of IP address – Basics of TCP – Features of TCP – Relationship between TCP and IP – Ports and Sockets – Active Open and Passive Open - TCP Connections – What makes TCP reliable? – TCP Packet format - Persistent TCP connections – UDP – Differences between TCP and UDP.

UNIT II (12 HOURS)

DNS – E-mail – FTP – TFTP – History of WWW – Basics of WWW and Browsing - Local information on the internet – HTML – Web Browser Architecture – Web Pages and Multimedia – Remote Login (TELNET).

UNIT III (12 HOURS)

Introduction to Web Technology: Web pages – Tiers – Concept of a Tier –Comparison of Microsoft and Java Technologies – Web Pages – Static Web Pages – Plug-ins – Frames – Forms. Dynamic Web Pages: Need – Magic of Dynamic Web Pages – Overview of Dynamic Web Page Technologies – Overview of DHTML – Common Gateway Interface – ASP – ASP Technology – ASP Example – Modern Trends in ASP – Java and JVM – Java Servlets – Java Server Pages.

UNIT IV (12 HOURS)

Active Web Pages: Active Web Pages in better solution – Java Applets – Why are Active Web Pages Powerful? – Lifecycle of Java Applets – ActiveX Controls – Java Beans. Middleware and Component-Based E-Commerce Architectures: CORBA – Java Remote Method Invocation – DCOM. EDI: Overview – Origins of EDI – Understanding of EDI – Data Exchange Standards – EDI Architecture – Significance of EDI – Financial EDI – EDI and internet.

UNIT V (12 HOURS)

XML: SGML – Basics of XML – XML Parsers – Need for a standard. WAP: Limitations of Mobile devices – Emergence of WAP – WAP Architecture – WAP Stack –Concerns about WAP and its future – Alternatives to WAP.

TEXTBOOK

1. WEB TECHNOLOGIES TCP/IP to Internet Applications Architectures – Achyut S Godbole & Atul Kahate, 2007 ,TMH. (UNIT-I: 3.1-3.5,4.1-4.12 UNIT-II: 5.1-5.4,6.1-6.7 UNIT III:8.1-8.1,9.1-9.13 UNIT IV: 10.1-10.7,15.1-15.3,16.1-16.8 UNIT-V: 17.1-17.4,18.1-18.6)

REFERENCE BOOKS

1. INTERNET AND WEB TECHNOLOGIES – Rajkamal, TMH.
2. WEB APPLICATIONS Concepts and Real world Design – Craig D. Knuckles, David S.Yuen.

BCA Degree Examination-Syllabus- for Candidates admitted from the Academic Year 2015 – 2016 Onwards

SIXTH SEMESTER

PART III -ELECTIVE – III:- DISTRIBUTED COMPUTING

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective : To Understand the trends and principles of distributed computing

UNIT I (12 HOURS)

Characterization of distributed systems: introduction-Examples of Distributed Systems-Resource sharing and the web-challenges. System models: Architecture models-Fundamental models.

UNIT II (12 HOURS)

Networking and internetworking: Types of network-network principles-internet protocols-Interprocess communication: API for the internet protocols-Client server communication-Group communication. Distributed objects and Remote invocation-Communication between distributed objects-Remote Procedure Call-Events and notifications.

UNIT III (12 HOURS)

Operating system support-Operating System Layer-Protection-Processes and Threads-Communication and invocation.Security: Cryptographic algorithms-Digital signatures. Name services: Name services and domain name services-Directory service.

UNIT IV (12 HOURS)

Peer-to-peer systems: peer-to-peer middleware. Time and global states: clock events and process states-synchronizing physical clocks-global states. Transactions and concurrency control

UNIT V (12 HOURS)

Distributed transactions: Atomic commit protocols-Distributed deadlocks-Transaction recovery. Replication: System model and group communication-Fault tolerant services. Mobile and ubiquitous computing: Association-interoperation.

TEXT BOOK

1.George Coulouris Jean Dollimore Tim kindberg, Distributed Systems concepts and design, pearson fourth edition.2011.

REFERENCE BOOKS

1. John a. Sharp, An introduction to distributed and parallel processing Blackwell Scientific Publication
2. Uyles D. Black, Data communication and distributed networks

**FIFTH SEMESTER
ADDITIONAL CREDIT PAPER:-INTRODUCTION TO FLASH**

Objective: To equip the students with the basic knowledge of Flash

UNIT I

Creating Graphics- Introducing Flash- The Authoring Environment- Drawing tools - Symbols and the Library.

UNIT II

Animation – The Timeline- Frames and Keyframes- Tweens and Guides- Nested Timelines.

UNIT III

Advanced Animation- Complex Timeline Control- Mask Layers- Color Settings, Filters, and Blend Modes- Adding Sound- Importing Graphic Files- Timeline ActionScript.

UNIT IV

Interaction- Buttons- Button ActionScript- Instance Names- Controlling Nested Objects.

UNIT V

On to the Web- Optimizing Your Work- Publishing Flash Content to the Web.

TEXT BOOK

1. Katherine Ulrich, Flash CS6 Professional Visual Quick Start Guide, 2012.

REFERENCE BOOKS

1. Satish Jain, Adobe Flash Professional CS6 Training Guide, 2016.
2. Alex Michael, Understanding Macromedia Flash 8 Basic Techniques for creative, 2013.

COMPUTER SCIENCE BOARD
SCHEME OF EXAMINATIONS (CBCS PATTERN)
For Candidates admitted during the academic year 2018-2019 onwards
Programme: B.Sc Computer Science

Part	Sub Code	Subject Title	Ins.Hrs/Week	Examination				
				Dur. Hrs.	CIA	CE	Total	Credit
SEMESTER I								
I	16LATA01/ *18LAHI01/ 15LAMY01/ 15LAFR01	Language – I Tamil/Hindi/Malayalam/French	5	3	30	70	100	3
II	16ENG001	English –I	5	3	30	70	100	3
III	*18BSC101	Core 1- Digital Computer Fundamentals & C Programming	6	3	30	70	100	4
III	*18BSCP01	Core Lab I – C Programming lab	6	3	40	60	100	4
III	15BSCID1	IDC 1: Numerical Methods	6	3	30	70	100	4
IV	*18UFCA01	Foundation Course I : EVS #	2	2	-	50	50	2
		Total	30				550	20
SEMESTER II								
I	16LATA02/ *18LAHI02/ 15LAMY02/ 15LAFR02	Language –II Tamil/Hindi/Malayalam/French	5	3	30	70	100	3
II	16ENG002	English – II	5	3	30	70	100	3
III	15BSC201	Core 2 : Object Oriented Programming in C++	6	3	30	70	100	4
III	18BSCP02	Core Lab 2 – C++ Programming Lab	6	3	40	60	100	4
III	15BSCID2	IDC 2 : Discrete Mathematics	6	3	30	70	100	4
IV	18UFCA02	Foundation Course II: Value Education #	2	2	-	50	50	2
		Total	30				550	20
SEMESTER III								
III	15BSC301	Core 3: Data Structures	5	3	30	70	100	4
III	15BSC302	Core 4: Java Programming	5	3	30	70	100	4
III	15BSC303	Core 5 : Computer Networks	5	3	30	70	100	4
III	18BSCP03	Core Lab 3: Java Programming Lab	5	3	40	60	100	4
III	15BSCID3	IDC 3 : Operation Research	5	3	30	70	100	4
IV	18BSCAO1 18BSCAO2	AOC I Multimedia Lab / Python Lab	3	3	-	75	75	3
IV	15EDC002	EDC 1: Communicative English #	2	2	-	50	50	2
		Total	30				625	25

SEMESTER IV								
III	15BSC401	Core 6 : Data Base Management System	5	3	30	70	100	4
III	15BSC402	Core 7: Web Designing	5	3	30	70	100	4
III	15BSC403	Core 8: Operating Systems	5	3	30	70	100	4
III	15BSCP04	Core Lab 4: Web Designing Lab	5	3	40	60	100	4
III	15BSCID4	IDC 4 :Business Accounting	5	3	30	70	100	4
IV	18BSCAO3/ 15BSCAO4	AOC II :PC Hardware / Application Development in Android	3	3	-	75	75	3
IV	15BTA001/ 15BSCED1	EDC 2: BT/ AT/ Business Communications.	2	2	-	50	50	2
V	15NCC001/ 15NSS001/ 15SPT001/ 15EXT001	NCC/ NSS / Sports @ dilute / Extension Activities	-	-	50	-	50	2
Total			30				675	27
SEMESTER V								
III	15BSC501	Core 9: Software Engineering	5	3	30	70	100	4
III	15BSC502	Core 10: ASP.Net Programming	5	3	30	70	100	4
III	15BSC503	Core 11: Distributed Computing	5	3	30	70	100	4
III	15BSC504	Core 12: Computer Graphics	5	3	30	70	100	4
III	15BSCP05	Core Lab 5: ASP.Net Programming Lab	5	3	40	60	100	4
III	17BSCE01/ 15BSCE02/ 15BSCE03	Elective I: Open Source Technologies / System Software/ Unified Modeling Language	5	3	30	70	100	4
Total			30				600	24
SEMESTER VI								
III	15BSC601	Core 13: Application Development in Java	5	3	30	70	100	4
III	15BSC602	Core 14: Information Security	5	3	30	70	100	4
III	15BSCP06	Core Lab 6: Application Development in Java Lab	5	3	40	60	100	4
III	15BSCE04/ 15BSCE05/ 15BSCE06	Elective II: Data Mining/ Artificial Intelligence/ Network Security & Cryptography	5	3	30	70	100	4
III	15BSCE07/ 15BSCE08/ 17BSCE09	Elective III: Mobile Computing/ Cloud Computing/ Internet of Things	5	3	30	70	100	4
III	15BSCPR1	Project and Viva Voce	5	3	50	50	100	4
Total			30				600	24
Total							3600	140

No Continuous Internal Assessment (CIA) , only Comprehensive Examination (CE)

@ No Continuous Internal Assessment (CIA) and Comprehensive Examination (CE)

IDC- Inter disciplinary Course, EDC – Extra Disciplinary course , AOC – Application Oriented Course

List of Additional Credit Papers

Sem	Code	Subject Title	Credits
III	15BSCAC1	E-Commerce	2
IV	15BSCAC2	HTML	2
V	15BSCAC3	LINUX	2

List of Elective Papers:

Sem	Code	Subject Title	Credits
Elective I			
V	17BSCE01	Open Source Technologies	4
V	15BSCE02	System Software	4
V	15BSCE03	UML	4
Elective II			
VI	15BSCE04	Data Mining	4
VI	15BSCE05	Artificial Intelligence	4
VI	15BSCE06	Network Security & Cryptography	4
Elective III			
VI	15BSCE07	Mobile Computing	4
VI	15BSCE08	Cloud Computing	4
VI	17BSCE09	Internet of Things	4

List of AOC Papers:

Sem	Code	Subject Title	Credits
AOC I			
III	*18BSCA01	Multimedia Lab	3
III	*18BSCA02	Python Lab	3
AOC II			
IV	*18BSCA03	PC Hardware	3
IV	15BSCA04	Application Development in Android	3

Summary

Part	No of Papers	Total Credits	Total Marks
I	2	6	200
II	2	6	200
III –Core	20	80	2000
III – IDC	4	16	400
III – Elective	3	12	300
III –Project	1	4	100
IV –Foundation Course	2	4	100
IV – EDC	2	4	100
IV – Application Oriented Course	2	6	150
V – Extension Activities	-	2	50
Total	38	140	3600

REGULATIONS FOR BOARD OF COMPUTER SCIENCE (FOR UG COURSES ONLY)

(Effective from the academic year 2018-2019 onwards)

1. Project and Viva Voce :

Each student in the UG final year shall compulsorily undergo Project Work in the 6th semester. Projects shall be done individually. Project Reviews shall be conducted thrice in which the progress of project work shall be strictly evaluated by respective Project Guides. Viva-Voce shall be conducted only in the presence of Industrialists or academicians. Out of the Total of 100 marks, 50 marks shall be allocated for CIA and 50 for CE VIVA VOCE.

2. Submission of Record Note Books for Practical Examinations

Candidates appearing for practical examinations shall submit bonafide Record Work for the concerned Practical Examinations. If not the candidate has to submit a bonafide certificate issued by the concerned subject in-charge duly signed by the Head of the Department in order to be permitted to take up the Practical Examination. The Candidate so permitted will not be eligible for the Record Work mark.

3. Distribution of Marks: The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum(Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	28	30	40
	75	75	30	-	30
	50	50	20	-	20
Practical Paper	100	60	24	40	50
Project	100	50	20	50	40

4. Distribution of Internal Mark for Theory :
(No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1.	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6(Months)=30

Breakup for Attendance:

65% - 74 %	- 4 Marks
75% - 80%	- 6 Marks
81% - 90%	- 8 Marks
91% - 100%	- 10 Marks

Seminar Mark Split up:

Content	- 10 Marks
Flow of presentation	- 10 Marks
Stage Management & Body Language	- 10 Marks

5. Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 40		
S No	CIA	Distribution of Marks
1	For Completion of the Practical List	20
2	Test –I	10
3	Test –II	10
Total		40

6. Distribution of Comprehensive Exam Mark for Practical :

MAXIMUM MARKS : 60 / 75		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	10/15
2	Program – I Algorithm Coding Execution	5 / 10 10 / 10 10 / 10 TOTAL (25)/ (30)
3	Program – II Algorithm Coding Execution	5 / 10 10 / 10 10 / 10 TOTAL (25)/ (30)
Total		60 / 75

7. Distribution of Mark for Project VIVA-VOCE :

S.No	CIA	Distribution of Marks
1	INTERNAL Review –I Review –II Documentation & Final Review	10 10 30 TOTAL (50)
2	EXTERNAL * Presentation Viva	30 20 TOTAL (50)
Total		100

***Marks to be awarded by both External and Internal Examiners.**

8. Question Paper Pattern
Time: 3 Hour

Max Marks: 70

SECTION – A (10×1=10)

Answer ALL questions

Each Question carries ONE Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B (5×4=20)

Answer ALL questions

Each Question carries FOUR Marks

(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answerer ALL questions

Each Question carries EIGHT Marks

(INTERNAL CHOICE)

9. Question Paper Pattern
Time: 3 Hour

Max Marks: 75

SECTION – A (10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B (5×5=25)

Answer ALL questions

Each Question carries FIVE Marks

(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answerer ALL questions

Each Question carries EIGHT Marks

(INTERNAL CHOICE)

10. Question Paper Pattern

Time: 3 Hour

Max Marks: 50

SECTION – A

(10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B

(5×3=15)

Answer ALL questions

Each Question carries THREE Marks

(INTERNAL CHOICE)

SECTION – C

(5×5=25)

Answerer ALL questions

Each Question carries FIVE Marks

(INTERNAL CHOICE)

11. Question Paper Pattern

Time: 3 Hour

Max Marks: 100

SECTION – A

(10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B

(5×8=40)

Answer ALL questions

Each Question carries EIGHT Marks

(INTERNAL CHOICE)

SECTION – C

(5×10=50)

Answerer ALL questions

Each Question carries TEN Marks

(INTERNAL CHOICE)

NOTE:

1. The questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the unit in the syllabus in all the sections of the question paper.
3. While framing questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

12. Conduct of Practical Examinations:

Practical examinations shall be conducted with one internal examiner and one external examiner and the question paper for practical examination shall be set by both Internal and External examiners.

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FIRST SEMESTER

PART III-CORE 1 : DIGITAL COMPUTER FUNDANMENTALS AND C PROGRAMMING

Maximum CIA:30

Maximum CE : 70

Total Hours: 72

Objective

To inculcate the knowledge of computer fundamentals and C Programming.

UNIT-I [15 HOURS]

Binary Systems: Digital Computers & Digital Systems – Binary Numbers – Number Base Conversion – Octal and Hexadecimal Numbers – Complements – Binary Codes. Boolean Algebra: Basic Definition – Axiomatic Definition of Boolean Algebra – Boolean Functions – Canonical and Standard Forms – Other Logical Operations, Logic Gates: Digital Logic Gates.

UNIT –II [15 HOURS]

Simplification of Boolean Functions: The Map Method- Two and Three-Variable Maps- Four Variable Maps- Don't Care Conditions. Sequential Logic: Flip flops-RS-D- JK& T Flip-flops. Registers, Shift registers. Combinational Logic: Design Procedure – Adders - Subtractors – Decoders – Multiplexers.

UNIT-III [15 HOURS]

Introduction: history and importance of C-Structure of C-Constants, variables, and data types: character set-C tokens-Keyword and identifiers-constants-variables-Data types-Declaration of variables and storage classes-Assigning values to variables-Defining symbolic constants. Operators: Arithmetic operators-Logical operator-Relational Operator-Assignment operator-Increment and decrement operators-conditional operator-bitwise operator-special operator.

UNIT-IV [12 HOURS]

Decision making and branching-Decision making and Looping-Arrays - character arrays and strings: Declaring and initializing string variables-Comparison of two strings-Strings Handling Functions. User Defined function: Definition of Functions-Return Values and their Types-Function Calls – Function Declaration-Category of functions- No Argument and No Return Values-Arguments but no return values-Arguments with return values-No Arguments but with Return values- Nesting of Functions-Recursion.

UNIT –V [15 HOURS]

Structure and Union: Defining a structure-Declaring and accessing structure variables-structure initialization-Array of Structures-Structures within Structures-Unions-Pointers: Declaring pointer variables-Initialization of pointer variables-Accessing a variable through its Pointers-File management: Defining and opening a file-closing a file-Command Line Arguments.

Text Books

1. M.Morris Mano Digital Logic and Computer Design, Pearson Education, Inc.Eleventh Edition, 2009.
2. E.Balagurusamy, Programming in ANSI C,Tata McGraw-Hill,3rd edition

Reference Books

1. Computer Fundamentals B. Ram New Age International Publishers
2. Ashok Kamthane, Programming with ANSI and Turbo C, Pearson Education India,First Edition, 2006.

FIRST SEMESTER

PART III-CORE LAB I: C PROGRAMMING LAB

Maximum CIA:40

Maximum CE : 60

Total Hours:72

Objective

To impart knowledge on C programming.

1. Create a email id in any email server and send it to your friend design your own resume and upload it in any job portal.
2. Develop a C program to convert i) decimal to binary ii) numbers into complements.
3. Develop a C program to find the size of the different data types and to print the address of the variable.
4. Develop a C program to print the following Pascal triangle using functions


```

1
1 1
1 2 1
1 3 3 1
      
```
5. Develop a C program to find the product of two given matrices
6. Develop a C program to sort the given set of numbers in ascending order
7. Develop a c program to perform String operation
 - a) String length
 - b) String copy
 - c) String compare
8. Develop a C program to swap elements using Call by Reference
9. Develop a C program to find the given number is prime or not.
10. Develop a C program to print the reverse of a sentence using recursion.
11. Develop a C program to print the student's Mark sheet assuming rno, name, and marks in 5 subjects in a structure. Create an array of structures and print the mark sheet.
12. Develop a C program which takes a file as command line argument and copy it to another file. At the end of the second file write i) no. of chars ii) no. of words and iii) no. of lines.

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SECOND SEMESTER

PAPER III-CORE 2 : OBJECT ORIENTED PROGRAMMING IN C++

Maximum CIA:30

Maximum CE : 70

Total Hours: 72

Objective

To inculcate the knowledge of C++ Programming Concept.

UNIT –I [15 HOUR]

Fundamentals of Object-Oriented Programming: Procedure-Oriented Programming Concepts, Object-Oriented Programming Concepts, Characteristics or Features of OOPs. Basics of C++: Basics of C++, Data Types, Type Conversions, Variables, Literals or Constants, Operators, Comments in C++, Structure of C++ program, Statements in C++, Iteration or Looping Statements, Breaking Control Statements. Functions : Declaration of Function-Parameter Passing Mechanism, Types of Function, Scope Rules. Arrays: Declaring an Array – Types of Array - Pointers: Declaration of a Pointer, Initializing Pointers, Pointer Arithmetic, Pointers and Single Dimensional Arrays, Pointers and Two Dimensional Arrays, Pointers and Three Dimensional Arrays, Pointers and Functions, Pointers to Pointers, Dynamic Memory Management.

UNIT- II [12 HOUR]

Classes and Objects : Declaration of a Class, Defining the Member Functions, Creating the Objects, Class and Arrays, Objects and Functions, Friend Functions, Pointers and Objects. Constructors and Destructors : Structure of a Constructor, Types of Constructor, Destructor.

UNIT-III [15 HOUR]

Inheritance : Structure of Inheritance, Types of Deviation, Importance of Inheritance, Types of Inheritance, Virtual Base Class. Polymorphism : Types of Polymorphism, Compile-Time Polymorphism, Run-Time Polymorphism, Virtual Destructor.

UNIT – IV [15 HOUR]

Preprocessor Directives and I/O : C++ Stream, Preprocessor Directives, Header Files, Manipulators, Unformatted I/O Functions, Character Testing and Conversion Functions, String Manipulation Functions. File Organization : Stream, Basic Operations with Files, Binary File, Random Access Files, Error Handling in Files, File Pointers and Random Access.

UNIT – V [15 HOUR]

Template and Exception Handling: Declaration of a Function Template, Declaration of a Class Template, Exception Handling, try, catch and Throw, Exception Generated by the Function, Multiple Catch Blocks, Single Catch Block for All Exceptions, Restrict the Exceptions.

Text Books

1. Rajesh K.Shukla, “Object-Oriented Programming in C++”, Wiley India Pvt Ltd, First Edition, 2008.
2. Herbert Schildt, “The Computer Reference C++”, Tata McGrawHill Private Ltd,2010

Reference Books

1. John R.Hubbard, “Programming with C++”, Tata McGrawHill Private Ltd,2009.
2. E. Balagurusamy, “Object Oriented Programming with C++”, Tata McGrawHill Private Ltd, 2011.

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**SECOND SEMESTER
PART III-CORE LAB 2 : C++ PROGRAMMING LAB**

Maximum CIA:40

Maximum CE : 60

Total Hours:72

Objective

To inculcate knowledge on C++ Programming

1. Write a program for addition of two matrices and to find transpose of the resultant matrices.
2. Write a program to print the bill details of 5 customers with the following data : Meter Number, Customer Name, number of units consumed, bill date, last date to deposit and the city name. The bill is to be calculated according to the following condition.

No. of.Units	Charge
For First 100 units	Rs. 0.75 per unit
For the Next 200 Units	Rs. 1.80
For the next 300 Units	Rs. 2.75

3. Write a program using class to process shopping List for a Departmental Store. The list include details such as the Code No and Price of each item and perform the operations like Adding, Deleting items to the list and printing the total value of a order.
4. Write a program to swap private data members of classes named as Class_1, Class_2 using friend function.
5. Write a program for the addition of two time values given in hh: mm :ss format using the friend function.
6. Develop a mark sheet in C++ for the university examination with the following data:
 - a) Student's name
 - b) Enrollment Number
 - c) Theory marks in Five Subjects
 - d) Practical marks for two subjects
 - e) Grade. Use any form of constructors to develop the system.
7. Develop a library information system in C++ with the base class named "Author" containing following information:
 - a). ISBN no
 - b). Title of the book
 - c). Author's Name
 And the derived class named "Pubdetails" which contains the following information:
 - a). Publisher's name
 - b). Year of Publication
 - c). Price of the book
 Define functions to create the database and retrieve individual information as and when required.
8. Write a program to carry out the sum, difference, multiplication and division of rational numbers using operator overloading through member function.
9. Write a program to concatenate two strings "Prof Rajesh K Shukla" and "Computer Science and Engineering" using operator overloading through member function and without using constructors.
10. Write a program to read an array of any type of any size using non-type arguments in a template.
11. Write a program to implement the push and pop operations of a stack using exception for underflow and overflow.
12. Write a program to read and write students' information into the file using the data members in a private access mode.

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**THIRD SEMESTER
PART III - CORE 3: DATA STRUCTURES**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

Enabling students to acquire theoretical knowledge and to be successful in Data structures.

UNIT- I [12 Hours]

Basics terminologies – Data structures – Data structure operation – Algorithms - Algorithmic notation – Control structures – Complexity of algorithm.

UNIT- II [12 Hours]

Stacks – Queues – Recursion –Stacks – Array representation of stacks – Linked representation of stacks – Polished notation – Recursion – Towers of Hanoi – queues – Linked representation of queues – D queues - Priority queues.

UNIT – III [12 Hours]

Linked list - Representation of linked list in memory-Traversing a linked list-Searching a linked list-Memory allocation-Insertion into a linked list-Deletion from a linked list-Header linked list-Two way list.

UNIT – IV [12 Hours]

Trees: Introduction-Binary tree-Representing binary trees in memory-Traversing binary tree-Binary search tree-Searching and Inserting in binary search tree- **Graphs:** Introduction-Graph theory terminology-Sequential representation of graph-Operations on graphs.

UNIT – V [12 Hours]

Sorting And Searching: Introduction-Sorting-Insertion sort-Selection sort-Merging- Merge sort. **Files:** File organization-Sequential file-Random file-Linked organization file.

Text Book:

1. Seymour Lipchitz, Data Structures, Tata McGraw Hill, Reprint 2010.

Reference Books:

1. Ajay Kumar, Data Structure for C Programming, Firewall Media, 2010.
2. Seymour Lipschutz, Data Structures, McGraw- Hill Companies, 2011.

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**THIRD SEMESTER
PART III - CORE 4: JAVA PROGRAMMING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To inculcate knowledge on java programming concepts and to implement in real time applications.

UNIT - I **[12 Hours]**

The Java Language: History and Evolution – Features of Java Environment – Java Architecture - JDK – Types of Programs – Compilation and Execution. **Variable Declarations and Arrays:** Data types – Tokens – Variable declarations – Type Casting – Arrays. Operators In Java. Control Statements. **Introduction to Classes:** Class and Introduction – Instance Variables – Class Variables – Instance Methods - Constructors – Class Methods – Declaring Objects – Garbage Collections. **Classes And Methods In Detail:** Method Overloading – Constructor Over loading – this Reference – Objects in Methods – Recursion – Access Modifiers – Inner Class – Command Line Arguments.

UNIT - II **[12 Hours]**

Inheritance: Basics of Inheritance – Super class Variable and Subclass Objects – Super class reference – Constructor Chaining – Method Over riding – The final Keyword. **Abstract Classes And Interfaces:** The abstract Class – The abstract Methods – Defining Interface - Implementing Interface – Variables in Interface – Extending Interface. **Exception Handling:** Fundamentals – Types of Exceptions – Exception Class – Uncaught Exceptions – Handling Exceptions – Throws Clause – User Defined Exception.

UNIT - III **[12 Hours]**

Multithreaded Programming: Thread Model – Concept of Threads – Runnable Interface – Thread Class – Thread Creation – Thread Lifecycle – Thread Scheduling – Synchronization and Deadlock – Inter Thread Communication – Joining Threads – Suspending, Resuming, and Stopping Threads. **Packages And Access Modifiers:** Packages an Introduction – Naming Conventions – Class Path Variable – The Java Language Packages – Illustration Package – Access Protection. **Handling Strings:** Creating Strings – Operations on Strings – Character Extraction Methods – String Comparison Methods – Searching and Modifying Strings – Changing Case of Characters – String Buffer Class – Methods of String Buffer Class.

UNIT - IV **[12 Hours]**

Applets - AWT - Components and Containers - Layout Management and Event Handling. **Swing :** Introducing Swing - Components and Containers – Swing Packages. **Exploring Swing:** JLabel and ImageIcon – JTextField – Swing Buttons – JTabbedPane – JScrollPane – Jlist – JComboBox – Trees – Jtable.

UNIT - V **[12 Hours]**

Collections and Utilities: Core Interfaces and Classes - Iterators – List – Set – Map. **Input Output Classes:** Input output Operations – Hierarchy of Classes in java io package – File Class – Input stream and Output Stream Class – Filter input Stream – Filter Output Stream – Reader and Writer Class – Random Access FileClass. **Networking:** Java’s networking protocol – Hierarchy of Classes in java Net package – Inet address class – URL Class – URL Connection Class – Connection Oriented Protocol Classes and Datagram Socket.

Text Book:

1. Instructional Software Research And Development Group, Introduction To Object Oriented Programming Through Java, 4th Edition, Tata McGraw Hill, Reprint 2012.

Reference Books:

1. John R.Hubbard-Schaum, Outline of Programming with Java, 3rd Edition, Tata Mcgraw Hill, 2010.
2. Harry Hariom Choudhary, Introduction to Java Programming, Comprehensive Version 2014-2015: (10th Best Selling Edition 2014 with Updated 8th Edition), Hariom Choudhary, 2014.

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**THIRD SEMESTER
PART III - CORE 5: COMPUTER NETWORKS**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To inculcate knowledge on networking concepts and technologies.

UNIT – I

[12 Hours]

Network Hardware: LAN-WAN-MAN- Wireless-Home Networks. Network Software Protocol Hierarchies-Design Issues For The Layers- Connection-Oriented And Connectionless Services - Service Primitives-The Relationship Of Services To Protocols. **Reference Models:** OSI Reference Model-TCP/IP References Model – Comparison of OSI And TCP/IP-Critique Of OSI And Protocols-Critique Of The TCP/IP Reference Model.

UNIT – II

[12 Hours]

Physical Layer-Guided Transmission Media: Magnetic Media-Twisted Pair-Coaxial Cable-Fiber Optics. **Wireless Transmission:** Electromagnetic Spectrum-Radio Transmission-Microwave Transmission-Infrared and Millimeter Waves-Light Waves. **Communication Satellites:** Geostationary, Medium – Earth Orbit, Low Earth-Orbit Satellites-Satellites versus Fiber.

UNIT – III

[12 Hours]

Data Link Layer: Error Detection And Correction-Elementary Data Link Protocols- Sliding Window Protocols. **Medium-Access Control Sub Layer:** Multiple Access Protocols-Ethernet-Wireless LANs-Broadband Wireless-Bluetooth.

UNIT – IV

[12 Hours]

Network Layer: Routing Algorithms – Congestion Control Algorithms. **Transport Layer:** Elements of Transport Protocols- **Internet Transport Protocols:** TCP.

UNIT – V

[12 Hours]

Application Layer: DNS - Electronic Mail-The World Wide Web- Multimedia.

Text Book:

1. Andrew S.Tanenbaum, Computer Networks, 4th Edition, Tata McGraw-Hill Publishing Company Limited, India. Reprint 2010.

Reference Books:

1. James F. Kurose, Keith W. Ross, Computer Networking: A Top-down Approach, Addison-Wesley, 2010.
2. Achyutt Godbole, Data Communication and Networks, TMH, 2011.

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**THIRD SEMESTER
PART III - CORE LAB 3: JAVA PROGRAMMING LAB**

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Objective:

To implant knowledge by implementing various techniques in Java programming.

1. Write a java program to get the details like name, Roll no, marks and calculate marks percentage and display it by using constructors.
2. Write a java program to display the details of Tour packages using Method Overloading and Method Over riding.
3. Write a java program to maintain the IPL Teams details by implementing Hybrid Inheritance.
4. Write a java program to rate the newly released movies; rating scale should be in between 1 to 5, if rate is less than 1 or greater than 5 then the exception to be thrown manually.
5. Write a java program using socket class to send uni cast messages
6. Write a java program to change the Letter case using GUI (awt or Swing).
7. Write a java program to read the contents of the web page using URL Class.
8. Write a java program to display the image using applet.
9. Create an AWT Frame for performing Arithmetic Operations, read two numbers and perform operations by user preference and display the result in same frame.
10. Create an AWT Frame read two string and perform following String functions by choosing a option from Radio Button.
 - a. Check the equality of String and equal ignore case also
 - b. Compare the two string
 - c. Concatenate two string
 - d. Substring of first string
 - e. Convert the String into Uppercase and Lowercase
11. Create a Swing based network application to send the message from Sender to Receiver.
12. Create a MDI frame using Swing Components and perform the following operations
 - a. Find a number is Odd or Even and prime or not
 - b. Find a number is Armstrong number or not
 - c. Read a number, print its equivalent numeric word using switch
 - d. Read two number and perform binary OR and AND operations.

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**THIRD SEMESTER
PART IV-AOC I: MULTIMEDIA LAB**

**Maximum Marks:75
Total Hours: 36**

Objective : To impart knowledge on Photoshop & Corel Draw programming

1. Design a 'Housewarming Invitation Card' using Photoshop.
2. Design a 'Competition Winner's Certificate' using Photoshop.
3. Design a 'Visiting Card' using Photoshop.
4. Design a 'Poster for an Intercollegiate Meet' using Photoshop.
5. Design an 'Advertisement Banner for a Company' using Photoshop.
6. Perform a wrapping of images.
7. Perform 'Photo Editing' using Corel Draw.
8. Design a 'Playground Layout' using CorelDraw.
9. Design the 'National Flag of Various Countries'. (ANY 5).
10. Design 'Your Own Car' using Corel Draw.
11. Design a 'Flex Board for an Occasion' using Corel Draw.
12. Design a 'Broucher ' using Corel Draw.

**THIRD SEMESTER
PART IV- AOC I : PYTHON LAB**

Maximum Marks:75

Total Hours: 36

Objective

To inculcate the knowledge of computer fundamentals and python programming.

1. Write the python program to convert decimal to binary.
2. Write a python program to print all numbers in a range divisible by a given number.
3. Write a python program to perform matrix multiplication using nested loop.
4. Write a python program to find all the values in a list are greater than a specified number.
5. Write the python code to check whether the given number is palindrome number or not.
6. Write a python program to split a list based on first character of word.
7. Write a python program to generate a bar chart and pie chart for the given data.
8. Write a python program to draw simple shapes.
9. Write a python program to append, delete and display elements of a list using classes
10. Write the python code to make simple calculator using classes.
11. Write a python program to read a string from the user and append it into a file.
12. Write a python program to count the occurrences of a word in a text file.

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FOURTH SEMESTER

PART III - CORE 6: DATABASE MANAGEMENT SYSTEM

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To inculcate the knowledge of database concepts.

UNIT - I

[12 Hours]

Introduction: DBMS Applications – Purpose of Database System –View of Data – Database Models- Database Languages – Data Storage and Querying – Transaction Management – Database Architecture – Database Users and Administrator.

UNIT - II

[12 Hours]

Relational Database : Structure of Relational Database – Database Schema – Keys – Fundamentals of Relational Algebraic Operations – Formal Definitions and Additional Relational Algebra Operations – Extended Relational Algebra Operations – Null Value – Modifications of Database – **Relational Database Design :** Features of Good Relational Design – Functional Dependency Theory – Normalization : 1NF – 2NF – 3NF and BCNF.

UNIT - III

[12 Hours]

Entity Relationship Model – Constraints – Keys – Entity – Relationship Diagrams – ER Design issues – Weak Entity Sets – Extended ER Features. **SQL :** Data Definition – Structure of SQL Queries – Set Operators – Aggregate Functions – Null Values – Nested Sub Queries – Complex Queries – Views – Modification of the Database – Joint Relations – Integrity Constraints – Assertion.

UNIT - IV

[12 Hours]

PL/SQL Programming : Fundamentals of PL/SQL – Block Structure – Data Types – Variable declaration – Assignment Operation – Bind Variable – Substitution Variable – Printing in PL/SQL – Arithmetic Operation – Control Structures – Nested Blocks – SQL in PL/SQL – Data Manipulation in PL/SQL – Transaction Control Statements.

UNIT - V

[12 Hours]

PL/SQL Cursors – Implicit and Explicit Cursors – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions. **PL/SQL Composite Datatypes :** PL/SQL Records – PL/SQL Tables – PL/SQL Varrays – Procedures – Functions – Triggers.

Text Books:

1. Abraham Silberschatz, Henry F. Korth, S.Sudarshan, Database System Concepts –Mc-Graw Hill , International,Reprint 2010.(Unit I,II,III)
2. Nilesh Shah, Database Systems Using Oracle- PHI- Publisher, Second Edition , Reprint 2010.(Unit IV, V)

Reference Books:

1. Rajesh Narang, Database Management Systems , PHI – Publisher,2011.
2. Pranab Kumar Das Gupta, P. Radha Krishna, Database Management System Oracle Sql and Pl/Sql, PHI Learning pvt. ltd., 2013.

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**FOURTH SEMESTER
PART III - CORE 7: WEB DESIGNING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To inculcate the students to learn the concept of PHP.

UNIT - I **[12 Hours]**

The Building Blocks of PHP Variables - Data Types - Operators and Expressions - Constants – **Flow Control Functions in PHP** Switching Flow - Loops - Code Blocks and Browser Output - **Working with Functions** What Is a Function? - Calling Functions - Defining a Function - Returning Values from User-Defined Functions - Variable Scope - Saving State between Function Calls with the static Statement - More about Arguments - Testing for the Existence of a Function.

UNIT- II **[12 Hours]**

Working with Arrays What Are Arrays? - Creating Arrays - Some Array-Related Functions - **Working with Objects** Creating an Object - Object Inheritance - **Working with Strings, Dates, and Time** Formatting Strings with PHP - Investigating Strings in PHP - Manipulating Strings with PHP - Using Date and Time Functions in PHP - Other String, Date, and Time Functions - **Working with Forms** Creating a Simple Input Form - Accessing Form Input with User-Defined Arrays - Combining HTML and PHP Code on a Single Page - Using Hidden Fields to Save State - Redirecting the User - Sending Mail on Form Submission - Working with File Uploads.

UNIT - III **[12 Hours]**

Working with Cookies and User Sessions Introducing Cookies - Setting a Cookie with PHP - Deleting a Cookie with PHP - Session Function Overview - Starting a Session - Working with Session - Passing Session IDs in the Query String - Destroying Sessions and Unsetting Variables - Using Sessions in an Environment with Registered Users - **Working with Files and Directories** Including Files with include() - Validating Files - Creating and Deleting Files - Opening a File for Writing, Reading, or Appending - Reading from Files - Writing or Appending to a File - Working with Directories - Opening Pipes to and from Processes Using popen() - Running Commands with exec() - Running Commands with system() or passthru().

UNIT - IV **[12 Hours]**

Working with Images Understanding the Image-Creation Process - Necessary Modifications to PHP - Drawing a New Image - Getting Fancy with Pie Charts - Modifying Existing Images - Image Creation from User Input - Using Images Created by Scripts – **Understanding the Database Design Process** - The Importance of Good Database Design - Types of Table Relationships - Understanding Normalization - Following the Design Process.

UNIT - V **[12 Hours]**

Basic SQL Commands - MySQL Data Types - Table Creation Syntax - Using the INSERT Command -Using the SELECT Command - Using WHERE in Your Queries - Selecting from Multiple Tables - Using the UPDATE Command to Modify Records - Using the REPLACE Command - Using the DELETE Command -Frequently Used String Functions in MySQL - Using Date and Time Functions in MySQL -**Using Transactions and Stored Procedures in MySQL** **What Are Transactions?** - What Are Stored Procedures? **Interacting with MySQL Using PHP** **MySQL** versus **MySQLi** Functions - Connecting to MySQL with PHP - Working with MySQL Data.

Text Book:

1. Julie C. Meloni, PHP MYSQL and APACHE, Pearson Education, India, 2009.

Reference Books:

1. Luke Welling, Laura Thomson, PHP and MYSQL, Pearson Education, India, 2010.
2. Kevin Tatroe, Peter MacIntyre, Rasmus Lerdorf, Programming PHP, O'Reilly Media, Inc., 07-Feb-2013.

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**FOURTH SEMESTER
PART III - CORE 8: OPERATING SYSTEMS**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To inculcate knowledge on the Evolution of Operating Systems and its Dedicated Services a Resource Manager, managing, Process, Memory, Information and Security Mechanisms.

UNIT-I

[12 Hours]

Introduction: History of Operating System – What is an Operating System? – Different services of the Operating System - Operating System Structure – Interrupts – Booting – System Calls.

UNIT-II

[12 Hours]

Process Management: Introduction - Process – Evolution of Multiprogramming – Context Switching – Process States – Process State Transitions – Process Control Block – Process Hierarchy – Operations on a Process – Process Scheduling – Multithreading. **INTER Process Communication:** Primitives for Mutual Exclusion – Implementation of Mutual Exclusion Principle – Semaphores – Deadlock Strategies.

UNIT-III

[12 Hours]

Memory Management: Introduction – Single Contiguous Memory Management – Fixed Partition Memory Management – Variable Partitions – Non-Contiguous Allocation – Segmentation – Virtual Memory Management Systems.

UNIT-IV

[12 Hours]

Information (Input/Output) Management: Introduction – The File Systems – Device Driver – Terminal I/O – CD-ROM.

UNIT-V

[12 Hours]

Operating System Security And Protection: Introduction – Security Threats – Attacks on Security – Computer Worms – Computer Virus – Authentication – Protection Mechanisms.

Text Book:

1. Achyut. S. Godbole, Operating Systems, II Edition, Tata McGraw Hill Publications, Reprint 2011.

Reference Books:

1. H.M. Deital , Operating Systems, Addison-Wesley Publishing Company, III Edition Pearson Publication 2011.
2. William Stallings, Operating System – Internals and Design Principles, VI Edition, Pearson Education 2012.

B.Sc (Computer Science) Degree Examination – Syllabus for Candidates admitted from the academic year 2015 – 2016 onwards.

**FOURTH SEMESTER
PART III - CORE LAB 4: WEB DESIGNING LAB**

**Maximum CIA: 40
Maximum CE: 60
Total Hours: 60**

Objective:

To impart knowledge on PHP programming.

1. Program for Pascal's triangle.
2. Program to change background color based on day of the week using if else and else if statements
3. Program to generate a random number from 0 to 9
4. Program to create random text link advertising using predefined arrays.
5. Program for String manipulations and searching.
6. Program for displaying last updated date and time of the file.
7. Program for form validation.
8. Program for setting and retrieving cookies.
9. Program for file creation and displaying the contents of the file.
10. Program for retrieving stored session information.
11. Program for creating a MySQL table using a PHP script
12. Program for adding and deleting users from MySQL.

**FOURTH SEMESTER
PART IV : AOC II: PC HARDWARE**

Maximum CE : 75

Total Hours : 36

Objective :

To equip students with basic knowledge in assembling and installing PC.

Unit – I **[07 HOURS]**

PC Components :What is PC? - System Types – System Components. Processor Types and Specifications: Microprocessor History - Processor Specifications - Processor Features.

Unit – II **[07 HOURS]**

Motherboard and Busses: Mother Board Form Factors - ATX and other modern form factors
Chipsets - Chipset Evolution - Intel Chipsets - Traditional North/South bridge Architecture - Hub Architecture - Intel 5X Series Chipset - Intel 6X Series Chipset - Type of I/O buses – VESA -PCI - PCI Express - AGP.

Unit – III **[07 HOURS]**

Memory: Memory Basics – ROM – DRAM – SRAM - RAM Types – Performance – Fast Page Mode DRAM – EDORAM – SDRAM - System Logical Memory Layout - Parity and ECC – Parity Checking – ECC – Memory Defect Isolation Procedure.

Unit – IV **[07 HOURS]**

Hard Disk Storage: Definition of a Hard Disk - Form factors – HDD Operation –Track and sectors - Disk Formatting - Basic HDD Components – Platters - Recording Media - R/W Heads -Head Actuator Mechanism - Hard Disk features-Performance-Reliability.

Unit – V **[08 HOURS]**

Optical Storage: Optical Technology – CDs: A Brief History - CD Construction technology -DVD History - DVD Tracks and Sectors – Handling DVD Errors - **PC Diagnostics and Testing:** Diagnostics Software - Operating System Diagnostics -Test Equipment.

Text Book

1. Scott Mueller, Upgrading and Repairing PCs 20th Edition, Pearson Education, Reprint 2016.

Reference Book

1. Bigelows, Trouble shooting and Maintaining & Repairing PCs-5th edition, Tata McGraw Hill-Reprint 2016, New Delhi
2. Ron Gilster, PC Hardware: A Beginner's Guide, Tata McGraw Hill, Reprint 2016

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FOURTH SEMESTER

PART IV: AOCII: APPLICATION DEVELOPMENT IN ANDROID

Maximum CE: 75

Total Hours: 36

Objective:

To impart the knowledge in mobile application development using Android.

UNIT –I

[7 Hours]

Getting started with Android Programming: What is Android: - Versions – Features – Architecture –Devices in the market - Developer Community. **Obtaining the Required Tools:** Android SDK – Installing Android SDK Tools – Configuring the Android SDK Manager – Eclipse – ADT – Creating Android Virtual Devices. **Creating your First Android Application.**

UNIT- II

[7 Hours]

Activities, Fragments and Intents: Understanding Activities: Applying Styles and Themes – Hiding Activity Title – Displaying Dialog Window – **Fragments:** Life Cycle of Fragments- Interaction between Fragments. **Calling Built-in Applications using Intents:** understanding Intent Objects – Intent Filters. Displaying Notifications.

UNIT-III

[7 Hours]

Android User Interface: Components of a Screen: Views and View Groups- Linear Layout – Absolute Layout – Table Layout – Relative Layout – Frame Layout – Scroll View. **Designing User Interface with Views: Basic View:** TextView, Button, ImageButton, EditText, CheckBox, Toggle Button, RadioButton – ProgressBar – Autocomplete TextView. **Picker View:** Time Picker – Date Picker. ListView view – Spinner view.

UNIT – IV

[7 Hours]

Displaying Pictures and Menus with Views: Image views to display pictures:- Gallery and ImageView – Image Switcher – GridView. **Using Menus with Views:** creating helper methods – Option menu – Context Menu. Analog and Digital Clock view – Web view.

UNIT – V

[8 Hours]

Messaging: SMS Messaging:- Sending SMS Programmatically – Getting Feedback after sending a Message – Sending SMS Messages using Intent – Receiving SMS Messages – Caveats and Warnings. **Sending E-Mail.**

Text Book:

1. Wei-Meng Lee, Beginning Android 4 Application Development, Wiley India PVT Ltd. Reprint 2016.

Reference Books:

1. Jerome (J.F) DiMarzio, Android A Programmer's Guide – Indian Edition, McGraw Hill Education, Seventh Reprint 2015.
2. Corinne Hoisington, Android Boot Camp for Developers Using Java: A Guide to Creating Your First Android Apps, Cengage Learning, 2016.

B.Sc (CS) Degree Examination-Syllabus for candidates admitted from the academic year 2015-2016 onwards.

**THIRD SEMESTER
ADDITIONAL CREDIT COURSE: E-COMMERCE**

Maximum CE:100

OBJECTIVE:

To inculcate knowledge on E-Commerce concepts in the present IT world.

UNIT-I

What is E-commerce-E-commerce is not e-business- The Drivers- Myths you should know- Advantages and issues in E-Commerce- Integrating E-Commerce- E-Commerce business models- Managerial Implications.

UNIT-II

Intranets and Extranets: The Basics- Technical infrastructures – Planning an intranet – E-mail and intranet- Back to Blogging- Instant Messaging- Extranets and SCM – Management implications.

UNIT-III

Hosting your websites: How ISP's really work?- ISP structure and services- Choosing an ISP- Registering your domain name- Application Service Providers.

UNIT-IV

Business to Business E-Commerce: What is B2B? – Supply chain management and B2B- B2B Models- B2B Tools-EDI.

UNIT-V

E-Security: Security in Cyberspace-The Virus –Computer Enemy number one- Security protection and recovery- Role of Biometrics- How to secure your system-Getting the money: E-money- Requirements for internet based payments- How would you like to pay?- B2B and E-payment- General guide to E-Payment.

Text Book:

1. Electronic Commerce from vision to fulfillment, "Elias M.Awad", Third Edition.

Reference Book:

1. Sanjay Mohapatra, E-Commerce Strategy: Text and Cases, Springer Science & Business Media, 2012.

B.Sc (CS) Degree Examination-Syllabus for candidates admitted from the academic year 2015-2016 onwards.

**FOURTH SEMESTER
ADDITIONAL CREDIT COURSE: HTML**

Maximum CE: 100

OBJECTIVE:

To impart basic knowledge in HTML tags & skill of creating web pages should be known.

UNIT-I

Introduction- Basic structure of an HTML Document- Creating and saving an HTML Document- Opening the HTML Document in a web browser- Modifying the background of HTML Webpage.

UNIT-II

Working with Text: Introduction-Adding Plain text to an HTML Page- Creating Headings on a webpage- Creating a paragraph- Creating Horizontal rule- Creating a Superscript and Subscript- Aligning a Text- Formatting Text-Specifying a font-Grouping a text- Indenting quotation- Displaying Text in a scrolling marquee-Working with character entities-Commenting text.

UNIT-III

Working with list: Creating unordered list- customizing an unordered list- Creating an ordered list- customizing an order list- creating a definition list. Working with tables: Creating a table- Caption to a table- table heading- table border- setting width of the table and table columns- setting cell padding and cell spacing-Spanning rows and columns-Nesting tables.

UNIT-IV

Working with Frames: Creating a frame- Creating vertical and horizontal frames- Setting the Frame border thickness- Applying hyperlink targets to a frame- Working with links.

UNIT-V

Working with images- working with html forms and controls – Working with styles: External style sheets- Embedded style sheets- Inline style- Style classes- Working with Background properties – Working with Text properties- Working with font properties.

Text Book:

1. HTML 4.0 in simple steps, “Kogent solutions inc” , published by Dreamtech press.

Reference Book:

1. Elisabeth Robson, Eric Freeman, Head First HTML and CSS, O’Reilly Media, Inc., 2012

B.Com [PA] Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards.

THIRD SEMESTER

PART – III – IDC – 3 - INTRODUCTION TO INFORMATION TECHNOLOGY

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objective:

To provide basic conceptual knowledge about the computer systems and information Technology.

Unit – I

[8 Hours]

Information Technology basics: Introduction – Information Technology - Present Scenario - Role of Information Technology - Information Technology and Internet-Careers in IT industry.

Unit – II

[10 Hours]

Computer Basics: Evolution Of Computers - Generations Of Computers - Classifications of Computers - The Computer Systems - Applications of Computer – CPU - Communications Among Various Units - Instruction Format - Instruction Cycle - Instruction Set - Inside a Computer - Data Representation in Computer.

Unit – III

[10 Hours]

Computer Memory and Storage: Memory Hierarchy - Random Access Memory - Read Only Memory - Types of Secondary Storage Devices - Magnetic Tapes -Magnetic Disk - Types of Magnetic Disk - Optical Disk. **Input Output Media:** Types of Input Devices-Types of Output Devices.

Unit – IV

[10 Hours]

Operating System: Operating System Definition - Evolution of Operating System - Types of Operating System - Function of Operating System - Process Management - Memory Management - File Management - Device Management.

Unit –V

[10 Hours]

Computer Software: Software Definition - Categories of Software-Software Terminologies. **Internet:** Evolution of Internet - Basics Internet Terms - Getting Connected to Internet -Internet Application - Data over Internet.

Text Book:

1. I.T.L. Education Solutions Limited, Introduction to Information Technology, Pearson Education India, Reprint 2013.

Reference Books:

1. V. Rajaraman, Introduction To Information Technology, PHI Learning Pvt. Ltd., 2013.
2. George Reynolds, Ethics in Information Technology, Cengage Learning, 2014.

B.Com/B.Com [PA] Degree Examination –Syllabus for candidates admitted from the academic year 2015-2016 onwards.

THIRD SEMESTER

PART – IV-EDC: WEB DESIGNING

Maximum CE: 50

Total Hours : 24

Objective:

To provide basic conceptual knowledge about the Web Designing.

UNIT-1

[4 Hours]

Introduction to HTML-Designing a Home Page-History of HTML-HTML Generations-HTML Documents-Anchor Tag-Hyperlink-Sample HTML Documents.

UNIT-2

[5 Hours]

Head and Body Section-Header Section-Title-Prologue-Link-Colorful Webpage-Comment lines and Sample HTML Documents.

UNIT-3

[5 Hours]

Designing the body section-Heading Printing-Aligning the heading-Horizontal rule-Paragraph-Tab settings-Images and Pictures-embedding PNG Format Images.

UNIT-4

[5 Hours]

Ordered and Unordered List-List-Unordered List-Headings in a list-Ordered List-Nested List-Table Heading-Tables-Table Creation in HTML-Width of the table and cells-Cells spanning multiple rows/columns.

UNIT-5

[5HOURS]

DHTML and style sheet-Defining styles-elements of styles-Linking a style sheet to HTML documents-Inline styles-External style sheet-Internal style sheet-Multiple Styles.

Text Book:

1. C.Xavier, World Wide Web With HTML, McGraw-Hill, Edition 2010 .

Reference Books:

1. Eric Ladd and Jim O'Donell -Using HTML 4- XML and JAVA, Platinum Edition 2011.
2. Elizabeth Castro- PERL and CGI, Pearson Education-2010.

B.Sc (Catering Science and Hotel Management) Degree Examination - Syllabus - for candidates admitted from 2015 – 2016 onwards.

SEMESTER V

PART III: IDC: CORE PRACTICAL: COMPUTER APPLICATIONS IN HOSPITALITY INDUSTRY

Maximum CIA: 40

Maximum CE: 60

Total Hours: 36

Objective:

To inculcate knowledge on PC Tools Lab.

MS-DOS

Creating Directories- Sub-Directories- Files- Listing- The Sub-Directories and Files Page Wise- Displaying The Contents Of The Files. Copying- Renaming- Deleting The Files- Changing And Removing A Directory.

MS-WORD

Text Manipulation- Changing The Font Size- Font Type- And Font Style- Making The Text Bold- Underlining The Text- Aligning The Text (Centre- Justify- Left- Right)- Cut- Copy- Paste. Paragraph Indenting and Spacing- Bullets and Numbering- Spelling and Grammar Check- Inserting A Picture From Clip Art- Auto Shapes- And Word Art. Table Manipulation- Creating Tables- Inserting and Deleting Rows and Columns- Changing Width and Height- Changing Table Borders. Mail Merge Concept- Printing Formats.

MS-EXCEL

Entering The Data- Changing The Fonts- Changing Row Heights and Column Width- Formatting The Data- Sorting The Data. Formula Processing- Creating Simple Formula- Using Function (ABS- SQRT- LEN- SUM- ROUND- AVG- COUNT- CONCATENATE- FIND). Inserting and Formatting Charts- Inserting Pictures- Printing Formats.

MS-POWER POINT

Creating Simple Presentations- Saving- Opening And Existing Presentation- Creating A Presentation Using Auto Content Wizard and Template. Using Various Auto- Layouts- Charts- Table- Bullets and Clip Art. Viewing An Existing Document In Various Views-Outline View- Slide View- Slide Show View- Slide Sorter View And Note Pages View.

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FIFTH SEMESTER

PART III - CORE 9: SOFTWARE ENGINEERING

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To inculcate knowledge on Software engineering concepts in turn gives a roadmap to design a new software project.

UNIT-I (12 HOURS)

Introduction to Software Engineering: The Evolving Role of Software - What is Software Engineering – The Changing Nature of Software – Software Myths – Some Terminologies – Software Life Cycle Models : Build and Fix Model - The Water Fall Model – The Increment Model.

UNIT-II (12 HOURS)

Software Requirements: Requirements Engineering – Types of Requirements – Feasibility Studies – Requirements Elicitation – Requirements Analysis – Requirements Validation and Management.

UNIT-III (12 HOURS)

Software Project Planning: Size Estimation – Cost Estimation – Models – The Constructive Cost Model – COCOMO II – Software Risk Management.

UNIT-IV (12 HOURS)

Software Design: What is Design – Modularity – Strategy of Design – Function Oriented Design – Software Design Description – Object Oriented Design.

UNIT-V (12 HOURS)

Software Reliability: Basic Concepts – Software Quality – Software Reliability Models – Software Testing: A Strategic Approach to Software Testing – Functional Testing – Structural Testing – Levels of Testing.

Text Book:

1. K.K Aggarwal Yogesh Singh, Software Engineering, Third Edition, Reprint: 2011.

Reference Books:

1. Eve Anderson, Philip Greenspun, Andrew Grumet, Software Engineering For Internet Applications, PHI, 2009.
2. Jeff Tian , Software Quality Engineering , Student edition, Wiley India, 2010.

B.Sc (Computer Science) Degree Examination-Syllabus for Candidates admitted from the academic year 2015 – 2016 onwards.

**FIFTH SEMESTER
PART III - CORE 10: ASP.NET PROGRAMMING**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 60

Objective: To gain the knowledge in developing Web Applications.

UNIT I (12 HOURS)

Evolution of .Net - Benefits of .Net Framework - Overview of .Net Framework4.5 - Exploring VS IDE. ASP.Net Technologies - Exploring sample ASP.NET Web Application – Developing a Web Application: Specifying location for a Web application – File Types in ASP.Net – ASP.Net Coding Models.

UNIT II (12 HOURS)

Web Forms Standard controls (I): Control Class – Label Control – Button Control – TextBox Control – Literal Control – Place Holder Control – File Upload Control. Navigation Controls: Menu Control – Treeview Control – Sitemap Control. Validation Controls: Base Validator Control – Required Field Validator Control – Range Validator Control – Regular Expression Validator Control – Compare Validator Control – Validation Summary Control – Custom Validator Control.

UNIT III (12 HOURS)

Introducing C#: – Need of C# – C# Pre-Processor Directives – Features of C# - Creating Simple C# Console Application – Identifiers and Keywords – Data Types –Type Conversions - Variables – Constants – Expressions and Operators - ?? Operator – :: Operator – Namespaces – Classes and Objects – Constructors and Destructors – Static Class and Class Member – Structs –Object Oriented Programming: – Encapsulation – Inheritance – Polymorphism – Abstraction – Interfaces. Flow Control: – Control Flow Statements.

UNIT IV (12 HOURS)

Exception Handling: – Exception Handling – Checked and Unchecked Statements. Collections and Generics: – Understanding Collections - Collection Classes in .Net – Data Access with ADO.Net: Understanding Databases – Understanding SQL – ADO.Net – Creating Connection String- Connection to Database - Command Object – Data Adapters – Data Readers – Data Grid.

UNIT V (12 HOURS)

Inside Master Pages and Themes: Understanding Master Page – Understanding Themes – Creating Masterpage – Configuring Master Page – Overriding Properties and Methods of a Master Page – Creating Themes – Applying Themes and Runtime Levels – Applying Themes to a Single Page – Applying Style sheet attribute. Developing Mobile Applications : The Mobile Web Application Architecture – Mobile Web Form Controls – Adaptive rendering – Creating a Sample Mobile Web Application.

Text Books:

1. ASP.NET 4.5, Covers C# and VB Codes, Black Book, Kogent Learning Solutions Inc, 2013. (Units I, II, V).
2. Net 4.0 Programming (6 in 1) Black Book Kogent Dream Tech Press. (Units III, IV).

Reference Book:

1. Adam Freeman, Matthew MacDonald, Mario Szpuszta, Pro ASP.NET 4.5 in C#, Apress, 2012

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FIFTH SEMESTER

PART III - CORE 11: DISTRIBUTED COMPUTING

Maximum CIA: 30

Maximum CE: 70

Total HOUR: 60

Objective: To inculcate the knowledge on concepts, applications and techniques of distributed computing such as the fundamentals of distributed computing, inter-process communication, synchronization, distributed system management, distributed shared memory, distributed file system and naming.

UNIT-I (12 HOURS)

Basic Distributed System Concepts: Distributed Computing Models - Software Concepts – Transparency – Flexibility – Reliability – Performance – Scalability – Security - Fault Tolerance – Client - Server Model. Network Communication: LAN and WAN Technologies-Protocols for Network Systems-Asynchronous Transfer Mode - Protocols for Distributed Systems.

UNIT –II (12 HOURS)

Interprocess Communication: Message Passing - Case Study: IPC in MACH - Group Communication - Case Study: CBCAST Protocol in ISIS - API for Internet Protocol. Remote Communication: Remote Procedural Call Basics - PC Implementation - RPC Communication - Other RPC Issues. Synchronization: Clock Synchronization - Logical Clocks - Global State - Mutual Exclusion - Election Algorithms - Deadlocks in Distributed Systems - Case Study: Deadlocks in Message Communication.

UNIT-III (12 HOURS)

Distributed System Management: Resource Management - Task Assignment Approach - Load-Balancing Approach - Load-Sharing Approach - Process Management in a Distributed Environment - Process Migration – Threads - Fault Tolerance. Distributed Shared Memory: Basic Concepts of DSM - Hardware DSM - Design Issues in DSM Systems - Issues in Implementing DSM Systems - Heterogeneous and Other DSM Systems.

UNIT-IV (12 HOURS)

Distributed File System: File Models - Distributed File System Design Semantics of File Sharing - File Caching in DFS - Replication in DFS. Naming: Desirable Features of a Good Naming System - Basic Concepts - System-Oriented Names - Object-Locating Mechanisms - Issues in Designing Human-Oriented Names - Name Caches - Naming and Security.

UNIT –V (12 HOURS)

Security in Distributed Systems: Introduction – Cryptography - Secure Channels - Access Control - Security Management. Real-Time Distributed Operating Systems: Introduction - Design Issues in Real-time - Distributed Systems - Real-Time Communication - Real-Time Scheduling. Emerging Trends in Distributed Computing: Introduction to Emerging Trends - Grid Computing – SOA - Cloud Computing - The Future of Emerging Trends.

Text Book:

1. Sunita Mahajan and Seema Shah, Distributed Computing, OUP India, Second Edition, 2013.

Reference Books:

1. A.D. Kshemkalyani, M. Singhal, Distributed Computing: Principles, Algorithms, and Systems, Paperback Edition, Cambridge University Press, March 2011.
2. Udit Agarwal, Distributed Computing, Publisher: S K Kataria and Sons, 2015.

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**FIFTH SEMESTER
PART III – CORE 12: COMPUTER GRAPHICS**

Maximum CIA: 30
Maximum CE: 70
Total HOUR: 60

Objective: To learn about the various techniques used in computer graphics.

UNIT – I (12 HOURS)
Overview Of Graphics Systems Video Display Device - Raster Scan System, Random Scan System, Input Devices - Output Primitives Points And Lines – DDA - Bresenham's Algorithm - Properties Of Circles And Ellipse - Pixel Addressing. Attributes Of Output Primitives Line Attributes - Curve Attributes - Area-Fill Attributes - Character Attributes.

UNIT – II (12 HOURS)
Two Dimensional Geometric Transformations Basic Transformations - Matrix Representations - Composite Transformations - Two Dimensional Viewing the Viewing Pipeline - Viewing Coordinates Reference Frame - Window to Viewport Coordinates Transformation - Clipping Operation - Point Clipping - Line Clipping.

UNIT – III (12 HOURS)
Three Dimensional Geometric and Modeling Transformations - Three Dimensional Viewing - Viewing Pipeline - Viewing Co-Ordinates – Projections - Clipping.

UNIT – IV (12 HOURS)
Three Dimensional Concepts - Three Dimensional Object Representations Polygon Surfaces - Curved Lines and Surfaces - Quadric Surfaces - Super Quadrics Blobby Objects Spline Representations.

UNIT – V (12 HOURS)
Visible - Surface Detection Methods Classification of Visible - Surface Detection Algorithms - Back Face Detection - Color Models and Color Applications Properties of Light, Standard Primaries and the Chromaticity Diagram XYZ Color Model - RGB Color Model - YIQ Color Model - CMY Color Model - HSV Color Model - Computer Animation.

Text Book:

1. Donald Hearn and M.Pauline Baker, Computer Graphics C Version, Pearson Education, Reprint 2013.

Reference Books:

1. Vandam, Feiner , Hughes, Computer Graphics Principles And Practice , Pearson Education. Reprint - 2016
2. Zhigand Xiang, Roy Plastock, Computer Graphics, 2nd Edition, Tata McGraw Hill Edition, Schaum's Outlines, 2010.

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FIFTH SEMESTER

PART III - CORE LAB 5: ASP.NET PROGRAMMING LAB

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Objective: To impart knowledge on Web Development.

1. Create a sample application to upload the document file in your own directory.
2. Create a Sample application to demonstrate the functionality of various Navigation controls.
3. Create a web application To Demonstrate the Master page and Themes.
4. Create a sample Mobile application to perform length conversion (Feet to Centimeters).
5. Create a sample application to demonstrate the basic DML Operations.
6. Create an application to perform Sign in and Signup process.
7. Create a web application to perform validation process using ASP.Net validation controls.
8. Create a sample application to generate auto user-ID at the time of user registration.
9. Create a sample application to fetch the records from a table in a Database.
 - i. Display the data in a corresponding textbox which is in a designed form
 - ii. The form should allow the user view the first, last, previous and next records which is available in a table.
10. Create a sample application to perform the basic banking activities.
 - i. Handle the Exceptions that arise at the time of Deposit and withdrawal.
11. Create a sample application to demonstrate the functionality of Data grid
 - i. Design a form with required fields to maintain the patient records.
 - ii. Design a form with a data grid and bind patient record in a data grid without using direct connectivity method.
12. Create a sample application to generate a data report.
 - i. Create an application to maintain student's examination results detail.
 - ii. Create your own data set to generate data report.

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SIXTH SEMESTER

PART III - ELECTIVE I: OPEN SOURCE TECHNOLOGIES

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To create awareness about open source technologies..

UNIT – I (12 HOURS)

Open Source: Principles - Open Standards Requirement for Software - Open Source Successes - Free Software - Examples of Free Software - Free Software License Provider - Free Software Vs Open Source Software - Public Domain - Cost - Methodologies - Philosophy - Software Freedom

UNIT – II (12 HOURS)

Computer Systems and Software: The CPU and RAM-Computer Languages-Compilation and Interpretation- Python Interpreter - A Python Program. Python Program Components: Variables - Statements and Syntax - Datatype - Expression - Comment- Recap. Functions: Defining a Function - Calling a Function - Return Statements - Local Variables- Type Conversion - Testing.

UNIT – III (12 HOURS)

Repetition: For Loops - Range- Assignment Shorthands - Accumulation Loops - Runaway Loops. Repetition: While Loops - While Loops - Mod Operation - Print Option - Tracing Code by Hand - Nested Loops. Selection: If Statements - Boolean - If Statements - Python Turtle Module - Documentation - Import star - Multiple Return Values.

UNIT – IV (12 HOURS)

First Steps in Perl: Programming Languages - Programming Structure - Escape Sequence - White space - Number System - Debugger. Scalars: Types of Data - Operators - Variables - Two Miscellaneous Functions. Control Flow Constructs: If Statements - Looping Constructs.

UNIT – V (12 HOURS)

Subroutines/Functions: Understanding Subroutines - Defining a Subroutine - Invoking a Subroutine - Order of Declaration and Invoking Functions - Passing Arguments into Functions- Return Values. Object-Oriented Perl: Improving Your Vocabulary - Objects - Attributes - Methods - Classes- Polymorphism - Encapsulation - Inheritance-Constructors - Destructors.

Text Books:

1. Kailash Vadera, Bhavyesh Gandhi, Open Source Technology, Laxmi Publications, 2009. (Unit 1).
2. Mark J. Johnson, A Concise Introduction To Programming In Python, Crc Press, 2012. (Unit II, III).
3. James Lee With Simon Cozens And Peter Wainwright, Beginning Perl, Second Edition, Apress Media, Llc. Reprint 2014 (Unit IV, V).

Reference Books:

1. M.N.Rao, Fundamentals of Open Source Software, PHI Learning Pvt. Ltd., 2014.
2. St.Amant, Kirk, Handbook of Research on Open Source Software: Technological, Economic, and Social Perspectives: Technological, Economic, and Social Perspectives, Idea Group Inc (IGI), Reprint 2013.

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**FIFTH SEMESTER
PART III - ELECTIVE I : SYSTEM SOFTWARE**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 60

Objective: To have an understanding of foundations of design of assemblers, loaders, linkers, and macro processors.

UNIT I (12 HOURS)
System Software and machine architecture – The Simplified Instructional Computer (SIC) - Machine architecture - Data and instruction formats - addressing modes - instruction sets - I/O and programming.

UNIT II (12 HOURS)
Basic assembler functions - A simple SIC assembler – Assembler algorithm and data structures - Machine dependent assembler features - Instruction formats and addressing modes – Program relocation - Machine independent assembler features - Literals – Symbol-defining statements – Expressions - One pass assemblers and Multi pass assemblers - Implementation example - MASM assembler.

UNIT III (12 HOURS)
Basic loader functions - Design of an Absolute Loader – A Simple Bootstrap Loader - Machine dependent loader features - Relocation – Program Linking – Algorithm and Data Structures for Linking Loader - Machine-independent loader features - Automatic Library Search – Loader Options - Loader design options - Linkage Editors – Dynamic Linking – Bootstrap Loaders - Implementation example - MSDOS linker.

UNIT IV (12 HOURS)
Basic macro processor functions - Macro Definition and Expansion – Macro Processor Algorithm and data structures - Machine-independent macro processor features - Concatenation of Macro Parameters – Generation of Unique Labels – Conditional Macro Expansion – Keyword Macro Parameters-Macro within Macro-Implementation example - MASM Macro Processor – ANSI C Macro language.

UNIT V (12 HOURS)
Text editors - Overview of the Editing Process - User Interface – Editor Structure. - Interactive debugging systems - Debugging functions and capabilities – Relationship with other parts of the system – User-Interface Criteria.

Text Book:

1. Leland L. Beck, System Software – An Introduction to Systems Programming, Pearson Education Asia, Reprint 2012.

Reference Books:

1. D. M. Dhamdhare, Systems Programming and Operating Systems, Second Revised Edition, Tata McGraw-Hill, 2010.
2. John J. Donovan, Systems Programming, Tata McGraw-Hill Edition, 2011.

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FIFTH SEMESTER

PART III – ELECTIVE I: UNIFIED MODELING LANGUAGE

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To Become a Proficient and Productive at Modeling Software with UML.

UNIT I (12 HOURS)

Introduction To UML -History of UML- The Goals and Features of UML-UML Architecture-Four Layer Meta Model Architecture-UML Version1.4-Language Architecture-UML Diagrams and Work Products-Object Oriented Concepts.

UNIT II (12 HOURS)

Modeling Object Structure- Capturing Rules about Objects in a Class Diagram-How to Capture Rules about Object Relationship-Testing with Objects.

UNIT III (12 HOURS)

Modeling Object Interactions-Modeling Interaction in UML 1.4-Modeling a Sequence Diagram-Modeling a Collaboration Diagram-Comparing a Sequence and Collaboration Diagrams-Integrating the Sequence and Collaboration with Class Diagram Modeling an Object Life Cycle in UML 1.4-Modeling a State Chart Diagram-Relating a Sequence and State Chart Diagrams.

UNIT IV (12 HOURS)

Modeling the Application Architecture-Using Packages-Modeling Software Using the Component Diagram- Using Deployment Diagrams in UML 1.4.

UNIT V (12 HOURS)

UML 2.0 - Infrastructure Library- Superstructure Library-The UML Package-Diagrams of UML2.0-Modeling Interaction in UML 2.0-Modeling an Object Life Cycle in UML 2.0.

Text Book:

1. Tom Pender, UML 2 BIBLE, Wiley India Pvt ,Reprint 2012.

Reference Books:

1. Grady Booch, James Rumbaugh, IvarJacobson, The Unified Modeling Language User Guide, Pearson Education, 2012.
2. Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado: UML 2 Toolkit, Wiley-Dreamtech India Pvt. Ltd, 2015.

B.Sc (Computer Science) Degree Examination-Syllabus for Candidates admitted from the academic year 2015 – 2016 onwards.

SIXTH SEMESTER

PART III - CORE 13: APPLICATION DEVELOPMENT IN JAVA

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To inculcate knowledge on advanced JAVA technologies.

UNIT-I: (12 HOURS)

JDBC: Introduction to JDBC- Hello JDBC Example-Structured Query Language- The JDBC API's- Library Application using JDBC. The Big picture: Java EE Architecture-Hello Java EE- The Many variations of Java EE Applications – Packaging and Deploying the Hello Java EE Application- Java EE Platform and Implementations.

UNIT-II: (12 HOURS)

.Java Servlets and Web Application : Foundations of Web Tier: The HTTP Protocol-Introducing java Servlets- Example Java Servlet Application- Understanding the Java Servlet API- Web Application. Dynamic Web Pages: JSP – JSP Runtime Architecture- A JSP Clock – JSP Syntax- The Java Environment for JSPs- JSP Standard Tags Custom Tag Libraries- Expression Language-JSP Photo Album.

UNIT-III: (12 HOURS)

Assembling Dynamic Web Pages : Java Server Faces – Architecture of a JSF Application – JSF Tags- Java EE Managed Beans – Core tags – JSTL Core Tags – Extensibility and Modularity- Photo Application.

UNIT-IV: (12 HOURS)

The Fundamental of Enterprise Beans – Introduction to Enterprise Beans- Hello Enterprise Beans- Flavors of Enterprise Beans- Exposing Enterprise Beans – Finding Enterprise Beans- EJB Lifecycle- Packaging Enterprise Beans- Banking Example.

UNIT-V: (12 HOURS)

Advanced Thinking with Enterprise Beans:- Multi-threading and Enterprise Beans- Enterprise Bean Contexts- The Timer Service –Transactions and Enterprise Beans- Modern Memories: The Java Persistence API- The Library Service, with java Persistence-Persistence Entities- The Entity manager- Java Persistence Query Language- Configuring JPA Applications- The Persistent Library Service.

Text Book:

1. Dr Danny Coward, Java EE 7 The Big Picture- Master the Code, Applications and Frameworks of Java Platform, Enterprise Edition 7, McGraw Hill Education 2015.

Reference Books:

1. Antonio Goncalves, Beginning Java EE7 — The Experts Voice in Java, Apress, 2013.
2. Debu Panda, Reza Rahman, Ryan Cuprak, Michael Remijan, EJB 3 in Action, Dreamtech Press, 2016.

B.Sc (Computer Science) Degree Examination-Syllabus for Candidates admitted from the academic year 2015 – 2016 onwards.

SIXTH SEMESTER

PART III - CORE 14: INFORMATION SECURITY

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To create awareness among the students regarding security mechanisms. The student can gain in-depth knowledge about various attacks in the program, operating system, database and the methodology to overcome or to prevent those attacks.

UNIT – I (12 HOURS)

Introduction - Basic Concepts : Attacks : Threats - Controls - Vulnerabilities – Method, Opportunity & Move – Security Goals: Confidentiality – Integrity - Availability - Vulnerabilities - Computer Criminals – Methods of Defence : Hacking as Defence Mechanism – The Methodology of Hacking – Classification of Hackers – Controls – Encryption – Software Controls – Hardware Controls.

UNIT – II (12 HOURS)

Secure Programs : Fixing Faults – Unexpected behavior – Types of Flaws - Non-malicious Program Errors : Buffer Overflows – Time-of-Check to Time-of-Use Errors – Viruses and other Malicious Code : Kinds of Malicious Code – How Viruses Attach – How Viruses Gain Control – Homes for Viruses - Virus Signatures – The Source of Viruses – Prevention of Virus Infection – Trojans – Salami Attack – Controls Against Program Threats : Developmental Controls – Testing.

UNIT – III (12 HOURS)

Protected Objects and Methods of Protection : A bit of History – Protected Objects – Security methods of Operating Systems - Memory and Address Protection : Fence – Relocation – Base Registers – Tagged Architecture – Segmentation – Paging – Combined Paging with Segmentation - File Protection Mechanisms : Basic Forms of Protection – Individual Permissions – Persistent Permission – Temporary Acquired Permission – Pre-object and Per-User Protection - User Authentication : Passwords as Authenticators – Attacks on Passwords : Loose-Lipped Systems – Exhaustive Attack – Probable Passwords – Password Selection Criteria – One-time Passwords – The Authentication Process : Fixing Flaws in the Authentication Process.

UNIT – IV (12 HOURS)

Introduction to Databases – Security Requirements - Inference - Multilevel Databases – Legal and Ethical Issues in Computer Security : Computer Crime : Why a separate category for Computer Crime is needed – Why Computer crime is hard to define and hard to prosecute – Indian Cyber law offences – Cyber pornography – Accessing Protected System – Tampering with Computer Source code – Why Computer Criminals are hard to catch – What Computer Crime does not address.

UNIT – V (12 HOURS)

Management and Incidents: Security Planning: Organizations and Security Plans - Contents of a Security Plan - Security Planning Team Members - Assuring Commitment to a Security Plan - Business Continuity Planning: Assess Business Impact - Develop Strategy - Develop the Plan - Handling Incidents: Incident Response Plans - Incident Response Teams - Risk Analysis: Nature of Risk - Steps of a Risk Analysis - Arguments For and Against Risk Analysis - Dealing with Disaster: Natural Disasters - Power Loss - Human Vandals - Interception of Sensitive Information - Contingency Planning - Physical Security Recap

Text Book:

1. Charles P. Pfleeger and Shari Lawrence Pfleeger, "Security in Computing" – Pearson Education , 4th Edition, Reprint 2012.

References Books:

1. Atul Kahate, Cryptography and Network Security, Tata McGraw-Hill, 2nd Edition, 2010.
2. Bruce Schneier, "Applied Cryptography", John Wiley & Sons Inc, 2nd Edition, 2011.

B.Sc (Computer Science) Degree Examination – Syllabus for Candidates admitted from the academic year 2015 – 2016 onwards.

SIXTH SEMESTER

PART III - CORE LAB 6: APPLICATION DEVELOPMENT IN JAVA LAB

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Objective : To inculcate knowledge on JSP.

1. Create a JSP Application to collect the user information during registration and validate the textboxes using Jscript.
2. Create a web application to receive the details of job seekers and upload the resume.
3. Design a web application to show the rating of the new released movies based on users review.
4. Design a JSP Application to maintain the customer complaints and its status using Servlet as a backdrop.
5. Create an application to maintain the sports meet details using RMI.
6. Develop an application to collect the enquiry details in Car Showroom.
7. Create an application to maintain the details of the external visitors in a company.
8. Create an application to maintain doctors information using EJB
9. Develop an application to collect and uphold the event schedules by implementing Entity Beans
10. Create Web application to maintain the placement details of a particular department by implementing Session bean
11. Develop an application in JSP to store and uphold the contact details.
12. Design a JSP page to show the product specification and its availability.

B.Sc (Computer Science) Degree Examination-Syllabus for Candidates admitted from the academic year 2015 – 2016 onwards.

**SIXTH SEMESTER
PART III - ELECTIVE II: DATAMINING**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 60

Objective: To expose students to concepts in data mining and warehousing.

UNIT – I (12 HOURS)

Data Mining Over View: What kind of data - Data mining Functionalities - Classification of Data mining systems - Data mining Task primitives - Integration of a data mining system with data base-Major issues in data mining.

UNIT – II (12 HOURS)

Data Processing: Preprocess the data- Descriptive. Data summarization - Data cleaning - Data Integration and Data Transformation - Data Reduction. Data warehouse and OLAP Data warehouse a multi dimensional Data model-Data warehouse architecture.

UNIT – III (12 HOURS)

Classification & Prediction: Decision Tree Induction - Bayesian Classification -Rule based classification - Classification by Back propagation - Other Classification methods. Prediction Linear, nonlinear, other regressions-accuracy and error measures-model selection.

UNIT – IV (12 HOURS)

Cluster Analysis: Types of Data in cluster analysis - Portioning methods - Multimedia Data mining - Text mining - Mining the World Wide Web.

UNIT – V (12 HOURS)

Applications, Tools And Trends In Data Mining: Data mining applications - Data mining system products and Research prototypes - Additional Themes on Data mining –Trends in Data mining-Tools in Data mining.

Text Book:

1. Jiawei Han and Micheline Kamber, Data Mining Concept and Techniques, 2nd Edition, Morgan Kaufmann Publishers, Reprint 2012.

Reference Book:

1. Pieter Adriaans, Dolf Zantinge, Data Mining, 3rd Edition, Pearson Education, 2010.

B.Sc (Computer Science) Degree Examination-Syllabus for Candidates admitted from the academic year 2015 – 2016 onwards.

SIXTH SEMESTER

PART III - ELECTIVE II: ARTIFICIAL INTELLIGENCE

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To enable students to acquire theoretical knowledge in artificial intelligence and expert systems.

UNIT – I (12 HOURS)

Artificial Intelligence AI Problems –Intelligent Agents – Agents And Environments - Good Behavior – The Nature Of Environments – Structure Of Agents - Problem Solving - Problem Solving Agents – Example Problems – Searching For Solutions – Uniformed Search Strategies - Avoiding Repeated States – Searching With Partial Information.

UNIT – II (12 HOURS)

Searching Techniques Informed Search And Exploration – Informed Search Strategies – Heuristic Function – Local Search Algorithms And Optimistic Problems – Local Search In Continuous Spaces – Online Search Agents And Unknown Environments - Constraint Satisfaction Problems (CSP) – Backtracking Search And Local Search For CSP – Structure Of Problems - Adversarial Search – Games – Optimal Decisions In Games – Alpha – Beta Pruning – Imperfect Real-Time Decision – Games That Include An Element Of Chance.

UNIT – III (12 HOURS)

Knowledge Representation First Order Logic – Representation Revisited – Syntax And Semantics For First Order Logic – Using First Order Logic – Knowledge Engineering In First Order Logic - Inference In First Order Logic – Prepositional Versus First Order Logic – Unification And Lifting – Forward Chaining – Backward Chaining - Resolution - Knowledge Representation - Ontological Engineering - Categories And Objects – Actions - Simulation And Events - Mental Events And Mental Objects.

UNIT – IV (12 HOURS)

Learning Learning From Observations - Forms Of Learning - Inductive Learning - Learning Decision Trees - Ensemble Learning - Knowledge In Learning – Logical Formulation Of Learning – Explanation Based Learning – Learning Using Relevant Information – Inductive Logic Programming - Statistical Learning Methods - Learning With Complete Data - Learning With Hidden Variable - EM Algorithm - Instance Based Learning - Neural Networks - Reinforcement Learning – Passive Reinforcement Learning - Active Reinforcement Learning.

UNIT – V (12 HOURS)

Brief Explanation of Expert Systems-Definition- Characteristics-Architecture-Knowledge Engineering- Expert System Life Cycle-Knowledge Acquisition Strategies- Expert System Tools.

Text Book:

1. V.S Janakiraman, K.Sarukesi, P.Gopalakrishnan, Foundations of Artificial Intelligence, Macmillan, India, Reprint 2011.

Reference Books:

1. Stuart Russell, Peter Norvig, Artificial Intelligence, A Modern Approach, 2nd Edition, Pearson Education Prentice Hall, 2012.
2. Nils J. Nilsson, Artificial Intelligence A New Synthesis, Harcourt Asia Pvt. Ltd, 2011.

B.Sc (Computer Science) Degree Examination-Syllabus for Candidates admitted from the academic year 2015 – 2016 onwards.

SIXTH SEMESTER

PART III - ELECTIVE II: NETWORK SECURITY AND CRYPTOGRAPHY

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To inculcate knowledge regarding cryptography and network security.

UNIT – I (12 HOURS)
OSI Security Architecture - Security Attacks - Security Services - Security Mechanisms - A Model for Network Security - Symmetric cipher model - Substitution Techniques - Transposition Techniques - Simplified DES - The Data Encryption Standard-The Strength of DES - Triple DES - Blowfish - RC5.

UNIT – II (12 HOURS)
Introduction to number theory Prime number - Fermat's and Euler's Theorem -Principles of Public - Key Cryptosystems - The RSA Algorithm - Key Management - Diffie Hellman Key Exchange - Elliptic Curve Cryptography.

UNIT – III (12 HOURS)
Authentication Requirements - Authentication Functions - MD5 Message Digest Algorithm - Secure Hash Algorithm - Digital Signatures - Digital Signature Standard.

UNIT – IV (12 HOURS)
Pretty Good Privacy - S/MIME - Secure Sockets Layer and Transport Layer Security - Secure Electronic Transaction.

UNIT – V (12 HOURS)
Intruders - Intrusion detection - Password Management - Virus and related threats - Virus Countermeasures - Firewall Design Principles.

Text Book:

1. William Stallings, Cryptography and Network Security Principles and Practices, PHI Education, 4th Edition, Reprint 2011.

Reference Book:

1. Atul Kahate, Cryptography and Network Security, Tata McGraw Hill, 2nd Edition, Reprint 2012.

B.Sc (Computer Science) Degree Examination-Syllabus for Candidates admitted from the academic year 2015 – 2016 onwards.

**SIXTH SEMESTER
PART III - ELECTIVE III: MOBILE COMPUTING**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 60

Objective : To impart the knowledge in Mobile Applications and Technologies

UNIT I (12 HOURS)
Mobile Computing Architecture: History of Computers and Internet –The Ubiquitous Network. The Architecture for Mobile Computing – Three-Tier Architecture – Design Considerations for Mobile Computing.

UNIT II (12 HOURS)
Mobile Computing Through Telephony: Evaluation of Telephony – Multiple Access Procedures — IVR Application – Voice XML – TAPI - EMERGING TECHNOLOGIES: Blue Tooth – RFID – WiMAX – Mobile IP – IPv6 – Java Card.

UNIT III (12 HOURS)
GSM : Global System for Mobile Communications – GSM Architecture – GSM Entities – Call Routing in GSM – PLMN Interfaces – GSM Addresses and Identifiers – Network Aspects in GSM – GSM Frequency Allocations – Authentications and Security.

UNIT IV (12 HOURS)
GPRS – GPRS and Packet Data Network – GPRS Network Architecture – GPRS Network Operations – Data Services in GPRS – Application for GPRS Limitations. WAP- MMS – GPRS Applications

UNIT V (12 HOURS)
CDMA and 3G: Spread Spectrum Technology – Is 95 – CDMA Vs GSM –Wireless Data – Third Generation Networks – Applications on 3G WIRELESS LAN: Wireless LAN Advantages – IEEE 802.11 Standards Architecture – Mobile in Wireless LAN – Deploying Wireless LAN – Mobile Adhoc Networks and Sensor Networks – Wireless LAN Security –WiFi vs 3G.

Text Book:

1. Asoke K Talukder, Roopa R Yavagal ,Mobile Computing, TMH, Reprint 2011.

Reference Books:

1. Jochen Schiller Mobile Communications PHI/Pearson Education, 2nd Edition , 2012.
2. V.Jeyasri ArokiaMary, Mobile Computing, 2nd Revised Edition, Technical Publications, 2011.

B.Sc (Computer Science) Degree Examination-Syllabus for Candidates admitted from the academic year 2015 – 2016 onwards.

**SIXTH SEMESTER
PART III - ELECTIVE III: CLOUD COMPUTING**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 60

Objective : To inculcate knowledge about Cloud Computing.

UNIT- I (12 HOURS)
Cloud Computing Basics: Cloud Computing Overview - Applications-Intranets and the Cloud-Your Organization and Cloud Computing: Benefits - Security Concerns.

UNIT- II (12 HOURS)
Cloud Computing with the Titans: Google – EMC - Microsoft-Amazon – IBM - Partnerships. The Business Case for Going to the Cloud: Cloud Computing Services - How those Applications Help Business

UNIT –III (12 HOURS)
Cloud Computing Technology: Hardware and Infrastructure: Clients-Security – Network -Services- Accessing the Cloud: Platforms-Web Applications - Web APIs - Web Browsers.

UNIT –IV (12 HOURS)
Cloud Storage: Overview - Cloud Storage Providers-Standards: Application - Client-Infrastructure-Service

UNIT –V (12 HOURS)
Software plus Service: Mobile Device Integration - Providers - Microsoft Online - Developing Applications: Google – Microsoft.

Text Book:

1. Anthony T. Velte, Toby J.Velte,Robert Elsenpeter ,Cloud Computing A Practical Approach, McGraw Hill ,2010.

Reference Book:

1. Michael Miller, Cloud Computing, Pearson Education, New Delhi, 2012.
2. Borko Furht, Armando Escalante, Handbook of Cloud Computing, Springer Science & Business Media, 2010.

B.Sc (Computer Science) Degree Examination - Syllabus for candidates admitted from the academic year 2015 – 2016 onwards.

SIXTH SEMESTER

PART III - ELECTIVE III: INTERNET OF THINGS

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To enable the student to understand the communication technologies of IoT, IoT Protocols and Various Applications of IoT.

UNIT- I (12 HOURS)

Introduction: Internet Layers - Protocols - Packets - Services - Performance parameters - Peer-to-peer networks - Sensor networks - Multimedia - IOT Definitions and Functional Requirements – Motivation – Architecture - Web 3.0 View of IoT– Ubiquitous IoT Applications – Four Pillars of IoT – DNA of IoT - The Toolkit Approach for End-user Participation in the Internet of Things. Middleware for IoT: Overview – Communication middleware for IoT –IoT Information Security.

UNIT- II (12 HOURS)

IoT protocols: Protocol Standardization for IoT – Efforts – M2M and WSN Protocols – SCADA and RFID Protocols – Issues with IoT Standardization – Unified Data Standards – Protocols – IEEE 802.15.4 – BACNet Protocol – point-to-point protocols - Ethernet protocols - cellular Internet access protocol - Machine-to-machine protocol - Modbus – KNX – Zigbee Architecture – Network layer – APS layer – Security.

UNIT – III (12 HOURS)

Web of Things: Web of Things versus Internet of Things – Two Pillars of the Web – Architecture Standardization for WoT– Platform Middleware for WoT – Unified Multitier WoT Architecture – WoT Portals and Business Intelligence. Cloud of Things: Grid/SOA and Cloud Computing – Cloud Middleware – Cloud Standards – Cloud Providers and Systems – Mobile Cloud Computing – The Cloud of Things Architecture.

UNIT – IV (12 HOURS)

Integrating IOT: Integrated Billing Solutions in the Internet of Things Business Models for the Internet of Things - Network Dynamics: Population Models – Information Cascades - Network Effects - Network Dynamics: Structural Models - Cascading Behavior in Networks - The Small-World Phenomenon.

UNIT – V (12 HOURS)

Applications: The Role of the Internet of Things for Increased Autonomy and Agility in Collaborative Production Environments - Resource Management in the Internet of Things: Clustering, Synchronisation and Software Agents. Applications - Smart Grid – Electrical Vehicle Charging - Case studies: Sensor body-area-network and Control of a smart home.

Text Book:

1. Honbo Zhou, The Internet of Things in the Cloud: A Middleware Perspective, CRC Press 2012.

Reference Books:

1. Architecting the Internet of Things - Dieter Uckelmann; Mark Harrison; Florian Michahelles- (Eds.) – Springer – 2011
2. Networks, Crowds, and Markets: Reasoning About a Highly Connected World - David Easley and Jon Kleinberg, Cambridge University Press - 2010.

B. Sc (Computer Science) Degree Examination – Syllabus for Candidates admitted from the academic year 2015 – 2016 onwards.

**FIFTH SEMESTER
LINUX**

Objective: To impart knowledge about Linux OS.

UNIT-I

Introduction to Linux Operating system- Kernel- Distinguished Applications – Command Interpreter- Difference between DOS and Unix- Linux and Open source Movement- Why Linux is popular- Salient features. Introduction to Linux File systems- File and Directory Naming- Linux Directory Tree man pages – The First command “cat”.

UNIT-II

Shells –Basic commands-Using Directory Commands- Intermediate Commands- Changing your password and shell-Dot Files-Environment and Shell variables-Command path-Special characters- Command line Editing-Text Editors- Processes-File modes and permissions.

UNIT-III

Devices-Disk, File systems and Kernel: Directory Hierarchy- Kernel – Devices –File systems- Swap and virtual memory.

UNIT-IV

Introduction to Shell Scripts: Shell Script basics- Quoting- Special variables- Exit codes- Conditionals- Loop- Command Substitution- Temporary file management- Here Documents.

UNIT-V

Shell Utilities and Development Tools: Shell Script Utilities- Sub Shells- Including other files in scripts- Reading User Input- The C Compiler- Multiple Source files- Header Files and Directories – Linking with Libraries- Make Debuggers- LEX and Yacc Compiler- Scripting Languages- PERL – PYTHON- Other Scripting Languages.

Text Book:

1. N.B.Venkateswarlu, Introduction to Linux Installation and Programming, B.S Publications, 2010.

Reference Book:

1. Machtelt Garrels, Introduction to Linux (Third Edition), Fultus Corporation, 2010.
2. William E. Shotts, The Linux Command Line: A Complete Introduction, No Starch Press, 2012

**B.Sc Information Technology Board
Scheme of Examination (CBCS Pattern)**

For the Candidates admitted during the Academic Year 2018-2019 onwards

Part	Sub Code	Subject Title	Ins.Hrs/Week	Examination				
				Dur. Hrs.	CIA	CE	Total	Credit
SEMESTER I								
I	15LATA01/ 18LAHI01/ 15LAFR01 15LAMY01	Language – I Tamil/Hindi/Malayalam/French	5	3	30	70	100	3
II	16ENG001	English –I	5	3	30	70	100	3
III	18BIT101	Core 1 – Programming in C	6	3	30	70	100	4
III	15BITP01	Core Lab 1 - C Lab	6	3	40	60	100	4
III	15BITID1	IDC 1 – Numerical Methods and Statistics	6	3	30	70	100	4
IV	18UFCA01	Foundation Course I : EVS #	2	2	-	50	50	2
		Total	30				550	20
SEMESTER II								
I	15LATA02/ 18LAHI02/ 15LAFR02/ 15LAMY02	Language –II Tamil/Hindi/Malayalam/French	5	3	30	70	100	3
II	16ENG002	English – II	5	3	30	70	100	3
III	18BIT201	Core 2 - Object Oriented Programming with C++	6	3	30	70	100	4
III	15BITP02	Core Lab 2 - C++ Lab	6	3	40	60	100	4
III	15BITID2	IDC2- Discrete Mathematics	6	3	30	70	100	4
IV	18UFCA02	Foundation Course II: Value Education #	2	2	-	50	50	2
		Total	30				550	20
SEMESTER III								
III	18BIT301	Core 3 – Java Programming	5	3	30	70	100	4
III	15BIT302	Core 4 - Data Structures	5	3	30	70	100	4
III	15BIT303	Core 5 - Computer Organization & Architecture	5	3	30	70	100	4
III	18BITP03	Core Lab 3 – Java Programming Lab	5	3	40	60	100	4
III	18BITID3	IDC 3– ERP	5	3	30	70	100	4
IV	18BITAO1/ 18BITAO2	AOC I - Web Design / Office Automation#	3	3	-	75	75	3
IV	15BTA001	EDC 1: BT – 1/AT - 1 /Communicative	2	2	-	50	50	2

	\15ATA001/ 15EDC002	English #							
		Total	30				625	25	
SEMESTER IV									
III	18BIT401	Core 6 – Middleware Technologies	5	3	30	70	100	4	
III	15BIT402	Core 7 – Computer Networks	5	3	30	70	100	4	
III	15BIT403	Core 8 – Operating System	5	3	30	70	100	4	
III	18BITP04	Core Lab 4 - Middleware Technologies Lab	5	3	40	60	100	4	
III	15BITID4	IDC 4- Operations Research	5	3	30	70	100	4	
IV	18BITAO3/ 18BITAO4	AOC II Lab – Web Design Lab / Office Automation Lab#	3	3	-	75	75	3	
IV	15BTA002/ 15ATA002/ 15BITED1	EDC 2 : BT - 2/AT -2/ Microprocessor and its applications #	2	2	-	50	50	2	
V	15NSS001/ 15NCC001 15SPT001/ 15EXT001	NCC/NSS/Sports //Extension Activities@			50		50	2	
		Total	30				675	27	
SEMESTER V									
III	18BIT501	Core 9 - .Net Framework	5	3	30	70	100	4	
III	15BIT502	Core 10 – Mobile Computing	5	3	30	70	100	4	
III	15BIT503	Core 11 – Software Engineering	5	3	30	70	100	4	
III	15BIT504	Core 12 – RDBMS	5	3	30	70	100	4	
III	18BITP05	Core Lab 5 - Net Framework Lab	5	3	40	60	100	4	
III	18BITE01/ 15BITE02/ 15BITE03	Elective I - IOT / Bio – Informatics / Data Mining and Warehousing	5	3	30	70	100	4	
		Total	30				600	24	
SEMESTER VI									
III	18BIT601	Core 13 - PHP Programming	5	3	30	70	100	4	
III	18BIT602	Core 14 – Information Security	5	3	30	70	100	4	
III	18BITP06	Core Lab 6 - PHP Lab	5	3	40	60	100	4	
III	15BITE04/ 15BITE05/ 18BITE06	Elective II - Distributed Computing / MANET / Python Programming	5	3	30	70	100	4	
III	15BITE07/ 18BITE08/ 15BITE09	Elective III – Software Testing / Android Applications /Multimedia	5	3	30	70	100	4	
III	15BITPR1	Project and Viva Voce	5	3	50	50	100	4	

		Total	30		600	24	
					Total	3600	140

No Continuous Internal Assessment (CIA) , only Comprehensive Examination (CE)
 @ No Continuous Internal Assessment (CIA) and Comprehensive Examination (CE)
 IDC- Inter disciplinary Course , EDC – Extra disciplinary Course , AOC –Application Oriented Course

List of Electives Papers

Elective I		
1	18BITE01	IOT
2	15BITE02	Bio-Informatics
3	15BITE03	Data Mining & Warehousing
Elective II		
1	15BITE04	Distributed Computing
2	15BITE05	MANET
3	18BITE06	Python Programming
Elective III		
1	15BITE07	Software Testing
2	18BITE08	Android Applications
3	15BITE09	Multimedia

List of Additional Credit Papers

Sem	Code	Subject Title	Credits	Maximum Marks
III	15BITAC1	Linux OS	2	100
IV	15BITAC2	Animation Techniques	2	100
V	18BITAC3	ASP Programming	2	100

Summary

Part	No of Papers	Total Credits	Total Marks
I	2	6	200
II	2	6	200
III –Core	20	80	2000
III – IDC	4	16	400
III – Elective	3	12	300
III –Project	1	4	100
IV –Foundation Course	2	4	100
IV – EDC	2	4	100
IV – Application Oriented Course	2	6	150
V Extension Activities	-	2	50
Total	38	140	3600

REGULATIONS FOR BOARD OF BACHELOR OF SCIENCE (Information Technology)
(FOR UG COURSES ONLY)
(Effective from the academic year 2018-2019 onwards)

1. Project and Viva Voce :

Each student in the UG final year shall compulsorily undergo Project Work in the 6th semester. Projects shall be done individually. Project Coordinators shall allocate the project title and the guide. Project work shall be done only in the lab provided by the college, including Project Record Preparation. Project Reviews shall be conducted thrice in which the progress of project work shall be strictly evaluated by respective Project Guides and Project Coordinators. Viva-Voce shall be conducted only in the presence of Industrialists or academicians. Out of the Total of 100 marks, 50% of mark shall be allocated for CIA and 50% for CE VIVA VOCE.

2. Submission of Record Note Books for practical examinations

Candidates appearing for practical examinations shall submit bonafide Record work for the concerned practical examinations. If not the candidate has to submit a bonafide certificate issued by the concerned subject in-charge duly signed by the Head of the department in order to be permitted to take up the practical examination. The candidate so permitted will not be eligible for the Record work mark.

3. Distribution of Marks:

The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum (Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	28	30	40
	75	75	30	-	30
	50	50	20	-	20
Practical Paper	100	60	24	40	40
Project	100	50	20	50	40

4. Distribution of Internal Mark for Theory :

(No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6=30

Breakup for Attendance:

65% - 74 %	- 4 Marks
75% - 80%	- 6 Marks
81% - 90%	- 8 Marks
91% - 100%	- 10 Marks

Breakup for Seminar

Content	10mark
Flow of Presentation	10mark
Stage management and Body Language	10mark

5. Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 40		
S No	CIA	Distribution of Marks
1	For Completion of the Practical List	20
2	Test –I	10
3	Test –II	10
Total		40

6. Distribution of Comprehensive Exam Mark for Practical :

MAXIMUM MARKS : 60		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	10
2	Program – I a) Algorithm b) Coding c) Execution	5 10 10 TOTAL (25)
3	Program – II a) Algorithm b) Coding c) Execution	5 10 10 TOTAL (25)
Total		60

Distribution of Comprehensive Exam Mark for AOC Practical:

MAXIMUM MARKS : 75		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	15
2	Program – I d) Algorithm e) Coding f) Execution	5 10 15 TOTAL (30)

3	Program – II d) Algorithm e) Coding f) Execution	5 10 15 TOTAL (30)
Total		75

7. Distribution of Mark for Project VIVA-VOCE :

S.No	CIA	Distribution of Marks
1	INTERNAL a) Review –I b) Review –II c) Documentation & Final Review	10 10 30 Total (50)
2	EXTERNAL * a) Presentation b) Viva	30 20 Total (50)
Total		100

*Marks to be awarded by both External and Internal Examiners.

8. Question Paper Pattern

Time: 3 Hour

Max marks: 70

SECTION – A (10×1=10)

Answer ALL questions
Each Question carries One Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B (5×4=20)

Answer ALL questions
Each Question carries Four Marks
(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answerer ALL questions
Each Question carries EIGHT Marks
(INTERNAL CHOICE)

9. Question Paper Pattern

Time: 3 Hour

Max marks: 75

SECTION – A (10×1=10)

Answer ALL questions
Each Question carries One Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B (5×5=25)
Answer ALL questions
Each Question carries FIVE Marks
(INTERNAL CHOICE)

SECTION – C (5×8=40)
Answerer ALL questions
Each Question carries EIGHT Marks
(INTERNAL CHOICE)

10. Question Paper Pattern
Time: 3 Hour

Max marks: 50

SECTION – A (10×1=10)
Answer ALL questions
Each Question carries One Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B (5×3=15)
Answer ALL questions
Each Question carries THREE Marks
(INTERNAL CHOICE)

SECTION – C (5×5=25)
Answerer ALL questions
Each Question carries FIVE Marks
(INTERNAL CHOICE)

11. Question Paper Pattern
Time: 3 Hour

Max marks: 100

SECTION – A (10×1=10)
Answer ALL questions
Each Question carries One Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B (5×8=40)
Answer ALL questions
Each Question carries EIGHT Marks
(INTERNAL CHOICE)

SECTION – C (5×10=40)
Answerer ALL questions
Each Question carries TEN Marks
(INTERNAL CHOICE)

NOTE:

1. The questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the unit in the syllabus in all the sections of the question paper.
3. While framing questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

10. Conduct of Practical Examinations:

Practical examinations shall be conducted with one internal examiner and one external examiner and the question paper for practical examination shall be set by both Internal and External examiners.

B.Sc(Information Technology) Degree Programme -Syllabus- for candidates admitted from 2018 – 2019 onwards

**FIRST SEMESTER
PART III – CORE 1: PROGRAMMING IN C**

Maximum CIA : 30

Maximum CE : 70

Total Hours: 72

Objective

To impart knowledge about C programming language concepts.

UNIT – I [12 hours]

Overview Of Computers And Programming - Electronic Computer then and now - Computer hardware – Computer Software – Software Development Method. Introduction To C - Overview of Compilers And Interpreters – Structure of A C Program – Programming Rules – Executing The Program . C Declarations : The C Character Set – Delimiters – The C Keywords – Identifiers – Constants – Variables – Rules For Defining Variables – Data Types – Declaring Variables – Initializing Variables – Type Conversion – Constant And Volatile Variables. Operators And Expressions: Priority of Operators And Their Clubbing – Comma And Conditional Operator – Arithmetic Operators – Relational Operators – Logical Operators – Bitwise Operators.

UNIT - II [15 hours]

Input And Output in C: Formatted Functions – Unformatted Functions – Commonly Used Library Functions. Decision Statements: If, If...Else, Nested If-Else, Break, Continue, Go to, Switch, Nested Switch .Loop Control Statements: The For Loop – Nested For Loops – The While Loop – The Do-While. Arrays - Array Initialization – Definition of Array – Characteristic of Array – One Dimensional Array – Predefined Streams – Two Dimensional Array – Three or Multi Dimensional Arrays.

UNIT – III [15 hours]

Working With Strings And Standard Functions :Declaration And Initialization of String – Display of Strings With Different Formats – String Standard Functions – Applications of Strings. Functions Definition of Function – Declaration of Function And Function Prototypes – The Return Statement – Types of Functions – Call By Value And Reference – Function Returning More Values – Function As An Argument – Function With Operators – Function And Decision Statements – Function And Loop Statements – Function With Arrays And Pointers – Recursion.

UNIT – IV [15 hours]

Structure And Union Features of Structures – Declaration And Initialization of Structures- Structure Within Structure – Array of Structures – Pointer To Structures – Structures And Functions – Typedef – Bit Fields – Enumerated Data Type – Union – Union of Structures. Preprocessor Directives:The #Define Directive – Undefineding A Macro – The #Include Directive – conditional compilation-The #Ifndef Directive – The #Error Directive - #Line Directive – Inline Directive.

UNIT – V [15 hours]

Pointers Features of Pointers – Pointer Declaration – Arithmetic Operations With Pointers – Pointers And Arrays – Pointers And Two Dimensional Arrays – Array of Pointers – Pointers To Pointers – Pointers And Strings – Void Pointers. Files Streams And File Types – Steps For File Operations – File I/O – Structures Read And Write – Other File Function – Searching Errors In Reading/Writing Files –Low level Disk I/O- Command Line Arguments. Dynamic memory allocation and linked list- Dynamic memory allocation-allocating a block of memory:MALLOC-allocating multiple blocks of memory:CALLOC-releasing the used space:FREE-Altering the size of a Block:REALLOC-Memory Models-Concepts of linked list- advantages-types-creation- insertion-deletion-applications

Text Book

1. Ashok N Kamthane, Programming with ANSI and Turbo C, Pearson Edition Pub, 2007.

Reference Book

1. Arron Hillegass, Objective C Programming, Big Nerd Ranch Incl, 2011
2. ReemaThareja, Programming in C, Oxford University Press, 2011

B.Sc.(Information Technology) Degree Programme - Syllabus for candidates admitted from the academic year 2018 – 2019 onwards**FIRST SEMESTER
PART III – CORE 1: C PROGRAMMING**

Maximum CIA : 30

Maximum CE : 70

Total HOUR: 72

Objective

To impart basic programming knowledge about C.

1. Developing a C program to find the sum, average, standard deviation for a given set of numbers.
2. Develop a C program to check whether the given input alphabet is vowel or not.
3. Develop a C program to check whether the number is perfect or not.
4. Develop a C program to find the largest and smallest element in array.
5. Develop a C program to check whether matrix is magic square or not.
6. Develop a C program to find power using recursion.
7. Develop a c program to perform string operation
 - a) String length
 - b) String copy
 - c) String compare
 - d) Reverse the string
8. Developing a C program to convert all characters of a string from lowercase to uppercase without using standard functions
9. Developing a C program to print the student's Mark sheet assuming rno, name, and marks in 5 subjects in a structure. Create an array of structures and print the mark sheet.
10. Develop a C program to count number of words, digits and vowels using pointer.
11. Developing a C program which receives two filenames as arguments and check whether the file contents are same or not. If same delete the second file.
12. Develop a program to find the numbers given from the command line argument are even or not.

PART III- CORE 2: OBJECT ORIENTED PROGRAMMING WITH C++

Maximum CIA : 30

Maximum CE : 70

Total Hours: 72

Objective

To inculcate knowledge on C++ programming concepts.

UNIT –I [15 HOURS]

Introduction to C++: Evolution of C++, Object Oriented Technology, Key Concept of Object oriented Programming, Advantages of OOP. Input And Output In C++: Streams in C++, Formatted And Unformatted Console I/O, Type Casting with Cout, Operations-Formatted Console I/O Operations-Bit Fields- Manipulators. C++ Declarations: Parts of C++ Program- Type of Tokens - Data Types In C++ - Type Casting – Constants - Operators in C And C++

UNIT-II [15 HOURS]

Control Structures: Decision Making Statements, if-Else, Nested if-Else, jump, goto, break,continue, switch statements. Loops: for, while, do-while. Function In C++: Main() function in c and c++. Parts Of Function- passing Arguments, return by reference, default argument, const argument, Inline Functions - Functions Overloading - Classes And Objects Classes In C++ - Declaring Objects - Defining Member Function - Static Member Variables And Function - Static Object - Friend Function - Overloading Member Function

UNIT-III [12 HOURS]

Constructors and Destructors: Characteristics of Constructor and Destructor, Constructor with arguments, overloading constructor, copy constructor, const objects, Destructor, Recursive Constructor. Operator Overloading Overloading Unary, Binary Operators, Operator Return Type, Overloading With Friend Function - Type Conversion - Inheritance Types Of Inheritance, Constructor, Destructor and Inheritance - Virtual Base Classes - Abstract Classes.

UNIT-IV [15 HOURS]

Pointer And Arrays: Pointer Declaration, Void and wild pointers, Pointer to class and object, this pointer, pointer to derived and base class, pointers to members, accessing private members with pointers. Arrays: Characteristics of Arrays, Initialization of Arrays using functions. C++ And Memory Models -The New And Delete Operator - Dynamic Objects - Binding In C++ - Polymorphism And Virtual Functions: Binding in C++, Pointer to Derived Class Object, Virtual Functions, Array of Pointers, Pure Virtual functions, Virtual Functions in Derived Class, Virtual Destructors.

UNIT –V [15 HOURS]

Applications with Files: File Stream Classes, Steps of File operations, File Opening Modes - Binary And ASCII Files, file pointers and manipulators, sequential Read and Write Operations - Command Line Arguments. Generic Programming with Templates: Need for Template, Definition Of Class Template, Normal Function Template, working of function template, class and function template with more arguments, overloading of template functions.Exception Handling: Principles of Exception Handling-The keywords try,throw and catch-Multiple catch statements-Rethrowing Exceptions.Working With Strings: Moving from

c to c++ string, declaring and initializing string objects, handling string objects, string attributes.

Text Book

1. Ashok N.Kamthane, Object-Oriented Programming With ANSI & Turbo C++ ,Pearson Education ,2006,India

Reference Book

1. John R. Hubbard, Programming with C++, Tata McGraw Hill, 2010.
2. Paul Dettel, Harvey Dett, C++ How to Program, PHI Learning Private Limited, 2010.

SECOND SEMESTER**PART III – CORE LAB 2: Object Oriented Programming with C++**

Maximum CIA : 30

Maximum CE : 70

Total Hours: 72

Objective:

To impart knowledge on C++ programming by using data structures concept

1. Write a C++ program to calculate basic arithmetic operations on two complex numbers using menu driven approach.
2. Write a C++ program to generate student mark list using class, and write member functions to read values, to compute total of 5 subjects, percentage obtained by the student and display grade based on the percentage of marks obtained.
3. Create a program to read an integer number and find the sum of all the digits until it reduces to a single digit using constructors, destructors and inline member functions.
4. Create two classes which consist of two private variables, a integer and a float variable. Write member functions to get and display them. Write a FRIEND Function common to both classes, which takes the object of above two classes as arguments and the integer and float values of both objects separately and display the result.
5. Programming using Function Overloading to read two Matrices of different Data Types such as integers and floating point numbers. Find out the sum of the above two matrices separately and display the sum of these arrays individually.
6. Create a class STRING. Write a Member Function to initialize, get and display strings. Overload the Operator “+” to Concatenate two Strings, “= =” to Compare two strings and a member function to find the length of the String.
7. Create a class which consists of EMPLOYEE Detail like ENumber, E-Name, Department, Basic, Salary, and Grade. Write a member function to get and display them. Derive a class PAY from the above class and write a member function to calculate DA, HRA and PF depending on the grade.
8. Write a C++ Program to Create a Class SHAPE Which Consists of Two VIRTUAL FUNCTIONS Calculate Area O and Calculate Perimeter O to Calculate Area and Perimeter of Various Figures. Derive Three Classes SQUARE- RECTANGLE. TRIANGLE from Class Shape and Calculate Area and Perimeter of Each Class Separately and Display the Result.
9. Develop a library information system in C++ with the base class named “Author” containing following information:
 - a. ISBN no
 - b. Title of the book
 - c. Author’s Name

And the derived class named “Pubdetails” which contains the following information:

- a. Publisher’s name
- b. Year of Publication
- c. Price of the book

Define functions to create the database and retrieve individual information as and when required.

10. Write a program to carry out the sum, difference, multiplication and division of rational numbers using operator overloading through member function.
11. Create a menu driven program to calculate student mark statement and store in file and read the contents of a file.
12. Write a program to find larger number among two numbers using Function template.

B.Sc. (Information Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2018 – 2019 onwards

THIRD SEMESTER

PART III : CORE 3: JAVA PROGRAMMING

Maximum CIA : 30

Maximum CE : 70

Total Hours: 60

Objective

Facilitate students to obtain a theoretical knowledge in Console and Windows Application Development through Java Programming.

Unit I: (12 Hours)

The History and Evolution of Java : The Creation of Java - How Java changed the Internet - Java's Magic: The Bytecode - The Java Buzzwords - The Evolution of Java – An overview of Java: Object Oriented programming - A first Simple program- Lexical Issues - Data Types, Variables and Arrays

Unit II: (12 Hours)

Operators, Control statements, Introducing classes – A Closer look at methods and classes- Overloading methods – using objects as parameters – Returning objects – recursion- Introducing Access Control - Understanding Static - Introducing final, Introducing nested and inner class – using command line arguments – Inheritance

Unit III: (12 Hours)

Packages and Interfaces: Packages - Access Protection - Importing Packages - Interfaces. Exception Handling: Exception Handling Fundamentals - Exception Types - Using Try and Catch - Multiple catch clauses - Finally - Java's Built-in Exceptions. Multithreaded Programming – String Handling – Networking

Unit IV: (12 Hours)

The Applet Class: Two types of Applet - Applet Basics - Applet Architecture - An Applet Skeleton - Requesting Repainting - using the Status Window - The HTML Applet Tag. Event Handling: Two Event Handling Mechanism - The Delegation Event Model - Event Classes - The Key Event Class - sources of Events - Event Listener Interfaces – Introducing the AWT: Working with Windows, Graphics and Text. Using AWT Controls, Layout Managers, and Menus.

Unit V: (12 Hours)

Introducing Swing: The Origin of Swing Swing is Built on the AWT - Two Key Swing Features - The MVC Connection - The Swing Package. Exploring Swing, Introducing Swing Menus. Introducing JavaFX GUI Programming, JavaFX Basic Concepts, JavaFX Application Skeleton, Compiling and Running a JavaFX Program.

TextBook

1. Herbert Schildt, Java- The Complete Reference, 9th edition, 2014, McGraw Hill Education , India.

Reference Books

1. Y. Daniel Liang, Introduction to Java Programming, 8th edition, 2011, Pearson Education, New Jersey.

B.Sc (Information Technology) Degree Examination-Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards

**THIRD SEMESTER
PART III : CORE 4 : DATA STRUCTURES**

Maximum CIA : 30

Maximum CE : 70

Total Hours: 60

Objective

To gain and enable the students to learn and acquire knowledge in Algorithms and Data Structures.

UNIT-I [12 HOUR]

Introduction: Basics terminologies – Data structures – Data structure operation – Algorithms. **Preliminaries:** Mathematical Notations and Functions - Algorithmic notation – Control structures – Complexity of algorithm - Other Asymptotic Notations for Complexity of Algorithms.

UNIT-II [12 HOUR]

Arrays, Records and Pointers: Linear Array - Representation of Linear Array in Memory - Traversing Linear Arrays - Inserting and Deleting - Multidimensional Arrays. **Linked list:** Representation of linked list in memory-Traversing a linked list-Searching a linked list - Memory allocation - Insertion into a linked list - Deletion from a linked list - Header linked list-Two way lists.

UNIT-III [12 HOUR]

Stacks – Queues – Recursion: Stacks – Array representation of stacks – Linked representation of stacks – Arithmetic Expression: Polished notation – Recursion – Towers of Hanoi – Queues – Linked representation of Queues – Deques - Priority queues.

UNIT- IV [14 HOUR]

Trees: Binary tree-Representing binary trees in memory-Traversing binary tree-Binary search tree-Searching and Inserting in Binary Search tree - Deleting in Binary Search Tree. **Graphs:** Introduction-Graph theory terminology-Sequential representation of graph - Linked Representation of Graph - Operations on graphs.

UNIT -V [10 HOUR]

Sorting And Searching: Introduction - Sorting - Insertion Sort - Selection Sort - Merging - Merge Sort - Radix Sort - Searching and Data Modification - Hashing.

Text Book

1. Seymour Lipshutz, "Data Structures with C", Tata McGraw hill, 2011.

References

1. John R. Hubbard, "Data Structure with Java", Schaum's Outline, Second Edition, 2011.
2. Clifford A. Shaffer, "Data Structures & Algorithm Analysis in Java", Dover Publications Inc, Third Edition, 2011

B.Sc. (Information Technology) Degree Examination - Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards

THIRD SEMESTER

PART III : CORE 5: COMPUTER ORGANIZATION AND ARCHITECTURE

Maximum CIA : 30

Maximum CE : 70

Total Hours: 60

Objective:

To impart knowledge about Computer Organization and Architecture

UNIT 1: [10 HOURS]

DATA REPRESENTATION - Data types – Number Systems – Octal and Hexadecimal Numbers – Decimal Representation – Alpha numeric representation – Complements – (r-1)'s complement – r's Complements – Fixed Point Representation – Other Binary Code - Logic Gates – Flip-flop.

UNIT 2: [12 HOURS]

REGISTER TRANSFER AND MICRO OPERATIONS - Register Transfer Language – Register Transfer – Bus and Memory Transfer – Arithmetic micro- operations – Logic micro-operations – shift micro- operations .**BASIC COMPUTER ORGANIZATION AND DESIGN** - Instruction code- Computer Registers – Computer Instructions – Timing and Control – Instruction cycle - Memory Reference Instructions .

UNIT 3: [13 HOURS]

CENTRAL PROCESSING UNIT - General Register Organisation – control word – **Stack Organisation** – Register stack – memory stack – Reverse Polish Notation – Evaluation of arithmetic expressions – **Instructions Formats** – Three Address – Two Address – One Address – Zero address instructions- **Addressing Modes** – **Data transfer and manipulation** – **Program Control** - **RISC** – CISC characteristics – RISC characteristics

UNIT 4: [13 HOURS]

INPUT OUTPUT ORGANIZATION - Input Output Organization – Peripheral Devices – Input Output Interface – Asynchronous Data Transfer - Priority Interrupt – Daisy Chaining Priority – Parallel Priority Interrupt – Priority Encoder - Direct Memory Access – Input Output Processor - CPU – IOP Communication.

UNIT 5: [12 HOURS]

MEMORY ORGANIZATION - Memory Organization – Memory Hierarchy – Main Memory – RAM and ROM chips- Memory Address Map – Memory connection to CPU Auxiliary Memory- Magnetic Disks – Magnetic tape - Associative Memory – Hardware Organization – Match Logic- Read – Write Operation - Cache Memory - Associative Mapping – Direct Mapping – Set Associative Mapping – Writing into Cache – Cache Initialization – Virtual Memory- Address Space and Memory Space – Address Mapping Using Pages Associative Memory Page Table – Page Replacement .

Text Book:

1. M.Morris Mano, Computer System Architecture , 3rd Edition , Pearson Prentice Hall , Eighth Impression , 2011

References Book:

1. William Stallings , Computer Organisation and Architecture , Designing for performance , 8 th Edition, Pearson Prentice Hall, 2012

**THIRD SEMESTER
PART III : CORE LAB 3: JAVA PROGRAMMING LAB**

Maximum CIA : 40

Maximum CE : 60

Total Hours: 60

Objective:

To impart knowledge on Java Programming

1. Create an Integer Array called Sort, read n values from user and sort the values and display it.
2. Create a class for Product object, identify the data of Product and read and print the values using separate functions. Create an instance and call the functions.
3. Create a program, read a number from the user and print Factorial of the number using recursive function, multiplication table of number till 10 using For iterative statement and Fibonacci series using while iterative statement till that number using Static functions.
4. Create a class Overloading and read five numbers from user through constructor and add first two numbers, three numbers, four numbers and five numbers using separate functions by illustrating method overloading.
5. Create a program to read the user information like Name, Gender, Date of Birth, Aadhar card number, through command line arguments and display it.
6. Create the following classes Student, Test, and Result and an interface Sports through separate packages. Result is derived from Test and Sports; Test is derived class of Student. Implement Hybrid inheritance and method overriding by defining data and methods to process student.
7. Create a program to illustrate Multithreading to print even and odd number using separate Threads.
8. Create an applet called Shapes; Draw any attractive object using geometrical objects and animate the shape.
9. Create a AWT Frame for performing Arithmetic Operations, read two numbers and perform operations by user preference and display the result in same frame.
10. Create a AWT Frame read two string and perform following String functions by choosing a option from Radio Button.
 - a. Check the equality of String and equal ignore case also
 - b. Compare the two string
 - c. Concatenate two string
 - d. Substring of first string
 - e. Convert the String into Uppercase and Lowercase
11. Create a Swing based network application to send the message from Sender to Receiver.
12. Create a MDI frame using Swing Components and perform the following operations
 - a. Find a number is Odd or Even and prime or not
 - b. Find a number is Armstrong number or not
 - c. Read a number, print its equivalent numeric word using switch
 - d. Read two number and perform binary OR and AND operations.

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FOURTH SEMESTER

PART IV: AOC – I: WEB DESIGNING

Maximum CE: 75

Total Hours: 36

Objectives: To make the students to get familiarized with the Web designing concepts.

Unit I: (6 Hours)

Introduction to HTML 5: What is Markup Language? The Simplest HTML Page Possible - An HTML Template - Understanding Elements and Attributes. Basic HTML. List and Tables.

Unit II: (7 Hours)

Introduction to CSS: CSS Selectors - CSS Files and Inline Styles - Specificity - Inheritance - Browser Default - Chrome Scratch Pad. Structuring Pages with CSS.

Unit III: (8 Hours)

HTML Forms: What is a Form? Adding Fields to a Form - HTML5 Input Fields. Semantic Tags: Grouping and Segmenting Content - Styling Semantic Tags with CSS - Microformats. HTML5 Validation. Drag and Drop. Dynamic Elements.

Unit IV: (7 Hours)

HTML5 Audio: File Formats - Audio Tag - Controlling Playback. HTML5 Video - File Formats - Controlling Volume - Controlling Playback Speed - Controlling Video Size - Media Source Extensions. Canvas: Simple Drawing - Drawing Lines - Circles and Curves - Drawing Text.

Unit V: (8 Hours)

Javascript: JavaScript Console - Data Types - Control Structure - Truthy and Falsy Values - Dynamic Typing. Functions. Objects. JSON. Document Object Model: Nodes and Objects. JQuery Selection.

Text Book:

1. Dane Cameron, HTML5, JavaScript, and jQuery 24-Hour Trainer, John Wiley & Sons, 2015.

Reference Books

1. John Dean, Web Programming with HTML5, CSS, and JavaScript, Jones & Bartlett Learning, 2018.
2. Charis Bates, “Web Programming Building Internet Applications”, Wiley India Pvt. Ltd. Second Edition, 2014

B.Sc IT Degree Examination-Syllabus for Candidates admitted from the Academic Year 2018-2019 Onwards

**THIRD SEMESTER
PART IV: AOC I –OFFICE AUTOMATION**

Maximum CE: 75

Total Hours: 36

OBJECTIVE:

Recognize when to use each of the Microsoft Office programs to create professional and academic documents.

Unit I: (7 Hours)

Explore Office 2016-Create and Manage Files- Microsoft Word 2016:-Modify the Structure and Collaborate on documents-Merge data with documents and labels.

Unit II: (7 Hours)

Microsoft Excel 2016:- Perform calculations on data- Change work book Appearance- Manage worksheet data-Reorder and summarize data – Combine data from multiple sources - Analyze alternative data sets.

Unit III: (7 Hours)

Microsoft Excel 2016:-Create Charts, Reports and Graphics- Create dynamic worksheets by using pivot tables- Automate repetitive tasks by using macros.

Unit IV: (7 Hours)

Microsoft PowerPoint 2016:- Create and Manage slides- Insert and Manage simple graphics-Add sound and movement to slides.

Unit V: (8 Hours)

Microsoft Outlook 2016:-Send and receive email messages – Organize your inbox- Manage scheduling. Microsoft Access 2016: Access Building Blocks-Understanding Access tables –Working with Access Queries-Working with Access forms and reports.

TEXT BOOKS

1. Joan Lambert and Curtis Frye, Microsoft Office 2016 Step by Step, 2nd Edition, Microsoft Press,2016. [Unit I, II, IV]
2. Joan Lambert and Curtis Frye, Microsoft Excel 2016 Step by Step, 2nd Edition, Microsoft Press,2016. [Unit III]
3. Michael Alexander, Richard Kusleika, Access 2016 Bible The Comprehensive Tutorial Resource, John Wiley & Sons, Inc,2016. [Unit V]

Reference Book

1. Bittu Kumar, Microsoft Office 2010, V& S Publishers, 2015.

B.Sc. (Information Technology) Degree Examination - Syllabus for candidates admitted from the academic year 2015– 2016 onwards**THIRD SEMESTER
LINUX OS****CREDIT : 2
Maximum Marks: 100****Objective:**To impart knowledge about Linux Os.**UNIT – I**

Introduction to Linux Operating System- Kernel – Distinguished Applications-Command Interpreter- Difference between DOS and Unix- Linux and Open Source Movement – Why Linux is popular? – Salient features. Introduction to Linux File Systems- File and Directory Naming – Linux Directory Tree Man Pages – The First Command “cat”.

UNIT – II

Shells – Basic Commands- Using Directory Commands – Intermediate Commands – Changing Your password and Shell – Dot Files- Environment and Shell Variables – command path – Special characters – Command Line Editing – Text Editors – Processes – file modes and permissions.

UNIT-III

Devices, Disk, File Systems and Kernel : Directory Hierarchy- Kernel – Devices – File Systems- Swap and Virtual Memory.

UNIT-IV

Introduction to Shell Scripts: Shell Script basics- Quoting – Special variables – Exit codes – Conditionals – Loop – Command Substitution – Temporary file Management- Here Documents.

UNIT –V

Shell Utilities and Development Tools: Shell Script Utilities- Sub Shells – Including other files in scripts – Reading User Input – The C Compiler – Multiple Source files – Header Files and Directories – Linking with Libraries – Make- Debuggers – LEX and Yacc Compiler – Scripting Languages – PERL – PYTHON – Other Scripting Languages.

Text Book:

- 1) N.B . Venkateswarlu, “Introduction to Linux Installation and Programming”- B.S. Publications, 2011.

B.Sc (Information Technology) Degree Examination-Syllabus- for candidates admitted from the Academic Year 2018 – 2019 and onwards

FOURTH SEMESTER

PART III: CORE 6: MIDDLEWARE TECHNOLOGIES

Maximum Marks: 70

Total Hours: 60

Objective: To Utilize the Oracle JEE Architecture for Creating Comprehensive Multi-Tiered Application using Java and to convey the Web Application Framework through JSF and Angular JS.

Unit I: (12 Hours)

Java Remote Method Invocation: Remote method Invocation concept – Server side – Client side. Classic Memories: JDBC - Introduction to JDBC - Structured Query Language - The JDBC APIs - Library Application Using JDBC.

Unit II: (12 Hours)

The Big Picture: Java EE Architecture, The Many Variations of Java EE Applications. Java Servlets and Web Applications: Foundations of the Web Tier: The HTTP Protocol - Introducing Java Servlets - Example Java Servlet Application: Photo Application - Understanding the Java Servlet API - Web Applications - Java Servlets: The Good and the Bad.

Unit III: (12 Hours)

Dynamic Web Pages: JSP - JSP Runtime Architecture - A JSP Clock - JSP Syntax - JSP Directives - Using Java Beans from JSPs - The Java Environment for JSPs - JSP Standard Tags - Custom Tag Libraries: Tag Libraries vs. JavaBeans - Expression Language. The Fundamentals of Enterprise Beans: Introduction to Enterprise Beans - Hello Enterprise Beans - Flavors of Enterprise Beans - Exposing Enterprise Beans - Finding Enterprise Beans - Finding Message-Driven Beans - Finding Session Beans - EJB Lifecycle - Packaging Enterprise Beans

Unit IV: (12 Hours)

Java Server Faces Life cycle: Introduction to JSF - The MVC design pattern - Facelets - The request processing lifecycle. Building JSF Forms: Create, Retrieve, Update and Delete - A basic create entity JSF form - JSF Custom Tags - Displaying a list collection objects - JSF and CDI Scopes

Unit V: (12 Hours)

JSF Validation and AJAX: Validation Methods - Faces Messages - Validation - A Partial JSF lifecycle - Handling views. Angular JS and Java RESTful Services: Single-page applications - The caseworker application - Angular JS - Caseworker overview - Project organization - Application main controller - New case record controller- New task record controller - State Change - Server-side Java.

Text Book

1. Jim Keogh, "The Complete Reference J2EE", Tata McGraw-Hill Edition 2002. [Unit 1, Chapter 1]
2. Dr. Danny Coward., "Java EE 7: The Big Picture", Oracle Press, October 2014. [Unit - 1 Chapter 2] [Unit - 2, Unit - 3]
3. Peter Pilgrim, "Digital Java EE 7 Web Application Development", PACKT Publishing, 2015. [Unit 4, Unit 5]

Reference:

1. Michael Muller, "Practical JSF in Java EE 8: Web Applications in Java for the Enterprise", APress, 2018.

B.Sc.(Information Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards

FOURTH SEMESTER

PART III : CORE 7:COMPUTER NETWORKS

Maximum CIA : 30

Maximum CE : 70

Total Hours: 60

Objective

To inculcate knowledge on networking concepts and technologies like wireless, broadband and Bluetooth.

UNIT – I

[12 HOUR]

Network Hardware: LAN-WAN-MAN- Wireless Networks-Home Networks-Internetworks. **Network Software:** Protocol Hierarchies-Design Issues For The Layers- Connection-Oriented And Connectionless Services - Service Primitives-The Relationship Of Services To Protocols. **Reference Models:** OSI Reference Model-TCP/IP References Model – Comparison of OSI and TCP/IP

UNIT – II

[12 HOUR]

Physical Layer: Guided Transmission Media: Magnetic Media-Twisted Pair-Coaxial Cable-Fiber Optics. **Wireless Transmission:** Electromagnetic Spectrum-Radio Transmission-Microwave Transmission-Infrared and Millimeter Waves-Light Waves. **Communication Satellites:** Geostationary, Medium – Earth Orbit, Low Earth Orbit Satellites-Satellites versus Fiber. **The Public switched telephone network:** Structure of the telephone system-Trunks and multiplexing.

UNIT – III

[12 HOUR]

Data Link Layer: Error Detection and Correction-Elementary Data Link Protocols- Sliding Window Protocols-**Medium Access Control Sub Layer:** Multiple Access Protocols-Wireless LANs-Bluetooth.

UNIT – IV

[12 HOUR]

Network Layer: Routing Algorithms: The Optimality Principle-Shortest Path Algorithm- Flooding-Distance Vector Algorithm- Link state Routing-Hierarchical Routing-Broadcast Routing, Multicast Routing-Routing for Mobile Hosts, Routing in Adhoc Networks-Node Lookup in peer to peer Networks – **Congestion Control Algorithms:** General Principles of Congestion Control- Congestion Prevention Polices- Congestion control in virtual circuit subnets-Congestion control in datagram subnets-Load Shedding- Jitter Control.

UNIT – V

[12 HOUR]

Transport Layer: Elements of Transport Protocols- Internet Transport Protocols UDP- Internet Transport Protocols TCP-**Application Layer:** DNS-Electronic Mail-The World Wide Web.

Text Book

1. Andrew S.Tanenbaum, David J. Wetherall, Computer Networks, 5th Edition, Tata McGraw-Hill Publishing Company Limited, 2011, India.

Reference Book

1. Larry L. Peterson, Bruce S. Davie , ”Computer Networks: A Systems Approach”, 5th edition, Elsevier publication ,2012 , USA

B.Sc(Information Technology) Degree Programme -Syllabus- for candidates admitted from the Academic Year 2015 – 2016 onwards

FOURTH SEMESTER

PART III : CORE 8 : OPERATING SYSTEM

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objective

Enabling Students to learn basic concept of operating systems

UNIT-I

[12 HOURS]

Introduction : What Is an Operating System – Early History 1940s and 1950s –1960s-1970s-1980s-1990s-2000 and beyond-Operating System Environment-Operating System Components and goals – Operating System Architecture. **Process Concepts:** Introduction-Process States: Lifecycle of a process-Process Management-Interrupts- IPC-Case studies UNIX Process.

UNIT – II

[12 HOURS]

Asynchronous Concurrent Execution: Introduction-Mutual Exclusion-Implementing Mutual Exclusion Primitives-Software solutions to the mutual exclusion problem- Dekkers algorithm – Petersons algorithm- Hardware solutions to the mutual exclusion problem – semaphores. **Deadlock and Indefinite Postponement:** Introduction-Examples of DeadLock-Resource Concepts- Four Necessary Conditions for Deadlock-DeadLock Solutions- DeadLock Prevention-DeadLock Avoidance with Dijkstra’s Algorithm-DeadLock Detection-DeadLock Recovery.

UNIT – III

[12 HOURS]

Process Scheduling: Scheduling Levels-Preemptive Vs Non-Preemptive Scheduling-Priorities-Scheduling Objectives-Scheduling Criteria-Scheduling Algorithm-Deadline Scheduling-Real Time Scheduling.**Real Memory Organization and Management:** Introduction-Memory Organization-Memory Management- Memory Hierarchy-Memory Management Strategies- Contiguous Vs Non-Contiguous Memory Allocation-Single User Contiguous Memory Allocation- Fixed Partition Multi Programming-Variable Partition Multi Programming.

UNIT – IV

[12 HOURS]

Virtual Memory Organization: Virtual Memory Basic Concepts-Block Mapping-Paging-Segmentation-Segmentation/Paging System.**Virtual Memory Management:** Locality-Demand Paging-Anticipatory Paging-Page Replacement- Page Replacement Strategies – Working set model – Page Fault Frequency page replacement – Page replace – Page size

UNIT – V

[12 HOURS]

Disk Performace Optimization: Evolution of Secondary Storage – Characteristics of Moving Head Disk Storage – why Disk Scheduling is necessary – Disk Scheduling Strategies – Rotational Optimization. **File and Database Systems:** Data Hierarchy – Files – File Systems – File Organization – File Allocation- Free space Management – File Access Control – Data Integrity Protection – File Servers and Distributed Systems

Text Books:

1. Harvey M. Deitel, Paul J.Deitel, David R.Choffness, "Operating System" Third Edition, Pearson Education India, Eighth Impression 2012.

Reference Books:

1. Andrew S.Tanenbaum, Albert S.Woodhull, “Operating Systems design and implementation”, Third Edition, PHI Learning private limited , India, 2012.

B.Sc(Information Technology) Degree Examination-Syllabus- for candidates admitted from the Academic Year 2019 – 2020 and onwards

FOURTH SEMESTER

Part III: Core Lab 4 : MIDDLEWARE TECHNOLOGIES LAB

Maximum Marks:100

Total Hours : 60

Objective: To enhance the students to learn and develop client/ server and web based application development using Java with Enterprise edition.

1. Create a Window based RMI application to illustrate Relational operators by reading a numbers in Client and finding relation in Server.
2. Develop distributed applications by implementing Internationalization creating two servers by one with date format and other with location format.
3. Develop an application for Bus Reservation System by Registering Bus Information and Seat Reservation and store in database.
4. Create a web application using Servlet and HTML formatting tags to display user Bio-data by specifying user information, academic detail, area of interest and extra-curricular activities.
5. Create a web application illustrate the use of Servlet configuration by storing and retrieving input parameters in web.xml file.
6. Design a Web Application to illustrate the usage every types of JSP tags with associated Java statements.
7. Design a web application using JSP to read Register number, name, 12 STD marks and generate a printable mark statement.
8. Design a Web Application to generate Employee Payroll with PF, HRA, DA and Net pay based on basic pay, Read the employee information using JSP with validation and calculate and generate payroll using Servlet
9. Design a Web Application for DML operations for Voter ID registration, read the various values through JSP and store in Database through Servlet.
10. Develop a web application to illustrate the Middleware technology by create a Session Bean to perform AND, OR logical operations of two numbers using separate functions and call the functions through Servlet and JSP.
11. Design a web application using JSF for online examination application form, read the various values from user and display in second page.
12. Design a JSF application with JDBC to help bank employees for Customer registration, updation and view the customer with validation.

B.Sc (Information Technology) Degree Examination-Syllabus-for candidates admitted from the Academic Year 2018-2019 Onwards**FOURTH SEMESTER****PART IV: AOC – II : WEB DESIGNING LAB**

Maximum CE :75

Total Hours :36

OBJECTIVES

To make the students to get comfortable with the Web designing concepts.

1. Develop a HTML document to list out various countries in the world. Make them as a hypertext and describe about each country when it is clicked.
2. Write a HTML document to print your class Time Table.
3. Develop a Complete Web Page using Frames and Framesets which gives the Information about a Hospital using HTML.
4. Develop a HTML document to display a Registration Form for an inter-collegiate function.
5. Develop a html page to create a calendar using javascript by getting the year from the user which displays all month
6. Design a dynamic web page with validation using JavaScript.
7. Design a web page to display canvas with different shapes, audio and video content.
8. Develop a html document which changes the background color on each click of a button or refresh of a page
9. Develop a program to create an html page to demonstrate exception handling in Java Script.
10. Develop a html document to display a new image & text when the mouse comes over the existing content in the page.
11. Develop a html document to perform sorting of array elements in ascending order using java script
12. Write a JavaScript program to design a simple calculator to perform the following operations: sum, product, difference and quotient.

B.Sc (Information Technology) Degree Examination-Syllabus for Candidates admitted from the academic year 2018-2019 Onwards

FOURTH SEMESTER

PART IV:AOC II LAB: OFFICE AUTOMATION LAB

MAXIMUM MARKS:75

TOTAL HOURS: 36

OBJECTIVE: Use Microsoft Office programs to create personal, academic and business documents following current professional and/or industry standards.

MS-WORD

1. Prepare a newspaper for two column format (Page which includes border, background, Pictures, Header and Footer)
2. Prepare a document with the aid of drawing objects.
3. Preparing a job application letter enclosing Detailed Resume. Performing Mail Merger Operation.

MS – EXCEL

4. Creating a Worksheet Using Formulas for a pay roll preparation.
5. Calculating electricity bill using formulas.
6. Drawing graphs to illustrate class performance of semester marks result analysis.

MS- POWER POINT

7. Designing an advertisement campaign with minimum three slides.
8. Preparing a power point presentation for grouping and ungrouping concept with minimum three slides.
9. Prepare 10 to 15 slides on any of the topic of current IT trend with all necessary formats.
10. Prepare 10 slides for an Advertisement Company to exhibit its features.

MS ACCESS

11. Simple commands perform sorting on name, place and pin code of students database and address printing using label format.
12. Create a database for Library Information System and Create necessary Query, Forms, and Reports.

B.Sc. (Information Technology) Degree Examination - Syllabus for candidates admitted from the academic year 2015– 2016 onwards**FOURTH SEMESTER
Animation Technique****CREDIT : 2****Maximum Marks: 100**

Objective: On the successful completion of the course, the students should have understood the key features of Animation technique, learnt the Animation development for future development of application.

UNIT I

Introduction to Flash CS4-New Features in Flash CS4-Creating a New Flash File-Exploring Flash CS4 Interfaces-Working With Workspace-Setting the Stage-Saving the Flash File- Closing the Flash File-Opening an Existing Flash File.

Getting Started with Drawing Tools-Exploring Drawing Modes in Flash-Working with Drawing Tools in Flash-Using Colors in Flash.

UNIT II

Selecting Object in Flash-Moving-Copying-Deleting & Editing an Object-Transforming Object-Working with Text in Flash-Editing Text Field-Working with TIMELINE-Frames & Keyframes-Layer & Layer Folder .

UNIT III

Using Symbols, Instance and the Library – Creating –Modifying Symbols-Instance-about Library-Working With Sound and Video.

UNIT IV

Creating Animation –Creating Motion Tweens -Editing the Motion Path-Motion Present in Flash-Frame by Frame Animation –Shape Tweening in Flash.

UNIT V

Working with Advanced Animation-Understanding Bones-Animating an Armature-Exploring 3D Animation – Working with Action Script-ACTION Panel Overview-Resizing the Action Toolbox or script pane

TEXT BOOK

1. Kogent, “Flash CS4 in Simple Steps”, Dreamtech Press, 2011.

B.Sc.(Electronics and Communication Systems) Degree Examination – Syllabus for candidates admitted from the Academic Year 2015 – 2015 onwards

FOURTH SEMESTER

CORE X : VISUAL PROGRAMMING

Total Hours: 36

Objective : After Successful Completion of the Course the Students Acquire Knowledge about Visual Programming and Able To Program the Applications Using VB and VC++

UNIT- I [7 HOUR]

Essentials of VB.NET: Putting Visual basic to Work – What’s New in VB.Net – Upgrading from Visual Basic 6.0 – The .Net Framework and the Common Language Runtime – Building VB.Net Applications – The Visual Basic IDE – Coding to get Most from Visual Basic

UNIT- II [7 HOUR]

The Visual Basic Language: Operators, Conditionals and Loops

UNIT- III [8 HOUR]

Windows forms, Windows Forms: Textboxes, Rich Text boxes, Labels and Link Labels – Check box – Radio Button – Panels and Group Boxes

UNIT- IV [7 HOUR]

Windows forms: List boxes, Checked listboxes, Comboboxes, and picture boxes, Scrollbars Splitters, Track bars, Pickers, Notify Icons, Tool tips, and Timers, Menus, Built –in Dialog boxes and Printing

UNIT- V [7 HOUR]

Data Access with ADO.Net, Handling Database in Code

Text Book

1. Steven Holzner, “Visual Basic.Net Programming”, Dreamtech Press, 2014.

References Books

1. Michael Halvorson, Microsoft Visual Basic .NET, Deluxe Learning Edition, 2011, New Delhi.

B.Sc.(Electronics and Communication Systems) Degree Examination – Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards

FIFTH SEMESTER

CORE XIV: INTERNET & JAVA PROGRAMMING

Total Hours: 36

Maximum Marks: 75

Objective : After successful completion of the course the students should Gain knowledge about the concepts of Internet and able to program the applications using Java.

UNIT I [7 HOUR]

Internet – Introduction- Defining the internet- Using the internet- History of the internet- Connecting to the internet-Browsing the web: Introduction- Websites, web pages , and web servers-IP address, Domain names and URL-web browsers.

UNIT II [7 HOUR]

Elementary Programming – Selections- Loops

UNIT III [8 HOUR]

Methods-Single Dimensional Arrays-Multidimensional Arrays.

UNIT IV [7 HOUR]

Objects and Classes- Strings and Text I/O- Inheritance and Polymorphism

UNIT V [7 HOUR]

Exception Handling- Abstract Classes and Interfaces- Applets and Multimedia

Text Books

1. Gary B. Shelly, Jennifer Campbell, Discovering the Internet, Nicol Pinard Publishing, 4th Edition, 2012,USA
2. Y. Daniel Liang, Introduction to Java Programming, 8th edition, 2011, Pearson Education, New Jersey.

Reference Book

1. Adrian McEwen, Hakim Cassimally , Designing the Internet of Things, 2014 John Wiley and sons Ltd,UK.

B.Sc.(Electronics and Communication Systems) Degree Examination – Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards

PART IV: EDC1: HTML

Total Hour: 24

Maximum Marks:50

Objective: Enabling students to acquire theoretical and practical knowledge to be successful in internet and web designing.

UNIT-I

[5 HOUR]

Introduction: HTML, XML, and the World Wide Web. **HTML:** Basic HTML – The Document Body – Text – Hyperlinks – Adding More Formatting – Lists – Tables – Using Color and Images – Images.

UNIT-II

[5 HOUR]

More HTML: Multimedia Objects – Frames – Forms – Toward Interactivity – The HTML Document Head in Detail – XHTML – An Evolutionary Markup. **Cascading Stylesheets:** Introduction – Using Styles – Defining Your own Styles – Properties and Values in Styles – Stylesheets – A Worked example – Formatting Blocks of Information.

UNIT-III

[5 HOUR]

An Introduction to Java Script: What is Dynamic HTML? JavaScript – JavaScript – The Basics - Variables – String Manipulation – Mathematical Functions – Statements – Operators – Arrays - Functions

UNIT-IV

[5 HOUR]

Objects in JavaScript: Data and Objects in JavaScript – Regular Expression – Exception Handling – Builtin objects – Events.

UNIT-V

[4 HOUR]

Dynamic HTML with JavaScript: Data Validation – Opening New Window – Messages and Confirmations – The Status Bar – Writing to Different Frame – Rollover Buttons – Moving Images – Multiple Pages in a Single Download – A Text-only Menu System – Floating Logos.

Text Book:

1. Charis Bates, “Web Programming Building Internet Applications”, Wiley India Pvt. Ltd. Second Edition, 2011
2. Jon Duckett , Beginning Web Programming with HTML, XHTML, and CSS,2011, Wiley Publishing Inc,US

REFERENCE BOOKS

1. Elisabeth Robson, Eric Freeman Head First HTML and CSS, 2nd edition O’Reilly Media Inc.,Canada, 2012.

B.Sc (Mathematics) Degree Examination – Syllabus – for candidates admitted from the Academic Year 2015-16 onwards

**SEMESTER III
PART IV: EDC1: BASICS OF INTERNET**

**Total Hour: 24
Maximum Marks:50**

Objective: Enabling students to acquire theoretical and practical knowledge to be successful in internet and web designing.

UNIT-I [5 HOUR]

Introduction: HTML, XML, and the World Wide Web. **HTML:** Basic HTML – The Document Body – Text – Hyperlinks – Adding More Formatting – Lists – Tables – Using Color and Images – Images.

UNIT-II [5 HOUR]

More HTML: Multimedia Objects – Frames – Forms – Toward Interactivity – The HTML Document Head in Detail – XHTML – An Evolutionary Markup. **Cascading Stylesheets:** Introduction – Using Styles – Defining Your own Styles – Properties and Values in Styles – Stylesheets – A Worked example – Formatting Blocks of Information.

UNIT-III [5 HOUR]

An Introduction to Java Script: What is Dynamic HTML? JavaScript – JavaScript – The Basics - Variables – String Manipulation – Mathematical Functions – Statements – Operators – Arrays - Functions

UNIT-IV [5 HOUR]

Objects in JavaScript: Data and Objects in JavaScript – Regular Expression – Exception Handling – Builtin objects – Events.

UNIT-V [4 HOUR]

Dynamic HTML with JavaScript: Data Validation – Opening New Window – Messages and Confirmations – The Status Bar – Writing to Different Frame – Rollover Buttons – Moving Images – Multiple Pages in a Single Download – A Text-only Menu System – Floating Logos.

Text Book:

1. Charis Bates, “Web Programming Building Internet Applications”, Wiley India Pvt. Ltd. Second Edition, 2011
2. Jon Duckett , Beginning Web Programming with HTML, XHTML, and CSS,2011 , Wiley Publishing Inc,US

REFERENCE BOOKS

1. Elisabeth Robson, Eric Freeman Head First HTML and CSS, 2nd edition O’Reilly Media Inc.,Canada, 2012.

**FIFTH SEMESTER
PART III: CORE 9: .NET FRAMEWORK**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Course Objective: To impart knowledge on .NET programming Using C#.

Unit I: (12 Hours)

Getting started with .Net Framework 4.5: – Evolution of .Net – Benefits of .Net Framework - Architecture of .Net Framework 4.5– Introducing Visual Studio 2012: Installing Visual Studio 2012- Exploring Visual Studio 2012 Ultimate IDE-Performing Basic IDE Operations.

Unit II: (12 Hours)

Introducing C# 5.0 in VS 2012: Need of C# –Creating Simple C# 5.0 Console Application – Identifiers and Keywords – Data Types, Variables and Constants – Namespaces-The System Namespace– Constructors and Destructors – Static Class and Static Class Member –Object-Oriented Programming: – Encapsulation – Inheritance – Polymorphism – Abstraction – Interfaces- Exception Handling: Exception Handling.

Unit III: (12 Hours)

Introducing Windows Presentation Foundation: Understanding WPF 4.5 Architecture-Exploring WPF 4.5 Designer Interface-Working with Dialog Boxes in WPF Applications. Working with WPF 4.5 Controls: Adding WPF Controls-Introducing Different type of Controls in WPF-Using WPF Controls.

Unit IV: (12 Hours)

Data Access with ADO.Net : – Understanding Databases – Understanding SQL – Understanding ADO.Net – Data Reader- Creating Connection String – Creating a Connection to a Database – Creating Command Object – Working with Data Adapters – Using DataReader to Work with Databases.

Unit V: (12 Hours)

ASP.NET 4.5 Essentials:Describing the ASP.NET Technologies-Describing the ASP.NET Lifecycle-Creating a Simple ASP.NET Web Application- Creating a Simple ASP.NET Web Site. Web Forms: Standard Controls: The Control Class-The HiddenField Control-The FileUpload Control-The Hyperlink Control. Navigation Controls: The TreeView Control-The Menu Control.

Text Book :

1. .Net 4.5 Programming (6 in 1) Black Book, Kogent, DreamTech Press

Reference Book:

1. “Net Framework And C# Programming”, Tanweer alam, A.B. Publication.
2. “Mastering C# and .NET Framework”,Marino posadas, Packt Publishing Limited.

B.Sc (Information Technology) Degree Examination - Syllabus for candidates admitted from the academic year 2015 – 2016 onwards

**SEMESTER – V
PART III : CORE 10 – MOBILE COMPUTING**

Maximum CIA : 30
Maximum CE : 70
Total HOUR: 60

UNIT I (12 HOUR)
Mobile Computing Architecture: History of Computers and Internet –The Ubiquitous Network.The Architecture for Mobile Computing – Three-Tier Architecture – Design Considerations for Mobile Computing.

UNIT II (12 HOUR)
Mobile Computing Through Telephony: Evaluation of Telephony – Multiple Access Procedures — IVR Application – Voice XML – TAPI. EMERGING TECHNOLOGIES: Blue Tooth – RFID – WiMAX – Mobile IP – IPv6 – Java Card.

UNIT III (12 HOUR)
GSM : Global System for Mobile Communications – GSM Architecture – GSM Entities – Call Routing in GSM – PLMN Interfaces – GSM Addresses and Identifiers – Network Aspects in GSM – GSM Frequency Allocations – Authentications and Security.

UNIT IV (12 HOUR)
GPRS – GPRS and Packet Data Network – GPRS Network Architecture – GPRS Network Operations – Data Services in GPRS – Application for GPRS Limitations. WAP- MMS – GPRS Applications

UNIT V (12 HOUR)
CDMA and 3G: Spread Spectrum Technology – Is 95 – CDMA Vs GSM –Wireless Data – Third Generation Networks – Applications on 3G WIRELESS LAN: Wireless LAN Advantages – IEEE 802.11 Standards Architecture – Mobile in Wireless LAN. 4G Fundamentals and Composite Radio Environment – 4G Protocol Boosters – Green Wireless Network

TEXT BOOK:

1. Asoke K Talukder, Roopa R Yavagal , “Mobile Computing”, TMH, 2010. [Unit I – IV]
2. Savo Glisic, Beatriz Lorenzo, “Advanced Wireless Networks: Cognitive, Cooperative & Opportunistic 4G Technology”, John Wiley and Sons Ltd, 2009. [Unit V]

REFERENCE BOOKS:

1. Jochen Schiller, “Mobile Communications”, PHI/Pearson Education, 2nd Edition , 2003.
2. V.Jeyasri ArokiaMary, “Mobile Computing”, 2nd Revised Edition, Technical Publications, 2008, Pune.

B.Sc.(Information Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards**FIFTH SEMESTER****PART III : CORE 11: SOFTWARE ENGINEERING**

Maximum CIA : 30

Maximum CE : 70

Total HOUR: 60

Objective

Understand the software life cycle models, understand the importance of the software development process, understand the importance of modeling and modeling languages, Design and develop correct and robust software products

UNIT I (12 HOUR)

Introduction to Software Engineering: The Evolving Role of Software – Software – The Changing nature of Software. Process Models: Prescriptive Models – The Waterfall Model – Incremental Models – Evolutionary Process Models – Specialized Process Models.

UNIT II (12 HOUR)

An Agile view of Process: What is Agility? What is an Agile Process? Agile Process Models. Requirement Engineering: A Bridge to Design and Construction – Requirement Engineering Tasks – Initiating the Requirement Engineering Process – Developing Use-Cases

UNIT III-DESIGN (12 HOUR)

Object Oriented Methodologies: Rumbaugh et al.'s Object Modeling Technique – The Booch Methodology – The Jacobsons et al. Methodologies. Unified Modeling Language: Introduction – Static and Dynamic Models – Why Modeling? Introduction to the Unified Modeling Language – UML Diagrams – UML Class Diagram – Use-Case Diagram.

UNIT IV (12 HOUR)

UML Dynamic Modeling: UML Interaction Diagrams – UML Sequence Diagram – UML Collaboration Diagram – UML Statechart Diagram – UML Activity Diagram – Implementation Diagram. Model Management: Packages and Model Organization – UML Extensibility – UML Meta-Model.

UNIT V (12 HOUR)

Testing Strategies: Strategic Approach to software Testing – Strategic Issues – Test Strategies for Conventional Software – Test Strategies for Object oriented software, Validating Testing – System Testing – Art of Debugging. Project Management: The Management Spectrum – The People – The Product – The Process – The Project – The W⁵HH Principle.

TEXT BOOKS:

1. Roger S. Pressman, "Software Engineering – A Practitioner's Approach", Tata McGraw Hill, Sixth edition, 2012. [Unit I, II, V]
2. Ali Bahrami, "Object Oriented Systems Development", Tat Mc Graw Hill, 2008. [Unit III, IV]

REFERENCE BOOKS:

1. Hans Van Vliet, "Software Engineering: Principles and Practices", 2008.

B.Sc.(Information Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards**FIFTH SEMESTER
PART III : CORE 12: RDBMS**

Maximum CIA: 30

Maximum CE: 70

Total HOUR: 60

OBJECTIVES

To present an introduction to database management systems (DBMS), with an emphasis on how to organize, maintain and retrieve efficiently, and effectively the information from a DBMS.

UNIT I - INTRODUCTION (12 HOUR)

Introduction – Databases System applications- Purpose of Database systems –View of Data– Database Languages – Relational Databases- Database Design – Data Storage and Querying – Transaction Management – Database Architecture – Database Users and Administrators – Introduction to the Relational Model – Structure of Relational Databases – Database Schema – Keys – Schema Diagram

UNIT II- Introduction to SQL (12 HOUR)

Overview of SQL query Language – SQL Data definition – Basics structure of SQL queries – Additional Basic operations – Set Operations – NULL Values – Aggregate Functions- Nested Subqueries – Modification of Databases . Intermediate SQL – Join Expressions- Views – Transactions – Integrity Constraints . Advanced SQL – Functions and Procedures – Triggers . Relational Algebra – Tuple Relational Calculus- Domain Relational Calculus.

UNIT – III Database Design and ER Model (12 HOUR)

Overview of Design Process – The Entity Relational Model – Constraints – Removing Redundant Attribute in Entity Set – Entity Relationship Diagram- Entity Relationship design issues – Extended ER Features. Relational Database Designs – Features of good Relational Design – Atomic Domains and First Normal Form – Decomposing using Functional Dependency (2NF,3NF,BCNF)

UNIT IV-Storage and File Structures (12 HOUR)

File Organization – Organization of Records and Files – Data Dictionary storage – Indexing and Hashing – Basic Concepts – Ordered Indices – B + Tree Index Files – B+ Tree Extensions- Multiple Key Access – Static Hashing – Dynamic Hashing- Comparison of Ordered Indexing and Hashing – Bitmap Indices – Index Definition in SQL.

UNIT V- Transaction Management and Failure Recovery System (12 HOUR)

Transaction concept – Simple Transaction Model – Storage Structure – Transaction Atomicity and Durability- Transaction isolation – Serializability. Recovery Systems – Failure Classification- Storage- Recovery and Atomicity – Recovery Algorithm – Buffer Management- Failure with loss of Non volatile storage.

TEXT BOOKS:

1. Henry F. Korth, Abraham Silberschatz, Sudarshan S, "Database System Concepts", 6th Edition, Tata McGraw-Hill Education, 2010.

REFERENCE BOOKS:

1. Hector Garcia-Molina, Jeff Ullman, and Jennifer Widom, "Database Systems: The Complete Book" - Pearson Education, 2002.

2. Paul Wilton, John W. Colby, "Beginning SQL". - Wiley Publishing, Inc., 2005.

FIFTH SEMESTER**PART III: CORE Lab 5: .NET Framework Lab**

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Course Objective: To provide knowledge in developing .Net Framework Applications using C#.

1. Create a Console application in C# to design a simple calculator using if else if Statements.
2. Create a Console application in C# to make a simple ATM machine.
3. Create a sample application to demonstrate the basic DML Operations.
4. Create a sample application to implement Dialog Boxes.
5. Create a sample application to generate an auto password at the time of user registration.
6. Create a sample application for conducting a general knowledge test.
7. Create a sample application to Perform Record Navigation.
8. Create a sample application to Handle the Exceptions.
9. Create a sample application for bus ticket reservation using MDI form with Menus.
10. Create a sample application to generate a data report for Customer Details.
11. Create a sample Web application to develop a webpage for College using CSS.
12. Create a Sample Web Application to Implement the Concept of Validation Control at the time of User Registration.

B.Sc.(Information Technology) Degree Examination - Syllabus for candidates admitted from the academic year 2018 – 2019 onwards**FIFTH SEMESTER
PART III: Elective 1: IOT**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Course Objective:

To enable the student to understand the importance of IoT based communication technologies, IoT Protocols and Emerging Applications of IoT.

Unit- I (12 Hours)

Demystifying the IoT Paradigm: IoT Is Strategically Sound - Brewing and Blossoming Trends in IT Space - Envisioning the IoT Era - Device-to-Device/ Machine-to-Machine Integration Concept - Aspect of Device-to-Cloud (D2C) Integration - Emergence of IoT Platform as a Service (PaaS) - Key Application Domains - Emerging IoT Flavors.

Unit- II (12 Hours)

Realization of IoT Ecosystem Using Wireless Technologies: Architecture for IoT Using Mobile Devices - Mobile Technologies for Supporting IoT Ecosystem - Energy Harvesting for Power Conservation in IoT System - Mobile Application Development Platforms - Mobile Use Cases for IoT - Low Power Wide Area Networking Technologies - Weightless.

Unit – III (12 Hours)

Infrastructure and Service Discovery Protocols: Layered Architecture for IoT - Protocol Architecture of IoT - Infrastructure Protocols - Routing Protocol - Bluetooth Low Energy - Device or Service Discovery for IoT - Protocols for IoT Service Discovery - Prominent IoT Service Discovery Products.

Unit – IV (12 Hours)

Integration Technologies and Tools for IoT Environments: IoT Portion for Smarter Enterprises and Environments - Sensor and Actuator Networks - IoT Device Integration Concepts, Standards, and Implementations - Device Integration Protocols and Middleware - Protocol Landscape for IoT.

Unit – V (12 Hours)

Case studies illustrating IoT Design: Introduction-Home Automation-Cities-Environment-Agriculture-Productivity Applications.

Text Book:

1. Pethuru Raj, Anupama C. Raman, The Internet of Things - Enabling Technologies, Platforms, and Use Cases, CRC Press, Taylor and Francis Group, 2017.(unit-I-Unit IV)
2. Arshdeep Bahga, Vijay Madisetti, "Internet of Things –A hands-on approach" Hyderabad Universities Press 2015.(Unit-V)

Reference Book

1. David Easley and Jon Kleinberg, "Networks, Crowds, and Markets: Reasoning About a Highly Connected World" Cambridge University Press - 2010.

B.Sc (Information Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards**FIFTH SEMESTER****PART III: ELECTIVE I: BIO-INFORMATICS**

Maximum CIA: 30

Maximum CE: 70

Total HOUR: 60

Objective:

On successful completion of the course the students should have, understood the bioinformatics and Genome information resources. Understood the pair wise alignment, multiple sequence alignment, RNA structure, proteomics.

UNIT I: (12 HOUR)

Introduction – Importance of Bioinformatics – Biological Sequence / Structure – Deficit – Genome Projects – Status – Sequence analysis – Homology and analogy. EMBNET – NCBI – Virtual Tourism. Primary Sequence Databases: Biological data base – Primary Sequence Database – Composite Protein Sequence Database – Secondary database – Composite protein – Pattern database – structure and classification of database.

UNIT II: (12 HOUR)

Genome Information Resources. DNA Sequences data base – Specialised genomic Resources. DNA Sequence analysis. Why analyse DNA? – Gene structure – Features of DNA sequence analysis – Issues in the interpretation and EST search – Approach of Gene hunting – Cell CDNA libraries and ESTs – Approaches to EST analysis – Effect of EST data on DNA data base examples of EST analysis.

UNIT III: (12 HOUR)

Data Base Searchers and Pair Wise Alignment : Data base searching – Alphabets and Complexity – Comparing Two Sequences – Sub-Sequence – Identity and Similarity – Dot plots – Simple alignment – Gaps – Scoring Matrices – Dynamic Programming – BLAST and its relative – FASTA and related algorithms – Alignment scores and statistical significance of database sequences. Global and local Alignments: Algorithms – Similarities – Semi global alignment.

UNIT IV: (12 HOUR)

Multiple Sequence Alignment: Goal – Definition – Consensus – Complex – Methods – Database of multiple Alignment – searching database with multiple alignment. Methods of Photo Genetics : Distance Based Methods – Based Methods – Comparison.

UNIT V: (12 HOUR)

RNA Structure : Amino Acids – Polypeptide Composition Algorithm – Modeling protein folding prediction – RNA Sequence Structure. Proteomics: Classification – Techniques – Inheritors – Drying Design – Structures – XRay Crystal – NMR – Empirical Methods and prediction techniques.

TEXT BOOK:

1. T.K. Attwood, D.J. Parry-Smith, "Introduction to Bioinformatics", Pearson Education Asia, 2013.

REFERENCE BOOK:

1. Dan E. Krane, Michale L. Raymer, "Fundamental Concepts of Bioinformatics", Pearson Education Asia, 2011.

B.Sc (Information Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards

FIFTH SEMESTER

PART III: ELECTIVE I: DATA MINING AND DATA WAREHOUSING

Maximum CIA: 30

Maximum CE: 70

Total HOUR: 60

Objective: To expose students to concepts in data mining and warehousing.

UNIT - I (12 HOUR)

Data Mining Over View What kind of data - Data mining Functionalities - Classification of Data mining systems - Data mining Task primitives - Integration of a data mining system with data base- Major issues in data mining.

UNIT - II (12 HOUR)

Data Processing Preprocess the data- Descriptive. Data summarization - Data cleaning - Data Integration and Data Transformation - Data Reduction. Data warehouse and OLAP Data warehouse a multi dimensional Data model-Data warehouse architecture.

UNIT - III (12 HOUR)

Classification & Prediction Decision Tree Induction - Bayesian Classification -Rule based classification - Classification by Back propagation - Other Classification methods. Prediction Linear, nonlinear, other regressions-accuracy and error measures-model selection.

UNIT - IV (12 HOUR)

Cluster Analysis Types of Data in cluster analysis - Portioning methods - Multimedia Data mining - Text mining - Mining the World Wide Web.

UNIT - V (12 HOUR)

Applications, Tools And Trends In Data Mining Data mining applications - Data mining system products and Research prototypes - Additional Themes on Data mining –Trends in Data mining-Tools in Data mining.

TEXT BOOK

1. Jiawei Han and Michelin Kamber, “Data Mining Concept and Techniques”, 2nd Edition, Morgan Kaufmann Publishers, 2010.

REFERENCE BOOK

1. Pieter Adriaans, Dolf Zantinge, “Data Mining”, 3rd Edition, Pearson Education, 2010.

B.Sc.(Information Technology) Degree Examination - Syllabus for candidates admitted from the academic year 2018 – 2019 onwards**FIFTH SEMESTER
PART III: ALC III: ASP PROGRAMMING**

Maximum CE: 100

Course Objective: To develop knowledge in ASP.NET Web Application.

Unit I:

Getting started with .Net Framework 4.5: – Evolution of .Net – Benefits of .Net Framework - Architecture of .Net Framework 4.5– Introducing Visual Studio 2012: Installing Visual Studio 2012- Exploring Visual Studio 2012 Ultimate IDE-Performing Basic IDE Operations.

Unit II:

Introducing C# 5.0 in VS 2012: Need of C# –Creating Simple C# 5.0 Console Application – Identifiers and Keywords – Data Types, Variables and Constants – Namespaces-The System Namespace– Constructors and Destructors – Static Class and Static Class Member –Object-Oriented Programming: – Encapsulation – Inheritance – Polymorphism – Abstraction – Interfaces- Exception Handling: Exception Handling.

Unit III:

Data Access with ADO.Net : – Understanding Databases – Understanding SQL – Understanding ADO.Net – Data Reader- Creating Connection String – Creating a Connection to a Database – Creating Command Object – Working with Data Adapters – Using DataReader to Work with Databases.

Unit IV:

Developing a Web Application: Specifying a Location for Web Application-File System in ASP.NET 4.5 - Exploring ASP.NET 4.5 Web Pages - ASP.NET 4.5 Coding Models-Working with Server Controls-Implementing Code Sharing-Compilation of ASP.NET 4.5.

Unit V:

ASP.NET 4.5 Essentials: Describing the ASP.NET Technologies-Describing the ASP.NET Lifecycle- Creating a Simple ASP.NET Web Application- Creating a Simple ASP.NET Web Site. Web Forms: Standard Controls: The Control Class-The HiddenField Control-The FileUpload Control-The Hyperlink Control. Navigation Controls: The TreeView Control-The Menu Control.

Text Book :

1. .Net 4.5 Programming (6 in 1) Black Book, Kogent, DreamTech Press

Reference Book:

1. Beginning ASP.NET 4.5.1: in C# and VB,Imar spaanjaars,john wikey & sons inc

B.Sc. (Information Technology) Degree Examination- Syllabus for candidates admitted from the academic year 2018-2019 onwards**SIXTH SEMESTER****PART- III: CORE 13 - PHP PROGRAMMING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Course Objective: To impart the knowledge on Web Application Development using of PHP and MYSQL

Unit- I (12 Hours)

The Building Blocks of PHP: Variables - Data Types - Operators and Expressions - Constants – Flow Control Functions in PHP: Switching Flow - Loops - Code Blocks and Browser Output - Working with Functions: What Is a Function? - Calling Functions - Defining a Function - Returning Values from User-Defined Functions - Variable Scope - Saving State between Function Calls with the static Statement - More About Arguments - Testing for the Existence of a Function

Unit- II (12 Hours)

Working with Arrays: What Are Arrays? - Creating Arrays - Some Array-Related Functions - Working with Objects: Creating an Object - Object Inheritance - Working with Strings, Dates, and Time: Formatting Strings with PHP - Investigating Strings in PHP - Manipulating Strings with PHP - Using Date and Time Functions in PHP - Other String, Date, and Time Functions - Working with Forms: Creating a Simple Input Form - Accessing Form Input with User-Defined Arrays - Combining HTML and PHP Code on a Single Page - Using Hidden Fields to Save State - Redirecting the User - Sending Mail on Form Submission - Working with File Uploads

Unit- III (12 Hours)

Working with Cookies and User Sessions: Introducing Cookies - Setting a Cookie with PHP - Deleting a Cookie with PHP - Session Function Overview - Starting a Session - Working with Session - Passing Session IDs in the Query String - Destroying Sessions and Unsetting Variables - Using Sessions in an Environment with Registered Users - Working with Files and Directories: Including Files with include() - Validating Files - Creating and Deleting Files - Opening a File for Writing, Reading, or Appending - Reading from Files - Writing or Appending to a File - Working with Directories - Opening Pipes to and from Processes Using popen() - Running Commands with exec() - Running Commands with system() or passthru()

Unit- IV (12 Hours)

Working with Images: Understanding the Image-Creation Process - Necessary Modifications to PHP - Drawing a New Image - Getting Fancy with Pie Charts - Modifying Existing Images - Image Creation from User Input - Using Images Created by Scripts –Understanding the Database Design Process: - The Importance of Good Database Design - Types of Table Relationships - Understanding Normalization - Following the Design Process

Unit- V (12 Hours)

Basic SQL Commands - MySQL Data Types - Table Creation Syntax - Using the INSERT Command -Using the SELECT Command - Using WHERE in Your Queries - Selecting from Multiple Tables - Using the UPDATE Command to Modify Records - Using the REPLACE Command - Using the DELETE Command -Frequently Used String Functions in MySQL - Using Date and Time Functions in MySQL -Using Transactions and Stored Procedures in MySQL: What Are Transactions? - What Are Stored Procedures? Interacting with MySQL Using PHP: MySQL Versus MySQLiFunctions - Connecting to MySQL with PHP - Working with MySQL Data Creating a Simple Discussion Forum – Designing the Database Tables – Creating an Include file for common functions – creating the input Forms and Scripts – Displaying the Topic List – Displaying

the Posts in a Topic – Adding Posts to a Topic – Creating an Online Storefront – Planning and Creating the Database Tables – Displaying Categories of Items – Displaying Items .

Text Book:

1. Julie C. Meloni, “PHP MYSQL and APACHE”, Pearson Education, 2016,Reprint, India

Reference Books:

1. Lynn Beighley, Michael Morrison (2009),“Head First PHP & MySQL”,1st edition, O'Reilly Media, Inc.
2. Robin Nixon (2012), “Learning PHP , MYSQL,Java script and CSS”,2nd edition, O'Reilly media inc.,
3. Steve Holzner (2014)“PHP: The Complete Reference “, Reprint ,Mc Graw Hill Publications.

B. Sc (Information Technology) Degree Examination-Syllabus for Candidates admitted from the Academic Year 2018-2019 Onwards

**SIXTH SEMESTER
PART III : CORE 14 – INFORMATION SECURITY**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Course Objective: To gain knowledge on the basic concepts of information security.

Unit- I (12 Hours)

Introduction to the concept of Security: Introduction – Need for security– Security Approaches – Principles of Security – Types of attacks- Cryptography Techniques : Basic Terms- Plain text and Cipher text – Substitution & Transposition techniques – Encryption and Decryption – Symmetric and Asymmetric key Cryptography – Possible types of attacks.

Unit-II (12 Hours)

Computer Based Symmetric Key Cryptographic Algorithms: Algorithm Types and modes – Algorithm modes-An Overview of Symmetric Key Cryptography – DES– Block Cipher Design Principles-IDEA– Blowfish – AES.

Unit- III (12 Hours)

Computer Based Asymmetric Key Cryptographic Algorithms: Brief History of Asymmetric Key Cryptography – An Overview of Asymmetric Key Cryptography – The RSA algorithm –Elgamal Cryptography -Symmetric and asymmetric key cryptography Together- Digital Signatures- Knapsack algorithm – Elgamal Digital Signature-Attacks on Digital Signature-Some Other algorithms.

Unit-IV (12 Hours)

Public Key Infrastructure:Digital Certificates-Private Key Management-Internet Security Protocols: Secure Socket Layer (SSL) – Transport Layer Security(TLS)-D-Secure Protocol-Email Security.

Unit- V (12 Hours)

User Authentication Mechanisms-Authentication Basics- Passwords-Authentication Tokens-Biometric Authentication-Kerberos-Network Security: Firewalls-IP Security-Virtual Private Network(VPN)

Text Book:

1. Atul Kahate , “Cryptography and Network Security ”, 4th Edition, Tata McGraw-Hill Publishing Company Limited, 2019, India.

Reference Book:

3. Charles P. Pfleeger and Shari Lawrence Pfleeger, “Security in Computing” – Pearson Education , 5th Edition, 2015.
4. Bruce Schneier, "Applied Cryptography", John Wiley & Sons Inc, 2nd Edition, 2006.

B.Sc.(Information Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2018 – 2019 onwards**SIXTH SEMESTER****PART III: CORE LAB 6: PHP LAB**

Maximum CIA: 40

Maximum CE: 60

Total Hour: 60

Course Objective: To impart the knowledge on Web Application Development using of PHP and MYSQL

1. Create a PHP program for registration form which contains fields name, Roll No, Gender and a submit button
2. Create a PHP Program to change background color based on day of the week using if else else-if statements.
3. Write a PHP program using nested for loop that creates a chess board. Use html table having width="400px" and take "30px" as cell height and width for check boxes.
4. Create a PHP Program to create random text link advertising using predefined arrays.
5. Create a PHP Program for String Manipulation and Searching.
6. Create a form of your college library entering student Details for each Student in the College. Validate the form using PHP Validators and display error messages.
7. Create a PHP Program to demonstrate opening and closing a File.
8. Write a PHP Program to store current Date-time in a COOKIE and Display the "Last visited on date-time on the web page upon reopening of the same page.
9. Write a PHP Program to store page views count in SESSION, to increment the count on each refresh, and to show the count on webpage.
10. Create Database represent Student details and Delete the same in MYSQL using PHP.
11. Create tables in the database which contain the details of items(departmental store like productid, productname, Price, Quantity, Amount) of each Category. Modify your catalogue page in such a way that you should connect to Database and Extract Data from the tables and Display them in the catalogue page using PHP.
12. Create a PHP Program for creating and deleting users from MYSQL.

B.Sc (Information Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards**SIXTH SEMESTER****PART III: ELECTIVE II: DISTRIBUTED COMPUTING**

Maximum CIA: 30

Maximum CE: 70

Total HOUR: 60

Objective

To enhance students to acquire and improve their knowledge in Distributed Computing.

UNIT- I (12 HOUR)

Characterization of Distributed systems: Introduction- Examples of distributed systems- resource sharing and the web - System Models: Architecture models- fundamental models

UNIT- II (12 HOUR)

Networking and Internetworking: Types of network- Network Principles- internet protocol - Interprocess Communication: The API for the Internet Protocols- External data representation and marshalling – Client server communication – Group Communication

UNIT– III (12 HOUR)

Distributed Objects and Remote Invocation: Communication between distributed objects – Remote procedure Call – Events and notification – Java RMI Case Study - Distributed File Systems: File Service Architecture- Sun Network File System – The Andrew File System

UNIT– IV (12 HOUR)

Time and Global States: Clocks, events and process states – synchronizing physical clocks- logical time and logical clocks – Global states – distributed debugging - Coordination and Agreement: Distributed mutual exclusion – Elections – Multicast communication

UNIT- V (12 HOUR)

Transactions and Concurrency Control: transactions – nested transactions – Lock – Optimistic concurrency control – Timestamp ordering - Distributed Transactions: Flat and Nested distributed transactions – Atomic commit protocols – concurrency control in distributed transactions – distributed deadlocks – Transaction recovery

TEXT BOOK:

1. Jean Dollimore and Tim Kindberg, “Distributed Systems: Concepts and Design”, 4th edition, Pearson Education Limited, 2005.

REFERENCE BOOK:

1. Ajay D. Kshemkalyani and MukeshSinghal, “Distributed computing: principles, algorithms, and systems”, Cambridge university press, 2008.

B.Sc (Information Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards**SIXTH SEMESTER****PART III: ELECTIVE II: MANET**

Maximum CIA: 30

Maximum CE: 70

Total HOUR: 60

Objective: Enabling students to acquire theoretical knowledge on mobile ad hoc networks.

UNIT - I: (12 HOUR)

Wireless Ad Hoc Communications Technologie - W-LANs – W-LAN services – W- LAN market – Network Configuration – Physical media for W- LANs - infrared- microwave – radio frequency – Technologies for Ad Hoc Networks – Bluetooth : A Technology for wireless body area and Personal area networks – short range ad hoc configurations .

UNIT – II: (12 HOUR)

Dynamic routing in MANET – Routing in communication networks – network model – a review of traditional routing protocol families for wired networks- routing in mobile wireless networks – routing and mobility management in infrastructure wireless networks - routing and mobility management in mobile wireless networks

UNIT – III: (12 HOUR)

QoS sensitive routing in mobile multimedia ad hoc networks - introduction – current notiaion of quality of server – routing with QoS constraints – hurdles for multimedia on the internet - how should the internet evolve to better support multimedia- QoS in infrastructurtd wireless network networks - hurdles for multimedia in mobile multi hop wireless networks – hard QoS guarantees in MANET s : fact or fiction.

UNIT – IV: (12 HOUR)

A reference framework for Qos routing in wireless mobile networks overview – functional specification – application model and QoS bounds – QoS mapping – routing layer – QoS manager – call admission block – bandwidth reservation – resource adaptation – degradation policies - packet sorter and shaper – scheduler – medium access control – channel allocation – end – to – end path bandwidth calculation – slot assignment phase - multi hop relaying – stepping stone to system beyond 3 G – 3GSM01- evolution of wireless mobile technologies .

UNIT – V: (12 HOUR)

Adhoc Networks security: Introduction – Secure Routing – Cooperation Enforcement in Mobile Adhoc Networks - Key Management – Security Mechanism in Layer-2

TEXT BOOK:

1. George Aggelou, “Mobile Ad Hoc Networks “ from wireless LANs to 4G Networks , Tata McGraw – Hill Education Pvt Ltd , New Delhi ,fourth reprint , 2013, [Unit: I -IV].
2. Stefano Basagni, Marco Conti,Silvia Glor Dano, Ivan Stojmenovic, “Mobile adhoc Networks”, , Wiley Student Edition,2010 [Unit – V].

REFERENCE BOOK:

1. C. Siva Ram Murthy, B.S. Manoj, “Ad Hoc Wireless Networks”, Prentice Hall, 2011.

B.Sc (Information Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2018 – 2019 onwards**SIXTH SEMESTER****PART III: ELECTIVE II: PYTHON PROGRAMMING**

Maximum CIA: 30

Maximum CE: 70

Total Hour: 60

Course Objective: To provide students with an introduction to programming, I/O, and visualization using the Python programming language.

Unit- I (12 Hours)

Introduction:What is a program? – Programming Languages-Software Development- History of Python Programming Languages-Thrust Areas of Python- Installing Anaconda Python Distribution-Installing PyCharm IDE to Set up a python Development Environment. Parts of Python Programming Language: Identifiers-Keywods-Statements and Expressions-Variables- Operators-Precedence and Associativity-DataTypes-Indentation-Comments-Reading Input- Printing Output- Type Conversion-type() function-Dynamic and strongly typed language.

Unit- II (12 Hours)

Control flow statements- Functions-Strings:Creating and Storing Strings- String Slicing and Joining- String methods- Formatting Strings-Lists:Basic List Operations-List Methods-The del Statement.

Unit-III (12 Hours)

Dictionaries:Creating Dictionary-Built in functions used on Dictionaries-Dictionary methods. Tuples and Sets:Creating Tuples-Basic Tuple Operations-Built in function used on Tuples-Tuple Methods-Using zip() function-Sets-Sets Method-Frozenset.

Unit-IV (12 Hours)

Files: Types of Files- Creating and Reading Text Data- Files Methods to Read and Write Data-Reading and Writing Binary Files- Reading and Writing CSV Files. Regular Expression Operations- Using Special Characters- Regular Expression Methods-Named Groups in Python Regular Expressions-Regular Expressions in glob Module.

Unit- V (12 Hours)

Object-Oriented Programming : Classes and Objects- Creating classes in Python- Creating Objects in Python- The Constructor Method-Classes with Multiple Objects-Class Attributes versus Data Attributes-Encapsulation-Inheritance-The Polymorphism. Introduction to Data Science: Functional Programming- JSON and XML in Python- NumPy with Python- Pandas-The Altair.

Text Book:

1. Gowrishankar.S,Veena.A ,”Introduction to Python Programming”, CRC Press, Taylor & Francis Group ,2019

Reference Book:

1. Joel Murach, Michael Urba, "Murach's Python programming", SPD, First Edition, 2017.
2. E. Balagurusamy," Introduction to Problem Solving with Python" TMH, First Edition,2016.
3. E. Balagurusamy," Introduction to Problem Solving with Python" TMH, First Edition,2016.

B.Sc (Information Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards**SIXTH SEMESTER****PART III: ELECTIVE III: SOFTWARE TESTING**

Maximum CIA: 30

Maximum CE: 70

Total HOUR: 60

Objective: To inculcate knowledge on Software testing concepts.

UNIT-I: (12 HOUR)

Software Development Life Cycle models: Phases of Software project – Quality, Quality Assurance, Quality control – Testing, Verification and Validation – Process Model to represent Different Phases - Life Cycle models. White-Box Testing: Static Testing – Structural Testing –Challenges in White-Box Testing.

UNIT-II: (12 HOUR)

Black-Box Testing: What is Black-Box Testing? - Why Black-Box Testing? – When to do Black-Box Testing? – How to do Black-Box Testing? – Challenges in White Box Testing - Integration Testing: Integration Testing as Type of Testing – Integration Testing as a Phase of Testing – Scenario Testing – Defect Bash.

UNIT-III: (12 HOUR)

System and Acceptance Testing: system Testing Overview – Why System testing is done? – Functional versus Non-functional Testing - Functional testing - Non-functional Testing – Acceptance Testing – Summary of Testing Phases.

UNIT-IV: (12 HOUR)

Performance Testing: Factors governing Performance Testing – Methodology of Performance Testing – tools for Performance Testing – Process for Performance Testing – Challenges. Regression Testing: What is Regression Testing? – Types of Regression Testing –When to do Regression Testing – How to do Regression Testing – Best Practices in Regression Testing.

UNIT-V: (12 HOUR)

Test Planning, Management, Execution and Reporting: Test Planning – Test Management – Test Process – Test Reporting –Best Practices. Test Metrics and Measurements: Project Metrics – Progress Metrics – Productivity Metrics – Release Metrics.

TEXT BOOKS:

1. Srinivasan Desikan, Gopalswamy Ramesh, “Software Testing Principles and Practices”, Pearson Education, 2009.

REFERENCE BOOKS:

1. William E.Perry, “Effective Methods Of Software Testing”, 3rd ed, Wiley, 2000, India.
2. Renu Rajani, Pradeep Oak, “Software Testing”, TMH, 2007.

B.Sc (Information Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2018 – 2019 onwards

SIXTH SEMESTER

PART III: ELECTIVE III: ANDROID APPLICATIONS

Maximum CIA: 30

Maximum CE: 70

Total Hour: 60

Course Objective: To understand the Android Programming concepts developing and deploying Android applications.

Unit- I (12 Hours)

What Is Android? - Obtaining the Required Tools- Creating Your First Android Application - Anatomy of an Android Application. Activities, Fragments, and Intents: Understanding Activities - Linking Activities Using Intents – Fragments - Calling Built – In Application Using Intents- Displaying Notifications.

Unit-II (12 Hours)

Getting to know the android user interface: Understanding the Components of a Screen- Adapting to Display Orientation - Managing Changes to Screen Orientation - Utilizing the Action Bar - Creating the User Interface Programmatically - Listening for UI Notifications. Designing your user interface with views :Using Basic Views- Using Picker Views -Using List Views to Display Long Lists- List View - Understanding Specialized Fragments

Unit-III (12 Hours)

Displaying Pictures and Menus With Views: Using Image Views to Display Pictures - Using Menus with Views - Some Additional Views. Data Persistence: Saving and Loading User Preferences - Persisting Data to Files - Creating and Using Database .Content Provider: Sharing Data in Android - Using a Content Provider - Creating Your Own Content Providers - Using the Content Provider.

Unit-IV (12 Hours)

Messaging: SMS Messaging - Sending E-Mail Location – Based Services :Displaying Maps - Getting Location Data - Monitoring a Location .Networking Consuming Web Services Using HTTP - Consuming JSON Services - Sockets Programming.

Unit- V (12 Hours)

Developing Android Services: Creating Your Own Services - Establishing Communication between a Service and an Activity - Binding Activities to Services - Understanding Threading - Publishing Android Applications: Preparing for Publishing - Deploying APK Files .

Text Book:

1. Wei- Meng Lee, "Beginning ANDROID 4 Application Development", Wiley publications, 2013

Reference Books:

1. Wei- Meng Lee , "Beginning ANDROID Tablet Application Development", Wiley publications, 2013

B.Sc (Information Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards

SIXTH SEMESTER

PART III: ELECTIVE III: MULTIMEDIA

Maximum CIA: 30

Maximum CE: 70

Total HOUR: 60

Objectives : To make the students to get familiarized with the application areas of Computer Graphics, 2D transformations and 3D Object Representation.

UNIT-I (12 HOUR)

Introduction to Multimedia: What is Multimedia- Multimedia: Past and Present-Multimedia Software tools: A Quick Scan-Multimedia in Future

UNIT-II (12 HOUR)

Taste of Multimedia: Multimedia Tasks and Concerns- Multimedia Presentation- Multimedia Production- Multimedia Sharing and Distribution- Some useful Editing and Authoring Tools.

UNIT-III (12 HOUR)

Graphics and Image Data Representations: Graphics/ Image Data types- Popular File Formats- Color Models in Images –Color Models in Video.

UNIT-IV (12 HOUR)

Fundamental Concepts in video: Analog Video- Digital Video-Video Display Interfaces- 3D Video and TV.

UNIT-V (12 HOUR)

Basics of Digital Audio: Digitization of sound- MIDI: Musical Instrument Digital Interface- Quantization and Transmission of Audio

TEXT BOOK:

1. Ze-Nian Li, Mark S.Drew, Jiangchuan Liu, “Fundamentals of Multimedia”, Second Edition, Springer, 2014.

REFERENCE BOOK:

1. Malay K. Pakhira, “Computer Graphics, Multimedia and Animation”, PHI Learning PVT Ltd, 2010.

**B.Sc Computer Technology Board
Scheme of Examination (CBCS Pattern)**

For the Candidates admitted during the Academic Year 2018-2019 onwards

Part	Sub Code	Subject Title	Ins.Hrs/Week	Examination				
				Dur. Hrs.	CIA	CE	Total	Credit
SEMESTER I								
I	15LATA01/ 18LAHI01/ 15LAFR01 15LAMY01	Language – I Tamil/Hindi/Malayalam/French	5	3	30	70	100	3
II	16ENG001	English –I	5	3	30	70	100	3
III	18BCT101	Core 1 – Programming in C	6	3	30	70	100	4
III	15BCTP01	Core Lab 1 - C Lab	6	3	40	60	100	4
III	15BCTID1	IDC 1 – Numerical Methods and Statistics	6	3	30	70	100	4
IV	18UFCA01	Foundation Course I : EVS #	2	2	-	50	50	2
		Total	30				550	20
SEMESTER II								
I	15LATA02/ 18LAHI02/ 15LAFR02/ 15LAMY02	Language –II Tamil/Hindi/Malayalam/French	5	3	30	70	100	3
II	16ENG002	English – II	5	3	30	70	100	3
III	18BCT201	Core 2 - Object Oriented Programming with C++	6	3	30	70	100	4
III	15BCTP02	Core Lab 2 - C++ Lab	6	3	40	60	100	4
III	15BCTID2	IDC 2 – Discrete Mathematics	6	3	30	70	100	4
IV	18UFCA02	Foundation Course II : Value Education #	2	2	-	50	50	2
		Total	30				550	20
SEMESTER III								
III	18BCT301	Core 3 – Java Programming	5	3	30	70	100	4
III	15BCT302	Core 4 - Data Structures	5	3	30	70	100	4
III	15BCT303	Core 5 - Computer Organization & Architecture	5	3	30	70	100	4
III	18BCTP03	Core Lab 3 – Java Programming Lab	5	3	40	60	100	4
III	18BCTID3	IDC 3 – ERP	5	3	30	70	100	4
IV	18BCTAO1/ 18BCTAO2	AOC I - Web Design / Office Automation	3	3	-	75	75	3
IV	15BTA001 15ATA001/ 15EDC002	EDC 1 : BT – 1/AT - 1 / Communicative English #	2	2	-	50	50	2
		Total	30				625	25

SEMESTER IV								
III	18BCT401	Core 6 – RDBMS	5	3	30	70	100	4
III	18BCT402	Core 7 – Computer Graphics and Multimedia	5	3	30	70	100	4
III	15BCT403	Core 8 – Operating System	5	3	30	70	100	4
III	18BCTP04	Core Lab 4 - RDBMS Lab	5	3	40	60	100	4
III	15BCTID4	IDC 4 – Operations Research	5	3	30	70	100	4
IV	18BCTAO3/ 18BCTAO4	AOC II Lab - Web Design Lab / Office Automation Lab #	3	3	-	75	75	3
IV	15BTA002/ 15ATA002/ 15BCTED1	EDC 2 : BT - 2/AT -2/Mathematical Aptitude#	2	2	-	50	50	2
V	15NSS001/ 15NCC001/ 15SPT001/ 15EXT001	NCC/NSS/Sports//Extension Activities @			50		50	2
Total			30				675	27
SEMESTER V								
III	18BCT501	Core 9 - .Net Framework	5	3	30	70	100	4
III	15BCT502	Core 10 – Computer Networks	5	3	30	70	100	4
III	15BCT503	Core 11 – Software Engineering	5	3	30	70	100	4
III	18BCT504	Core 12 – PC Hardware	5	3	30	70	100	4
III	18BCTP05	Core Lab 5 - Net Framework Lab	5	3	40	60	100	4
III	18BCTE01/ 15BCTE02/ 15BCTE03	Elective I : IOT/ Mobile Computing / Cloud Computing	5	3	30	70	100	4
Total			30				600	24
SEMESTER VI								
III	18BCT601	Core 13 - PHP Programming	5	3	30	70	100	4
III	18BCT602	Core 14 – Information Security	5	3	30	70	100	4
III	18BCTP06	Core Lab 6 - PHP Lab	5	3	40	60	100	4
III	15BCTE04/ 15BCTE05/ 18BCTE06	Elective II : Distributed Computing/ Data Mining and Warehousing/ Python Programming	5	3	30	70	100	4
III	15BCTE07/ 15BCTE08/ 18BCTE09	Elective III : Software Testing/ XML/ Android Applications	5	3	30	70	100	4
III	15BCTPR1	Project and Viva Voce	5	3	50	50	100	4
Total			30				600	24
Total							3600	140

No Continuous Internal Assessment (CIA) , only Comprehensive Examination (CE)

@ No Continuous Internal Assessment (CIA) and Comprehensive Examination (CE)

IDC- Inter disciplinary Course , EDC – Extra disciplinary Course , AOC –Application Oriented Course

LIST OF ELECTIVES PAPERS

Elective I		
1	18BCTE01	IOT
2	15BCTE02	Mobile Computing
3	15BCTE03	Cloud Computing
Elective II		
1	15BCTE04	Distributed Computing
2	15BCTE05	Data Mining and Warehousing
3	18BCTE06	Python Programming
Elective III		
1	15BCTE07	Software Testing
2	15BCTE08	XML
3	18BCTE09	Android Applications

LIST OF ADDITIONAL CREDIT PAPERS

Sem	Code	Subject Title	Credits	Maximum Marks
III	15BCTAC1	Linux OS	2	100
IV	15BCTAC2	Animation Techniques	2	100
V	18BCTAC3	ASP Programming	2	100

SUMMARY

Part	No of Papers	Total Credits	Total Marks
I	2	6	200
II	2	6	200
III –Core	20	80	2000
III – IDC	4	16	400
III – Elective	3	12	300
III –Project	1	4	100
IV –Foundation Course	2	4	100
IV – EDC	2	4	100
IV – Application Oriented Course	2	6	150
V Extension Activities	-	2	50
Total	38	140	3600

REGULATIONS FOR BOARD OF BACHELOR OF SCIENCE (Computer Technology)
(FOR UG COURSES ONLY)
(Effective from the academic year 2018-2019 onwards)

1. Project and Viva Voce :

Each student in the UG final year shall compulsorily undergo Project Work in the 6th semester. Projects shall be done individually. Project Coordinators shall allocate the project title and the guide. Project work shall be done only in the lab provided by the college, including Project Record Preparation. Project Reviews shall be conducted thrice in which the progress of project work shall be strictly evaluated by respective Project Guides and Project Coordinators. Viva-Voce shall be conducted only in the presence of Industrialists or academicians. Out of the Total of 100 marks, 50% of mark shall be allocated for CIA and 50% for CE VIVA VOCE.

2. Submission of Record Note Books for practical examinations

Candidates appearing for practical examinations shall submit bonafide Record Work for the concerned Practical Examinations. If not the candidate has to submit a bonafide certificate issued by the concerned subject in-charge duly signed by the Head of the department in order to permitted to take up the Practical Examination. The candidate so permitted will not be eligible for the Record Work mark.

3. Distribution of Marks:

The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum (Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	28	30	40
	75	75	30	-	30
	50	50	20	-	20
Practical Paper	100	60	24	40	40
Project	100	50	20	50	40

4. Distribution of Internal Mark for Theory :

(No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6=30

Breakup for Attendance:

65% - 74 % - 4 Marks

75% - 80%	- 6 Marks
81% - 90%	- 8 Marks
91% - 100%	- 10 Marks

Breakup for Seminar

Content	10mark
Flow of Presentation	10mark
Stage management and Body Language	10mark

5. Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 40		
S No	CIA	Distribution of Marks
1	For Completion of the Practical List	20
2	Test –I	10
3	Test –II	10
Total		40

6. Distribution of Comprehensive Exam Mark for Practical :

MAXIMUM MARKS : 60		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	10
2	Program – I a) Algorithm b) Coding c) Execution	5 10 10 TOTAL (25)
3	Program – II a) Algorithm b) Coding c) Execution	5 10 10 TOTAL (25)
Total		60

Distribution of Comprehensive Exam Mark for AOC Practical:

MAXIMUM MARKS : 75		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	15
2	Program – I d) Algorithm e) Coding f) Execution	5 10 15 TOTAL (30)

3	Program – II	
	d) Algorithm	5
	e) Coding	10
	f) Execution	15
TOTAL (30)		
Total		75

7. Distribution of Mark for Project VIVA-VOCE :

S.No	CIA	Distribution of Marks
1	INTERNAL	
	a) Review –I	10
	b) Review –II	10
	c) Documentation & Final Review	30 Total (50)
2	EXTERNAL *	
	a) Presentation	30
	b) Viva	20 Total (50)
Total		100

*Marks to be awarded by both External and Internal Examiners.

8. Question Paper Pattern

Time: 3 Hour

Max marks: 70

SECTION – A

(10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B

(5×4=20)

Answer ALL questions

Each Question carries Four Marks

(INTERNAL CHOICE)

SECTION – C

(5×8=40)

Answerer ALL questions

Each Question carries EIGHT Marks

(INTERNAL CHOICE)

9. Question Paper Pattern

Time: 3 Hour

Max marks: 75

SECTION – A

(10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B (5×5=25)

Answer ALL questions
Each Question carries FIVE Marks
(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answerer ALL questions
Each Question carries EIGHT Marks
(INTERNAL CHOICE)

10. Question Paper Pattern
Time: 3 Hour

Max marks: 50

SECTION – A (10×1=10)

Answer ALL questions
Each Question carries One Mark
(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B (5×3=15)

Answer ALL questions
Each Question carries THREE Marks
(INTERNAL CHOICE)

SECTION – C (5×5=25)

Answerer ALL questions
Each Question carries FIVE Marks
(INTERNAL CHOICE)

11. Question Paper Pattern
Time: 3 Hour

Max marks: 100

SECTION – A (10×1=10)

Answer ALL questions
Each Question carries One Mark
(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B (5×8=40)

Answer ALL questions
Each Question carries EIGHT Marks
(INTERNAL CHOICE)

SECTION – C (5×10=50)

Answerer ALL questions
Each Question carries TEN Marks
(INTERNAL CHOICE)

NOTE:

1. The questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the UNIT in the syllabus in all the sections of the question paper.
3. While framing questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same UNIT.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

10. Conduct of Practical Examinations:

Practical examinations shall be conducted with one internal examiner and one external examiner and the question paper for practical examination shall be set by both Internal and External examiners.

B.Sc (Computer Technology) Degree Programme -Syllabus- for candidates admitted from 2018 – 2019 onwards**FIRST SEMESTER
PART III – CORE 1: PROGRAMMING IN C**

Maximum CIA : 30

Maximum CE : 70

Total Hours: 72

Objective

To impart knowledge about C programming language concepts.

UNIT – I [12 hours]

Overview Of Computers And Programming - Electronic Computer then and now - Computer hardware – Computer Software – Software Development Method. Introduction To C - Overview of Compilers And Interpreters – Structure of A C Program – Programming Rules – Executing The Program . C Declarations : The C Character Set – Delimiters – The C Keywords – Identifiers – Constants – Variables – Rules For Defining Variables – Data Types – Declaring Variables – Initializing Variables – Type Conversion – Constant And Volatile Variables. Operators And Expressions: Priority of Operators And Their Clubbing – Comma And Conditional Operator – Arithmetic Operators – Relational Operators – Logical Operators – Bitwise Operators.

UNIT - II [15 hours]

Input And Output in C: Formatted Functions – Unformatted Functions – Commonly Used Library Functions. Decision Statements: If, If...Else, Nested If-Else, Break, Continue, Go to, Switch, Nested Switch .Loop Control Statements: The For Loop – Nested For Loops – The While Loop – The Do-While. Arrays - Array Initialization – Definition of Array – Characteristic of Array – One Dimensional Array – Predefined Streams – Two Dimensional Array – Three or Multi Dimensional Arrays.

UNIT – III [15 hours]

Working With Strings And Standard Functions :Declaration And Initialization of String – Display of Strings With Different Formats – String Standard Functions – Applications of Strings. Functions Definition of Function – Declaration of Function And Function Prototypes – The Return Statement – Types of Functions – Call By Value And Reference – Function Returning More Values – Function As An Argument – Function With Operators – Function And Decision Statements – Function And Loop Statements – Function With Arrays And Pointers – Recursion.

UNIT – IV [15 hours]

Structure And Union Features of Structures – Declaration And Initialization of Structures- Structure Within Structure – Array of Structures – Pointer To Structures – Structures And Functions – Typedef – Bit Fields – Enumerated Data Type – Union – Union of Structures. Preprocessor Directives:The #Define Directive – undefining A Macro – The #Include Directive – conditional compilation-The #Ifndef Directive – The #Error Directive - #Line Directive – Inline Directive.

UNIT – V [15 hours]

Pointers Features of Pointers – Pointer Declaration – Arithmetic Operations With Pointers – Pointers And Arrays – Pointers And Two Dimensional Arrays – Array of Pointers – Pointers To Pointers – Pointers And Strings – Void Pointers. Files Streams And File Types – Steps For File Operations – File I/O – Structures Read And Write – Other File Function – Searching Errors In Reading/Writing Files –Low level Disk I/O- Command Line Arguments. Dynamic memory allocation and linked list- Dynamic memory allocation-allocating a block of memory:MALLOC-allocating multiple blocks of memory:CALLOC-releasing the used space:FREE-Altering the size of a

Block:REALLOC-Memory Models-Concepts of linked list- advantages-types-creation- insertion-deletion-applications

Text Book

1. Ashok N Kamthane, Programming with ANSI and Turbo C, Pearson Edition Pub, 2007.

Reference Book

1. Arron Hillegass, Objective C Programming, Big Nerd Ranch Incl, 2011
2. ReemaThareja, Programming in C, Oxford University Press, 2011

**FIRST SEMESTER
PART III – CORE LAB I: C PROGRAMMING**

Maximum CIA : 30

Maximum CE : 70

Total Hours: 72

Objective

To impart basic programming knowledge about C.

1. Developing a C program to find the sum, average, standard deviation for a given set of numbers.
2. Develop a C program to check whether the given input alphabet is vowel or not.
3. Develop a C program to check whether the number is perfect or not.
4. Develop a C program to find the largest and smallest element in array.
5. Develop a C program to check whether matrix is magic square or not.
6. Develop a C program to find power using recursion.
7. Develop a c program to perform string operation
 - a) String length
 - b) String copy
 - c) String compare
 - d) Reverse the string
8. Developing a C program to convert all characters of a string from lowercase to uppercase without using standard functions
9. Developing a C program to print the student's Mark sheet assuming rno, name, and marks in 5 subjects in a structure. Create an array of structures and print the mark sheet.
10. Develop a C program to count number of words, digits and vowels using pointer.
11. Developing a C program which receives two filenames as arguments and check whether the file contents are same or not. If same delete the second file.
12. Develop a program to find the numbers given from the command line argument are even or not.

B.Sc(Computer Technology) Degree -Syllabus- for candidates admitted from 2018 – 2019 onwards**PART III – CORE 2: OBJECT ORIENTED PROGRAMMING WITH C++**

Maximum CIA : 30

Maximum CE : 70

Total Hours: 72

Objective

To inculcate knowledge on C++ programming concepts.

UNIT –I [15 HOURS]

Introduction to C++: Evolution of C++, Object Oriented Technology, Key Concept of Object oriented Programming, Advantages of OOP. Input And Output In C++: Streams in C++, Formatted And Unformatted Console I/O, Type Casting with Cout, Operations-Formatted Console I/O Operations-Bit Fields- Manipulators. C++ Declarations: Parts of C++ Program- Type of Tokens - Data Types In C++ - Type Casting – Constants - Operators in C And C++

UNIT-II [15 HOURS]

Control Structures: Decision Making Statements, if-Else, Nested if-Else, jump, goto, break,continue, switch statements. Loops: for, while, do-while. Function In C++: Main() function in c and c++. Parts Of Function- passing Arguments, return by reference, default argument, const argument, Inline Functions - Functions Overloading - Classes And Objects Classes In C++ - Declaring Objects - Defining Member Function - Static Member Variables And Function - Static Object - Friend Function - Overloading Member Function

UNIT-III [12 HOURS]

Constructors and Destructors: Characteristics of Constructor and Destructor, Constructor with arguments, overloading constructor, copy constructor, const objects, Destructor, Recursive Constructor. Operator Overloading Overloading Unary, Binary Operators, Operator Return Type, Overloading With Friend Function - Type Conversion - Inheritance Types Of Inheritance, Constructor, Destructor and Inheritance - Virtual Base Classes - Abstract Classes.

UNIT-IV [15 HOURS]

Pointer And Arrays: Pointer Declaration, Void and wild pointers, Pointer to class and object, this pointer, pointer to derived and base class, pointers to members, accessing private members with pointers. Arrays: Characteristics of Arrays, Initialization of Arrays using functions. C++ And Memory Models -The New And Delete Operator - Dynamic Objects - Binding In C++ - Polymorphism And Virtual Functions: Binding in C++, Pointer to Derived Class Object, Virtual Functions, Array of Pointers, Pure Virtual functions, Virtual Functions in Derived Class, Virtual Destructors.

UNIT –V [15 HOURS]

Applications with Files: File Stream Classes, Steps of File operations, File Opening Modes - Binary And ASCII Files, file pointers and manipulators, sequential Read and Write Operations - Command Line Arguments. Generic Programming with Templates: Need for Template, Definition Of Class Template, Normal Function Template, working of function template, class and function template with more arguments, overloading of template functions.Exception Handling: Principles of Exception Handling-The keywords try,throw and catch-Multiple catch statements-Rethrowing Exceptions.Working With Strings: Moving from

c to c++ string, declaring and initializing string objects, handling string objects, string attributes.

Text Book

1. Ashok N.Kamthane, Object-Oriented Programming With ANSI & Turbo C++
,Pearson Education ,2006,India

Reference Book

1. John R. Hubbard, Programming with C++, Tata McGraw Hill, 2010.
2. Paul Dettel, Harvey Dett, C++ How to Program, PHI Learning Private Limited, 2010.

SECOND SEMESTER

PART III – CORE LAB 2: Object Oriented Programming with C++

Maximum CIA : 30

Maximum CE : 70

Total HOUR: 60

Objective:

To impart knowledge on C++ programming by using data structures concept

1. Write a C++ program to calculate basic arithmetic operations on two complex numbers using menu driven approach.
2. Write a C++ program to generate student mark list using class, and write member functions to read values, to compute total of 5 subjects, percentage obtained by the student and display grade based on the percentage of marks obtained.
3. Create a program to read an integer number and find the sum of all the digits until it reduces to a single digit using constructors, destructors and inline member functions.
4. Create two classes which consist of two private variables, a integer and a float variable. Write member functions to get and display them. Write a FRIEND Function common to both classes, which takes the object of above two classes as arguments and the integer and float values of both objects separately and display the result.
5. Programming using Function Overloading to read two Matrices of different Data Types such as integers and floating point numbers. Find out the sum of the above two matrices separately and display the sum of these arrays individually.
6. Create a class STRING. Write a Member Function to initialize, get and display strings. Overload the Operator “+” to Concatenate two Strings, “=” to Compare two strings and a member function to find the length of the String.
7. Create a class which consists of EMPLOYEE Detail like ENumber, E-Name, Department, Basic, Salary, and Grade. Write a member function to get and display them. Derive a class PAY from the above class and write a member function to calculate DA, HRA and PF depending on the grade.
8. Write a C++ Program to Create a Class SHAPE Which Consists of Two VIRTUAL FUNCTIONS Calculate Area O and Calculate Perimeter O to Calculate Area and Perimeter of Various Figures. Derive Three Classes SQUARE- RECTANGLE. TRIANGLE from Class Shape and Calculate Area and Perimeter of Each Class Separately and Display the Result.
9. Develop a library information system in C++ with the base class named “Author” containing following information:
 - a. ISBN no
 - b. Title of the book
 - c. Author’s Name

And the derived class named “Pubdetails” which contains the following information:

- a. Publisher’s name
- b. Year of Publication
- c. Price of the book

Define functions to create the database and retrieve individual information as and when required.

10. Write a program to carry out the sum, difference, multiplication and division of rational numbers using operator overloading through member function.
11. Create a menu driven program to calculate student mark statement and store in file and read the contents of a file.
12. Write a program to find larger number among two numbers using Function template.

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THIRD SEMESTER

PART III : CORE 3: JAVA PROGRAMMING

Maximum CIA : 30

Maximum CE : 70

Total Hours: 60

Objective

Facilitate students to obtain a theoretical knowledge in Console and Windows Application Development through Java Programming.

Unit I: (12 Hours)

The History and Evolution of Java : The Creation of Java - How Java changed the Internet - Java's Magic: The Bytecode - The Java Buzzwords - The Evolution of Java – An overview of Java: Object Oriented programming - A first Simple program- Lexical Issues - Data Types, Variables and Arrays

Unit II: (12 Hours)

Operators, Control statements, Introducing classes – A Closer look at methods and classes- Overloading methods – using objects as parameters – Returning objects – recursion- Introducing Access Control - Understanding Static - Introducing final, Introducing nested and inner class – using command line arguments – Inheritance

Unit III: (12 Hours)

Packages and Interfaces: Packages - Access Protection - Importing Packages - Interfaces. Exception Handling: Exception Handling Fundamentals - Exception Types - Using Try and Catch - Multiple catch clauses - Finally - Java's Built-in Exceptions. Multithreaded Programming – String Handling – Networking

Unit IV: (12 Hours)

The Applet Class: Two types of Applet - Applet Basics - Applet Architecture - An Applet Skeleton - Requesting Repainting - using the Status Window - The HTML Applet Tag. Event Handling: Two Event Handling Mechanism - The Delegation Event Model - Event Classes - The Key Event Class - sources of Events - Event Listener Interfaces – Introducing the AWT: Working with Windows, Graphics and Text. Using AWT Controls, Layout Managers, and Menus.

Unit V: (12 Hours)

Introducing Swing: The Origin of Swing Swing is Built on the AWT - Two Key Swing Features - The MVC Connection - The Swing Package. Exploring Swing, Introducing Swing Menus. Introducing JavaFX GUI Programming, JavaFX Basic Concepts, JavaFX Application Skeleton, Compiling and Running a JavaFX Program.

TextBook

1. Herbert Schildt, Java- The Complete Reference, 9th edition, 2014, McGraw Hill Education , India.

Reference Books

1. Y. Daniel Liang, Introduction to Java Programming, 8th edition, 2011, Pearson Education, New Jersey.

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**THIRD SEMESTER
PART III : CORE 4 : DATA STRUCTURES**

Maximum CIA : 30

Maximum CE : 70

Total Hours: 60

Objective

To gain and enable the students to learn and acquire knowledge in Algorithms and Data Structures.

UNIT-I [12 HOUR]

Introduction: Basics terminologies – Data structures – Data structure operation – Algorithms. **Preliminaries:** Mathematical Notations and Functions - Algorithmic notation – Control structures – Complexity of algorithm - Other Asymptotic Notations for Complexity of Algorithms.

UNIT-II [12 HOUR]

Arrays, Records and Pointers: Linear Array - Representation of Linear Array in Memory - Traversing Linear Arrays - Inserting and Deleting - Multidimensional Arrays. **Linked list:** Representation of linked list in memory-Traversing a linked list-Searching a linked list - Memory allocation - Insertion into a linked list - Deletion from a linked list - Header linked list-Two way lists.

UNIT-III [12 HOUR]

Stacks – Queues – Recursion: Stacks – Array representation of stacks – Linked representation of stacks – Arithmetic Expression: Polished notation – Recursion – Towers of Hanoi – Queues – Linked representation of Queues – Deques - Priority queues.

UNIT- IV [14 HOUR]

Trees: Binary tree-Representing binary trees in memory-Traversing binary tree-Binary search tree-Searching and Inserting in Binary Search tree - Deleting in Binary Search Tree. **Graphs:** Introduction-Graph theory terminology-Sequential representation of graph - Linked Representation of Graph - Operations on graphs.

UNIT -V [10 HOUR]

Sorting And Searching: Introduction - Sorting - Insertion Sort - Selection Sort - Merging - Merge Sort - Radix Sort - Searching and Data Modification - Hashing.

Text Book

1. Seymour Lipshutz, "Data Structures with C", Tata McGraw hill, 2011.

References

1. John R. Hubbard, "Data Structure with Java", Schaum's Outline, Second Edition, 2011.
2. Clifford A. Shaffer, "Data Structures & Algorithm Analysis in Java", Dover Publications Inc, Third Edition, 2011

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THIRD SEMESTER

PART III : CORE 5: COMPUTER ORGANIZATION AND ARCHITECTURE

Maximum CIA : 30

Maximum CE : 70

Total Hours: 60

Objective:

To impart knowledge about Computer Organization and Architecture

UNIT 1: [10 HOURS]

DATA REPRESENTATION - Data types – Number Systems – Octal and Hexadecimal Numbers – Decimal Representation – Alpha numeric representation – Complements – (r-1)'s complement – r's Complements – Fixed Point Representation – Other Binary Code - Logic Gates – Flip-flop.

UNIT 2: [12 HOURS]

REGISTER TRANSFER AND MICRO OPERATIONS - Register Transfer Language – Register Transfer – Bus and Memory Transfer – Arithmetic micro- operations – Logic micro-operations – shift micro- operations .**BASIC COMPUTER ORGANIZATION AND DESIGN** - Instruction code- Computer Registers – Computer Instructions – Timing and Control – Instruction cycle - Memory Reference Instructions .

UNIT 3: [13 HOURS]

CENTRAL PROCESSING UNIT - General Register Organisation – control word – **Stack Organisation** – Register stack – memory stack – Reverse Polish Notation – Evaluation of arithmetic expressions – **Instructions Formats** – Three Address – Two Address – One Address – Zero address instructions- **Addressing Modes** – **Data transfer and manipulation** – **Program Control** - **RISC** – CISC characteristics – RISC characteristics

UNIT 4: [13 HOURS]

INPUT OUTPUT ORGANIZATION - Input Output Organization – Peripheral Devices – Input Output Interface – Asynchronous Data Transfer - Priority Interrupt – Daisy Chaining Priority – Parallel Priority Interrupt – Priority Encoder - Direct Memory Access – Input Output Processor - CPU – IOP Communication.

UNIT 5: [12 HOURS]

MEMORY ORGANIZATION - Memory Organization – Memory Hierarchy – Main Memory – RAM and ROM chips- Memory Address Map – Memory connection to CPU Auxiliary Memory- Magnetic Disks – Magnetic tape - Associative Memory – Hardware Organization – Match Logic- Read – Write Operation - Cache Memory - Associative Mapping – Direct Mapping – Set Associative Mapping – Writing into Cache – Cache Initialization – Virtual Memory- Address Space and Memory Space – Address Mapping Using Pages Associative Memory Page Table – Page Replacement .

Text Book:

1. M.Morris Mano, Computer System Architecture , 3rd Edition , Pearson Prentice Hall , Eighth Impression , 2011

References Book:

1. William Stallings , Computer Organisation and Architecture , Designing for performance , 8 th Edition, Pearson Prentice Hall, 2012

**THIRD SEMESTER
PART III : CORE LAB 3: JAVA PROGRAMMING LAB**

Maximum CIA : 40

Maximum CE : 60

Total Hours: 60

Objective:

To impart knowledge on Java Programming

1. Create an Integer Array called Sort, read n values from user and sort the values and display it.
2. Create a class for Product object, identify the data of Product and read and print the values using separate functions. Create an instance and call the functions.
3. Create a program, read a number from the user and print Factorial of the number using recursive function, multiplication table of number till 10 using For iterative statement and Fibonacci series using while iterative statement till that number using Static functions.
4. Create a class Overloading and read five numbers from user through constructor and add first two numbers, three numbers, four numbers and five numbers using separate functions by illustrating method overloading.
5. Create a program to read the user information like Name, Gender, Date of Birth, Aadhar card number, through command line arguments and display it.
6. Create the following classes Student, Test, and Result and an interface Sports through separate packages. Result is derived from Test and Sports; Test is derived class of Student. Implement Hybrid inheritance and method overriding by defining data and methods to process student.
7. Create a program to illustrate Multithreading to print even and odd number using separate Threads.
8. Create an applet called Shapes; Draw any attractive object using geometrical objects and animate the shape.
9. Create a AWT Frame for performing Arithmetic Operations, read two numbers and perform operations by user preference and display the result in same frame.
10. Create a AWT Frame read two string and perform following String functions by choosing a option from Radio Button.
 - a. Check the equality of String and equal ignore case also
 - b. Compare the two string
 - c. Concatenate two string
 - d. Substring of first string
 - e. Convert the String into Uppercase and Lowercase
11. Create a Swing based network application to send the message from Sender to Receiver.
12. Create a MDI frame using Swing Components and perform the following operations
 - a. Find a number is Odd or Even and prime or not
 - b. Find a number is Armstrong number or not
 - c. Read a number, print its equivalent numeric word using switch
 - d. Read two number and perform binary OR and AND operations.

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FOURTH SEMESTER

PART IV: AOC – I : WEB DESIGNING

Maximum CE: 75

Total Hours: 36

Objectives: To make the students to get familiarized with the Web designing concepts.

Unit I: (6 Hours)

Introduction to HTML 5: What is Markup Language? The Simplest HTML Page Possible - An HTML Template - Understanding Elements and Attributes. Basic HTML. List and Tables.

Unit II: (7 Hours)

Introduction to CSS: CSS Selectors - CSS Files and Inline Styles - Specificity - Inheritance - Browser Default - Chrome Scratch Pad. Structuring Pages with CSS.

Unit III: (8 Hours)

HTML Forms: What is a Form? Adding Fields to a Form - HTML5 Input Fields. Semantic Tags: Grouping and Segmenting Content - Styling Semantic Tags with CSS - Microformats. HTML5 Validation. Drag and Drop. Dynamic Elements.

Unit IV: (7 Hours)

HTML5 Audio: File Formats - Audio Tag - Controlling Playback. HTML5 Video - File Formats - Controlling Volume - Controlling Playback Speed - Controlling Video Size - Media Source Extensions. Canvas: Simple Drawing - Drawing Lines - Circles and Curves - Drawing Text.

Unit V: (8 Hours)

Javascript: JavaScript Console - Data Types - Control Structure - Truthy and Falsy Values - Dynamic Typing. Functions. Objects. JSON. Document Object Model: Nodes and Objects. JQuery Selection.

Text Book:

1. Dane Cameron, HTML5, JavaScript, and jQuery 24-Hour Trainer, John Wiley & Sons, 2015.

Reference Books

1. John Dean, Web Programming with HTML5, CSS, and JavaScript, Jones & Bartlett Learning, 2018.
2. Charis Bates, “Web Programming Building Internet Applications”, Wiley India Pvt. Ltd. Second Edition, 2014

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**THIRD SEMESTER
PART IV: AOC I –OFFICE AUTOMATION**

Maximum CE: 75

Total Hours: 36

OBJECTIVE:

Recognize when to use each of the Microsoft Office programs to create professional and academic documents.

Unit I: (7 Hours)

Explore Office 2016-Create and Manage Files- Microsoft Word 2016:-Modify the Structure and Collaborate on documents-Merge data with documents and labels.

Unit II: (7 Hours)

Microsoft Excel 2016:- Perform calculations on data- Change work book Appearance- Manage worksheet data-Reorder and summarize data – Combine data from multiple sources - Analyze alternative data sets.

Unit III: (7 Hours)

Microsoft Excel 2016:-Create Charts, Reports and Graphics- Create dynamic worksheets by using pivot tables- Automate repetitive tasks by using macros.

Unit IV: (7 Hours)

Microsoft PowerPoint 2016:- Create and Manage slides- Insert and Manage simple graphics-Add sound and movement to slides.

Unit V: (8 Hours)

Microsoft Outlook 2016:-Send and receive email messages – Organize your inbox- Manage scheduling. Microsoft Access 2016: Access Building Blocks-Understanding Access tables –Working with Access Queries-Working with Access forms and reports.

Text Books

1. Joan Lambert and Curtis Frye, Microsoft Office 2016 Step by Step, 2nd Edition, Microsoft Press,2016. [Unit I, II, IV]
2. Joan Lambert and Curtis Frye, Microsoft Excel 2016 Step by Step, 2nd Edition, Microsoft Press,2016. [Unit III]
3. Michael Alexander, Richard Kusleika, Access 2016 Bible The Comprehensive Tutorial Resource, John Wiley & Sons, Inc,2016. [Unit V]

Reference Book

1. Bittu Kumar, Microsoft Office 2010, V& S Publishers, 2015.

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THIRD SEMESTER

LINUX OS

CREDIT : 2

Maximum Marks: 100

Objective:To impart knowledge about Linux Os.

UNIT – I

Introduction to Linux Operating System- Kernel – Distinguished Applications-Command Interpreter- Difference between DOS and Unix- Linux and Open Source Movement – Why Linux is popular? – Salient features. Introduction to Linux File Systems- File and Directory Naming – Linux Directory Tree Man Pages – The First Command “cat”.

UNIT – II

Shells – Basic Commands- Using Directory Commands – Intermediate Commands – Changing Your password and Shell – Dot Files- Environment and Shell Variables – command path – Special characters – Command Line Editing – Text Editors – Processes – file modes and permissions.

UNIT-III

Devices, Disk, File Systems and Kernel : Directory Hierarchy- Kernel – Devices – File Sytems- Swap and Virtual Memory.

UNIT-IV

Introduction to Shell Scripts: Shell Script basics- Quoting – Special variables – Exit codes – Conditionals – Loop – Command Substitution – Temporary file Management- Here Documents.

UNIT –V

Shell Utilities and Development Tools: Shell Script Utilities- Sub Shells – Including other files in scripts – Reading User Input – The C Compiler – Multiple Source files – Header Files and Directories – Linking with Libraries – Make- Debuggers – LEX and Yacc Compiler – Scripting Languages – PERL – PYTHON – Other Scripting Languages.

Text Book:

- 1) N.B. Venkateswarlu, “Introduction to Linux Installation and Programming”- B.S. Publications, 2011.

B.Sc(Computer Technology) Degree Examination-Syllabus for candidates admitted from the Academic Year 2018 – 2019 onwards**FOURTH SEMESTER
PART III : CORE 6: RDBMS**

Maximum CIA : 40

Maximum CE : 60

Total Hours : 60

Objective:

To emphasize on how to organize, maintain and retrieve - efficiently, and effectively - information from a DBMS.

Unit I: (12 Hours)

Database Concepts: A Relational approach: Database –Relationships –DBMS –Relational Data Model –Integrity Rules –Theoretical Relational Languages. Database Design: Data Modeling and Normalization: Data Modeling –Dependency –Database Design –Normal forms –Dependency Diagrams –De normalization –Examples of Normalization.

Unit II: (12 Hours)

Oracle9i: Overview: Personal Databases –Client/Server Databases –Oracle9i an introduction –SQL *Plus Environment –SQL –Logging into SQL *Plus -SQL *Plus Commands –Errors & Help –Alternate Text Editors -SQL *Plus Worksheet -SQL *Plus. Oracle Tables: DDL: Naming Rules and conventions –Data Types –Constraints –Creating Oracle Table –Displaying Table Information –Altering an Existing Table –Dropping, Renaming, Truncating Table –Table Types –Spooling –Error codes.

Unit III: (12 Hours)

Working with Table: Data Management and Retrieval: DML –adding a new Row/Record – Customized Prompts –Updating and Deleting an Existing Rows/Records –retrieving Data from Table –Arithmetic Operations –restricting Data with WHERE clause –Sorting – Revisiting Substitution Variables –DEFINE command –CASE structure. Functions and Grouping: Built-in functions –Grouping Data. Multiple Tables: Join –Set operations.

Unit IV: (12 Hours)

PL/SQL: A Programming Language: History –Fundamentals –Block Structure –Comments – Data Types –Other Data Types –Declaration –Assignment operation –Bind variables – Substitution Variables –Printing –Arithmetic Operators. Control Structures and Embedded SQL: Control Structures –Nested Blocks –SQL in PL/SQL –Data Manipulation –Transaction Control statements. PL/SQL Cursors and Exceptions: Cursors –Implicit & Explicit Cursors and Attributes –Cursor FOR loops –SELECT...FOR UPDATE –WHERE CURRENT OF clause –Cursor with Parameters –Cursor Variables –Exceptions –Types of Exceptions.

Unit V: (12 Hours)

PL/SQL Composite Data Types: Records –Tables –Varrays. Named Blocks: Procedures – Functions –Packages –Triggers –Data Dictionary Views.

Text Books :

1.Database Systems Using Oracle –Nilesh Shah, 2016, 2nd edition, PHI.

Reference Books:

1.Database Management Systems –ArunMajumdar&Pritimoy Bhattacharya, 2007, TMH.2.Database Management Systems –Gerald V. Post, 3rd edition, TMH

B.Sc(Computer Technology) Degree Examination-Syllabus for candidates admitted from the Academic Year 2018 – 2019 onwards**FOURTH SEMESTER****PART III : CORE 7: COMPUTER GRAPHICS AND MULTIMEDIA**

Maximum CIA : 40

Maximum CE : 60

Total Hours : 60

Objectives : To make the students to get familiarized with the application areas of Computer Graphics, 2D transformations and 3D Object Representation.

Unit I: (12 Hours)

Application areas of Computer Graphics - Overview of graphics systems- Video-display devices - Raster-scan systems - random scan systems - Graphics monitors and workstations and input devices.

Unit II: (12 Hours)

Output primitives: Points and lines – Points and Lines-Line drawing algorithms – Circle generating algorithms- properties of circles-Mid-point circle- Ellipse Generating algorithms-Properties of Ellipses- Midpoint Ellipse Algorithm- Filled area primitives: Scan line polygon fill algorithm – Boundary fill and flood-fill algorithms

Unit III: (12 Hours)

2-D Geometrical Transforms: Translation – Scaling - Rotation- Reflection And Shear Transformations - Matrix Representations And Homogeneous Coordinates - Composite Transforms - Transformations Between Coordinate Systems

Unit IV: (12 Hours)

2-D Viewing: The Viewing Pipeline - Viewing Coordinate Reference Frame - Window To View-Port Coordinate Transformation - Viewing Functions - Line clipping-Cohen-Sutherland Line Clipping Algorithms - Polygon clipping-Sutherland –Hodgeman Polygon Clipping Algorithm

Unit V: (12 Hours)

Photoshop: Touring The Toolbar - Color Modes – Workspaces - Crop Tool - Working With Layers - Cloning Document - Other Imaging Tools - Brushes - Filters - Blending Options. Flash: File Types - Bitmaps Vs. Vector - Drawing And Color - Animation Basics - Frame By Frame Animation – Libraries - Symbols & Instances - Motion Tweening -Buttons -Movie Clips - Publishing.

Text Book:

1. Computer Graphics C version, Donald Hearn and M.Pauline Baker, Pearson Education, 2011 Edition

Reference Books:

1. “Fundamentals of Computer Graphics”, Peter Shirley, Michael Ashikhmin, Steve Marschner-2016
2. ComputerGraphics: Principles and Practice, John F.Hughes, Andries Van Dam, James D. Foley-2014
3. Adobe Photoshop CS6 Bible, Brad Dayley, DaNae Dayley-2012

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FOURTH SEMESTER

PART III : CORE 8 : OPERATING SYSTEM

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objective

Enabling Students to learn basic concept of operating systems

UNIT-I

[12 HOURS]

Introduction : What Is an Operating System – Early History 1940s and 1950s –1960s-1970s-1980s-1990s-2000 and beyond-Operating System Environment-Operating System Components and goals – Operating System Architecture. **Process Concepts:** Introduction-Process States: Lifecycle of a process-Process Management-Interrupts- IPC-Case studies UNIX Process.

UNIT – II

[12 HOURS]

Asynchronous Concurrent Execution: Introduction-Mutual Exclusion-Implementing Mutual Exclusion Primitives-Software solutions to the mutual exclusion problem- Dekkers algorithm – Petersons algorithm- Hardware solutions to the mutual exclusion problem – semaphores. **Deadlock and Indefinite Postponement:** Introduction-Examples of DeadLock-Resource Concepts- Four Necessary Conditions for Deadlock-DeadLock Solutions- DeadLock Prevention-DeadLock Avoidance with Dijkstra’s Algorithm-DeadLock Detection-DeadLock Recovery.

UNIT – III

[12 HOURS]

Process Scheduling: Scheduling Levels-Preemptive Vs Non-Preemptive Scheduling-Priorities-Scheduling Objectives-Scheduling Criteria-Scheduling Algorithm-Deadline Scheduling-Real Time Scheduling.**Real Memory Organization and Management:** Introduction-Memory Organization-Memory Management- Memory Hierarchy-Memory Management Strategies- Contiguous Vs Non-Contiguous Memory Allocation-Single User Contiguous Memory Allocation- Fixed Partition Multi Programming-Variable Partition Multi Programming.

UNIT – IV

[12 HOURS]

Virtual Memory Organization: Virtual Memory Basic Concepts-Block Mapping-Paging-Segmentation-Segmentation/Paging System.**Virtual Memory Management:** Locality-Demand Paging-Anticipatory Paging-Page Replacement- Page Replacement Strategies – Working set model – Page Fault Frequency page replacement – Page replace – Page size

UNIT – V

[12 HOURS]

Disk Performace Optimization: Evolution of Secondary Storage – Characteristics of Moving Head Disk Storage – why Disk Scheduling is necessary – Disk Scheduling Strategies – Rotational Optimization. **File and Database Systems:** Data Hierarchy – Files – File Systems – File Organization – File Allocation- Free space Management – File Access Control – Data Integrity Protection – File Servers and Distributed Systems

Text Books:

1. Harvey M. Deitel, Paul J.Deitel, David R.Choffness, "Operating System" Third Edition, Pearson Education India, Eighth Impression 2012.

Reference Books:

1. Andrew S.Tanenbaum, Albert S.Woodhull, “Operating Systems design and implementation”, Third Edition, PHI Learning private limited , India, 2012.

**THIRD SEMESTER
PART III : CORE LAB 4: RDBMS LAB**

Maximum CIA : 40

Maximum CE : 60

Total Hours: 60

Objective

To Design ER-models to represent simple database application scenarios.

1. Create a table `client_master` with the following fields `clients_no`, `name`, `address`, `city`, `state`, `pincode`, `remarks`, `bal_due` with suitable data types. Create another table `supplier_table` from `client_master`.

- a) Select all the fields and rename `client_no` with `supplier_no` and `name` with `supplier_name`.
- b) Insert data into `client_master`
- c) Insert data into `supplier_master` from `client_master`.
- d) Delete the selected row in the `client_master`.

2. Create a table `sales_order` with `s_order_no` and `product_no` as primary key. Set other fields to store client number, delivery address, delivery data, order status.

- a) Add a new column for storing salesman number using ALTER Command.
- b) Set the `s_order_no` as foreign key as column constraints.
- c) Set the `s_order_no` as foreign key as table constraints.
- d) Enforce the integrity rules using CHECK.

3. Create a table `student_master` with the following fields `name`, `regno`, `dept` and `year` with suitable data type. Use select command to do the following.

- a) Select the Student's name column.
- b) Eliminate the duplicate entry in table.
- c) Sort the table in alphabetical order.
- d) Select all the students of a particular department

4. Create a table `sales_order_details` with the `s_order` as primary key and with the following fields: `product_no`, `description`, `qty_ordered`, `qty_disp`, `product_rate`, `profit_percent`, `sell_price`, `supplier_name`.

- a) Select each row and compute `sell_price*.50` and `sell_price*1.50` for each row selected.
- b) Select `product_no`, `profit_percent`, `sell_price` where `profit_per` is not between 10 and 20 both inclusive.
- c) Select `product_no`, `description`, `profit_percent`, `sell_price` where `profit_percent` is not between 20 and 30.
- d) Select the `suppliername` and `product_no` where `supplier` `supplier name` has 'r' or 'h' as second character.

5. Write a PL/SQL program to insert ten values in a table, check each value is odd or even and insert the output into the table

6. Create a procedure to calculate simple interest. Principal, rate of interest and no. of years are given as input.

7. Write a PL/SQL block that will select all rows from a employee table. The block displays empno, empname, doj, dept, and experience column. Experience column should be calculated using current date and doj column.

8. Create a table to contain phone number, user name, address of the phone user. Write a function to search for an address using phone numbers.

9. Create a table stock to contain the item code, item name, current stock, date of last purchase. Write a stored procedure to seek for an item using item code and delete it, if the date of last purchase is before 1 year from the current date. If not, update the current stock.

10. Create a table to store the salary details of the employees in a company. Declare the Cursor to contain employee number, employee name and net salary1. Use Cursor to update the employee salaries.

11. Create a table to contain the information about the voters in a particular constituency. Write a proper trigger to update or delete a row in the table.

12. Create a table to store the details of the Aluminums in an institution. Write a PL/SQL block to change address of particular alumni. Write proper exceptions and appropriate error messages.

OBJECTIVE

To make the students to get comfortable with the Web designing concepts.

1. Develop a HTML document to list out various countries in the world. Make them as a hypertext and describe about each country when it is clicked.
2. Write a HTML document to print your class Time Table.
3. Develop a Complete Web Page using Frames and Framesets which gives the Information about a Hospital using HTML.
4. Develop a HTML document to display a Registration Form for an inter-collegiate function.
5. Develop a html page to create a calendar using javascript by getting the year from the user which displays all month
6. Design a dynamic web page with validation using JavaScript.
7. Design a web page to display canvas with different shapes, audio and video content.
8. Develop a html document which changes the background color on each click of a button or refresh of a page
9. Develop a program to create an html page to demonstrate exception handling in Java Script.
10. Develop a html document to display a new image & text when the mouse comes over the existing content in the page.
11. Develop a html document to perform sorting of array elements in ascending order using java script
12. Write a JavaScript program to design a simple calculator to perform the following operations: sum, product, difference and quotient.

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FOURTH SEMESTER

PART IV:AOC II LAB: OFFICE AUTOMATION LAB

MAXIMUM MARKS:75

TOTAL HOURS: 36

OBJECTIVE: Use Microsoft Office programs to create personal, academic and business documents following current professional and/or industry standards.

MS-WORD

1. Prepare a newspaper for two column format (Page which includes border, background, Pictures, Header and Footer)
2. Prepare a document with the aid of drawing objects.
3. Preparing a job application letter enclosing Detailed Resume. Performing Mail Merger Operation.

MS – EXCEL

4. Creating a Worksheet Using Formulas for a pay roll preparation.
5. Calculating electricity bill using formulas.
6. Drawing graphs to illustrate class performance of semester marks result analysis.

MS- POWER POINT

7. Designing an advertisement campaign with minimum three slides.
8. Preparing a power point presentation for grouping and ungrouping concept with minimum three slides.
9. Prepare 10 to 15 slides on any of the topic of current IT trend with all necessary formats.
10. Prepare 10 slides for an Advertisement Company to exhibit its features.

MS ACCESS

11. Simple commands perform sorting on name, place and pin code of students database and address printing using label format.
12. Create a database for Library Information System and Create necessary Query, Forms, and Reports.

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**FOURTH SEMESTER
PART - III IDC 4 - OPERATIONS RESEARCH**

**Maximum CIA: 30
Maximum CE: 70
Total Hours: 60**

Objective: To enable students gain Fundamental Knowledge about the application of the managerial concepts like decision making and optimization techniques.

UNIT I [12 HOURS]
Linear programming – Mathematical Model assumption of linear programming- Graphical method- Simplex method and Big-M method.

UNIT II [10 HOURS]
Transportation and Assignment Problem- Assignment and Traveling Salesman Problem.

UNIT III [14 HOURS]
Game theory – Concept of Pure and Mixed Strategies- Solving 2×2 matrix with and without saddle point- Graphical method of $n \times 2$ and $2 \times m$ games-Dominance Property.

UNIT IV [12 HOURS]
Introduction to Queueing theory- Queueing system-Characteristic of Queueing system Symbols and Notations-Classification of Queues problems in $(M/M/1):(\infty/FIFO)$; $(M/M/1):(N/FIFO)$ $(M/M/C):(\infty/FIFO)$; $(M/M/C):(N/FIFO)$ (problems only).

UNIT V [12 HOURS]
PERT and CPM – Network representation- Backward pass- Forward pass- Computation- Pert Network- Probability factor – Updating and Crashing.

Note: The proportion of marks between theory and problems shall be 20% and 80% respectively.

TEXT BOOK

1. Kantiswarup, P. K. Gupta, Man Mohan, Operations Research, S. Chand & Sons Education Publications, 16th edition , Reprint 2013, New Delhi.

REFERENCE BOOKS

1. Hamdy Taha, Operations Research, Pearson Education, 8th Edition, 2013.
2. Prof.V.Sundaresan, K.S.Ganapathy Subramanian, K.Ganesan, Resource Management Techniques, A.R.Publications Arpakkam (Po), TamilNadu.

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**FOURTH SEMESTER
PART-IV EDCI: MATHEMATICAL APTITUDE**

Maximum CE:50

Total Hours: 24

Objective:To enable students gain fundamental knowledge about the Mathematical skills and to explain the extent of the applications of Analytical Skills.

UNIT-I **[5 HOURS]**

H.C.F&L.C.M OF Numbers-simplification – Square roots and cube roots.

UNIT-II **[5 HOURS]**

Percentage- profit and loss – Ratio and proportion .

UNIT-III **[5 HOURS]**

Time and work-Chain rule- pipes and cisterns

UNIT-IV **[5 HOURS]**

Problems on trains-Boats and streams-Average

UNIT-V **[4 HOURS]**

Problems on Ages.-Relationship problems –odd man out series

TEXT BOOK:

1.D.R.AGARWAL Quantitative aptitude for competitive examinations , S.CHANT AND COMPANY ltd (2007),Ram Nagar, New delhi-110055.

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**FOURTH SEMESTER
ANIMATION TECHNIQUE**

CREDIT : 2

Maximum Marks: 100

Objective: On the successful completion of the course, the students should have understood the key features of Animation technique, learnt the Animation development for future development of application.

UNIT I

Introduction to Flash CS4-New Features in Flash CS4-Creating a New Flash File- Exploring Flash CS4 Interfaces-Working With Workspace-Setting the Stage-Saving the Flash File- Closing the Flash File-Opening an Existing Flash File.

Getting Started with Drawing Tools-Exploring Drawing Modes in Flash-Working with Drawing Tools in Flash-Using Colors in Flash.

UNIT II

Selecting Object in Flash-Moving-Copying-Deleting & Editing an Object-Transforming Object-Working with Text in Flash-Editing Text Field-Working with TIMELINE-Frames & Keyframes-Layer & Layer Folder .

UNIT III

Using Symbols, Instance and the Library – Creating –Modifying Symbols-Instance-about Library-Working With Sound and Video.

UNIT IV

Creating Animation –Creating Motion Tweens -Editing the Motion Path-Motion Present in Flash-Frame by Frame Animation –Shape Tweening in Flash.

UNIT V

Working with Advanced Animation-Understanding Bones-Animating an Armature- Exploring 3D Animation – Working with Action Script-ACTION Panel Overview-Resizing the Action Toolbox or script pane

TEXT BOOK

1. Kogent, “Flash CS4 in Simple Steps”, Dreamtech Press, 2011.

B.Sc.(Computer Technology) Degree Examination - Syllabus for candidates admitted from the academic year 2018 – 2019 onwards**FIFTH SEMESTER
PART III: CORE 9: .NET FRAMEWORK**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Course Objective: To impart knowledge on .NET programming Using C#.

Unit I: (12 Hours)

Getting started with .Net Framework 4.5: – Evolution of .Net – Benefits of .Net Framework - Architecture of .Net Framework 4.5– Introducing Visual Studio 2012: Installing Visual Studio 2012- Exploring Visual Studio 2012 Ultimate IDE-Performing Basic IDE Operations.

Unit II: (12 Hours)

Introducing C# 5.0 in VS 2012: Need of C# –Creating Simple C# 5.0 Console Application – Identifiers and Keywords – Data Types, Variables and Constants – Namespaces-The System Namespace– Constructors and Destructors – Static Class and Static Class Member –Object-Oriented Programming: – Encapsulation – Inheritance – Polymorphism – Abstraction – Interfaces- Exception Handling: Exception Handling.

Unit III: (12 Hours)

Introducing Windows Presentation Foundation: Understanding WPF 4.5 Architecture-Exploring WPF 4.5 Designer Interface-Working with Dialog Boxes in WPF Applications. Working with WPF 4.5 Controls: Adding WPF Controls-Introducing Different type of Controls in WPF-Using WPF Controls.

Unit IV: (12 Hours)

Data Access with ADO.Net : – Understanding Databases – Understanding SQL – Understanding ADO.Net – Data Reader- Creating Connection String – Creating a Connection to a Database – Creating Command Object – Working with Data Adapters – Using DataReader to Work with Databases.

Unit V: (12 Hours)

ASP.NET 4.5 Essentials:Describing the ASP.NET Technologies-Describing the ASP.NET Lifecycle- Creating a Simple ASP.NET Web Application- Creating a Simple ASP.NET Web Site. Web Forms: Standard Controls: The Control Class-The HiddenField Control-The FileUpload Control-The Hyperlink Control. Navigation Controls: The TreeView Control-The Menu Control.

Text Book :

1. .Net 4.5 Programming (6 in 1) Black Book, Kogent, DreamTech Press

Reference Book:

1. “Net Framework And C# Programming” , Tanweer alam, A.B. PUBLICATION.
2. “Mastering C# and .NET Framework”,Marino posadas, Packt Publishing Limited.

B.Sc.(Computer Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards**FIFTH SEMESTER****PART III: CORE 10: COMPUTER NETWORKS**

Maximum CIA : 30

Maximum CE : 70

Total HOUR: 60

Objective

To inculcate knowledge on networking concepts and technologies like wireless, broadband and Bluetooth.

UNIT – I (12 HOUR)

Network Hardware: LAN-WAN-MAN- Wireless Networks-Home Networks-Internetworks. Network Software: Protocol Hierarchies-Design Issues For The Layers- Connection-Oriented And Connectionless Services - Service Primitives-The Relationship Of Services To Protocols. Reference Models: OSI Reference Model-TCP/IP References Model – Comparison of OSI and TCP/IP

UNIT – II (12 HOUR)

Physical Layer: Guided Transmission Media: Magnetic Media-Twisted Pair-Coaxial Cable-Fiber Optics. Wireless Transmission: Electromagnetic Spectrum-Radio Transmission-Microwave Transmission-Infrared and Millimeter Waves-Light Waves. Communication Satellites: Geostationary, Medium – Earth Orbit, Low Earth Orbit Satellites-Satellites versus Fiber. The Public switched telephone network: Structure of the telephone system-Trunks and multiplexing.

UNIT – III (12 HOUR)

Data Link Layer: Error Detection and Correction-Elementary Data Link Protocols- Sliding Window Protocols-Medium Access Control Sub Layer: Multiple Access Protocols-Wireless LANs-Bluetooth.

UNIT – IV (12 HOUR)

Network Layer: Routing Algorithms: The Optimality Principle-Shortest Path Algorithm-Flooding-Distance Vector Algorithm- Link state Routing-Hierarchical Routing-Broadcast Routing, Multicast Routing-Routing for Mobile Hosts, Routing in Adhoc Networks-Node Lookup in peer to peer Networks – Congestion Control Algorithms: General Principles of Congestion Control- Congestion Prevention Polices- Congestion control in virtual circuit subnets-Congestion control in datagram subnets-Load Shedding- Jitter Control.

UNIT – V (12 HOUR)

Transport Layer: Elements of Transport Protocols- Internet Transport Protocols UDP-Internet Transport Protocols TCP-Application Layer: DNS-Electronic Mail-The World Wide Web.

TEXT BOOK:

1. Andrew S.Tanenbaum, David J. Wetherall, “Computer Networks”, 5th Edition, Tata McGraw-Hill Publishing Company Limited, 2011, India.

REFERENCE BOOK:

1. Larry L. Peterson, Bruce S. Davie , “Computer Networks: A Systems Approach”, 5th edition, Elsevier publication ,2012 , USA

B.Sc.(Computer Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards**FIFTH SEMESTER****PART III : CORE 11: SOFTWARE ENGINEERING**

Maximum CIA : 30

Maximum CE : 70

Total HOUR: 60

Objective

Understand the software life cycle models, understand the importance of the software development process, understand the importance of modeling and modeling languages, Design and develop correct and robust software products

UNIT I (12 HOUR)

Introduction to Software Engineering: The Evolving Role of Software – Software – The Changing nature of Software. Process Models: Prescriptive Models – The Waterfall Model – Incremental Models – Evolutionary Process Models – Specialized Process Models.

UNIT II (12 HOUR)

An Agile view of Process: What is Agility? What is an Agile Process? Agile Process Models. Requirement Engineering: A Bridge to Design and Construction – Requirement Engineering Tasks – Initiating the Requirement Engineering Process – Developing Use-Cases

UNIT III-DESIGN (12 HOUR)

Object Oriented Methodologies: Rumbaugh et al.'s Object Modeling Technique – The Booch Methodology – The Jacobsons et al. Methodologies. Unified Modeling Language: Introduction – Static and Dynamic Models – Why Modeling? Introduction to the Unified Modeling Language – UML Diagrams – UML Class Diagram – Use-Case Diagram.

UNIT IV (12 HOUR)

UML Dynamic Modeling: UML Interaction Diagrams – UML Sequence Diagram – UML Collaboration Diagram – UML Statechart Diagram – UML Activity Diagram – Implementation Diagram. Model Management: Packages and Model Organization – UML Extensibility – UML Meta-Model.

UNIT V (12 HOUR)

Testing Strategies: Strategic Approach to software Testing – Strategic Issues – Test Strategies for Conventional Software – Test Strategies for Object oriented software, Validating Testing – System Testing – Art of Debugging. Project Management: The Management Spectrum – The People – The Product – The Process – The Project – The W⁵HH Principle.

TEXT BOOKS:

1. Roger S. Pressman, "Software Engineering – A Practitioner's Approach", Tata McGraw Hill, Sixth edition, 2012. [Unit I, II, V]
2. Ali Bahrami, "Object Oriented Systems Development", Tat Mc Graw Hill, 2008. [Unit III, IV]

REFERENCE BOOKS:

1. Hans Van Vliet, "Software Engineering: Principles and Practices", 2008.

B.Sc.(Computer Technology) Degree Examination - Syllabus for candidates admitted from the academic year 2018 – 2019 onwards**FIFTH SEMESTER
PART III: CORE 12: PC Hardware**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Course Objective: To equip students with basic knowledge in assembling and installing PC.

Unit- I (12 Hours)
PC Components, Features and System Design : What is a PC?-System Types-System Components-Processor Types and Specifications : Microprocessor History – Processor Specification – Processor Features. Intel Pentium 4 Processors – Intel Core Processors – Processor Trouble shooting Techniques

Unit- II (12 Hours)
Mother Board Form Factors : ATX and other Modern Motherboard form factors. Chipsets : Chipset Evolution-Intel Chipsets – Seventh/Eighth Generation Chipsets. System Bus Types Functions and Features – The Processor Bus – Types of I/O Bus

Unit- III (12 Hours)
Memory Basics – ROM-DRAM-SRAM-Speed and Performance –FPM DRAM-EDORAM-SDRAM-DDR 3 SDRAM-Parity checking – Trouble shooting Memory –Memory Defect Isolation Procedure – System Logical Memory Layout

Unit- IV (12 Hours)
The ATA/IDE Interface :An overview of IDE Interface – SATA – PATA/SATA RAID. Magnetic Storage Principles – History-How Magnetic Fields are used to store data.Hard Disk Storage : Definition of Hard disk-HDD Operation –Tracks and Sectors – ECC-Disk Formatting – Basic HDD Components- HDD Features

Unit- V (12 Hours)
Flash and Removable Storage: Flash Memory Device – Compact Flash-SSD-Virtual SSD – Flash Based SSDs-USB Flash Drives - Comparing Flash Memory Devices. Optical Storage – CD History-CD Construction and Technology- Mass producing CDs – Pits and Lands – Drive - Mechanical Operation- Tracks and Sectors – Writable CDs- CD –R. DVD History – DVD Construction and Technology – DVD Tracks and Sectors – Handling DVD Errors – DVD Capacity-Trouble shooting Optical Drives

Text Book

1. Scott Mueller, Upgrading and Repairing PCs –, 20th Edition, Pearson Publishing, Second Impression 2014.

Reference Book

1. Trouble shooting and Maintaining & Repairing PCs-5th edition—Bigelows, Tata McGraw Hill-2009, New Delhi

FIFTH SEMESTER**PART III: CORE LAB 5: .NET Framework Lab**

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Course Objective: To provide knowledge in developing .Net Framework Applications using C#.

1. Create a Console application in C# to design a simple calculator using if else if Statements.
2. Create a Console application in C# to make a simple ATM machine.
3. Create a sample application to demonstrate the basic DML Operations.
4. Create a sample application to implement Dialog Boxes.
5. Create a sample application to generate an auto password at the time of user registration.
6. Create a sample application for conducting a general knowledge test.
7. Create a sample application to Perform Record Navigation.
8. Create a sample application to Handle the Exceptions.
9. Create a sample application for bus ticket reservation using MDI form with Menus.
10. Create a sample application to generate a data report for Customer Details.
11. Create a sample Web application to develop a webpage for College using CSS.
12. Create a Sample Web Application to Implement the Concept of Validation Control at the time of User Registration.

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PART III: Elective 1: IOT**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Course Objective:

To enable the student to understand the importance of IoT based communication technologies, IoT Protocols and Emerging Applications of IoT.

Unit- I (12 Hours)
Demystifying the IoT Paradigm: IoT Is Strategically Sound - Brewing and Blossoming Trends in IT Space - Envisioning the IoT Era - Device-to-Device/ Machine-to-Machine Integration Concept - Aspect of Device-to-Cloud (D2C) Integration - Emergence of IoT Platform as a Service (PaaS) - Key Application Domains - Emerging IoT Flavors.

Unit- II (12 Hours)
Realization of IoT Ecosystem Using Wireless Technologies: Architecture for IoT Using Mobile Devices - Mobile Technologies for Supporting IoT Ecosystem - Energy Harvesting for Power Conservation in IoT System - Mobile Application Development Platforms - Mobile Use Cases for IoT - Low Power Wide Area Networking Technologies - Weightless.

Unit – III (12 Hours)
Infrastructure and Service Discovery Protocols: Layered Architecture for IoT - Protocol Architecture of IoT - Infrastructure Protocols - Routing Protocol - Bluetooth Low Energy - Device or Service Discovery for IoT - Protocols for IoT Service Discovery - Prominent IoT Service Discovery Products.

Unit – IV (12 Hours)
Integration Technologies and Tools for IoT Environments: IoT Portion for Smarter Enterprises and Environments - Sensor and Actuator Networks - IoT Device Integration Concepts, Standards, and Implementations - Device Integration Protocols and Middleware - Protocol Landscape for IoT.

Unit – V (12 Hours)
Case studies illustrating IoT Design: Introduction-Home Automation-Cities-Environment-Agriculture-Productivity Applications.

Text Book:

- 1 .Pethuru Raj, Anupama C. Raman, The Internet of Things - Enabling Technologies, Platforms, and Use Cases, CRC Press, Taylor and Francis Group, 2017.(unit-I-Unit IV)
2. Arshdeep Bahga, Vijay Madisetti ,”Internet of Things –A hands-on approach” Hyderabad Universities Press 2015.(Unit-V)

Reference Book

1. David Easley and Jon Kleinberg, “Networks, Crowds, and Markets: Reasoning About a Highly Connected World” Cambridge University Press - 2010.

B.Sc (Computer Technology) Degree Examination - Syllabus for candidates admitted from the academic year 2015 – 2016 onwards

FIFTH SEMESTER

PART III: ELECTIVE I – MOBILE COMPUTING

Maximum CIA : 30

Maximum CE : 70

Total HOUR: 60

UNIT I

(12 HOUR)

Mobile Computing Architecture: History of Computers and Internet –The Ubiquitous Network.The Architecture for Mobile Computing – Three-Tier Architecture – Design Considerations for Mobile Computing.

UNIT II

(12 HOUR)

Mobile Computing Through Telephony: Evaluation of Telephony – Multiple Access Procedures — IVR Application – Voice XML – TAPI. EMERGING TECHNOLOGIES: Blue Tooth – RFID – WiMAX – Mobile IP – IPv6 – Java Card.

UNIT III

(12 HOUR)

GSM : Global System for Mobile Communications – GSM Architecture – GSM Entities – Call Routing in GSM – PLMN Interfaces – GSM Addresses and Identifiers – Network Aspects in GSM – GSM Frequency Allocations – Authentications and Security.

UNIT IV

(12 HOUR)

GPRS – GPRS and Packet Data Network – GPRS Network Architecture – GPRS Network Operations – Data Services in GPRS – Application for GPRS Limitations. WAP- MMS – GPRS Applications

UNIT V

(12 HOUR)

CDMA and 3G: Spread Spectrum Technology – Is 95 – CDMA Vs GSM –Wireless Data – Third Generation Networks – Applications on 3G WIRELESS LAN: Wireless LAN Advantages – IEEE 802.11 Standards Architecture – Mobile in Wireless LAN. 4G Fundamentals and Composite Radio Environment – 4G Protocol Boosters – Green Wireless Network

TEXT BOOK:

1. Asoke K Talukder, Roopa R Yavagal , “Mobile Computing”, TMH, 2010. [Unit I – IV]
2. Savo Glisic, Beatriz Lorenzo, “Advanced Wireless Networks: Cognitive, Cooperative & Opportunistic 4G Technology”, John Wiley and Sons Ltd, 2009. [Unit V]

REFERENCE BOOKS:

1. Jochen Schiller, “Mobile Communications”, PHI/Pearson Education, 2nd Edition , 2003.
2. V.Jeyasri ArokiaMary, “Mobile Computing”, 2nd Revised Edition, Technical Publications, 2008, Pune.

B.Sc (Computer Technology) Degree Examination - Syllabus for candidates admitted from the academic year 2015 – 2016 onwards

FIFTH SEMESTER

PART III : ELECTIVE I – CLOUD COMPUTING

Maximum CIA : 30

Maximum CE : 70

Total HOUR: 60

Objective:

To know the basics of Cloud Computing with Open Source and Security aspects in Cloud.

UNIT I: (12 HOUR)

Cloud Computing Concepts: Virtualization – Cloud Computing. Cloud Design Patterns and Use Cases: Typical Design Patterns and Use Cases – Deployment Models – IaaS as a Foundation – Cloud Consumer Operating Model.

UNIT II: (12 HOUR)

Data Center Architecture and Technologies: Architecture – Architecture Building Blocks of a Data Center – Design Evaluation in the Data Center – Service Assurance – Evolution of Services Platform.

UNIT III: (12 HOUR)

IT Services: Classification of IT Services and Information – Four Cornerstones of Cloud Economics. The Cisco Cloud Strategy: A Brief History of Service Delivery – The Cisco Cloud Strategy: Overview.

UNIT IV: (12 HOUR)

Introduction to Open-Source IaaS Cloud Middleware: Introduction – Previous work – Components of Open Source Cloud – Open-Source Cloud Implementations – A Cloud Builder’s Checklist – The Cloud Computing Software Stack.

UNIT V: (12 HOUR)

Security, Privacy and Trust Management Issues for Cloud Computing: Chapter Overview – Introduction – What is Cloud Security? – Cloud Computing Security Scenarios – Cloud Security Challenges – How to handle Cloud Security Challenges – Cloud Computing Privacy – Trust Management.

TEXT BOOKS:

1. Venkata Josyula, Malcolm Orr, Greg Page, “Cloud Computing: Automating the Virtualized Data Center”, Cisco Press, 2011. [Unit I – III]
2. Lizhe Wang, Rajiv Ranjan, Jinjun Chen, Boualem Benatallah, “Cloud Computing: Methodology, Systems, and Applications”, CRC Press, 2012. [Unit IV – V]

REFERENCE BOOK:

1. Gary Lee, “Cloud Networking: Understanding Cloud-based Data Center Networks”, Elsevier, 2014.

B.Sc. (Computer Technology) Degree Examination - Syllabus for candidates admitted from the academic year 2018 – 2019 onwards**FIFTH SEMESTER
PART III: ALC III: ASP PROGRAMMING**

Maximum CE: 100

Course Objective: To develop knowledge in ASP.NET Web Application.

Unit I:

Getting started with .Net Framework 4.5: – Evolution of .Net – Benefits of .Net Framework - Architecture of .Net Framework 4.5– Introducing Visual Studio 2012: Installing Visual Studio 2012- Exploring Visual Studio 2012 Ultimate IDE-Performing Basic IDE Operations.

Unit II:

Introducing C# 5.0 in VS 2012: Need of C# –Creating Simple C# 5.0 Console Application – Identifiers and Keywords – Data Types, Variables and Constants – Namespaces-The System Namespace– Constructors and Destructors – Static Class and Static Class Member –Object-Oriented Programming: – Encapsulation – Inheritance – Polymorphism – Abstraction – Interfaces- Exception Handling: Exception Handling.

Unit III:

Data Access with ADO.Net : – Understanding Databases – Understanding SQL – Understanding ADO.Net – Data Reader- Creating Connection String – Creating a Connection to a Database – Creating Command Object – Working with Data Adapters – Using DataReader to Work with Databases.

Unit IV:

Developing a Web Application: Specifying a Location for Web Application-File System in ASP.NET 4.5 - Exploring ASP.NET 4.5 Web Pages - ASP.NET 4.5 Coding Models-Working with Server Controls-Implementing Code Sharing-Compilation of ASP.NET 4.5.

Unit V:

ASP.NET 4.5 Essentials: Describing the ASP.NET Technologies-Describing the ASP.NET Lifecycle- Creating a Simple ASP.NET Web Application- Creating a Simple ASP.NET Web Site. Web Forms: Standard Controls: The Control Class-The HiddenField Control-The FileUpload Control-The Hyperlink Control. Navigation Controls: The TreeView Control-The Menu Control.

Text Book :

1. .Net 4.5 Programming (6 in 1) Black Book, Kogent, DreamTech Press

Reference Book:

1. Beginning ASP.NET 4.5.1: in C# and VB,Imar spaanjaars,John Wiley & Sons Inc

B.Sc. (Computer Technology) Degree Examination- Syllabus for candidates admitted from the academic year 2018-2019 onwards**SIXTH SEMESTER****PART- III: CORE 13 - PHP PROGRAMMING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Course Objective: To impart the knowledge on Web Application Development using of PHP and MYSQL

Unit- I (12 Hours)

The Building Blocks of PHP: Variables - Data Types - Operators and Expressions - Constants – Flow Control Functions in PHP: Switching Flow - Loops - Code Blocks and Browser Output - Working with Functions: What Is a Function? - Calling Functions - Defining a Function - Returning Values from User-Defined Functions - Variable Scope - Saving State between Function Calls with the static Statement - More About Arguments - Testing for the Existence of a Function

Unit- II (12 Hours)

Working with Arrays: What Are Arrays? - Creating Arrays - Some Array-Related Functions - Working with Objects: Creating an Object - Object Inheritance - Working with Strings, Dates, and Time: Formatting Strings with PHP - Investigating Strings in PHP - Manipulating Strings with PHP - Using Date and Time Functions in PHP - Other String, Date, and Time Functions - Working with Forms: Creating a Simple Input Form - Accessing Form Input with User-Defined Arrays - Combining HTML and PHP Code on a Single Page - Using Hidden Fields to Save State - Redirecting the User - Sending Mail on Form Submission - Working with File Uploads

Unit- III (12 Hours)

Working with Cookies and User Sessions: Introducing Cookies - Setting a Cookie with PHP - Deleting a Cookie with PHP - Session Function Overview - Starting a Session - Working with Session - Passing Session IDs in the Query String - Destroying Sessions and Unsetting Variables - Using Sessions in an Environment with Registered Users - Working with Files and Directories: Including Files with include() - Validating Files - Creating and Deleting Files - Opening a File for Writing, Reading, or Appending - Reading from Files - Writing or Appending to a File - Working with Directories - Opening Pipes to and from Processes Using popen() - Running Commands with exec() - Running Commands with system() or passthru()

Unit- IV (12 Hours)

Working with Images: Understanding the Image-Creation Process - Necessary Modifications to PHP - Drawing a New Image - Getting Fancy with Pie Charts - Modifying Existing Images - Image Creation from User Input - Using Images Created by Scripts –Understanding the Database Design Process: - The Importance of Good Database Design - Types of Table Relationships - Understanding Normalization - Following the Design Process

Unit- V (12 Hours)

Basic SQL Commands - MySQL Data Types - Table Creation Syntax - Using the INSERT Command -Using the SELECT Command - Using WHERE in Your Queries - Selecting from Multiple Tables - Using the UPDATE Command to Modify Records - Using the REPLACE Command - Using the DELETE Command -Frequently Used String Functions in MySQL - Using Date and Time Functions in MySQL -Using Transactions and Stored Procedures in MySQL: What Are Transactions? - What Are Stored Procedures? Interacting with MySQL Using PHP: MySQL Versus MySQLiFunctions - Connecting to MySQL with PHP - Working with MySQL Data

Creating a Simple Discussion Forum – Designing the Database Tables – Creating an Include file for common functions – creating the input Forms and Scripts – Displaying the Topic List – Displaying the Posts in a Topic – Adding Posts to a Topic – Creating an Online Storefront – Planning and Creating the Database Tables – Displaying Categories of Items – Displaying Items .

Text Book:

1. Julie C. Meloni, “PHP MYSQL and APACHE”, Pearson Education, 2016, Reprint, India

Reference Book:

1. By Lynn Beighley, Michael Morrison (2009), “Head First PHP & MySQL”, 1st edition, O'Reilly Media, Inc.
2. Robin Nixon (2012), “Learning PHP , MYSQL, Java script and CSS”, 2nd edition, O'Reilly media inc.,
3. Steve Holzner (2014) “PHP: The Complete Reference “, Reprint , Mc Graw Hill Publications.

B. Sc (Computer Technology) Degree Examination-Syllabus for Candidates admitted from the Academic Year 2018-2019 Onwards

**SIXTH SEMESTER
PART III : CORE 14 – INFORMATION SECURITY**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Course Objective: To gain knowledge on the basic concepts of information security.

Unit- I (12 Hours)
Introduction to the concept of Security: Introduction – Need for security– Security Approaches – Principles of Security – Types of attacks- Cryptography Techniques : Basic Terms- Plain text and Cipher text – Substitution & Transposition techniques – Encryption and Decryption – Symmetric and Asymmetric key Cryptography – Possible types of attacks.

Unit-II (12 Hours)
Computer Based Symmetric Key Cryptographic Algorithms: Algorithm Types and modes – Algorithm modes-An Overview of Symmetric Key Cryptography – DES– Block Cipher Design Principles-IDEA– Blowfish – AES.

Unit- III (12 Hours)
Computer Based Asymmetric Key Cryptographic Algorithms: Brief History of Asymmetric Key Cryptography – An Overview of Asymmetric Key Cryptography – The RSA algorithm –Elgamal Cryptography -Symmetric and asymmetric key cryptography Together- Digital Signatures- Knapsack algorithm – Elgamal Digital Signature-Attacks on Digital Signature-Some Other algorithms.

Unit-IV (12 Hours)
Public Key Infrastructure:Digital Certificates-Private Key Management-Internet Security Protocols: Secure Socket Layer (SSL) – Transport Layer Security(TLS)-D-Secure Protocol-Email Security.

Unit- V (12 Hours)
User Authentication Mechanisms-Authentication Basics- Passwords-Authentication Tokens-Biometric Authentication-Kerberos-Network Security: Firewalls-IP Security-Virtual Private Network(VPN)

Text Book:

1. Atul Kahate , “Cryptography and Network Security ”, 4th Edition, Tata McGraw-Hill Publishing Company Limited, 2019, India.

Reference Book:

1. Charles P. Pfleeger and Shari Lawrence Pfleeger, “Security in Computing” – Pearson Education , 5th Edition, 2015.
2. Bruce Schneier, "Applied Cryptography", John Wiley & Sons Inc, 2nd Edition, 2006.

Course Objective: To impart the knowledge on Web Application Development using of PHP and MYSQL

1. Create a PHP program for registration form which contains fields name, Roll No, Gender and a submit button
2. Create a PHP Program to change background color based on day of the week using if else else-if statements.
3. Write a PHP program using nested for loop that creates a chess board. Use html table having width="400px" and take "30px" as cell height and width for check boxes.
4. Create a PHP Program to create random text link advertising using predefined arrays.
5. Create a PHP Program for String Manipulation and Searching.
6. Create a form of your college library entering student Details for each Student in the College. Validate the form using PHP Validators and display error messages.
7. Create a PHP Program to demonstrate opening and closing a File.
8. Write a PHP Program to store current Date-time in a COOKIE and Display the "Last visited on date-time on the web page upon reopening of the same page.
9. Write a PHP Program to store page views count in SESSION, to increment the count on each refresh, and to show the count on webpage.
10. Create Database represent Student details and Delete the same in MYSQL using PHP.
11. Create tables in the database which contain the details of items(departmental store like productid, productname, Price, Quantity, Amount) of each Category. Modify your catalogue page in such a way that you should connect to Database and Extract Data from the tables and Display them in the catalogue page using PHP.
12. Create a PHP Program for creating and deleting users from MYSQL.

B.Sc (Computer Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards

SIXTH SEMESTER

PART III: ELECTIVE II: DISTRIBUTED COMPUTING

Maximum CIA: 30

Maximum CE: 70

Total HOUR: 60

Objective

To enhance students to acquire and improve their knowledge in Distributed Computing.

UNIT- I (12 HOUR)

Characterization of Distributed systems: Introduction- Examples of distributed systems- resource sharing and the web - System Models: Architecture models- fundamental models

UNIT- II (12 HOUR)

Networking and Internetworking: Types of network- Network Principles- internet protocol - Interprocess Communication: The API for the Internet Protocols- External data representation and marshalling – Client server communication – Group Communication

UNIT– III (12 HOUR)

Distributed Objects and Remote Invocation: Communication between distributed objects – Remote procedure Call – Events and notification – Java RMI Case Study - Distributed File Systems: File Service Architecture- Sun Network File System – The Andrew File System

UNIT– IV (12 HOUR)

Time and Global States: Clocks,events and process states – synchronizing physical clocks- logical time and logical clocks – Global states – distributed debugging - Coordination and Agreement: Distributed mutual exclusion – Elections – Multicast communication

UNIT- V (12 HOUR)

Transactions and Concurrency Control: transactions – nested transactions – Lock – Optimistic concurrency control – Timestamp ordering - Distributed Transactions: Flat and Nested distributed transactions – Atomic commit protocols – concurrency control in distributed transactions – distributed deadlocks – Transaction recovery

TEXT BOOK:

1. Jean Dollimore, Tim Kindberg, “Distributed Systems: Concepts and Design” ,4th edition, Pearson Education Limited, 2005, England

REFERENCE BOOK:

1. Ajay D. Kshemkalyani and MukeshSinghal, “Distributed computing: principles, algorithms, and systems”, Cambridge university press, 2008, New York

B.Sc (Computer Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards

SIXTH SEMESTER

PART III: ELECTIVE II: DATA MINING AND WAREHOUSING

Maximum CIA: 30

Maximum CE: 70

Total HOUR: 60

Objective: To expose students to concepts in data mining and warehousing.

UNIT - I (12 HOUR)

Data Mining Over View What kind of data - Data mining Functionalities - Classification of Data mining systems - Data mining Task primitives - Integration of a data mining system with data base- Major issues in data mining.

UNIT - II (12 HOUR)

Data Processing Preprocess the data- Descriptive. Data summarization - Data cleaning - Data Integration and Data Transformation - Data Reduction. Data warehouse and OLAP Data warehouse a multi dimensional Data model-Data warehouse architecture.

UNIT - III (12 HOUR)

Classification & Prediction Decision Tree Induction - Bayesian Classification -Rule based classification - Classification by Back propagation - Other Classification methods. Prediction Linear, nonlinear, other regressions-accuracy and error measures-model selection.

UNIT - IV (12 HOUR)

Cluster Analysis Types of Data in cluster analysis - Portioning methods - Multimedia Data mining - Text mining - Mining the World Wide Web.

UNIT - V (12 HOUR)

Applications, Tools And Trends In Data Mining Data mining applications - Data mining system products and Research prototypes - Additional Themes on Data mining –Trends in Data mining-Tools in Data mining.

TEXT BOOK:

1. Jiawei Han, Michelin Kamber, “Data Mining Concept and Techniques”, 2nd Edition, Morgan Kaufmann Publishers, 2010.

REFERENCE BOOK:

1. Pieter Adriaans, Dolf Zantinge, “Data Mining”, 3rd Edition, Pearson Education, 2010.

B.Sc (Computer Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2018 – 2019 onwards**SIXTH SEMESTER****PART III: ELECTIVE II: PYTHON PROGRAMMING**

Maximum CIA: 30

Maximum CE: 70

Total Hour: 60

Course Objective: To provide students with an introduction to programming, I/O, and visualization using the Python programming language.

Unit- I (12 Hours)

Introduction:What is a program? – Programming Languages-Software Development- History of Python Programming Languages-Thrust Areas of Python- Installing Anaconda Python Distribution-Installing PyCharm IDE to Set up a python Development Environment. Parts of Python Programming Language: Identifiers-Keywords-Statements and Expressions-Variables- Operators-Precedence and Associativity-DataTypes-Indentation-Comments-Reading Input- Printing Output- Type Conversion-type() function-Dynamic and strongly typed language.

Unit- II (12 Hours)

Control flow statements- Functions-Strings:Creating and Storing Strings- String Slicing and Joining- String methods- Formatting Strings-Lists:Basic List Operations-List Methods-The del Statement.

Unit-III (12 Hours)

Dictionaries:Creating Dictionary-Built in functions used on Dictionaries-Dictionary methods. Tuples and Sets:Creating Tuples-Basic Tuple Operations-Built in function used on Tuples-Tuple Methods-Using zip() function-Sets-Sets Method-Frozenset.

Unit-IV (12 Hours)

Files: Types of Files- Creating and Reading Text Data- Files Methods to Read and Write Data-Reading and Writing Binary Files- Reading and Writing CSV Files. Regular Expression Operations- Using Special Characters- Regular Expression Methods-Named Groups in Python Regular Expressions-Regular Expressions in glob Module.

Unit- V (12 Hours)

Object-Oriented Programming : Classes and Objects- Creating classes in Python- Creating Objects in Python- The Constructor Method-Classes with Multiple Objects-Class Attributes versus Data Attributes-Encapsulation-Inheritance-The Polymorphism. Introduction to Data Science: Functional Programming- JSON and XML in Python- NumPy with Python- Pandas-The Altair.

Text Book:

1. Gowrishankar.S,Veena.A ,”Introduction to Python Programming”, CRC Press, Taylor & Francis Group ,2019

Reference Book:

1. Joel Murach, Michael Urba, "Murach's Python programming", SPD, First Edition, 2017.
2. E. Balagurusamy," Introduction to Problem Solving with Python" TMH, First Edition,2016.
3. E. Balagurusamy," Introduction to Problem Solving with Python" TMH, First Edition,2016.

B.Sc (Computer Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards**SIXTH SEMESTER****PART III: ELECTIVE III: SOFTWARE TESTING**

Maximum CIA: 30

Maximum CE: 70

Total HOUR: 60

Objective: To inculcate knowledge on Software testing concepts.

UNIT-I: (12 HOUR)

Software Development Life Cycle models: Phases of Software project – Quality, Quality Assurance, Quality control – Testing, Verification and Validation – Process Model to represent Different Phases - Life Cycle models. White-Box Testing: Static Testing – Structural Testing –Challenges in White-Box Testing.

UNIT-II: (12 HOUR)

Black-Box Testing: What is Black-Box Testing? - Why Black-Box Testing? – When to do Black-Box Testing? – How to do Black-Box Testing? – Challenges in White Box Testing - Integration Testing: Integration Testing as Type of Testing – Integration Testing as a Phase of Testing – Scenario Testing – Defect Bash.

UNIT-III: (12 HOUR)

System and Acceptance Testing: system Testing Overview – Why System testing is done? – Functional versus Non-functional Testing - Functional testing - Non-functional Testing – Acceptance Testing – Summary of Testing Phases.

UNIT-IV: (12 HOUR)

Performance Testing: Factors governing Performance Testing – Methodology of Performance Testing – tools for Performance Testing – Process for Performance Testing – Challenges. Regression Testing: What is Regression Testing? – Types of Regression Testing –When to do Regression Testing – How to do Regression Testing – Best Practices in Regression Testing.

UNIT-V: (12 HOUR)

Test Planning, Management, Execution and Reporting: Test Planning – Test Management – Test Process – Test Reporting –Best Practices. Test Metrics and Measurements: Project Metrics – Progress Metrics – Productivity Metrics – Release Metrics.

TEXT BOOK:

1. Srinivasan Desikan, Gopalswamy Ramesh, “Software Testing Principles and Practices”, Pearson Education, 2006.

REFERENCE BOOKS:

1. William E.Perry, “Effective Methods Of Software Testing”, 3rd ed, Wiley, India.
2. Renu Rajani, Pradeep Oak, “Software Testing”, TMH, 2007.

B.Sc (Computer Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards**SIXTH SEMESTER****PART III: ELECTIVE III: XML**

Maximum CIA: 30

Maximum CE: 70

Total HOUR: 60

Objective:

On successful completion of the course the students know how make description in Web Environment through XML language.

UNIT I (12 HOUR)

The Beginings of XML – Benefits of XML-Advantages of XML over SGML,HTML,EDI-Fundamentals of XML-Introduction to XML syntax- XML Document Structure – XML Content Models- Rules of XML Structure-Rules of XML Structure-Well Formed and Valid Documents-Linking XML documents together-NameSpaces in XML-Applying Style to XML

UNIT II (12 HOUR)

Validating XML with DTD – Creating XML Schemas –The X-Files:XPath,XPointer and XLink –Defining XML using Alternate Schema Representations

UNIT III (12 HOUR)

Building XML Based Applications – Parsing XML using DOM- What is DOM-DOM LEVELS DOM Core –DOM Traversal and Range –Other DOM Implementations-JAXB.Parsing XML using SAX: What is SAX-SAX Basics-SAX Packages-Working with SAX- Working through an XML Document-Validation-Handling Errors-Entity references-Lexical Events

UNIT IV (12 HOUR)

Transforming XML with XSL : XSL Technologies- XSLT for Document Publishing-Getting started with XSLT-Creating XML document-Creating XSL style sheet-XSLT processor-Implementing Client side XSLT Processing- Implementing Server side XSLT Processing-Advanced futures of XSLT-Looping-Sorting – Conditionals -XSL for B2B-XSL Formatting Objects-Basic Document structure-Page Master-Page Master Set-Page sequences- Generating a PDF Document

UNIT V (12 HOUR)

Integerating XML with Databases: XML Database Solutions-XML Database Mapping-Native XML support- Modeling Databases in XML-JAXB Solution-Reviewing Database Schema-Constructing Desired XML document-Defining a Schema for XML document-Creating JAXB Binding Schema- Generating JAXB classes based on Schemas- Developing DAO- Converting XML Data to HTML with XSLT

TEXT BOOK:

1. Ron Schmelzer et al –“XML and Web Services Unleashed”, Pearson Education Eleventh Impression, 2014

REFERENCE BOOK:

1. Airi Salinen, Frank Tompa, “Communicating with XML”, Springer, 2011.

B.Sc (Computer Technology) Degree Programme - Syllabus for candidates admitted from the Academic Year 2018 – 2019 onwards

SIXTH SEMESTER

PART III: ELECTIVE III: ANDROID APPLICATIONS

Maximum CIA: 30

Maximum CE: 70

Total Hour: 60

Course Objective: To understand the Android Programming concepts developing and deploying Android applications.

Unit- I (12 Hours)

What Is Android? - Obtaining the Required Tools- Creating Your First Android Application - Anatomy of an Android Application. Activities, Fragments, and Intents: Understanding Activities - Linking Activities Using Intents – Fragments - Calling Built – In Application Using Intents- Displaying Notifications.

Unit-II (12 Hours)

Getting to know the android user interface: Understanding the Components of a Screen- Adapting to Display Orientation - Managing Changes to Screen Orientation - Utilizing the Action Bar - Creating the User Interface Programmatically - Listening for UI Notifications. Designing your user interface with views :Using Basic Views- Using Picker Views -Using List Views to Display Long Lists- List View - Understanding Specialized Fragments

Unit-III (12 Hours)

Displaying Pictures and Menus With Views: Using Image Views to Display Pictures - Using Menus with Views - Some Additional Views. Data Persistence: Saving and Loading User Preferences - Persisting Data to Files - Creating and Using Database .Content Provider: Sharing Data in Android - Using a Content Provider - Creating Your Own Content Providers - Using the Content Provider.

Unit-IV (12 Hours)

Messaging: SMS Messaging - Sending E-Mail Location – Based Services :Displaying Maps - Getting Location Data - Monitoring a Location .Networking Consuming Web Services Using HTTP - Consuming JSON Services - Sockets Programming.

Unit- V (12 Hours)

Developing Android Services: Creating Your Own Services - Establishing Communication between a Service and an Activity - Binding Activities to Services - Understanding Threading - Publishing Android Applications: Preparing for Publishing - Deploying APK Files .

Text Book:

1. Wei- Meng Lee, "Beginning ANDROID 4 Application Development", Wiley publications, 2013

Reference Books:

1. Wei- Meng Lee , "Beginning ANDROID Tablet Application Development", Wiley publications, 2013

MATHEMATICS BOARD
SCHEME OF EXAMINATIONS (CBCS PATTERN)
For Candidates admitted during the Academic Year 2018-2019 onwards
Programme: B.Sc MATHEMATICS

Part	SubCode	Subject Title	Ins.Hrs/ Week	Examination				
				Dur. Hrs.	CIA	CE	Total	Credit
SEMESTER I								
I	16LATA01/ 18LAHI01/ 15LAMY01/ 15LAFR01	Language – I	5	3	30	70	100	3
II	16ENG001	English –I	5	3	30	70	100	3
III	15BMA101	Core 1:Trigonometry and Fourier Series	6	3	30	70	100	4
III	15BMA102	Core 2:Calculus	6	3	30	70	100	4
III	18BMAID1	IDC 1:Mathematical Statistics-I	6	3	30	70	100	4
IV	18UFCA01	Foundation Course I : EVS #	2	2	-	50	50	2
Total			30				550	20
SEMESTER II								
I	16LATA02/ 18LAHI02/ 15LAMY02/ 15LAFR02	Language –II	5	3	30	70	100	3
II	16ENG002	English – II	5	3	30	70	100	3
III	15BMA201	Core 3:Analytical Geometry and Vector Calculus	6	3	30	70	100	4
III	16BMA202	Core 4:Classical Algebra	6	3	30	70	100	4
III	18BMAID2	IDC 2:Mathematical Statistics-II	6	3	30	70	100	4
IV	18UFCA02	Foundation Course II: Value Education #	2	2	-	50	50	2
Total			30				550	20
SEMESTER III								
I	16LATA03/ 16LAHI03/ 15LAMY03/ 15LAFR03	Language – III	5	3	30	70	100	3
II	16ENG003	English – III	5	3	30	70	100	3
III	15BMA301	Core 5 :Statics	5	3	30	70	100	4
III	15BMA302	Core 6:Differential Equations and Laplace Transforms	5	3	30	70	100	4
III	18BMAID3	IDC 3 :Fundamentals of Accounting	5	3	30	70	100	4
IV	15BMAA01 /15BMAA02	AOC I :Operations Research –I/ Mathematical Modeling	3	3	-	70	75	3

IV	16BTA001/ 16ATA001/ 15EDC002	EDC 1:BT/AT/ Communicative English #	2	2	-	50	50	2
		Total	30				625	23
SEMESTER IV								
I	16LATA04/ 16LAHI04/ 15LAMY04/ 15LAFR04	Language –IV	5	3	30	70	100	3
II	16ENG004	English – IV	5	3	30	70	100	3
III	16BMA401	Core 7 :Dynamics	5	3	30	70	100	4
III	15BMA402	Core 8: Fourier Transforms, Z Transforms and Theory of Equations	5	3	30	70	100	4
III	18BMAID4	IDC 4: Advanced Accounting	5	3	30	70	100	4
IV	15BMAA03 /15BMAA04	AOC II: Operations Research-II/Fuzzy logic and Neural Networks	3	3	-	75	75	3
IV	16BTA002/ 16ATA002`/ 15BMAED1	EDC 2:BT/AT/Basics of Internet#	2	2	-	50	50	2
V	15NCC001 /15NSS001 /15SPT001/ 15EXT001	NCC/NSS/Sports/Extension@			50	-	50	2
		Total	30				675	25
SEMESTER V								
III	15BMA501	Core 9 : Real Analysis-I	6	3	30	70	100	5
III	15BMA502	Core 10:Complex Analysis-I	6	3	30	70	100	5
III	15BMA503	Core 11: Modern Algebra-I	6	3	30	70	100	5
III	15BMA504	Core 12:Programming in C	4	3	30	70	100	4
III	15BMAP01	Core 13:Programming in C-Practical	2	3	40	60	100	2
III	15BMAE01 /15BMAE02 /15BMAE03	Elective I (Astronomy I/ Numerical Methods-I / Quantitative Aptitude-I)	6	3	30	70	100	5
		Total	30				600	26
SEMESTER VI								
III	15BMA601	Core 14: - Real Analysis -II	5	3	30	70	100	4
III	15BMA602	Core 15:Complex Analysis-II	5	3	30	70	100	4
III	15BMA603	Core 16 : Modern Algebra-II	5	3	30	70	100	4
III	15BMA604	Core 17 :Discrete Mathematics	5	3	30	70	100	4
III	15BMAE04 /15BMAE05 /15BMAE06	Elective II : (Astronomy II/ Numerical Methods-II / Quantitative Aptitude -II)	5	3	30	70	100	5
III	15BMAE07 /15BMAE08/ *17BMAE09	Elective III :(Automata Theory/ Graph Theory/Programming in C++)	5	3	30	70	100	5

		Total	30			600	26	
						Total	3600	140

For Candidates admitted from the Academic year 2015 - 2016 onwards

* For the Elective Paper Programming in C++

Part	Subject Code	Subject Title	Ins.Hrs/Week	CIA	CE	Total	Credit
III	17BMAE09	Programming in C++	3	20	50	100	
III	17BMAP02	Programming in C++ - Practical	2	10	20		

For Candidates admitted from the Academic year 2016 - 2017 onwards

No Continuous Internal Assessment (CIA) , only Comprehensive Examination (CE)

@ No Continuous Internal Assessment (CIA) and Comprehensive Examination (CE)

IDC- Inter disciplinary Course , EDC – Extra Disciplinary Course, AOC – Application Oriented Course

List of AOC Papers

Sem	Code	Subject Title	Credits
AOC: I			
III	15BMAA01	Operations Research I	3
III	15BMAA02	Mathematical Modeling	3
AOC: II			
IV	15BMAA03	Operations Research II	3
IV	15BMAA04	Fuzzy Logic and Neural Networks	3

List of Elective Papers:

Sem	Code	Subject Title	Credits
Elective: I			
V	15BMAE01	Astronomy I	5
V	15BMAE02	Numerical Methods I	5
V	15BMAE03	Quantitative Aptitude - I	5
Elective: II			
VI	15BMAE04	Astronomy II	5
VI	15BMAE05	Numerical Methods II	5
VI	15BMAE06	Quantitative Aptitude –II	5
Elective: III			
VI	15BMAE07	Automata Theory	5
VI	15BMAE08	Graph theory	5
VI	*17BMAE09	Programming in C++	5

List of Additional Credit Papers:

Sem	Code	Subject Title	Credits
III	14BMAAC1	Vedic Mathematics	2
IV	16BMAAC2	LATEX	2
V	18BMAAC3	Applications of Differential Equations.	2

SUMMARY

Part	No of Paper s	Total Credit s	Total Mark s
I-Language	4	12	400
II-English	4	12	400
III –Core	17	69	1700
III – IDC	4	16	400
III – Elective	3	15	300
IV –Foundation Course	2	4	100
IV – EDC	2	4	100
IV – Application Oriented Course	2	6	150
V – NSS/NCC/Sports/Extensio n	-	2	50
Total		140	3600

REGULATIONS FOR B.Sc MATHEMATICS

(Effective from the academic year 2018-2019 onwards)

1. Submission of Record Note Books for practical examinations

Candidates appearing for practical examinations should submit Bonafide Record Note Books prescribed for practical examinations, Otherwise the candidate shall not be permitted to appear for the Practical Examinations.

2. Distribution of Marks: The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum (Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	28	30	40
	75	75	30	-	30
	50	50	20	-	20
Practical Paper	100	60	24	40	40
	30	20	8	10	12

3. Distribution of Internal Mark for Theory : (No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6=30

Breakup for Attendance:

65%- 74 %	- 4 Marks
75% - 80%	- 6 Marks
81% - 90%	- 8 Marks
91% - 100%	- 10 Marks

Split of the marks for a seminar is as follows

Content	-10 Marks
Flow of the Presentation	-10 Marks
Stage Management and Body Language	-10 Marks

Total Marks 30 Marks

4. Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 40		
S No	CIA	Distribution of Marks
1	For Completion of the Practical List	20
2	Test –I	10
3	Test –II	10
Total		40
MAXIMUM MARKS : 10		
S No	CIA	Distribution of Marks
1	Test –I	5
2	Test –II	5
Total		10

5. Distribution of Comprehensive Exam Mark for Practical:

MAXIMUM MARKS : 60		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	10
2	Program – I d) Algorithm e) Coding f) Execution	5 10 10 TOTAL (25)
3	Program – II d) Algorithm e) Coding f) Execution	5 10 10 TOTAL (25)
Total		60

MAXIMUM MARKS : 20		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	5
2	Program – I a) Algorithm b) Coding c) Execution	5 5 5
Total		20

6. Question Paper Pattern
Time: 3 Hour

Max marks: 70

SECTION – A (10×1=10)
Answer ALL questions
Each Question carries One Mark
(Multiple Choice Questions)

SECTION – B (5×4=20)
Answer ALL questions
Each question carries FOUR Marks
(INTERNAL CHOICE)

SECTION – C (5×8=40)
Answerer ALL questions
Each question carries EIGHT Marks
(INTERNAL CHOICE)

7. Question Paper Pattern
Time: 3 Hour

Max marks: 75

SECTION – A (10×1=10)
Answer ALL questions
Each Question carries One Mark
(Multiple Choice Questions)

SECTION – B (5×5=25)
Answer ALL questions
Each question carries FIVE Marks
(INTERNAL CHOICE)

SECTION – C (5×8=40)
Answerer ALL questions
Each question carries EIGHT Marks
(INTERNAL CHOICE)

8. Question Paper Pattern
Time: 3 Hour

Max marks: 50

SECTION – A (10×1=10)
Answer ALL questions
Each Question carries One Mark
(Multiple Choice Questions)

SECTION – B (5×3=15)
Answer ALL questions
Each question carries THREE Marks
(INTERNAL CHOICE)

SECTION – C (5×5=25)

Answerer ALL questions
Each question carries FIVE Marks
(INTERNAL CHOICE)

9. Question Paper Pattern (Additional Credit Paper)
Time: 3 Hour

Max marks: 100

SECTION – A (10×1=10)

Answer ALL questions
Each Question carries One Mark
(Multiple Choice Questions)

SECTION – B (5×8=40)

Answer ALL questions
Each question carries EIGHT Marks
(INTERNAL CHOICE)

SECTION – C (5×10=50)

Answerer ALL questions
Each question carries TEN Marks
(INTERNAL CHOICE)

NOTE:

1. The questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the unit in the syllabus in all the sections of the question paper.
3. While framing questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

Conduct of Practical Examinations:

Practical examinations shall be conducted with one internal examiner and one external examiner and the question paper for practical examination shall be set by both Internal and External examiners.

**B.Sc. (Mathematics) Degree Examination- Syllabus- for Candidates admitted from
2015-2016 onwards**

FIRST SEMESTER

PART III : Core 1 TRIGONOMETRY AND FOURIER SERIES

Maximum CIA: 30

Maximum CE: 70

Total Hours: 72

Objective: To enable students gain Fundamental knowledge about the Trigonometric Functions and Fourier Series..

UNIT-I (14 HOURS)

Solution of Simple Trigonometric equations - Inverse Trigonometric functions Demoivre's Theorem (Simple problems).

UNIT-II (15 HOURS)

Expansion in series- Expansion of $\cos^n \theta$, $\sin^n \theta$ in a series of cosines and sines of multiples of θ – Expansions of $\cos n\theta$ and $\sin n\theta$ in powers of sines and cosines- expansion of $\sin \theta$, $\cos \theta$ and $\tan \theta$ in powers of θ – Hyperbolic functions and inverse hyperbolic functions.

UNIT-III (14 HOURS)

Logarithm of complex quantities- Summation of series- when angles are in Arithmetic progression- $C+iS$ Method of summation- Method of differences.

UNIT IV (15 HOURS)

Fourier series- definition - Fourier Series expansion of periodic functions with Period 2π – Use of odd & even functions in Fourier Series.

UNIT V (14 HOURS)

Half-range Fourier Series – definition- Development in Cosine series & in Sine Series- Change of interval.

TEXT BOOKS

1. S.Narayanan, T.K. Manicavachagam Pillay, Trigonometry, S.Viswanathan Private Ltd 2014, Chennai.
Unit I-Chapter -1
Unit II-Chapter- 3, 4
Unit III-Chapter -5- 5.1, 5.2
2. Mathematics for B.Sc.Br-1 Volume IV by Kandasamy, K.Thilagavathi, S.Chand & Company Ltd. Edition 2013
Unit-IV- [Page No: 96-130]
Unit –V- [Page No:135-153]

REFERENCE BOOK

1. A.Singaravelu, Engineering Mathematics(for IV semester students),New revised Edition-December 1997

15BMA102

B.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from 2015-2016 onwards

**FIRST SEMESTER
PART III : Core 2 CALCULUS**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 72

Objective: To enable students gain fundamental knowledge about the Curvature, Evolutes and envelopes, Integrations and geometrical applications.

UNIT I (14 HOURS)

Curvature-Radius of curvature in Cartesian and polar forms-Evolutes and envelopes- Pedal equations- Total differentiation- Euler's theorem on homogeneous functions.

UNIT II (15 HOURS)

Integration of $f'(x)\sqrt{f(x)}$, $f'(x)/f(x)$, $(px+q) [\sqrt{ax^2+bx+c}]$, $(px+q)/ [\sqrt{ax^2+bx+c}]$, $[\sqrt{(x-a)(b-x)}]$, $[\sqrt{(x-a)(b-x)}]$, $1/[\sqrt{(x-a)(b-x)}]$, $1/(a \cos x + b \sin x + c)$, $1/(a \cos^2 x + b \sin^2 x + c)$, Integration by parts.

UNIT III (14 HOURS)

Reduction Formulae- Problems- Evaluation of double and triple integrals- Applications - Areas and Volumes-Areas in polar coordinates.

UNIT IV
(14 HOURS)

Change of Order of Integration in Double Integral- Jacobian - Change of variables in Double and Triple Integrals.

UNIT V (15 HOURS)

Notation of improper integrals- their convergence- Simple tests for convergence simple problems- Beta and Gamma Integrals-Their properties- Relation between them- Evaluation of multiple integrals using Beta and Gamma Functions.

TEXT BOOK

1. S. Narayanan, T.KManikavachagam Pillay, A Text book of Calculus, VOL I and II S.Viswanathan Pvt Ltd, 2014, Chennai.

REFERENCE BOOK

1. P.Kandasamy and K.Thilagavathy, Mathematics for B.Sc- VOL I and II, S.Chand and Co 2013, New Delhi.

B.Sc. (Mathematics) Degree Examination- Syllabus-for Candidates admitted from 2018-2019 onwards**FIRST SEMESTER****PART III : IDC 1 MATHEMATICAL STATISTICS –I**

Maximum CIA: 30

Maximum CE: 70

Total Hours :72

Objective: To enable students gain Fundamental knowledge about the concepts of Probability, Distributions, Curve fitting, Correlation and Regression and their applications.

UNIT –I (15 HOURS)

Random Variables- Discrete and Continuous Random Variables-Properties of Distribution Function-Discrete Random Variable- Probability Mass Function-Discrete Distribution Function-Continuous Random Variable-Probability Density Function-Variation Measures of Central Tendency, Dispersion, Skewness and Kurtosis for Continuous Probability Distribution.

UNIT –II (15HOURS)

Two Dimensional or Joint Probability Mass Function-Two Dimensional Distribution Function-Marginal Distribution Function-Joint Density Function-Marginal Density Function-Mathematical Expectation – Addition and Multiplication theorem of expectation-Properties of variance- Covariance.

UNIT-III (14 HOURS)

Moment Generating Functions-some Limitations of Moment Generating Function-Properties of Moment Generating Function-Uniqueness Theorem of Moment Generating Function-Chebyshev's Inequality-Weak Law of Large Numbers.

UNIT- IV (14 HOURS)

Karl Pearson's coefficient of Correlation-limits of Correlation coefficient-Spearman's Rank Correlation coefficient-Repeated Ranks Linear Regression-regression coefficients-Properties of regression coefficients- Problems Discrete Probability Distribution- Binomial- Poisson Distribution and their Properties. (MGF, Characteristic function, Additive Properties and Simple problems)

UNIT –V (14 HOURS)

Continuous Probability Distribution- Normal and Exponential Distributions and their properties (MGF, Characteristics function- Additive Properties and Simple problems)

Note: The proportion of marks between theory and problems shall be 70% and 30% respectively.

TEXT BOOK

1. S.C Gupta and V.K.Kapoor, Fundamentals of Mathematical Statistics, S.Chand and Co, 2014, New Delhi.

Unit I-[Sec-5.1-5.4.2]

Unit II- [Sec-5.5.1 -5.5.4, Sec-6.1 - 6.6]

Unit III, [Sec-7.1 -7.1.3, Sec-7.5, Sec 7.7,]

Unit IV- [Sec- 8.4 - 8.5 Sec10.4.1,10.7.1,10.7.2,11.2.1-11.2.2]

Unit V- [Sec- 9.2, 9.8].

REFERENCE BOOKS

1. S.P. Gupta, Statistical Methods, S.Chand and Co, 2014, New Delhi.
2. S.C. Gupta and V.K.Kapoor, Elements of Mathematical Statistics, S.Chand and Co, 2014
New Delhi.

B.Sc. (Mathematics) Degree Examination- Syllabus- for Candidates admitted from 2018-2019 onwards**SECOND SEMESTER****PART III: Core 3 ANALYTICAL GEOMETRY AND VECTOR CALCULUS**

Maximum CIA :30

Maximum CE :70

Total Hours: 72

Objective: To enable students gain Fundamental knowledge about the Analytical Geometry of three dimensions and various techniques in Vector Calculus and their applications.

UNIT-I (15 HOURS)

Analytical Geometry of 2D-Polar Co-ordinates Equation of a Conic -Directrix-Chord-Tangent- Normal- Simple Problems-only in deriving equation of Conic.

UNIT-II (15HOURS)

Analytical Geometry 3D- Straight lines- Co-Planarity of Straight line- Shortest distance (SD) and equation of Shortest distance between two lines.

UNIT-III (14 HOURS)

Sphere- Standard equation of sphere- Results based on the properties of a Sphere- tangent plane to a sphere – Equation of a circle.

UNIT-IV (14 HOURS)

Cone and Cylinder- Cone whose vertex is at the Origin – Enveloping Cone of a Sphere – Right Circular Cone –Equation of a Cylinder – Right Circular Cylinder

UNIT- V (14 HOURS)

Vector Calculus- Concept of Vector and Scalar Fields-Differentiation of vectors-Divergence of Vector-Curl of a Vector- Gradient. Integration of vectors-line integral-surface integral-Volume Integral-Gauss Divergence (Statement only)- Stokes Theorem (Statement only)- Problems.

TEXT BOOKS

1. Analytical Geometry of 2D, T.K. Manicavachagam Pillai and others-S. Viswanathan Publications-2006, Chennai.
2. Analytical Geometry of 3D, P. Durai Pandian and Laxmi Durai Pandian, Emerald publishers, 2003, Chennai.
3. P. Durai Pandian and Laxmi Durai Pandian, Vector Analysis, Emerald publishers revised Edition 2005 Chennai.

REFERENCE BOOK

1. T.K. Manichavasagam Pillai & others, Analytical Geometry, S. S. Viswanathan Publications - Revised Edition 2014.

B.Sc. (Mathematics) Degree Examination- Syllabus- for Candidates admitted from 2016-2017 onwards

**SECOND SEMESTER
PART III: Core 4 CLASSICAL ALGEBRA**

Maximum CIA:30

Maximum CE: 70

Total Hours: 72

Objective: To enable students gain Fundamental Knowledge about the Convergence of series and Sequences Functions and their Applications.

UNIT-I (15 HOURS)

Binomial Theorems-Statements and Proofs – Their Immediate Application to Summation and Approximation only.

UNIT- II (15 HOURS)

Exponential Theorems- Their statements and proofs – Their immediate application to summation and approximation only.

UNIT- III (14 HOURS)

Logarithmic Series Theorem- Statement and proof- Immediate Application to Summation and Approximation only.

UNIT-IV (14 HOURS)

Convergency and divergency of series- Definitions-Elementary results- Comparison tests- De Alemberts and Cauchy's tests.

UNIT-V (14 HOURS)

Absolute Convergence- Series of positive terms- Cauchy's condensation test- Raabe's test.

TEXT BOOK

1. T.K. Manicavachagam Pillai, Algebra Volume I, S.Viswanathan Private Ltd, 2014, Chennai.

REFERENCE BOOK

1. P.Kandasamy and K.Thilagavathy, Mathematics for B.Sc Branch I- Vol.1, S.Chand and Co 2013, New Delhi

B.Sc. (Mathematics) Degree Examination- Syllabus- for Candidates admitted from 2018-2019 onwards**SECOND SEMESTER****PART III: IDC 2 MATHEMATICAL STATISTICS –II**

Maximum CIA:30

Maximum CE : 70

Total Hours: 72

Objective: To enable students gain Fundamental Knowledge about the Concepts of Estimation, Testing of sampling, Design of experiment and Analysis of Variance.

UNIT – I (15 HOURS)

Chi-square, t and F Statistics their probability density functions and their properties. Simple problems.

UNIT-II (14 HOURS)

Concept of Population- Sample Statistics- Parameter –Point Estimation-Concept of Point Estimation- Consistency- Unbiasedness- Efficiency-Sufficiency- Neyman Factorization Theorem-Cramer Rao Inequality – Rao-Black well theorem.

UNIT-III (14 HOURS)

Standard Error—Tests of Significance-Null and Alternative Hypotheses-Errors in Sampling- Type I and Type II errors –Critical Region and Level of Significance- one tail and two tailed tests-Critical Values or Significant Values-Procedure For Testing of Hypothesis – Tests of Significance For Large Values-Sampling Of Attributes –Test Of Significance For Single Proportion-Test of Significance For Difference of Proportion-Neyman And Pearson Lemma-Unbiased test and Unbiased Critical Region-Likelihood Ratio Test –Properties of Likelihood Ratio Test

UNIT-IV (15 HOURS)

Method of Estimation-Maximum Likelihood-Likelihood Function–Properties of Maximum Likelihood-Method of Minimum Variance –Method of Moments-Method of Least Square.

UNIT- V (14 HOURS)

Analysis of Variance- One way and two way Classifications- Properties and Simple Problems.

Note: The proportion of marks between theory and problems shall be 60% and 40% respectively.

TEXT BOOKS

1. S.C. Gupta and V.K.Kapoor, Fundamentals of Mathematical Statistics, S.Chand and Co, 2014, New Delhi.
 Unit I- [Sec 15.1 to 15.3, 16.2.1 to 16.2.3 &16.5]
 Unit-II- [Sec 17.1 to 17.3]
 Unit III-[Sec 14.3.2 to 14.7.2, Sec 18.5 to 18.5.1, Sec 18.6 to 18.6.1]
 Unit IV-[Sec 17.6 to 17.6.4]
2. S.P Gupta, Statistical Methods, S.Chand and Co, 2000, New Delhi. (Unit V)

REFERENCE BOOK

1. S.C. Gupta and V.K.Kapoor, Elements of Mathematical Statistics, S.Chand and Co, 2014
New Delhi.

15BMA301

B.Sc (Mathematics) Degree Examination- Syllabus- for Candidates admitted from the Academic Year 2015-2016 onwards

**THIRD SEMESTER
PART- III CORE – 5 STATICS**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To enable students gain Knowledge about the Concept about the forces, resultant force and friction, application problems and their applications.

UNIT-I (12 HOURS)
Forces acting at a point – Parallelogram law-triangle law –Polygon of forces- Lami's theorem
Conditions of Equilibrium.

UNIT- II (12 HOURS)
(λ - μ) Theorem –Resolution of a force-Theorem on resolved parts.

UNIT – III (12 HOURS)
Parallel Forces-Like Parallel Forces- Un like Parallel Forces-Moments of a force about a point
Varignons Theorem-Moment of a force about an axis.

UNIT – IV (12 HOURS)
Couples- Equilibrium of two couples-Co-planar forces acting on a rigid body – Theorem on three co-planar forces in equilibrium-Reduction of a system of co-planar forces to a single force and a couple- Necessary and Sufficient Conditions of equilibrium equation to the line of action of the resultant.

UNIT – V (12 HOURS)
Friction- Laws of friction- Co-efficient of friction- Angle and cone of friction- Equilibrium of a particle on a rough inclined plane under a force parallel to the plane and under any force- Problems on friction.

TEXT BOOK

1. M.K. Venkataraman, Statics, Reprint2014, Agasthiar Publications, Trichy.

REFERENCE BOOKS

1. P.Duraipandian and Laxmi Duraipandian, Mechanics, Reprint 2012, S.Chand and Company Ltd., Ram Nagar, New Delhi.
2. A.V.Dharmapadam, Statics, Reprint 2013,S.Viswanathan Printer and Publishing Pvt Ltd, Chennai.

B.Sc. (Mathematics) Degree Examination- Syllabus- for Candidates admitted from the Academic Year 2015-2016 onwards

THIRD SEMESTER

PART III-CORE 6- DIFFERENTIAL EQUATIONS AND LAPLACE TRANSFORMS

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To enable students gain Fundamental Knowledge about the method of solving Differential Equations and Laplace Transforms.

UNIT I (12 HOURS)

Finding the solution of Second Order with constant coefficients with Right Hand side is of the form Ve^{ax} where V is a function of x-Euler's Homogeneous Linear Differential Equations – Method of variation of parameters.

UNIT II (12 HOURS)

Ordinary Differential Equations - Equations of first Order - Solvable for p, x, y-Clairaut's Equation.

Simultaneous Differential Equations with constant coefficients of the form

$$(i) f_1(D)x + g_1(D)y = \phi_1(t)$$

$$(ii) f_2(D)x + g_2(D)y = \phi_2(t)$$

Where f_1, g_1, f_2, g_2 are rational functions $D = \frac{d}{dt}$ with constant Co-efficient ϕ_1 and ϕ_2 are explicit functions of t.

UNIT III (12 HOURS)

Partial Differential Equations: Formation of equations by eliminating arbitrary constants and arbitrary functions- Solutions of P.D.E-Solutions of P.D.E. by direct integration-Methods to solve the first order P.D.E. in standard forms- Lagrange's Linear Equations.

UNIT IV (12 HOURS)

Laplace Transforms- Definitions-Laplace Transforms of standard functions-Linearity

Property – First shifting theorem-Transform of $tf(t), \frac{f(t)}{t}, f'(t)$ and $f''(t)$

UNIT V (12 HOURS)

Inverse Laplace Transforms-Applications to solutions of First Order and Second Order Differential Equations with Constant Coefficients.

TEXT BOOKS

1. P.Kandasamy, K.Thilagavathi, Mathematics for B.Sc Branch-I Vol- III, 2014, S.Chand and Company Ltd, New Delhi.
2. S.Sankarappan and S.Kalavathy, Differential Equations and Laplace Transforms ,2005 ,Vijay Nicole Imprints Private Ltd, Chennai

REFERENCE BOOK

1. M.L. Kanna, Differential Equations, Reprint 2009, Jaico publishers ,Chennai.

B.Sc. (Mathematics) Degree Examination- Syllabus- for Candidates admitted from the Academic Year 2015-2016 onwards

THIRD SEMESTER

PART IV: AOC I - OPERATIONS RESEARCH-I

Maximum CE: 75

Total Hours: 36

Objective: To enable students gain Fundamental Knowledge about an Operations Research and their applications.

UNIT I (12 HOURS)

Introduction to Operations Research–Canonical and Standard forms of L.P.P - Formulation of L.P.P – Graphical solutions of L.P.P – Simplex Method – Charnes Penalty Method (or) Big – M Method- Problems.

UNIT II (9 HOURS)

Duality in L.P.P – Concept of duality – Duality and Simplex Method- Problems.

UNIT III (6 HOURS)

The transportation Problems – Basic feasible solution by Least cost method– North West Corner Method- Vogel’s Approximation Method- Optimum solutions by Modi method – Unbalanced Transportation Problems.

UNIT IV (5 HOURS)

The Assignment Problems – Assignment algorithm – Optimum Solutions – Unbalanced Assignment Problems- Travelling Salesman Problem.

UNIT V (4 HOURS)

Game Theory – Two person zero sum game – The Maxmin – Minimax Principle – Problems - Solution of 2×2 rectangular Games – Domination Property – $(2 \times n)$ and $(m \times 2)$ Graphical Method – Problems.

Note: The proportion of marks between theory and problems shall be 20% and 80% respectively.

TEXT BOOK

1. Kantiswarup, P. K. Gupta and Man Mohan, Operations Research, (16th edition) Reprint 2013, S. Chand & Sons Education Publications, New Delhi.

REFERENCE BOOK

1. Prof.V.Sundaresan, K.S.Ganapathy Subramanian and K.Ganesan, Resource Management Techniques, 8th Edition 2014, A.R.Publications Arpakkam (Po), TamilNadu.

B.Sc. (Mathematics) Degree Examination- Syllabus- for Candidates admitted from the Academic Year 2015-2016 onwards

THIRD SEMESTER
PART IV: AOC – I MATHEMATICAL MODELLING

Maximum CE: 75

Total Hours: 36

Objective: To enable students gain Knowledge about the Concept of Mathematical Modelling and their applications.

UNIT I (8 HOURS)

Introduction-Mathematical Modelling. Mathematical Modelling through Ordinary Differential Equations of First order : Linear Growth and Decay Models – Non-Linear Growth and Decay Models – Compartment Models .

UNIT II (6 HOURS)

Mathematical Modelling through Systems of Ordinary Differential Equations of First Order: Population Dynamics – Compartment Models – Medicine, Arms Race, Battles and International Trade – Dynamics.

UNIT III (6 HOURS)

Mathematical Modelling through Ordinary Differential Equations of Second Order : Planetary Motions – Circular Motion and Motion of Satellites –Miscellaneous Mathematical Models.

UNIT IV (8 HOURS)

Mathematical Modelling through Difference Equations : Simple Models – Basic Theory of Linear Difference Equations with Constant Coefficients - Population Dynamics and Genetics .

UNIT V (8 HOURS)

Mathematical Modelling through Graphs :Situations that can be Modelled Through Graphs – Mathematical Modelling in Terms of Directed Graphs.

TEXT BOOK

1. J.N.Kapur,Mathematical Modelling, Second Edition 2015,New Age International Publishers, New Delhi.

REFERENCE BOOKS

1. J.N. Kapur, Mathematical Models in biology and Medicine, 1985,EWP, New Delhi.
2. J.N. Kapur, Mathematical Modelling, 1988, Wiley Eastern Limited, New Delhi.

B.Sc (Mathematics) Degree Examination-syllabus for candidates admitted from the Academic Year 2014- 2015 onwards.

**THIRD SEMESTER
PART-III: ALC 1- VEDIC MATHEMATICS**

Maximum CE: 100

Course Objective:

To enable students gain Fundamental knowledge about the Vedic Mathematics.

Unit I

Squaring of numbers ending with 5- Squaring of numbers between 50 and 60 – Multiplication of Numbers with a series of 9's - Multiplication of numbers with a series of 1's - Multiplication of numbers with a series of similar digits in multiplier.

Unit II

Criss- Cross system of multiplication -squaring of number – Cube roots of perfect cubes – square roots of perfect squares.

Unit III

Base method of multiplication –above base 100 and below base 1000 - above base 1000 and below base 100 - above base 10,000 and below base 10,000 – multiplying a number above the base with a number below the base – multiplying numbers with different bases.

Unit IV

Digit sum method – Magic squares – Dates and calendars – General equations – simultaneous linear equations.

Unit V

Square roots of imperfect squares – cubing numbers – Base method of division- Zeller's rule to find the day on any date.

Text Book:

1. Dhaval Bathia ,Vedic mathematics made Easy, Edition 2012,Jaico publishing house ,Chennai.

Reference Book:

1.Jagadguru Swami Sri, “Vedic Mathematics” ,Revised Edition 1992,Motilal Banar Sidass Publishers Private Limited,Delhi.

B.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from the Academic Year 2015-2016 onwards

FOURTH SEMESTER
PART- III: CORE - 7 DYNAMICS

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To enable students gain knowledge about the Concept of Dynamics Functions and their Applications.

UNIT-1 **(14 HOURS)**

Kinematics- Velocity-Acceleration-Relative Velocity-Angular velocity-Relative Angular Velocity-Motion in the Straight line-Equations of motion-Acceleration falling bodies-Vertical motion under gravity-Motion down a smooth inclined plane. Laws of motion- Newton's laws of motion-Newton's law of gravitation. Conservation of linear momentum-Work done by elastic string-work done by a couple-Power- Gauss power-Conservative forces-Energy-Potential energy kinetic energy-Principle of energy.

UNIT – II **(10 HOURS)**

Projectiles- Path of a projectile-Greatest height-time of flight-Range on an inclined plane through the point of projection-Maximum range.

UNIT – III **(12 HOURS)**

Central Orbits- Radial and transverse components of velocity and acceleration – A real velocity. Differential equation of central orbit in polar coordinates–Circular and elliptic orbit-Kepler's laws of planetary motion- Pedal equations.

UNIT – IV **(12 HOURS)**

Simple Harmonic Motion- Amplitude, periodic time, phase-Composition of two simple harmonic motions of the same period in a straight line and in two perpendicular lines.

UNIT – V **(12 HOURS)**

Impact on a fixed surface- Impulsive force-Impact on a smooth fixed plane –Direct and oblique impact of two smooth spheres Loss of Kinetic energy during direct and oblique impacts.

TEXT BOOK

1. M.K.Venkataraman, Dynamics, 11thEd. 2012,Agasthiar Publications, Trichy.

REFERENCE BOOK

1. A.V. Dharamapadam, Dynamics, 2013,S.Viswanathan Printers and Publishers Pvt Ltd, Chennai.

B.Sc. (Mathematics) Degree Examination- Syllabus- for Candidates admitted from the Academic Year 2015-2016 onwards

FOURTH SEMESTER

PART- III: CORE - 8 FOURIER TRANSFORMS, Z-TRANSFORMS AND THEORY OF EQUATIONS

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To enable students gain fundamental knowledge about the improper integrals and geometrical functions and their applications.

UNIT I

(12 HOURS)

Fourier Transform- Properties of Fourier Transform - problems based on Fourier Transform - Inverse Fourier Transform - Problems based on Inverse Fourier Transform - Convolution Theorem for Fourier Transform.

UNIT II

(12 HOURS)

Fourier sine Transform - Fourier cosine Transform- Properties of Fourier cosine and sine Transform- Parseval's Identity for Fourier Transform(Excluding Inverse).

UNIT III

(12 HOURS)

Definition of One sided Z –Transform - Z –Transform some basic functions namely $Z [1]$, $Z [n]$, $Z \left[\frac{1}{n} \right]$, $Z \left[\frac{1}{n+1} \right]$, $Z \left[\frac{1}{n+2} \right]$, $Z \left[\frac{1}{n-1} \right]$, $Z \left[\frac{1}{n!} \right]$, $Z \left[\frac{1}{(n+1)!} \right]$, $Z [a^n]$ – Linear property-First Shifting theorem(Only Unilateral problems). Definition of Inverse Z –Transform - Method of Partial fraction -Long Division Method .

UNIT IV

(12 HOURS)

Theory of Equations: Roots of Equation - Relation between the Roots and Coefficients of Polynomial Equations – Transformation of Equation- Diminishing, Increasing & multiplying the roots by a constant-Forming equations with the given roots.

UNIT V

(12 HOURS)

Symmetric function of root's - Sum of the Power's of the root's of an Equation – Newton's Theorem on the sum of the powers of roots – Reciprocal Equation of even and odd degree (like and unlike signs) of its coefficients- Horner's Method.

TEXT BOOKS

1. Dr. A. SINGARAVELU, Transforms and Partial differential Equations, Revised Edition : June 2013,Meenakshi Agency.
2. T.K. Manicavachagam Pillay, T.Natarajan, Algebra-VOL I, Reprint-2015, S.Chand and co, New Delhi(Unit IV,V-Chapter-6)

REFERENCE BOOKS

1. P.Kandasamy, K.Thilagavathy, Allied mathematics, paper-I, First semester, Reprint 2013, S.Chand & company PVT Ltd.
2. K.Vairamanickam, Nirmala, P.Ratchagar, S.Tamilselvam, Transforms and Z-Transforms, Second Edition,May 2013, SCITECH PUBLICATIONS INDIA PVT.LTD.

B.Sc. (Mathematics) Degree Examination- Syllabus- for Candidates admitted from the Academic Year 2015-2016 onwards

FOURTH SEMESTER
PART- IV: AOC II –OPERATIONS RESEARCH-II

Maximum CE: 75

Total Hours: 36

Objective: To enable students gain Fundamental Knowledge about Game, Queuing theory and Network analysis and their applications.

UNIT I (8 HOURS)
Decision Analysis- Decision Making Environment- Decision under uncertainty- Decision under risk- Decision-Tree Analysis.

UNIT II (6 HOURS)
Sequencing Problem- Processing n jobs through two machines- Processing 2 jobs through k machines- Processing n jobs through k machines

UNIT III (6 HOURS)
Replacement Problem – Elementary Replacement models – Present Value – Individual Replacement problem – Group replacement problem.

UNIT IV (8 HOURS)
Network scheduling by PERT / CPM – Network and basic components – Rules of Network construction – Time calculation in Networks – CPM. PERT – PERT calculations

UNIT V (8 HOURS)
Queueing Theory – Introduction – Elements of Queueing System – Operating Characteristics of Queueing System – Symbols and Notation – Classifications of queues – Problems in (M/M/1) : (∞ /FIFO); (M/M/1) : (N/FIFO) - Excluding derivatives.

Note: The proportion of marks between theory and problems shall be 20% and 80%.

TEXT BOOK:

1. Kantiswarup, P. K. Gupta, Man Mohan Operations Research, (16th edition) Reprint 2013, S. Chand & sons Education Publications, New Delhi.

REFERENCE BOOK:

1. Prof.V.Sundaresan K.S.Ganapathy Subramanian and K.Ganesan, Resource Management Techniques, 8th Edition 2014, A.R.Publications Arpakkam (Po), TamilNadu.

B.Sc (Mathematics) Degree Examination-syllabus-For candidates admitted from the Academic Year 2015- 2016 onwards.

**FOURTH SEMESTER
PAPER IV:AOC II- FUZZY LOGIC AND NEURAL NETWORKS**

Maximum CE: 75

Total Hours: 36

Objective: To enable students gain Fundamental Knowledge about Fuzzy Logic and Neural Network and their applications .

UNIT I (8 HOURS)

Fuzzy set theory- Fuzzy versus Crisp- Crisp sets- Operations on Crisp Sets- Properties of Crisp Sets- Partition and Covering- Fuzzy sets- Membership Function- Basic Fuzzy Set Operations- Properties of Fuzzy Sets- Crisp Relations- Cartesian Product- Operations on Relations- Fuzzy Relations- Fuzzy Cartesian product- Operations on Relations.

UNIT II (6 HOURS)

Fuzzy systems- Crisp Logic- Laws of Propositional Logic- Inference in Propositional Logic- Predicate Logic- Interpretations of Predicate Logic formula- Inference in Predicate Logic- Fuzzy Logic- Fuzzy Quantifiers- Fuzzy Inference- Applications- Greg Viot's Fuzzy Cruise Controller- Air Conditioner Controller.

UNIT III (6 HOURS)

Fuzzy Associative Members- FAM Introduction- Single Associations FAM- Graphical Method of Inference- Correlation Matrix Encoding- Fuzzy Hebb FAMs- Applications- Balancing an Inverted Pendulum- Fuzzy Truck Backer-upper System.

UNIT IV (8 HOURS)

Fundamentals of Neural Networks- Basic concepts of Neural Networks- Human Brain- Model of an Artificial Neuron- Neural Network Architectures- Single Layer Feed forward Network- Multilayer Feed Forward Network- Recurrent Networks- Early Neural Network Architectures- Rosenblatt's Perceptron- ADALINE Network- MADALINE Network.

UNIT V (8 HOURS)

Backpropagation Networks- Architecture of a Backpropagation Network- The Perceptron Model- The Solution- Single Layer Artificial Neural Network- Backpropagation Learning- Input Layer Computation- Hidden Layer Computation- Output Layer Computation.

TEXT BOOK:

1. S.Rajasekaran, G.A. Vijayalakshmi Pai, "Neural Networks, Fuzzy Logic, and Genetic Algorithms Synthesis and Applications", Asoke K. Ghosh, PHI Learning private ltd, 2010, New Delhi.

REFERENCE BOOK:

1. George J. Klir, "Fuzzy sets and Fuzzy Theory", 2016, Prentice Hall of India Private Limited, First Edition, New Delhi.

B.Sc (Mathematics) Degree Examination – Syllabus – For Candidates admitted from the Academic Year 2016 – 2017 onwards

FOURTH SEMESTER
Additional Credit- LATEX

Maximum CE:100

Objective: To enable students gain Fundamental Knowledge about the basic concepts in LATEX

UNIT I

Text formatting - TEX and its offspring - what's different in LATEX 2E- Distinguishing LATEX 2E- Basics of LATEX file.

UNIT II

Text - Symbols and Commands - Command names and Arguments – Environments – eclarations – Lengths – Special characters.

UNIT III

Document layout and organization – Document class - Page style - Parts of the Document – table of contents, Fine – tuning text - Word Division.

UNIT IV

Displayed Text – Changing Font – Centering and indenting – lists - generalized lists - Theorem – like declarations - Tables – Printing literal text – Foot notes and Marginal notes.

UNIT V

Mathematical formulas – Mathematical environments – Main Elements of math mode – Mathematical Symbols – Additional elements – Fine - tuning Mathematics

TEXT BOOK:

1. **H. Kopka and P.W. Daly** , A Guide to LATEX, Third Edition, 1999. Addison – Wesley, London
Unit I: Chapter 1: Sections:1,1-1.3, 1.4-1.5. **Unit II:** Chapter 2: Sections: 2.1-2.7
Unit III: Chapter 3: Sections: 3.1-3.6, **Unit IV:** Chapter 4: Sections: 4.1-4.10,6.1.
Unit V: Chapter 5: Sections: 5.1-5.5.

REFERENCE BOOK:

1. “Getting Started with LATEX” by **R. Williams**, Second Edition, 1995.

B.Sc. (Mathematics) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

**FIFTH SEMESTER
PART III-CORE 9- REAL ANALYSIS- I**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 72

Objective: To enable students gain knowledge about the Concept of Real and Complex Numbers, Convergent sequence and their applications.

UNIT I (14 HOURS)

The Real and Complex Number Systems the field axioms, the order axioms –Integers –The unique Factorization theorem for integers –Rational numbers –Irrational numbers –Upper bounds, maximum Elements, Least upper bound –The completeness axiom –Some properties of the Supremum – Properties of the integers deduced from the completeness axiom- The Archimedean property of the real number system –Rational numbers with finite decimal representation of real numbers –Absolute values and the triangle inequality –The Cauchy-Schwartz- inequality –Plus and minus infinity and the extended real number system.

UNIT II (15 HOURS)

Basic notions of a set theory- Notations –Ordered pairs –Cartesian product of two sets – Relations and Functions – Further terminology concerning functions –One –One functions and inverse – composite functions –Sequences –Similar Sets-Finite and infinite sets –Countable and uncountable sets –Uncountability of the real number system –Set algebra –Countable collection of countable sets.

UNIT III (14 HOURS)

Elements of point set topology- Euclidean space \mathbb{R}^n –Open balls and open sets in \mathbb{R}^n – Structure of open sets in \mathbb{R}^n –Closed sets and adherent points – The Bolzano –Weierstrass theorem – the Cantor intersection theorem

UNIT IV (14 HOURS)

Covering – Lindelof covering theorem –The Heine Borel covering theorem –Compactness in \mathbb{R}^n – Metric Spaces –point set topology in metric spaces –compact subsets of a metric space – Boundary of a set.

UNIT V (15 HOURS)

Convergent sequences in a metric space –Cauchy sequences –Completeness sequences – Complete metric Spaces- Limit of a function –Continuous functions –Continuity of composite functions- Continuous complex valued and vector valued functions.

TEXT BOOK

1. T.M.Apostol, Mathematical Analysis, 2nd Edition, Narosa Publishing Company, 2002, Chennai.
Unit I –Chapter 1(Sec 1.2, 1.3, 1.6 to 1.16, 1.18 to 1.20) (Excluding Exercise Problem)
Unit II –Chapter 2(Sec 2.2 to 2.15) (Excluding Exercise Problem)
Unit III – Chapter 3(Sec 3.2 to 3.9) (Excluding Exercise Problem)
Unit IV –Chapter 3(Sec 3.10 to 3.16) (Excluding Exercise Problem)
Unit V –Chapter 4(Sec 4.2 to 4.5, 4.8 to 4.15) (Excluding Exercise Problem)

REFERENCE BOOK

1. G.F.Simmons, Introduction to Topology and Modern Analysis, McGraw – Hill, 2011, New York.

B.Sc. (Mathematics) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

**FIFTH SEMESTER
PART III-CORE 10- COMPLEX ANALYSIS- I**

Maximum CIA: 30

Maximum CE:70

Total Hours: 72

Objective: To enable students gain Knowledge about the Concept of Complex Numbers, Functions, Power series complex integration and their applications.

UNIT I (15 HOURS)

Complex Number System, Complex Number –Field of Complex Numbers – Conjugation – Absolute value –Argument –Simple Mappings. i) $w = z + \alpha$ ii) $w = az$
iii) $w = 1/z$ – Bilinear transformation –Definition of extended complex plane – Stereographic projection.

UNIT II (14 HOURS)

Complex functions- Limit of a function –Continuity –Differentiability – Analytical function defined in a region –Necessary conditions for differentiability –Sufficient conditions for differentiability – Cauchy-Riemann equation in polar coordinates –Definition of entire function.

UNIT III (14 HOURS)

Power Series- Absolute Convergence –Circle of convergence –Analyticity of the sum of power series in the Circle of convergence (term by term differentiation of a series) Elementary functions- Exponential, Logarithmic, Trigonometric and Hyperbolic functions.

UNIT IV (14 HOURS)

Conjugate Harmonic functions-Definition and determination, Conformal Mapping: Isogonal mapping – Conformal mapping-Mapping z tends to $f(z)$, where f is analytic, particularly the mappings. $w = e^z$; $w = z^{1/2}$; $w = \sin z$; $w = \cos z$

UNIT V (15 HOURS)

Complex Integration- Simply and multiply connected regions in the complex plane. Integration of $f(z)$ from definition along a curve joining z_1 and z - Proof of Cauchy's Theorem (using Goursat's lemma for a simply connected region)- Cauchy's integral formula for higher derivatives (statement only)-Morera's theorem.

TEXT BOOK

- P.Durai Pandian and Laxmi Durai Pandian, Complex Analysis, Emerald Publishers, 2004, Chennai.
Unit I Chapter 1 (Section 1.1 to 1.3, 1.6 to 1.9) Chapter 2 (Section 2.1 to 2.2, 2.6 to 2.9)
Chapter 7 (Section 7.1)
Unit II Chapter 4 (Section 4.1 to 4.10)
Unit III Chapter 6 (Section 6.1 to 6.11)
Unit IV Chapter 6 (Section 6.12 to 6.13) Chapter 7 (Section 7.6 to 7.9)
Unit V Chapter 8 (Section 8.1 to 8.9)

REFERENCE BOOK

- Santhinarayan, Theory of Functions of Complex Variable, S.Chand and Company, 1995, Meerut.

B.Sc. (Mathematics) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

**FIFTH SEMESTER
PART III-CORE 11- MODERN ALGEBRA-I**

Maximum CIA: 30

Maximum CE:70

Total Hours: 72

Objective: To enable students gain Knowledge about Algebraic Functions and their applications.

UNIT I (15 HOURS)

Set theory –Mapping-Relations and binary operations-Group-Abelian group- Definitions and Examples - Basic properties-Some preliminary Lemmas.

UNIT II (14 HOURS)

Subgroups – Cyclic subgroup - Index of a group – Order of an element – Fermat theorem.
A counting principle-Normal Subgroups and Quotient Groups

UNIT III (14 HOURS)

Homomorphism – Cauchy’s theorem for Abelian Group- Sylows theorem for Abelian Group- Automorphism-Inner Automorphism-Permutation groups.

UNIT IV (14 HOURS)

Rings- Definition - Examples –Some Special Classes of Rings – Commutative ring – Field – The Pigeonhole Principle -Integral domain-Homomorphism of Rings.

UNIT V (15 HOURS)

Ideals and Quotient Rings – More Ideals and Quotient Rings –The field of Quotients of an Integral Domain

TEXT BOOK

- I.N. Herstein, Topics in Algebra, John Wiley and Sons, 2013, New York.
Unit I Chapter 1(Sec 1.1 to1.2) (Excluding Exercise Problem)
Chapter 2 (Sec 2.1 to 2.3) (Excluding Exercise Problem)
Unit II Chapter 2 (Sec 2.4 to 2.6) (Excluding Exercise Problem)
Unit III Chapter 2 (Section 2.7 to till page 62), 2.8, 2.10) (Excluding Exercise Problem)
Unit IV Chapter 3 (Section 3.1 to 3.3) (Excluding Exercise Problem)
Unit V Chapter 3 (Section 3.4 to 3.6) (Excluding Exercise Problem)

REFERENCE BOOK

- Surjeet Singh and Qazi Zameeruddin, Modern Algebra, Vikas Publishing House, 2013, New Delhi.

B.Sc. (Mathematics) Degree Examination- Syllabus- for Candidates admitted from 2015-2016 onwards**FIFTH SEMESTER
PART III –CORE 12 - PROGRAMMING IN C**

Maximum CIA: 30
Maximum CE:70
Total Hours: 48

Objective: To enable students gain fundamental Computer knowledge about the Basic Structures of C Programme, Mathematical problems and their applications.

UNIT I (10 HOURS)

Introduction to C – Basic Structure of C Programme – Programming Style- Character set – C Tokens- Keywords and identifiers- Constants – Variables- Data types- Declaration of Variables- Defining Symbolic Constants- Operators and Expressions - Arithmetic Operators- Relational Operators- Logical operators – Assignment Operators- Increment and Decrement Operators- Conditional Operators-Arithmetic Expressions - Evaluation of Expression- Mathematical Functions.

UNIT II (10 HOURS)

Managing Input and Output Operations-Reading a Character-Writing a Character-Formatted Input and Output.

Conditional statements- Decision Making with if statements- Simple if statement- The if else statement- Nesting if else statement- The Else if Ladder- Switch statement- Goto statement-Break-Continue.

UNIT III (8 HOURS)

Looping Statements- The While Statement- The Do Statement- The For Statement – Jump in Loops- Nesting of loops.

UNIT IV (10 HOURS)

Arrays and Strings- Arrays- One dimensional Arrays- Two dimensional Arrays- Array of Strings – Declaring and initialing String Variables-String Handling functions.

UNIT V (10HOURS)

Pointers- Accessing the address of a variable-Declaring and Initializing Pointer variables-Accessing a variable through its Pointer-Pointer Expressions- Array of Pointers.

TEXT BOOK

1. E. Balagurusamy, Programming in Ansi C, (3rd ED) Tata McGraw Hill, 2006, New Delhi.

REFERENCE BOOK

1. E. Balagurusamy, Object Oriented Programming in C (3rd ED), Tata McGraw Hill, 2007, New Delhi.

B.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from 2015-2016 onwards

**FOURTH SEMESTER
PART III: CORE 13 PROGRAMMING IN C-PRACTICAL**

Maximum CIA: 40

Maximum CE:60

Total Hours: 24

Objective: To enable students gain fundamental Computer knowledge about C Programming, Practical problems and their applications.

1. Develop a C Program to Generate 'N' Fibonacci number.
2. Develop a C Program to print all Possible Roots for a given Quadratic Equation.
3. Develop a C Program to Count the Number of Lines, Words and Characters in a given Paragraph.
4. Develop a C Program to Generate Pascal's Triangle.
5. Develop a C Program to Sort a given Set of Numbers.
6. Develop a C Program to Find the Sum of Digits of a given Number.
7. Develop a C Program to Sort a Given Set of Names.
8. Develop a C Program to Find the Product of Two given Matrices.
9. Develop a C Program to Prepare Pay list for a given Data.
10. Develop a C Program to find the Factorial of a given number using Pointers.

TEXT BOOK

1. E. Balagurusamy, Programming in Ansi C, (3rd Ed.) Tata McGraw Hill, 2006 New Delhi.

REFERENCE BOOK

1. E. Balagurusamy, Object Oriented Programming in C (3rd ED), Tata McGraw Hill, 2007, New Delhi.

15BMAE01

B.Sc. (Mathematics) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

**FIFTH SEMESTER
PART III-ELECTIVE I – ASTRONOMY- I**

Maximum CIA: 30

Maximum CE:70

Total Hours: 72

Objective: To enable students gain Fundamental Knowledge in Astronomy and their applications.

UNIT I (15 HOURS)

General description of the Solar system- Comets and meteorites- Spherical Trigonometry

UNIT II (14 HOURS)

Celestial sphere – Celestial co – ordinates – Diurnal motion – Variation in length of the day

UNIT III (14 HOURS)

Dip – Twilight – Geocentric parallex.

UNIT IV (14 HOURS)

Refraction – Tangent formula – Cassinis formula.

UNIT V (15 HOURS)

Kepler’s laws – Relation between true eccentric and mean anamolies.

TEXT BOOK

1. S.Kumaravelu and Prof.Susheela Kumaravelu, Astronomy,SKV Publications 2004

REFERENCE BOOK

1.Karttunen.H,Kroger.P,Oja.H,Poutanen.M,Donner.K.J, ”fundamentals of Astronomy”Springer 2017.

15BMAE02

B.Sc. (Mathematics) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

**FIFTH SEMESTER
PART III-ELECTIVE-I NUMERICAL METHODS – I**

Maximum CIA: 30

Maximum CE:70

Total Hours: 72

Objective: To enable students gain Fundamental Knowledge in Numerical algebraic functions and their applications.

UNIT I (15 HOURS)

The solution of numerical algebraic and transcendental Equations- Bi Section method – Iteration Method – Convergence condition – Regular Falsi Method – Newton – Raphson method – Convergence Criteria – Order of Convergence.

UNIT II (14 HOURS)

Solution of simultaneous linear algebraic equations -Gauss elimination method – Gauss Jordan method – Method of Triangularization – Gauss Jacobi method – Gauss Seidel method

UNIT III (14 HOURS)

Finite Differences -Differences – Operators – Forward and Backward difference tables – Differences of a polynomial – Factorial polynomial – Error propagation in difference table.

UNIT IV (14 HOURS)

Interpolation (for equal intervals) -Newton's Forward and Backward Formulae – equidistant terms with one or more missing values – Central differences and central difference table – Gauss Forward and Backward Formulae – Stirling's Formula.

UNIT V (15 HOURS)

Interpolation (for unequal intervals) - Divided differences – Properties – Relations between divided differences and forward differences – Newton's divided differences formula – Lagrange's Formula and inverse interpolation.

TEXT BOOK

1. M. K. Venkataraman, Numerical Methods in Science and Engineering, National Publishing Company V Edition 2003, Chennai.

REFERENCE BOOK

1. P,Kandasamy K. Thilagavathi. And K. Gunavathi, Numerical Methods, S. Chand and Company Ltd, Revised Edition 2015, New Delhi.

15BMAE03

B.Sc. (Mathematics) Degree Examination – syllabus – For candidates admitted from 2015-2016 onwards.

**FIFTH SEMESTER
PART-III ELECTIVE-I QUANTITATIVE APTITUDE –I**

Maximum CIA:30

Maximum CE:70

Total Hours: 72

Objective:To enable students gain fundamental knowledge about the Mathematical skills and to explain the extent of the applications of Analytical Skills.

UNIT-I (15 HOURS)
Numbers-H.C.F and L.C.M OF Numbers-simplification –Decimal fractions.

UNIT-II (14HOURS)
Percentage- profit and loss – Ratio and proportion – Partnership.

UNIT-III (14 HOURS)
Time and work- Surds and indices-Square roots and cube roots.

UNIT-IV (14 HOURS)
Alligation of mixture-Average- Area - odd man out series

UNIT-V (15 HOURS)
Calendar –Permutations and combinations –Problems on Ages.

TEXT BOOK

1.D.R.AGARWAL Quantitative aptitude for competitive examinations , S.CHANT AND COMPANY ltd (2007),Ram Nagar, New delhi-110055.

REFERENCE BOOK

1.Scope and treatment as in “Quantitative Aptitude” by Abhijit Guha,Tata MCGraw hill publishing company ltd,New Delhi(2005)

B.Sc (Mathematics) Degree Examination-syllabus-for candidates admitted from the Academic Year 2018- 2019 onwards.

PART- III: ALC-APPLICATIONS OF DIFFERENTIAL EQUATIONS

Maximum CE: 100

Objective: To enable students gain Fundamental knowledge about the Application of Differential Equations.

Unit I

Basic Concepts: Introduction-Definition and terminology: Differential equation-Order of Differential Equation-Degree of a differential equations: Linear and Nonlinear Differential Equations-Solution of a differential equation- Origins and Formation of Differential Equations: Differential Equation of a Family of Curves.

Unit II

Differential Equations of First Order and First Degree: Introduction- Equations in which variables are Separable-Homogeneous Differential Equations-Differential Equation Reducible to Homogeneous Form.

Unit III

Applications of First Order Differential Equations: Growth and Decay-Temperature rate of Change (Newton's Law of Cooling)-Diffusion- Biological Growth-A Problem in Epidemiology-The spread of Technological Innovations

Unit IV

Applications of Higher Order Differential Equations:-Application of Laplace Transforms-Vibrating Motion-vibration in Coupled Systems.

Unit V

Applications of Higher Order Differential Equations:-Forced Motion-Electric Circuit.

Text Book

1. Zafer Ahsan ,Differential equations and their Applications, Third Edition 2017,PHI Learning Private Limited ,Delhi-110092.

Reference Book

1.S.G.Deo and V.Raghavendra, Ordinary Differential Equations and Stability Theory, Third Edition 2015, Tata McGraw Hill, New York.

B.Sc. (Mathematics) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards**SIXTH SEMESTER
PART III-CORE 14- REAL ANALYSIS-II**

Maximum CIA: 30

Maximum CE:70

Total Hours: 60

Objective: To enable students gain Fundamental Knowledge in Concepts of derivative, continuity function and their applications.

UNIT I (12 HOURS)

Examples of continuous functions –Continuity and inverse images of open or closed sets – functions continuous on Compact sets –Topological Mappings –Bolzano’s theorem.

UNIT II (12 HOURS)

Connectedness –Components of a metric space – Uniform continuity- Uniform Continuity and compact sets –Fixed Point theorem for Contractions –Monotonic functions.

UNIT III (12 HOURS)

Definition of derivative –Derivative and continuity –Algebra of derivatives – the chain rule –one sided derivatives and infinite derivatives –Functions with non-zero derivatives –Zero derivatives and local extrema –Rolle’s Theorem –The Mean Value theorem for Derivatives – Taylor’s formula with remainder.

UNIT IV (12 HOURS)

Properties of Monotonic Functions –Functions of Bounded Variation –Total Variation –Additive Properties of total variation on (a, x) as a function of x – Functions of bounded variation expressed as the difference of Increasing functions –continuous functions of bounded variation.

UNIT V (12 HOURS)

The Riemann - Stieltjes Integral - Introduction –Notation –The Definition of Riemann –Stieltjes integral –Linear properties –Integration by parts –Change of variable in a Riemann –Stieltjes integral –Reduction to a Riemann integral.

TEXT BOOK

1. Tom. M. Apostol, Mathematical Analysis, 2nd Edition, Addison-Wisely,.Narosa Publishing Company, 2002, Chennai.

REFERENCE BOOK

1. G.F.Simmons, Introduction to Topology and Modern Analysis, McGraw – Hill, 2011, New York.

B.Sc. (Mathematics) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

**SIXTH SEMESTER
PART III-CORE 15- COMPLEX ANALYSIS - II**

Maximum CIA: 30

Maximum CE:70

Total Hours: 60

Objective: To enable students gain Fundamental Knowledge in Cauchy's Inequality, Meromorphic functions and their applications.

UNIT I (12 HOURS)

Results based on Cauchy's Theorem I - Zeros-Cauchy's Inequality – Liouville's theorem – Fundamental theorem of algebra –Maximum Modulus theorem –Gauss Mean Value theorem – Gauss mean value theorem for a harmonic function on a Circle-Poisson Integral Theorem

UNIT II (12 HOURS)

Results based on Cauchy's Theorem II –Taylor's series –Laurent's Series-Problems

UNIT III (12 HOURS)

Singularities and Residues-Isolated singularities -Removable Singularity, Pole and essential singularity–Residues-Cauchy's Residues Theorem.

UNIT IV (12 HOURS)

Real definite integrals- Evaluation using the calculus of residues – Integration on the unit circle – Integral with $-\infty$ and $+\infty$ as lower and upper limits with the following integrals:

- i) $P(x)/Q(x)$ where the degree of $Q(x)$ exceeds that of $P(x)$ at least 2.
- ii) $\sin(ax).f(x)$, $\cos(ax).f(x)$, where $a>0$ and $f(z)$ does not have a pole on the real axis.
- iii) $f(x)$ where $f(z)$ has a finite number of poles on the real axis.

UNIT V (12 HOURS)

Meromorphic functions-Theorem on number of zeros minus number of poles –Principle of argument- Rouché's theorem – Theorem that a function which is meromorphic in the extended plane is a rational function.

TEXT BOOK

1. P.Duraipandian and LaxmiDuraipandian, Complex Analysis, Emerald Publishers, 2004, Chennai.
Unit I Chapter 8 (Section 8.10, 8.11)
Unit II Chapter 9 (Section 9.1 to 9.3)
Unit III Chapter 9 (Section 9.5 to 9.12, 9.13)
Chapter 10 (Section 10.1, 10.2, 10.4)
Unit IV Chapter 10 (Section 10.3 & 10.4)
Unit V Chapter 11 (Section 11.1 to 11.3) (Omit Theorems 11.5 and 11.6)

REFERENCE BOOK

1. 1.Santhinarayan, Theory of Functions of Complex Variable, S.Chand and Company,1995, Meerut.

B.Sc. (Mathematics) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

**SIXTH SEMESTER
PART III-CORE 16 -MODERN ALGEBRA - II**

Maximum CIA: 30

Maximum CE:70

Total Hours: 60

Objective: To enable students gain Fundamental Knowledge about algebraic functions and their applications.

UNIT I (12HOURS)

Matrices- Introduction – Addition and Scalar Multiplication of Matrices – Product of Matrices – Transpose of a Matrix – Matrix Inverse – Symmetric and Skew - Symmetric Matrices.

UNIT II (12HOURS)

Hermitian and Skew Hermitian Matrices – Orthogonal and Unitary Matrices – Rank of a Matrix – Characteristic Roots and Characteristic Vectors of a Square Matrix

UNIT III (12 HOURS)

Vector space- Elementary Basic Concepts – Subspace of a Vector Space - Homomorphism – Isomorphism - Internal and External direct sums - Linear span - Linear Independence and Bases

UNIT IV (12 HOURS)

Dual Spaces - Inner Product Spaces – Norm of a Vector – Orthogonal Vectors - Orthogonal Complement of a subspace – Ortho normal set.

UNIT V (12 HOURS)

Linear Transformations- Algebra of Linear Transformations – Regular-Singular Transformations – Range of T – Rank of T - Characteristic Roots – Characteristic Vectors - Matrices.

TEXT BOOKS

1. R.Balakrishnan and M. Ramabadran, Modern Algebra, Vikas Publishing House Pvt.Ltd, 2006, New Delhi.
Unit I Chapter 1 (Section 1.1 to 1.3, 1.5 to 1.7)
Unit II Chapter 1 (Section 1.8 and 1.9) Chapter 2 (Section 2.9) Chapter 3 (Section 3.9)
2. I.N. Herstein, Topics in Algebra, John Wiley and Sons, 2013, New York.
Unit III Chapter 4 (Section 4.1 and 4.2) (Excluding Exercise Problem)
Unit IV Chapter 4 (Section 4.3 and 4.4) (Excluding Exercise Problem)
Unit V Chapter 6 (Section 6.1, 6.2 and 6.3) (Excluding Exercise Problem)

REFERENCE BOOK

1. A.R.Vasishtha, Modern Algebra, Krishna Prakashan Mandir, 1994 – 95, Meerut.

15BMA604

B.Sc. (Mathematics) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

**SIXTH SEMESTER
PART III-CORE 17- DISCRETE MATHEMATICS**

Maximum CIA: 30

Maximum CE:70

Total Hours: 60

Objective: To enable students gain Knowledge about the Concept of Discrete mathematics and their applications.

UNIT I (12 HOURS)

Mathematical logic: Connectives well formed formulas, Tautology- Equivalence formula, Tautological implications- Duality law- Predicates- Variables and Quantifiers- Theory of Inference for Predicate Calculus.

UNIT II (12 HOURS)

Graph theory-Basic terminology-path, cycle and connectivity – Sub Graph-Types of Graph-Representation of Graph in Computer memory-Trees-Properties of Trees-Binary Tree-Traversing binary trees-Computer representation of general trees.

UNIT III (12 HOURS)

Relations and Functions: Composition of Relations- Composition of Functions- Inverse Functions, one-to- one, onto, one-to-one and onto Functions- Permutation Function- Growth of Functions.

UNIT IV (12 HOURS)

Lattices and Boolean algebra: Partial ordering- Poset- Lattices- Boolean algebra- Boolean Functions- Theorems- Minimization of Boolean Functions.

UNIT V (12 HOURS)

Formal languages and Automata: Regular Expressions- Types of grammars- Regular grammar- Context free and context sensitive grammars-Finite State Machine-Finite State Automata.

TEXT BOOK

1. J.P Tremblay and R.P Manohar, Discrete Mathematical Structures with Applications to Computer Science, McGraw Hill, 2004, New Delhi.

REFERENCE BOOK

1. J.K.Sharma, Discrete Mathematics, Macmillan India Ltd, 2nd Edition, 2005, New Delhi

15BMAE04

B.Sc. (Mathematics) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

**SIXTH SEMESTER
PART III-ELECTIVE- II ASTRONOMY – II**

Maximum CIA: 30

Maximum CE:70

Total Hours: 60

Objective: To enable students gain Fundamental Knowledge in Astronomy and their applications.

UNIT I (12 HOURS)

Time: Equation of time – Conversion of time – Seasons – Calendar.

UNIT II (12 HOURS)

Annual Parallax – Abberation.

UNIT III (12 HOURS)

Precession – Nutation.

UNIT IV (12 HOURS)

The Moon – Eclipses.

UNIT V (12 HOURS)

Planetary Phenomenon – The Stellar system.

TEXT BOOK

1. S.Kumaravelu and Prof.Susheela Kumaravelu, Astronomy, SKV Publications 2004

REFERENCE BOOK

1.Karttunen.H,Kroger.P,Oja.H,Poutanen.M,Donner.K.J, "fundamentals of Astronomy"Springer 2017.

15BMAE05

B.Sc. (Mathematics) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

**SIXTH SEMESTER
PART III-ELECTIVE -II NUMERICAL METHODS – II**

Maximum CIA: 30

Maximum CE:70

Total Hours: 60

Objective: To enable students gain Fundamental Knowledge in Numerical algebraic Functions and their applications.

UNIT I (12 HOURS)

Numerical differentiations-Newton's Forward and Backward Formulae to compute the derivatives – Derivative using Stirlings Formulae – To find Maxima and Minima of the Function gave the Tabular Values.

UNIT II (12 HOURS)

Numerical Integration-Newton – Cote's Formula – Trapezoidal rule – Simpson's $1/3^{\text{rd}}$ and $3/8$ rules – Gaussian quadrature – Two points and three Points Formula.

UNIT III (12 HOURS)

Difference Equation- Order and Degree of a difference Equation – Solving homogeneous and non – Homogeneous linear difference equations.

UNIT IV (12 HOURS)

Taylor series method – Euler's method – Improved and Modified Euler Method – Runge Kutta method (fourth order Runge Kutta method only).

UNIT V (12 HOURS)

Numerical Solution of O.D.E (for first order only)- Milne's predictor corrector formulae – Adam-Bash forth predictor corrector formulae – Solution of ordinary differential equations by finite difference method Sectionond order O.D.E.

TEXT BOOK

1. Venkataraman M. K., Numerical Methods in Science and Engineering, National Publishing Company, V Edition, 2003, New Delhi.

REFERENCE BOOK

1. Kandasamy. P, Thilagavathi. K and Gunavathi. K Numerical Methods, S. Chand and Company Ltd, Revised Edition, 2015, New Delhi.

15BMAE06

B.Sc. (Mathematics) Degree Examination – syllabus – For candidates admitted from 2015-2016 onwards.

**SIXTH SEMESTER
PART-III ELECTIVE-II QUANTITATIVE APTITUDE –II**

Maximum CIA: 30
Maximum CE:70
Total Hours: 60

Objective: To enable students gain fundamental knowledge about the Mathematical skills and to explain the extent of the applications of Analytical Skills.

UNIT-I (12 HOURS)

Chain rule-work and wages-pipes and cisterns

UNIT-II (12 HOURS)

Simple interest-compound interest-Growth and depreciation
-shares and debentures

UNIT-III (12 HOURS)

Time and distance-trains-boats and streams

UNIT-IV (12 HOURS)

Clocks-Area of plane figure-Volume and surface area of solid figures

UNIT-V (12 HOURS)

Data interpretation-data sufficiency

TEXT BOOK

1.Scope and treatment as in “Quantitative Aptitude” by Abhijit Guha, Tata
MCGraw hill publishing company ltd, New Delhi(2005)

REFERENCE BOOK

15BMAE07

B.Sc. (Mathematics) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

SIXTH SEMESTER

PART III- ELECTIVE - III AUTOMATA THEORY

Maximum CIA: 30

Maximum CE:70

Total Hours: 60

Objective: To enable students gain Fundamental Knowledge about the Automata Theory and to explain the extent of their application.

UNIT I (12 HOUR)

Introduction to finite Automata – Machine- Basic machine – Finite state Machine –Finite – Automation- Transition Matrix.

UNIT II (12 HOUR)

Closure or Star Operation-Regular Set- Regular Expressions- Regular languages-Kleene Closure.

UNIT III (12 HOUR)

Procedure for converting NFA to DFA- Equivalent Regular Expressions-Transition Diagram-Pumping Lemma for Regular Expressions.

UNIT IV (12 HOUR)

Grammar-Formalization-Construction of Reduced Grammar for a given grammar- Ambiguous context free language-Derivation Tree- Context free grammar.

UNIT V (12 HOUR)

Push down Automation- Relation between PDA and Context free languages- Push down Automata-Moves of Push down Automata.

TEXT BOOK

1. Anand Sharma, Theory of Automata and Formal Languages, Lakshmi Publications P.Ltd, Reprint 2008, New Delhi.

REFERENCE BOOK

1. John E,Hopcroft, Rajeev Motwani, Jeffrey D. Ullman, Automata Theory, Pearson Education Asia 2nd Edition, 2001,New Delhi.

B.Sc. (Mathematics) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

**SIXTH SEMESTER
PART III-ELECTIVE -III GRAPH THEORY**

Maximum CIA: 30

Maximum CE:70

Total Hours: 60

Objective: To enable students gain Fundamental Knowledge in graphs and their applications.

UNIT I (12 HOURS)

Definition of a graph – Finite and infinite graph – incidence – degree , isolated and pendent vertices – Isomorphism – Subgraphs - Walks , Paths and Circuit - connected and disconnected graphs.

UNIT II (12 HOURS)

Tree – Some properties of tree – pendent vertices in tree – distance and centers in a tree – Rooted and binary tree.

UNIT III (12 HOURS)

Cut sets – properties of cut sets - all cut sets in a graph – Fundamental circuit and cut set

UNIT IV (12 HOURS)

Vector space of a graph – Sets with one , two operations – Modulus arithmetic – Galois fields – Vectors – Vector spaces –Basic vectors of a graphs – Circuit and cut set subspaces – orthogonal vectors and spaces

UNIT V (12 HOURS)

Matrix representations of a graph - Incidence Matrix – Circuit Matrix - Fundamental circuit matrix and rank of the circuit matrix - Adjacency matrix .

TEXT BOOK

1. I.Narasingh Deo, Graph Theory with applications to engineering and computer science , Prentice Hall of India, New Delhi, 2006.

Unit I : Chapter 1 : Section 1.1 to 1.5

Chapter 2 : Section 2.2, 2.4 to 2.6

Unit II : Chapter 3 : Section 3.1 , 3.2,3.3,3.6

Unit III : Chapter 4 : Section 4.1 to 4.4

Unit IV : Chapter 6 : Section 6.1 to 6.8

Unit V : Chapter 7 : Section 7.1 to 7.4 , 7.6 ,7.9

REFERENCE BOOK

- 1.J.A Bondy and U.S.R Murty Graph theory with applications , American Elsevier publishing company, Inc, New York,1976.

B.Sc. (Mathematics) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

**SIXTH SEMESTER
PART III –ELECTIVE III-PROGRAMMING IN C++**

Maximum CIA: 20

Maximum CE:50

Total Hours: 36

Objective: To enable students gain Fundamental Computer knowledge about the Basic Concept of C++ Program, Mathematical Problems and their applications.

UNIT I (8 HOURS)

Structure of C++ Programme- Tokens- Expressions and Control Structure- C++ Tokens- Keywords- Identifiers and Constants- Basic data types- User defined data types- Derived data types –Symbolic Constants-Operators in C++- Scope resolution operator.

UNIT II (8 HOURS)

Functions in C++ : The main function- Function prototyping- Call by reference-Return by reference- Inline functions- Default arguments- Function overloading.

UNIT III (8 HOURS)

Classes and Objects- Specifying a class- Defining member function- Making an outside function inline- Nesting of member functions. Constructors and Destructors: Introduction- Constructors Copy Constructor- . Destructors

UNIT IV (6 HOURS)

Operator overloading: Introduction – Defining operator overloading unary operators- Overloading binary operators – Inheritance: Introduction - Defining Derived Classes – Single inheritance – making a private member inheritable – Multi level inheritance – Multiple inheritance – Hierarchical inheritance

UNIT V (6 HOURS)

Managing Console I/O Operations-C++ Streams and Classes – Unformatted I/O Operations- Formatted Console I/O Operations- Managing Output with Manipulated- Simple Problems.

TEXT BOOK

1. E. Balagurusamy, Object Oriented Programming in C++, 3rd Edition, Tata McGraw Hill, 2012, New Delhi.

REFERENCE BOOK

1. Ashok N.Kamthane , Object Oriented Programming with ANSI & Turbo C++ (Seventh Impression 2009 Pearson education)

B.Sc. (Mathematics) Degree Examination- Syllabus- for Candidates admitted from 2015-2016 onwards

**SIXTH SEMESTER
PART III: ELECTIVE III PROGRAMMING IN C++ - PRACTICAL**

Maximum CIA: 10

Maximum CE:20

Total Hours: 24

Objective: To enable students gain fundamental Computer knowledge about C++ Programming, Practical problems and their applications.

1. Develop a C++ Program to Generate Fibonacci Series.
2. Develop a C++ Program to Sort a given Set of Numbers.
3. Develop a C++ Program to Find the Largest and Smallest Number in the List of Numbers.
4. Develop a C++ Program to Find the Area of a Circle, Square and Rectangle by using Function Overloading.
5. Develop a C++ Create a Class “Employee” to get and Display the Employee details by using Member Function and define a Class “pay” to calculate DA, HRA, PF.
6. Develop a C++ Create a class FLOAT that contains one Float data Number. Program to Overload all the four Arithmetic Operators so that they operate on the Objects of FLOAT.

TEXT BOOK

1. E. Balagurusamy, Object Oriented Programming in C++ (3rd ED), Tata McGraw Hill, 2012 New Delhi.

REFERENCE BOOK

1. Ashok N.kamthane ,Object oriented programming with ANSI & Turbo C++(7th impression, 2009 pearson education.

**VLB JANAKIAMMAL COLLEGE OF ARTS AND SCIENCE
(AUTONOMOUS)**

B.Sc., ELECTRONICS AND COMMUNICATION SYSTEMS

Scheme of Examination (CBCS Pattern)

For the candidates admitted from the Academic Year 2018 – 2019 and onwards

Part	Subject Code	Subject Title	Instruction Hrs /	Examination				Credit
				Exam Dur.Hr	CIA Marks	CE Marks	Total Marks	
SEMESTER - I								
I	16LATA01/ 18LAHI01/ 15LAMY01/ 15LAFR01	Language-I Tamil/Hindi/Malayalam/French	5	3	30	70	100	3
II	16ENG001	English- I	5	3	30	70	100	3
III	15BES101	Core 1- Basic Electronics	6	3	30	70	100	4
III	18BESP01	Core Practical 1 – Basic Electronics	6	3	40	60	100	4
III	18BESID1	IDC 1- Mathematics-I	6	3	30	70	100	4
IV	18UFCA01	FC I - EVS #	2	3	-	50	50	2
		Total	30				550	20
SEMESTER - II								
I	16LATA02/ 18LAHI02/ 15LAMY02/ 15LAFR02	Language-II Tamil/Hindi/Malayalam/French	5	3	30	70	100	3
II	16ENG002	English- II	5	3	30	70	100	3
III	15BES201	Core 2- Electronic Circuits	6	3	30	70	100	4
III	18BESP02	Core Practical 2- Electronic Circuits	6	3	40	60	100	4
III	18BESID2	IDC 2 – Mathematics-II	6	3	30	70	100	4
IV	18UFCA02	FC II- Value Education #	2	3	-	50	50	2
		Total	30				550	20
SEMESTER - III								
III	15BES301	Core 3- Principles of Communication Systems	5	3	30	70	100	4
III	15BES302	Core 4- Biomedical Instrumentation	5	3	30	70	100	4
III	18BES303	Core 5- Digital Electronics	5	3	30	70	100	4
III	18BESP03	Core Practical 3- Digital Electronics and Biomedical Instrumentation	5	3	40	60	100	4
III	18BESID3	IDC 3 – Programming using C	5	3	30	70	100	4
IV	15BESAO1/ 15BESAO2	AOC I –Printed Circuit Board and Fabrication/Visual programming	3	3	-	75	75	3
IV	16BTA001/ 16ATA001/ 15EDC002	EDC 1 [BT-I / AT-I /Communicative English #]	2	3	-	50	50	2
		Total	30				625	25
SEMESTER – IV								
III	18BES401	Core 6 – Digital Communication	5	3	30	70	100	4
III	18BES402	Core 7- 8085 Microprocessor and its Interfacing	5	3	30	70	100	4

III	15BES403	Core 8- Integrated Circuits and Instrumentation	5	3	30	70	100	4
III	18BESP04	Core Practical 4- Microprocessor and its Interfacing	5	3	40	60	100	4
III	18BESID4	IDC 4 - C Programming Practical	5	3	30	70	100	4
IV	15BESAO3/ 15BESAO4	AOC II –Automotive Electronics / Internet and Java Programming	3	3	-	75	75	3
IV	16BTA002 /16ATA002 / 15BESED1	EDC 2 [BT-II /AT- II/ HTML]	2	3	-	50	50	2
V	15NCC001/ 15NSS001/ 15SPT001/ 15EXT001	NCC/NSS/Sports/ Extension Activities @	-	-	50	-	50	2
Total			30				675	27
SEMESTER – V								
III	15BES501	Core 9- Industrial and Power Electronics	5	3	30	70	100	4
III	18BES502	Core 10- 8051 Microcontroller and its Interfacing	5	3	30	70	100	4
III	18BES503	Core 11- Microwave and Fiber Optics Communication	5	3	30	70	100	4
III	15BESP05	Core Practical 5- Integrated Circuits and Power Electronics	5	3	40	60	100	4
III	18BESP06	Core Practical 6 – Microcontroller and its Interfacing	5	3	40	60	100	4
III	18BESE01/ 15BESE02/ 18BESE03	Elective I : Programmable Logic Controller /Computer Hardware and Maintenance / Cloud Computing	5	3	30	70	100	4
			30				600	24
SEMESTER - VI								
III	18BES601	Core 12- Embedded Systems	5	3	30	70	100	4
III	18BES602	Core 13- Wireless Communication	5	3	30	70	100	4
III	18BESP07	Core Practical 7- Analog and Digital Communication	5	3	40	60	100	4
III	18BESE04/ 18BESE05/ 15BESE06	Elective II –Robotics & Automation / Digital System Design / Multimedia and its applications	5	3	30	70	100	4
III	15BESE07/ 18BESE08/ 18BESE09	Elective III – Network Security / Real Time Operating Systems /Arduino	5	3	30	70	100	4
III	15BESPR1	Project and Viva voce	5	3	50	50	100	4
Total			30				600	24
Grand Total							3600	140

No Continuous Internal Assessment (CIA), Only Comprehensive Examinations (CE).@
No Continuous Internal Assessment (CIA) and Comprehensive Examinations (CE).
▼ Only CIA (50Marks).

LIST OF ELECTIVE PAPERS	
Subject Code	Subject Title
18BESE01	Programmable Logic Controller

Elective – I	15BESE02	Computer hardware & Maintenance
	15BESE03	Cloud Computing
Elective - II	18BESE04	Robotics & Automation
	18BESE05	Digital System Design
	15BESE06	Multimedia and applications
Elective - III	15BESE07	Network Security
	18BESE08	Real Time Operating Systems
	18BESE09	Arduino

Summary

Part	No of Papers	Total Credits	Total Marks
I	2	6	200
II	2	6	200
III –Core	20	80	2000
III – IDC	4	16	400
III – Elective	3	12	300
III -Project	1	4	100
IV –Foundation Course	2	4	100
IV – EDC	2	4	100
IV – AOC	2	6	150
V –Extension activity	-	2	50
Total	38	140	3600

LIST OF APPLICATION ORIENTED COURSES		
	Subject Code	Subject Title
AOC- I	15BESAO1	Printed circuit board and fabrication
	15BESAO2	Visual programming
AOC- II	15BESAO3	Automotive Electronics
	15BESAO4	Internet and Java Programming

LIST OF ADDITIONAL CREDIT COURSES		
SEM	Subject Code	Subject Title
III	15BESAC1	Material science
IV	18BESAC2	Electronic Testing
V	15BESAC3	Television Systems

**REGULATIONS FOR BOARD OF ELECTRONICS AND COMMUNICATION
SYSTEMS**

(FOR UG COURSES ONLY)

(Effective from the academic year 2018-2019 onwards)

1. Project and Viva Voce :

Each student in the UG final year shall compulsorily undergo Project Work in the 6th semester. Projects shall be done individually. Project Coordinators shall allocate the project title and the guide for each group. Project work shall be done only in the lab provided by the college, including Project Record Preparation. Project Reviews shall be conducted twice in which the progress of project work shall be strictly evaluated by respective Project Guides and Project Coordinators. Viva-Voce shall be conducted only in the presence of Industrialists or academicians. Out of the Total of 100 marks, 50% of mark shall be allocated for CIA and 50% for CE VIVA VOCE.

2. Conduct of Practical Examinations:

Practical examinations shall be conducted with one internal examiner and one external examiner and the question paper for practical examination shall be set by both Internal and External examiners.

3. Submission of Record Note Books for practical examinations

Candidates appearing for practical examinations shall submit bonafide Record Note Books prescribed for practical examinations. If not the candidate has to submit a bonafide certificate issued by the concerned subject incharge duly signed by the Head of the department. In such case, the record marks will not be provided.

4. Distribution of Marks: The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum (Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	28	30	40
	75	75	30	-	30
	50	50	20	-	20
Practical Paper	100	60	24	40	40
	100	70	28	30	40
Project	100	50	20	50	40

5. Distribution of Internal Mark for Theory :

(No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6=30

Seminar:

S.NO	SEMINAR SPLIT UP	Marks
1	Content	10
2	Flow of the presentation	10
3	Stage management and Body language	10
	Total	30

Breakup for Attendance:

65% - 74 %	- 4 Marks
75% - 80%	- 6 Marks
81% - 90%	- 8 Marks
91% - 100%	- 10 Marks

6. Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 40		
S No	CIA	Distribution of Marks
1	For Completion of the Practical List	20
2	Test –I	10
3	Test –II	10
Total		40

7. Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 30		
S No	CIA	Distribution of Marks
1	For Completion of the Practical List	10
2	Test –I	10
3	Test –II	10
Total		30

8. Distribution of Comprehensive Exam Mark for Practical :

MAXIMUM MARKS : 60		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	10
2	Circuit Diagram	25
	Construction & Observation	15
	Result	10
Total		60

9. Distribution of Mark for Project VIVA-VOCE :

S.No	CIA	Distribution of Marks
1	INTERNAL	
	a) Review –I	10
	b) Review –II	10
	c) Documentation & Final Review	30 Total (50)

2	EXTERNAL * a) Presentation b) Viva	30 20 Total (50)
Total		100

***Marks to be awarded by both External and Internal Examiners.**

1. Question Paper Pattern

Time: 3 Hours

Max marks: 70

SECTION – A

(10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Five Definition Questions

Five Multiple Choice Questions

SECTION – B

(5×4=20)

Answer ALL questions

Each question carries FOUR Marks

(INTERNAL CHOICE)

SECTION – C

(5×8=40)

Answerer ALL questions

Each question carries EIGHT Marks

(INTERNAL CHOICE)

2. Question Paper Pattern

Time: 3 Hours

Max marks: 75

SECTION – A (10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Five Definition Questions

Five Multiple Choice Questions

SECTION – B (5×5=25)

Answer ALL questions

Each question carries FIVE Marks

(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answerer ALL questions

Each question carries EIGHT Marks

(INTERNAL CHOICE)

3. Question Paper Pattern

Time: 3 Hours

Max marks: 50

SECTION – A (10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Five Definition Questions

Five Multiple Choice Questions

SECTION – B (5×3=15)

Answer ALL questions

Each question carries THREE Marks

(INTERNAL CHOICE)

SECTION – C (5×5=25)

Answerer ALL questions

Each question carries FIVE Marks

(INTERNAL CHOICE)

NOTE:

1. The questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the unit in the syllabus in all the sections of the question paper.
3. While framing questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

B.Sc. (Electronics and Communication Systems) Degree Examination – Syllabus for candidates admitted from the academic year 2015 – 2016 onwards

FIRST SEMESTER

PART III: CORE 1 - BASIC ELECTRONICS

Maximum CIA:30

Maximum CE:70

Total Hours: 72

Objective: Enable the students to acquire knowledge about basic Electronics components and to enhance them to design electronic circuits.

UNIT I

(15 HOURS)

PASSIVE DEVICES: Introduction – Resistors: Fixed & Variable Resistor Color Coding – Tolerance - Series and Parallel Connection. Capacitors: Basic Structure and Symbol – Fixed & Variable Capacitors – Dissipation Factor – Series and Parallel Connection. Inductors: Inductance Of The Coil – Fixed & Variable Inductors – Inductive Reactance – Energy Stored In An Inductor – Q Factor – Mutual Inductance – Series And Parallel Connection.

UNIT II

(14 HOURS)

LAWS AND THEOREMS: Ohm's Law – Kirchoff's Law– Superposition Theorem – Thevenin's Theorem – Thevenizing a Circuit With Two Voltage Source – Thevenizing a Bridge Circuits – Norton Theorem – Thevenin's Norton Conversion – Conversion of Voltage And Current Source – Millman's Theorem – Maximum Power Transfer Theorem.

UNIT III

(15 HOURS)

CIRCUIT FUNDAMENTALS: Alternating Current – Peak Value – Average Value – RMS Value – Frequency – Time Period – Wave Length – Phase Angle– Three Phase AC Power - AC Circuits With R – AC Circuits With XL – AC Circuits With XC – Real Power –Apparent Power – Series Resonance Circuit – Parallel Resonance Circuit – Analysis Of Series Circuit, Parallel Circuits and Series Parallel Circuits –Voltage Divider – Current Divider – Simple Problems In DC Circuits.

UNIT IV

(14 HOURS)

ACTIVE DEVICES: Introduction - Conductor – Semiconductor – Insulator–P Type And N Type Semiconductor– PN Junction Diode –V-I Characteristics - Zener Diode -V-I Characteristics - Introduction To Transistor-Construction & Operation Of NPN and PNP Transistor- Transistor Configurations.

UNIT V

(14 HOURS)

SPECIAL DIODES & APPLICATIONS: Introduction -V-I Characteristics - Schottky Diode, Tunnel Diode, Varactor Diode ,LED -Clipping, Clamping Circuits – Half Wave, Full Wave And Bridge Rectifiers – Average Value – Zener Diode As Voltage Regulator – Voltage Doubler.

TEXT BOOKS

1. R.S.Sedha, A Text Book of Applied Electronics, 2nd Edition, S.Chand And Company Ltd., 2005. [Unit I,II,III]
2. V.K.Metha, Principles of Electronics,8th Edition,S.Chand And Company Ltd.,2003[Unit IV , V]

REFERENCE BOOKS

1. Bernard Grob, Basic Electronics, 9th Edition, Tata McGraw – Hill, 2003

**B.Sc. (Electronics and Communication Systems) Degree Examination – Syllabus for
candidates admitted from the academic year 2018 – 2019 onwards**

FIRST SEMESTER

PART III: CORE PRACTICAL 1 - BASIC ELECTRONICS

Maximum CIA:40

Maximum CE:60

Total Hours: 72

Objective: Imparting technical skills in Basic Electronics.

(ANY 12 EXPERIMENTS)

1. Study of CRO, Multimeter and color codes of resistors and capacitors
2. Measurement of Resistance and Capacitance in series and parallel
3. Verification of Ohm's Law
4. Verification of Kirchhoff's Law
5. Verification of Thevenin's Theorem
6. Series resonance circuit
7. Parallel resonance circuit
8. Characteristics of PN junction diode
9. Characteristics of Zener diode
10. Clipping and Clamping Circuits
11. Voltage doubler
12. Half wave and full wave rectifier
13. Bridge rectifier
14. DC regulated power supply using Zener diode
15. Transistor- CE Configuration
16. Transistor- CB Configuration

B.Sc. (Electronics and Communication Systems) Degree Examination – Syllabus for candidates admitted from the academic year 2015 – 2016 onwards**SECOND SEMESTER****PART III: CORE 2 - ELECTRONIC CIRCUITS**

Maximum CIA:30

Maximum CE:70

Total Hours: 72

Objective: Enable the students to acquire knowledge on troubleshooting the amplifiers, oscillators, power supply and filters to become a circuit designer.

UNIT I (15 HOURS)

SMALL SIGNAL AMPLIFIERS: Introduction– Transistor As An Amplifier - Classification Of Amplifiers – Methods Of Transistor Biasing – Single Stage CE Amplifiers –Load Line Analysis - RC Coupled Amplifiers – Gain – Frequency Response – Multistage Amplifiers – Transformer- Transformer Coupled Amplifiers.

UNIT II (15 HOURS)

POWER AMPLIFIERS: Introduction– Classification Of Amplifiers – Class A Operation – Class B Operation – Push Pull Configuration – Class AB Operation– Class C Operation – Power Efficiency – Load Power – Power Dissipation - Complementary Pair Operation – Distortions.

UNIT III (14 HOURS)

FEEDBACK AMPLIFIERS: Introduction–Principles Of Feedback Amplifiers – Effect Of Negative Feedback On Gain Stability - Band Width – Distortion– Analysis Of Voltage And Current Feedback Amplifier Circuits.

UNIT IV (14 HOURS)

OSCILLATORS: Introduction – Oscillatory Circuit - Barkhausen Criterion – Classification - Hartley Oscillator – Colpitts Oscillator – Crystal Oscillator – Phase Shift Oscillator – Wein Bridge Oscillator.

UNIT V (14 HOURS)

WAVE SHAPING CIRCUITS & MULTIVIBRATORS: Filters: Capacitors, Inductors, LC and PI Filter – Multivibrators: Astable- Monostable- Bistable- Regulated and Unregulated Power Supply.

TEXT BOOKS

1. B.L.Theraja, Basic Electronics, 1st Edition, S.Chand and Company Ltd. Reprint 1997,[Unit II,III,V]
2. V.K.Metha, Principles of Electronics, 8th Edition, S.Chand and Company Ltd., 2003.[Unit I,IV]

REFERENCE BOOK

1. Bernard Grob, Basic Electronics, 9th Edition, Tata McGraw – Hill, 2003.

B.Sc. (Electronics and Communication Systems) Degree Examination – Syllabus for candidates admitted from the academic year 2018 – 2019 onwards

SECOND SEMESTER

PART III: CORE PRACTICAL 2 – ELECTRONIC CIRCUITS

Maximum CIA:40

Maximum CE:60

Total Hours: 72

Objective: Imparting Circuit designing skills in Electronic Circuits
(ANY 12 EXPERIMENTS)

1. Transistor biasing – Self bias
2. Transistor biasing – Fixed bias
3. RC coupled amplifier (Single Stage)
4. Feedback amplifier
5. Emitter follower
6. Hartley Oscillator
7. Colpitts oscillator
8. Wein Bridge Oscillator
9. Phase shift Oscillator
10. Transformer Coupled Amplifier
11. Low pass and High pass filters using Passive components
12. Band pass and Band rejection filters Passive components
13. Astable Multivibrator
14. Monostable Multivibrator
15. Bistable Multivibrator
16. DC regulated power supply using ICs.

B.Sc. (Electronics and Communication Systems) Degree Examination – Syllabus for candidates admitted from the Academic year 2015 – 2016 onwards

THIRD SEMESTER

CORE 3 - PRINCIPLES OF COMMUNICATION SYSTEMS

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: Enable the students to learn the basic principles used in communication systems and also to make them to design simple communication systems

UNIT I

[14 Hours]

ANTENNAS: Introduction Electro Magnetic Radiations – Elementary Doublet – Current and Voltage Distribution – Resonant Antennas, Radiation Patterns and Length Calculations – Non Resonant Antennas – Antenna Gain And Effective Radiated Power – Antenna Resistance – Bandwidth, Beam Width And Polarization – Grounded and Ungrounded Antennas – Effects of Height – Feed Point – Couplers – Impedance Matching – Dipole Arrays - Yagi Uda Antenna – Parabolic Antenna – Horn and Lens Antenna – Helical Antenna.

UNIT II

[14 Hours]

MODULATION TECHNIQUES: Introduction – Information – Transmitter – Channel – Noise – Need For Modulation - Band Width Requirement – AM Theory – Frequency Spectrum of AM Wave – Representation of AM – Power Relations In AM Wave – Generation of AM [AM Transmitter Block Diagram] –FM Theory – System Description – Frequency Spectrum of FM–Representation of FM –Generation of FM [Direct And Indirect Methods].

UNIT III

[10 Hours]

SINGLE SIDEBAND MODULATION: Introduction – Principles – Balanced Modulator – SSB Generation: Filter Method, Phase Shift Method and Third Method –Extension of SSB - Pilot Carrier and Independent Side Band.

UNIT IV

[10 Hours]

WAVE PROPAGATION: Introduction - Structure Of Atmosphere – Ionospheric Abnormalities - EM Waves– Surface Wave Propagation – Sky Wave Propagation – Space Wave Propagation – Tropospheric Scatter Propagation – Duct Propagation - Virtual Height –Critical Frequency - MUF – LUF – OWF - Skip Distance.

UNIT V

[12 Hours]

RECEIVER: Introduction – TRF Receiver - Super Heterodyne Receiver – Choice Of IF And Oscillator Frequencies – Image Frequency And Its Rejection – Adjacent Channel Selectivity - Tracking – Double Conversion - AGC and AFC – Basic Communication Receiver.

TEXT BOOKS:

1. Kennedy and Davis, Electronic Communication Systems, 8th Edition Tata McGraw Hill, 2009.
2. K.D. Prasad and Satyaprakahan, Antenna Wave Propagation, 3rd Edition, Satya Prakashan Tech India Publications, 1985.

REFERENCE BOOK:

1. Dennis Roddy and John Coolen, Electronic Communications, 4th Edition, PHI 1995.

B.Sc. (Electronics and Communication Systems) Degree Examination – Syllabus for candidates admitted from the Academic year 2015 – 2016 onwards

THIRD SEMESTER

CORE 4 –BIOMEDICAL INSTRUMENTATION

Maximum CIA: 30

Maximum CE : 70

Total Hours: 60

Objective: Enable the students to learn the concept of biomedical instruments.

UNIT I

[12 Hours]

BIOELECTRIC SIGNALS:

Physiological Systems of The Body – Man Instrument System – Bioelectric Signals – Cells And Their Structures - Transport of Ions Through Cell Membrane - Resting And Action Potential – Propagation of Action Potential – Bioelectric Potentials [ECG, EEG, EMG]

UNIT II

[10 Hours]

ELECTRODES AND TRANSDUCERS:

Basic Electrode Theory - Biopotential Electrodes – Biochemical Electrodes – Electrical Conductivity of Electrode Jellies and Creams – Physiological Transducers - pressure sensors, temperature sensors, pulse sensors, respiration sensors - Biosensors and Smart Sensors.

UNIT III

[14 Hours]

BIOMEDICAL RECORDING AND PATIENT MONITORING SYSTEM:

Blood Pressure Measurement – Blood Flow Measurement – Measurement of Respiration Rate, Electrocardiography [ECG] – ECG Lead Configuration – ECG Amplifiers – ECG Recorder – Electroencephalography [EEG] – EEG Recorder – Electromyography [EMG] – Electroretinography [ERG] - Electrooculography [EOG]

UNIT IV

[12 Hours]

DIAGNOSTIC AND THERAPEUTIC EQUIPMENTS: X-Ray Imaging - Radio Fluoroscopy - Image Intensifiers - Angiography - Endoscopy – Diathermy. Need for Pacemakers - Pacemaker Parameters And Circuits - Different Modes of Operation - DC Defibrillator- Model of Heart Lung Machine - Anesthesia Machine – Ventilators.

UNIT V

[12 Hours]

ADVANCEMENTS IN MEDICAL INSTRUMENTATION: Lasers in Medicine- Computerized Axial Tomography [CAT] Scanner - Ultrasonic Scanner - Magnetic Resonance Imaging - Computer Based Patient Monitoring System. Biotelemetry - Elements of Telemetry System - Radio Telemetry System - Physiological Signals Used in Telemetry.

TEXT BOOKS:

1. Arumugam. M, Biomedical Instrumentation, 2nd Edition, Anuradha Agencies
2. Leslie Cromwell, Fred.J.Webell, Erich.A.Pfeffer, Bio-medical Instrumentation and Measurements, 3rd Edition, ,Prentice Hall of India,1990.

REFERENCE BOOKS:

1. Joseph J. Carr and John M. Brown, Introduction to Biomedical Equipment Technology, Fourth Edition, Pearson Education Asia,2001
2. John G Webster, Ed., Medical Instrumentation Application and Design, Fourth

- edition, John Wiley & Sons
3. R.S.Khandpur, Handbook on Biomedical Instrumentation, 3 rd Edition Tata McGraw Hill Company

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THIRD SEMESTER

CORE 5: DIGITAL ELECTRONICS AND COMPUTER FUNDAMENTALS

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: Enable the students to learn the basic principles of digital electronics and computer fundamentals also to make them to design simple electronic circuits in digital.

UNIT I

[14 Hours]

NUMBER SYSTEMS AND LOGIC GATES: Introduction-Binary Number systems-Decimal, binary, octal and hexadecimal numbers -1's and 2's complement –BCD-Excess three code-Gray code –Error detection codes-ASCII codes-EBCDIC codes. **LOGIC GATES** : Basic logic gates – Universal Logic gates-Rules and laws of Boolean Algebra, Boolean operations, Truth table ,DeMorgan's Theorem - simplification of Boolean expressions : POS,SOP - karnaugh map.

UNIT II

[12 Hours]

COMBINATIONAL AND SEQUENTIAL LOGIC CIRCUITS: Introduction –Half adder-Full adder-Half subtractor-Full subtractor-Multiplexer- Demultiplexer-Decoder-Encoder.**SEQUENTIAL CIRCUITS:** Introduction –Flip flops, RS, clocked RS, JK, D and T flip flops-Shift register –Ring counter-Ripple counter-up-down counter.

UNIT III

[10 Hours]

DATA CONVERTERS :Introduction-Digital to analog converters - Resistor divider type and ladder type – Accuracy and resolution –Analog to digital converters: counter type, Ramp type, Simultaneous/Flash, dual slope type, successive approximation type, accuracy and resolution.

UNIT IV

[12 Hours]

MODERN COMPUTER ORGANIZATION:Introduction-layers in modern computer – Computer organization Main memory-CPU organization-Computer types-system performance and measurement-High performance techniques-Booting sequence-Computer design process-Computer structure-Computer function-Architecture and organization

UNIT V

[12 Hours]

PROCESSOR AND MEMORY DESIGN: Introduction - Processor role - Processor design goals-Processor design process-Data path organization-Main memory interface-Local storage register file-Data path simple instruction. **MEMORY DESIGN:** Introduction –Memory parameters-Classification of memory-Memory technology-Memory hierarchy- Cache memory- principle of cache -Virtual memory concept –advantages of virtual memory.

TEXT BOOKS:

1. Digital Fundamentals – Thomas L Floyd. 11 th Edition, Pearson.
2. Govindarajalu.B, Computer Architecture and Organization Design Principles and Applications, 3 rd Edition, Tata McGraw-Hill

REFERENCE BOOKS:

1. Albert P. Malvino & Donald P. Leech, Digital Principles and Applications, Tata McGraw Hill Pub.Co. Ltd.
2. S. Salivahanan & S. Arivazhagan, Digital Circuits and Design, Vikas Pub. House Pvt. Ltd. 4 th Edition.

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THIRD SEMESTER**

CORE LAB 3 - DE & BMI LAB

Maximum CIA : 40

Maximum CE : 60

Total Hours: 60

Objective: Imparting technical knowledge to design digital circuits and developing technical and servicing skills in the field of Biomedical Instrumentation.

[ANY 12 EXPERIMENTS]

1. Verification of Basic Gates and Universal Gates
2. Verification of Demorgan's Theorem
3. Half Adder and Full Adder
4. Half Subtractor and Full Subtractor
5. Two Bit Comparator
6. Encoder and Decoder
7. BCD to 7-Segment Display
8. Flip Flops
9. Shift Registers and Ring Counter
10. Study of Bio ECG Amplifier Using Differential amplifier method
11. Study of Bio EMG Amplifier Using Instrumentation amplifier method
12. Measurement of Pulse Rate Using Photo Electric Transducer
13. Design of Digital Blood Pressure Monitor & Study of Vascular Ultrasonic Transducer
14. Study of Functioning and Safety Aspects Of Surgical Diathermy.
15. Simulation of ECG, EMG & EEG Signals.

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THIRD SEMESTER

IDC 3 – PROGRAMMING USING C AND C++

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: Enable the students to acquire knowledge about programming skills in C & C++

UNIT I [10 Hours]

BASIC PARAMETERS DECISION MAKING AND FUNCTIONS : Introduction – constants variables and data types – operator and expressions: Arithmetic –Relational-logical –Assignment-Increment and Decrement operators –conditional –Bitwise operators –Special operators-Operator Precedence and associativity. Managing input and output operations-Decision making and branching-Decision making and looping –user defined functions:Introduction –Need for user defined functions-Definition of functions-Function declaration-category of functions –Recursion-Simple programs.

UNIT II [15 Hours]

ARRAYS POINTERS AND STRUCTURES: Introduction-One Dimensional arrays-Declaration of one dimensional arrays-Initialization of one dimensional arrays-Two Dimensional arrays-Initializing of two dimensional arrays. **Character arrays and strings:** Introduction-Declaration and Initialization of string variables-Reading strings from terminal-Writing strings to screen-String handling functions. **Pointers** –Introduction –declaring of pointer variables-Pointers and arrays-Pointers and strings-Array of pointers. **Dynamic memory allocation:** Introduction-Defining a structure-Declaring structure variables-Accessing structure members- structure initialization-Array of structures –structures and functions-Pointers and structures.

UNIT III [10 Hours]

INTRODUCTION TO STATEMENTS IN C++ AND FUNCTIONS: key concepts of oops – Advantages oo languages–i/o in c++ –c++ declarations –control structures –Decision making statements –if else-jump-GOTO –Break-continue-switch case statements-Loops in c++ -for –while –Do while loops –Functions in C++ -Inline functions – function overloading-simple programs.

UNIT IV [15 Hours]

CLASSES, OBJECTS, CONSTRUCTORS AND INHERITANCE: Introduction-Declaring objects-Defining member functions-Static member variables and functions-Array of objects-friend functions-overloading member functions-bit field and class –constructors and destructors-characteristics- calling constructors and destructors- Constructors and destructors with static member - Inheritance: types of inheritance: single, multilevel, multiple, hierarchical, hybrid and multipath inheritance.

UNIT V [10 Hours]

POINTERS, MEMORY MANAGEMENT,STRINGS ,EXCEPTION HANDLING AND FILE MANAGEMENT : introduction – declaration – Pointer to class ,object– pointer to derived class and base classes – new and delete operators – dynamic objects-Strings-Declaring and initializing string objects-string attributes-miscellaneous functions-Exception

handling-file stream classes: introduction-file modes-sequential read/write-Binary and ascii files.

TEXT BOOKS:

1. Fundamentals of computing and Programming by E. Balagurusamy , TMH Private Ltd. New Delhi, Second Edition [2012].
2. Ashok. N. Kamthane, Object Oriented Programming with ANSI and Turbo C++ , Pearson Education Publications 2003.

REFERENCE BOOKS:

1. Object Oriented Programming with C++ by E.Balagurusamy TMH Private Ltd. New Delhi, Fourth Edition [2008]
2. Programming with C++ by D.Ravichandran TMH Private Ltd. Second Edition.

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THIRD SEMESTER

AOC I - PRINTED CIRCUIT BOARD DESIGN AND FABRICATION

Maximum CE: 75

Total Hours: 36

Objective: Enable the students to learn the basic designing techniques used in PCB fabrication.

UNIT I **[4 Hours]**

PCB BASICS AND ITS TYPES: Introduction- Review of electronic components and their packages-Types of PCB- Single sided board – Double sided boards – Multilayer boards- Benefits of SMT technology.

UNIT II **[8 Hours]**

LAYOUT PARAMETERS AND ARTWORK: Introduction – Layout planning and their considerations - Resistance, Capacitance and Inductance – Conductor Spacing – Supply and Ground Conductors – Component Placing and mounting – Cooling requirement and package density – Layout check. Basic artwork approaches – Artwork taping guidelines – General artwork rules – Artwork check and Inspection.

UNIT III **[10 Hours]**

LAMINATES AND PHOTO PRINTING: **Laminates:** Manufacture of copper clad laminates – Properties of laminates – Types of Laminates. **Photo Printing:** Basic printing process for double sided PCB's – Photo resists – wet film resists – Coating process for wet film resists – Exposure and further process for wet film resists – Dry film resists.

UNIT IV **[8 Hours]**

ETCHING AND SOLDERING: **Etching:** Introduction – Etching machine – Etchant system. **Soldering:** Introduction-Principles of Solder connection – Solder alloys – Soldering fluxes. Soldering Techniques – Solder mask – Reflow soldering practice- Safety, health and medical aspects in Soldering practice.

UNIT V **[6 Hours]**

DESIGN RULES AND AUTOMATION: Fundamentals of Electrical Concepts- Reflection – Crosstalk – Ground and Supply line noise – Electromagnetic interference from pulse type EM fields - CAD – Introduction to PCB software tools.

TEXT BOOKS:

1. Walter C. Bosshart, PCB Design and Technology, 1st Edition, Tata Mcgraw Hill Publications, Delhi. 1983.
2. Dr.R.S Khandpur, printed circuit boards design, fabrication, Assembly and testing, 2nd Edition, Tata Mcgraw Hill Publications, Delhi. 2005.

REFERENCE BOOK:

1. R.G Gupta, Electronic Instruments and Systems, 3rd Edition, Tata Mcgraw – Hill Reprint 2006.

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**FOURTH SEMESTER
CORE X : VISUAL PROGRAMMING**

Total Hours: 36

Objective : After Successful Completion of the Course the Students Acquire Knowledge about Visual Programming and Able To Program the Applications Using VB and VC++

- UNIT- I** **[7 HOUR]**
Essentials of VB.NET: Putting Visual basic to Work – What’s New in VB.Net – Upgrading from Visual Basic 6.0 – The .Net Framework and the Common Language Runtime – Building VB.Net Applications – The Visual Basic IDE – Coding to get Most from Visual Basic
- UNIT- II** **[7 HOUR]**
The Visual Basic Language: Operators, Conditionals and Loops
- UNIT- III** **[8 HOUR]**
Windows forms, Windows Forms: Textboxes, Rich Text boxes, Labels and Link Labels – Check box – Radio Button – Panels and Group Boxes
- UNIT- IV** **[7 HOUR]**
Windows forms: List boxes, Checked listboxes, Comboboxes, and picture boxes, Scrollbars, Splitters, Track bars, Pickers, Notify Icons, Tool tips, and Timers, Menus, Built –in Dialog boxes and Printing
- UNIT- V** **[7 HOUR]**
Data Access with ADO.Net, Handling Database in Code

Text Book

1. Steven Holzner, “Visual Basic.Net Programming”, Dreamtech Press, 2014..

References Books

1. Michael Halvorson, Microsoft Visual Basic .NET, Deluxe Learning Edition, 2011, New Delhi.

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FOURTH SEMESTER**

CORE 6 – MICROWAVE AND FIBER OPTIC COMMUNICATIONS

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: Enable the students to acquire theoretical knowledge about Microwave and optical communication.

UNIT I **[12 Hours]**

INTRODUCTION TO MICROWAVES & ELECTROMAGNETICS: Introduction To Microwaves – Maxwell's Equation – Amperes Law – Faradays Law – Gauss Law – Wave Equation – Types of Wave Guides – TE And TM Modes – Propagation Of TM Waves In Rectangular Wave Guide – TM Modes In Rectangular Wave Guides.

UNIT II **[12 Hours]**

MICROWAVE AMPLIFIERS AND OSCILLATORS: Introduction To Microwave Amplifiers - Microwave Tubes: - Two Cavity Klystron – Multi Cavity Klystron – Reflex Klystron – Traveling Wave Tube [TWT] – Introduction to Oscillators - Backward Wave Oscillator [BWO] – Magnetron – Applications.

UNIT III **[12 Hours]**

MICROWAVE DEVICES: Introduction to Microwave Devices - Microwave Transistors – Gallium Arsenide [GaAs] Metal Semi-Conductor FET – Varactor Diode – PIN Diode – Schottky Diode – Tunnel Diode – Gunn Diode – IMPATT Diode – TRAPATT Diode – BARITT Diode – Maser Principle – Applications.

UNIT IV **[12 Hours]**

RADAR: Introduction To Radar – Block Diagram – Classification – Radar Range Equation – Factors Affecting The Range of a Radar Receivers – Line Pulse Modulator – PPI [Plane Position Indicator] – Moving Target Indicator [MTI] – FM CW Radar- Applications.

UNIT V **[12 Hours]**

OPTICAL FIBER COMMUNICATION: Introduction to Optical Fiber Communication - A Basic Fiber Optic System – Frequencies – Fiber Optic Cables – Refraction – Numerical Aperture – Graded Index Cables – Single Mode – Multi Mode – Cable Constructions – Cable Losses – Connectors – Light Sources – Light Detector – Systems Components – Advantages And Disadvantages.

TEXT BOOKS:

1. M.Kulkarni, Microwave and Radar Engineering, 2nd Edition, Umesh Publications,1998.
2. Kennedy Davis, Electronic Communication Systems, 3rd Edition, Tata Mcgraw Hill Publishing Company Limited,2006.

3. Robert J Schoenbeck, Electronic Communications Modulation and Transmission, PHI, 1999.

REFERENCE BOOKS:

1. Samuel Y.Liao, Microwave Devices and Circuits, 2nd Edition, PHI Private Limited,1995.
2. Anokh Singh, Principles of Communication Engineering, 2nd Edition S.Chand & Company Limited,2001.

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FOURTH SEMESTER

CORE 7 – ADVANCED COMMUNICATION SYSTEM

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: Enable the students to learn the basic techniques used in advanced communications systems and also to make them to design the systems.

UNIT I [12 Hours]

DATA COMMUNICATION: Introduction- Data Forms- Transmission Modes- Simplex, Half Duplex- Full Duplex- Point to Point Network- Star Network- Ring Network- Bus Network-Telephone Lines- Dial-up Lines- Dedicated Lines- Data Communication System- Asynchronous and Synchronous Transmission- USART's and ACIA's- RS 232 cable- Modems.

UNIT II [12 Hours]

NETWORK COMMUNICATION: Introduction-Transmission fundamentals: Signals for conveying information-Analog and digital data transmission- Channel capacity- Communication networks: LAN, MAN and WAN- Need for a protocol architecture-TCP/IP protocol architecture-OSI protocol architecture-Spread spectrum.

UNIT III [12 Hours]

PULSE COMMUNICATION: Basic concepts of pulse modulation- Sampling Theorem- PAM- PTM- PFM- PPM-PCM- Differential PCM- Delta Modulation- Adaptive Delta modulation- TDM- FDM- ASK- FSK- PSK.

UNIT IV [12 Hours]

SATELLITE COMMUNICATION: Introduction- Satellite Orbit- Satellite Position- Up link- Down link- Cross link – Assignable Satellite Frequencies. Inside Satellite: Transponder – Antenna System – Power Package and Station Keeping – Forms of Modulation – Free path space losses – Ground Station – Aligning the satellite dish.

UNIT V [12 Hours]

CELLULAR COMMUNICATION SYSTEM: Introduction – Basic Cellular System – Operation of Cellular System – Maximum number of Calls per cell – Maximum number of Frequency channels per cell- Concept of frequency reuse channels- Cell splitting – permanent splitting – real time splitting – Frequency Management – Channel Assignment.

TEXT BOOKS:

1. Robert J.Shoernbeck, Electronic Communications Modulation and Transmission, 2nd Edition PHI, 1999.
2. Anok Singh, Principles of Communication Engineering, 2nd Edition, S.Chand and Company,2001
3. William C.Y.Lee, Mobile Cellular Communication Systems, 2nd Edition, McGraw Hill Publications, 1995.
4. William Stallings, Wireless Communication and Networking, 1st Edition, PHI, 2003.

REFERENCE BOOK:

1. Wayne tomasi, Advanced Electronic Communications Systems, 5th Edition, PHI, 2002.

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FOURTH SEMESTER

CORE 8 – INTEGRATED CIRCUIT AND INSTRUMENTATION

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: Enable the students to acquire theoretical knowledge of IC fabrication, and to know the measurements using electronic instruments.

UNIT I [12 Hours]

INTEGRATED CIRCUIT FABRICATION: Introduction – Classification – Basic Planar Process: Silicon wafer preparations, Epitaxial growth, Oxidation, Photolithography, Diffusion, Ion implantation, Isolation techniques, Metallization, Assembly Processing & Packaging- Fabrication of a Typical Circuit - Thin and Thick Film Technology.

UNIT II [12 Hours]

OPERATIONAL AMPLIFIER AND ITS APPLICATIONS: Introduction - Parameters of Operational Amplifiers – Inverting And Non Inverting Amplifier– Summing Amplifier – Differential Amplifier – Integrator – Differentiator – Instrumentation Amplifier – Voltage to Current Converter – Current to Voltage Converter – Precision Half Wave Rectifiers – Precision Full Wave Rectifiers.

UNIT III [12 Hours]

TIMER IC AND ITS APPLICATIONS: Introduction- Description of Functional Block Diagram of 555 Timer- Applications: Monostable multivibrator Operation: Linear Ramp Generator – Pulse Width Modulator – Frequency Divider – Astable multivibrator Operation: Schmitt Trigger – Pulse Position Modulator - FSK Generator- Phase Locked Loop – Basic Principles – Phase Detector / Comparator – Voltage Controlled Oscillator.

UNIT IV [12 Hours]

TRANSDUCERS: Introduction to Transducers – Electrical Transducer – Basic Requirements of Transducer – Classification of Transducers – Selection of Transducers – Resistive Transducers – Potentiometers – Thermistors – Thermocouple – LVDT – RVDT – Piezoelectric Transducers – Hall Effect Transducers – Photoelectric Transducers – Digital Displacement Transducers.

UNIT V [12 Hours]

ELECTRONIC MEASURING INSTRUMENTS: Introduction – PMMC Multimeter – Digital Voltmeter – Electronic Voltmeter – Cathode Ray Oscilloscope – DSO- Frequency Counter – Q-Meter – RF Signal Generator – Pulse Generator - Function Generator – Power Meters.

TEXT BOOKS:

1. D.Roy Choudhury and Shahil B Jain, Linear Integrated Circuits, 3rd Edition, New Age International Publishers, 2007.
2. R.G Gupta, Electronic Instruments and Systems, 3rd Edition, Tata Mcgraw – Hill Reprint 2006.

3. A.K.Shawhney, A Course In Electrical And Electrical Measurements And Instrumentation, 10th Edition, Dhanpat Rai and Co [P] Ltd, Delhi, 2000.

REFERENCE BOOK:

1. K.R.Botkar, Integrated Circuits, 10th Edition, Khanna Publishers, 2006.

15BESP04

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FOURTH SEMESTER

CORE LAB 4 – ELECTRONIC COMMUNICATION LAB

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Objective: Imparting circuit designing skills in Communication Systems

[ANY 12 EXPERIMENTS]

1. AM Modulation and Detection
2. FM Modulation and Detection
3. ASK Modulation
4. FSK Modulation.
5. PAM Modulation
6. Study of Fiber Optic Communication.
7. Alignment of Satellite Receiver
8. PWM Modulation
9. PPM Modulation
10. PCM Modulation
11. Audio Amplifier Using TBA 810
12. Sync Separator
13. Study of AM & FM Radio Receiver
14. Study of DTH Receiver
15. IR Transmitter & Receiver

15BESID4

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FOURTH SEMESTER

IDC 4 - C & C ++ PROGRAMMING LAB

Maximum CIA: 40

Maximum CE: 60

Total Hours : 60

Objective: Imparting programming skills in C & C++

[ANY 12 EXPERIMENTS]

1. Develop a C program to find the sum, average and standard deviation for a set of numbers.
2. Develop a C program to find the number of palindromes in a given sentence.
3. Develop a C program to generate 'n' prime numbers.
4. Develop a C program to arrange a set of numbers in ascending order using BUBBLE SORT.
5. Develop a C program to arrange a set of numbers in Descending order using BUBBLE SORT.
6. Develop a C program to find the factorial value up to a given number.
7. Develop a C program to add 2 matrices.
8. Develop a C Program to generate Fibonacci series
9. Develop a C Program to check whether given number is Armstrong number or not
10. Create a class to implement the data structure STACK .Write a constructor to initialize the TOP of the stack to 0.Write a member function POP[] to delete an element. Check for overflow and underflow conditions.
11. Create a class ARITH which consists of a FLOAT and an integer variable. Write member ADD [], SUB [] MUL [], DIV [], MOD [] to perform addition, Multiplication, division and modulus respectively .Write member functions to get and display values.
12. Create a class which consists of EMPLOYEE detail like eno, ename dept, basic salary and grade. Write member functions to get and display them. Derive a class PAY from the above class and write a member function to calculate da, hra, pf depending on the grade and display the pay slip in a neat format using console I/O.
13. Create two classes which consist of two private variables, one float and integer variables in each class. Write member functions to get and display them. Write FRIEND function common to arguments and the integer and float values of both the objects separately and Display the result.
14. Create a class STRING .Write member function to initialize, get and display strings .Overload the operator + to concatenate two strings, = == to compare two strings and a member function to find the length of the string.
15. Create a user defined function USERFUN [] which has the formatting commands like setw[], showpoint, showpos precision[].Write a program which prints a multiplication table and uses USERFUN[] for formatting.

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FOURTH SEMESTER**

AOC II – AUTOMOTIVE ELECTRONICS

**Maximum CE: 75
Total Hours:36**

Objective: Enable the students to learn the fundamental concept of Automotive electronics system and to enhance them to design simple Automobile products.

UNIT I [8 Hours]

FUNDAMENTALS OF AUTOMOTIVE: Introduction – Evolution – Physical configuration – Automotive Systems – Engine – Engine Block – Cylinder Head – 4 Stroke cycle – Engine control.

UNIT II [8 Hours]

IGNITION SYSTEM : Introduction – Spark Plug – High Voltage Circuit and Distribution – Spark Pulse Generation – Ignition timings – Suspension – Brakes- Steering systems.

UNIT III [6 Hours]

INTRODUCTION TO MICROSYSTEMS: Mems and Microsystems – Typical MEMS and microsystem product – Evolution of microfabrication and microelectronics – The multidisciplinary nature of Microsystems design and manufacture – Application of Microsystems in Automobile industry .

UNIT IV [8 Hours]

FUNDAMENTALS OF MICROSYSTEMS: Introduction – Micro sensors – Acoustic wave sensors – Chemical sensors – Optical sensors – Pressure sensors – Thermal sensors. Micro actuators – Micro gripper – micro motors – micro valves - micro pumps – micro accelerometer – micro fluidics

UNIT V [6 Hours]

CONTROL SYSTEMS: Introduction – Concept of a system – Block diagram representation of a system- Motivation for Electronic engine control – Concept of an electronic engine control system – Electronic fuel control system – Modern Automotive Instrumentation.

TEXT BOOKS:

1. William B Ribbens, Understanding Automotive Electronics , Society of Automotive Engineers Inc, 6th Edition, 2003.
2. Mems and Microsystems Design and Manufacture , Tai Ran Hsu , Tata McGraw Hill , 1st Edition, 2007.

REFERENCE BOOKS:

1. Tom Denton, Automobile Electrical and Electronics Systems , Elsevier Publications Ltd , 3rd edition , 2004.
2. Ronald K. Jurgen , Automotive Electronics Handbook , McGraw-Hill Professional, 2nd Edition, 1999.

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FOURTH SEMESTER

AOC II: INTERNET AND JAVA PROGRAMMING

Maximum CE : 75

Total Hours: 36

Objective: After successful completion of the course the students should Gain knowledge about the concepts of Internet and able to program the applications using Java.

UNIT I [7 Hours]

Internet – Introduction- Defining the internet- Using the internet- History of the internet- Connecting to the internet-Browsing the web: Introduction- Websites, web pages , and web servers-IP address, Domain names and URL-web browsers.

UNIT II [7 Hours]

Elementary Programming – Selections- Loops

UNIT III [8 Hours]

Methods-Single Dimensional Arrays-Multidimensional Arrays.

UNIT IV [7 Hours]

Objects and Classes- Strings and Text I/O- Inheritance and Polymorphism

UNIT V [7 Hours]

Exception Handling- Abstract Classes and Interfaces- Applets and Multimedia

TEXT BOOKS:

1. Gary B. Shelly, Jennifer Campbell, Discovering the Internet, Nicol Pinard Publishing, 4th Edition, 2012,USA
2. Y. Daniel Liang, Introduction to Java Programming, 8th edition, 2011, Pearson Education, New Jersey.

REFERENCE BOOK:

1. Adrian McEwen, Hakim Cassimally , Designing the Internet of Things, 2014 John Wiley and sons Ltd,UK

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EDC1: HTML

**Maximum Marks:50
Total Hour: 24**

Objective: Enabling students to acquire theoretical and practical knowledge to be successful in internet and web designing.

UNIT-I

[5 HOUR]

Introduction: HTML, XML, and the World Wide Web. **HTML:** Basic HTML – The Document Body – Text – Hyperlinks – Adding More Formatting – Lists – Tables – Using Color and Images – Images.

UNIT-II

[5 HOUR]

More HTML: Multimedia Objects – Frames – Forms – Toward Interactivity – The HTML Document Head in Detail – XHTML – An Evolutionary Markup. **Cascading Stylesheets:** Introduction – Using Styles – Defining Your own Styles – Properties and Values in Styles – Stylesheets – A Worked example – Formatting Blocks of Information.

UNIT-III

[5 HOUR]

An Introduction to Java Script: What is Dynamic HTML? JavaScript – JavaScript – The Basics – Variables – String Manipulation – Mathematical Functions – Statements – Operators – Arrays - Functions

UNIT-IV

[5 HOUR]

Objects in JavaScript: Data and Objects in JavaScript – Regular Expression – Exception Handling – Builtin objects – Events.

UNIT-V

[4 HOUR]

Dynamic HTML with JavaScript: Data Validation – Opening New Window – Messages and Confirmations – The Status Bar – Writing to Different Frame – Rollover Buttons – Moving Images – Multiple Pages in a Single Download – A Text-only Menu System – Floating Logos.

TEXT BOOKS:

1. Charis Bates, “Web Programming Building Internet Applications”, Wiley India Pvt. Ltd. Second Edition, 2011
2. Jon Duckett , Beginning Web Programming with HTML, XHTML, and CSS,2011 , Wiley Publishing Inc,US

REFERENCE BOOKS

1. Elisabeth Robson, Eric Freeman Head First HTML and CSS, 2nd edition O’Reilly Media Inc.,Canada, 2012.

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THIRD SEMESTER

ADDITIONAL CREDIT: MATERIAL SCIENCE

Maximum CE: 100

UNIT I

BONDING IN SOLIDS : Classes of engineering materials – engineering requirements of materials – structure – property relationships in materials – quantum numbers and structure of complex atoms – electronic configuration of the atom – forces between atoms – bond energies – ionic bond – covalent bond – metallic bond- comparison of bands – secondary bonds- mixed bonding – chemical bonding and the periodic table.

UNIT II

CRYSTAL STRUCTURE: Crystal symmetry – crystal systems and classes – unit cell and space lattice – crystal structures – miller indices and crystal planes – crystal directions – ionic, covalent and metallic – bonded structures electron diffraction and neutron diffraction.

UNIT III

IMPERFECTIONS IN CRYSTALS AND PHASE DIAGRAMS: Types of imperfections – point imperfection – production of point defect – line imperfection – surface imperfection – phases diagrams – eutectic systems – eutectoid system – other binary systems. Diffusion in solids.

UNIT IV

MECHANICAL PROPERTIES AND TESTING : Mechanical properties – fundamental properties fatigue – creep – mechanical tests – tensile tests – compression test – hardness tests – impact tests – fatigue tests – creep and stress – rupture tests – factor affecting mechanical properties – effect of grain size treatment, atmospheric exposure, low temperature and high temperature.

UNIT V

ELECTRICAL AND MECHANICAL PROPERTIES OF MATERIALS: Band model of conducting – semiconductors – magnetic properties – classification of materials- magnetic hysteresis – magnetic domain – magnetostriction – para magnetism – ferromagnetism – diamagnetism – soft and hard magnetic materials – ferrites.

TEXT BOOKS:

1. Material Science and Processes S.K. Hajradhouthury [Reprinted 1986]
2. Material Science Arumugam

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FOURTH SEMESTER

PC HARDWARE AND MAINTENANCE

Maximum CE: 100

UNIT I

COMPUTER HARDWARE OVERVIEW

Introduction – Computer organization – PC hardware – Functional block of a PC– Buses – Bus concept – Bus cycle – Bus interface unit – Peripheral devices – Keyboard– CRT display – Monitor – Printer – Floppy disk drive – SMPS.

UNIT II

MOTHER BOARD FUNCTIONS

Introduction – Functional units and inter communication – Reset logic – CPU-nucleus logic – DMA logic – Wait state logic – Bus arbitration logic – RAM logic – NMI-logic – Speaker logic – Mode switch input logic – New generation mother board.

UNIT III

FLOPPY DISK CONTROLLER

Introduction – Floppy disk controller overview – Disk format – FDC system-interface – FDD interface – Overall operation of floppy disk subsystem – New generation-floppy disk controller

Display adapter introduction – CRT display – 6845 CRT controller – CGA & AGA – Device interface.

UNIT IV

HARD DISK CONTROLLER AND PRINTER

Introduction – Overview of HDC organization – Disc drives types and interface –Hard disk card – Hard disk format-Printer introduction: Centronics interface programming – Programming sequence– Hardware overview – Printer controller.

UNIT V

TROUBLE SHOOTING

Introduction – Types of faults – Hardware and software – Nature of faults – Solids and intermittent – Fault elimination process – Systematic troubleshooting – FDC& HDC problems – CRT monitor problems – Keyboard problems – SMPS problems-Virus and its types: File virus, Folder virus, Device virus

TEXT BOOKS:

1. Govinda Rajalu B, “PC IBM and Clones – Hardware, Troubleshooting and
2. Maintenance”, Tata McGraw Hill Publishing Company Ltd., New Delhi, 1991

**Master of Science (Software Systems) Degree Examination-Syllabus for Candidates
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**THIRD SEMESTER
PART IV – AOC 1 - APPLIED PHYSICS**

MAXIMUM CE: 75

Objectives:

Total Hours 36

Enable the students to learn the basic properties of various materials.

UNIT I (8 Hours)

LASERS AND FIBER OPTICS: Construction and working of He-ne laser – CO₂ Laser Ruby laser - Semi conductor laser - Application. Types of optical fibre - singled and bundled fibers – Fiber material - Attenuation - Dispersion - Fibre optic light sources - Detectors - Fiber optic communication - Principles of optical recording.

UNIT II (8 Hours)

SUPER CONDUCTOR: Qualitative study of the phenomenon - Critical temperature and critical field. Meissner affect - Joseph son Affect - Type I and type 2 super conductors. BCS theory of super conductivity (Qualitative) - high temperature super Conductors. - Application: Cryotron. Magnetic levitation -Super conducting magnets.

UNIT III (7 Hours)

ELECTRICAL PROPERTIES: Free electron theory of drude and Lorentz - weidmann-Franz law - Distinction between conductors, Semi conductors and insulators on the basic of band theory - Factors affecting the resistivity of a conductor: Temperature, Alloying, Pressure, Strain, Magnetic field and environment.

UNIT IV (7 Hours)

SEMI CONDUCTING MATERIALS: Intrinsic, Extrinsic semiconductors - Material preparation: Czochralski method - Zone refining. Hall Effect in semi conductor - applications. Physics of PN junction diode - Junction transistor. Dielectrics : Permittivity - Dielectric constant - Dielectric polarization - - Types of polarization – Break down mechanisms.

UNIT V (6 Hours)

MAGNETIC PROPERTIES: Ferro magnetism: Dornine theory - Hysteresis - Hard and soft magnetic materials - Curie - - Weiss law - Magnetossniction. Ferrites: Preparation, Properties, Applications - Magnetic bubble memory.

TEXT BOOKS:

1. Brijal and Subramanian, Optics, Chand and co 1995.
2. V. Raghvan, Material science and engineering, a first course, prentice hail of India 1991.
3. M.R. Srinivasan, Physics for engineers, New age international pvt ltd publications, 1996.
4. Seth and Gupta, Course in electrical engineering materials, Dhanpat Rai and Sons, 1990.
5. M. Arumugam, Material science, new age international pvt ltd publications, 1996.

**Master of Science (Software Systems) Degree Examination-Syllabus for Candidates
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THIRD SEMESTER

**PART IV – AOC 1 - DIGITAL ELECTRONICS AND COMPUTER
ORGANIZATION**

MAXIMUM CE : 75

Total Hours: 36

(14 Hours)

UNIT I

NUMBER SYSTEMS AND LOGIC GATES: Introduction-Binary Number systems-Decimal, binary, octal and hexadecimal conversions – Floating point representation-Binary addition-subtraction,multiplication -1's and 2's compliment –BCD-weighted codes and non weighted codes-Excess three code-Gray code –Error detection codes-Hamming codes-ASCII codes-EBCDIC codes-parity advantages.

UNIT II

(12 Hours)

BOOLEAN ALGEBRA AND LOGIC GATES: Boolean logic operations – Boolean functions – Truth table-Basic laws-DeMorgan's Theorem - simplification of Boolean expressions : POS,SOP - karnaugh map – Logic gates : OR,AND,NOT,NAND,NOR,EX-OR,EX-NOR gates.

UNIT III

(12 Hours)

COMBINATIONAL AND SEQUENTIAL LOGIC CIRCUITS: Introduction –Half adder-Full adder-Half subtractor-Full subtractor-Multiplexer- Demultiplexer-Decoder-Encoder.**SEQUENTIAL CIRCUITS:** Introduction –Flip flops, RS, clocked RS, JK, D and T flip flops-Shift register –Ring counter-Ripple counter-up-down counter.

UNIT IV

(12 Hours)

MODERN COMPUTER ORGANIZATION:Introduction-layers in modern computer – Computer organization Main memory-CPU organization-Computer types-system performance and measurement-High performance techniques-Booting sequence-Computer design process-Computer structure-Computer function-Architecture and organization.

UNIT V

(12 Hours)

PROCESSOR AND MEMORY DESIGN: Introduction - Processor role - Processor design goals-Processor design process-Data path organization-Main memory interface-Local storage register file-Data path simple instruction. **MEMORY DESIGN:** Introduction –Memory parameters-Classification of memory-Memory technology-Memory hierarchy- Concept of Cache memory and virtual memory.

TEXT BOOKS

3. Digital Fundamentals – Thomas L Floyd. 11 th Edition, Pearson.
4. Govindarajalu.B, Computer Architecture and Organization Design Principles and Applications, 3 rd Edition, Tata McGraw-Hill

REFERENCE BOOK

3. Albert P. Malvino & Donald P. Leech, Digital Principles and Applications, Tata McGraw Hill Pub.Co. Ltd.
4. S. Salivahanan & S. Arivazhagan, Digital Circuits and Design, Vikas Pub. House Pvt. Ltd. 4 th Edition.
5. V. Vijayendran, Digital fundamentals, S. Viswanathan (Printers & Publishers), 3 rd Edition.

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FOURTH SEMESTER

PART- IV- AOC 2 - COMPUTER SYSTEM ARCHITECTURE

MAXIMUM CE : 75

Total Hours: 36

Objectives: Enable the students to acquire the knowledge in modern computer architectures and peripherals.

UNIT I

(8 Hours)

MODERN COMPUTER ORGANIZATION: Introduction – Layers In Modern Computer - Computer Organization – Main Memory – CPU Operation –Computer Types – System Performance And Measurement – High Performance Techniques – Booting Sequence – Computer Design Process – Computer Structure – Computer Function – Architecture And Organization.

UNIT II

(4 Hours)

PROCESSOR DESIGN AND DATA PATH: Introduction – Processor Role – Processor Design Goals – Processor Design Process – Data Path Organization– Main Memory Interface – Local Storage Register File – Data Path Simple Instructions.

UNIT III

(8 Hours)

MEMORY DESIGN AND MANAGEMENT: Introduction – Memory Parameters – Classification Of Memory – Memory Technology – Main Memory Allocation – Static RAM IC – Dynamic RAM – ROM Logic – Multiple Memory Decoding – Memory Hierarchy – Cache Memory – Principle of Cache – Virtual Memory Concept – Advantage of Virtual Memory.

UNIT IV

(8 Hours)

COMPUTER PERIPHERALS: Introduction – Keyboard – CRT Display Monitor – Printer – Magnetic Storage Devices – Floppy Disk Drive –Hard Disk Drive – Special Types Of Disk Drives – Mouse And Track Ball – Modem – CD-ROM Drive – Scanner –Digital Camera – DVD.

UNIT V

(8 Hours)

ADVANCED SYSTEM ARCHITECTURE: Introduction – High Performance Computer Architecture – RISC Systems – Superscalar Architecture – VLIW Architecture – EPIC Architecture –Multiprocessor Systems.

TEXT BOOK

1. Govindarajalu.B, Computer Architecture and Organization Design Principles and Applications, Tata McGraw-Hill, 2006.

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admitted from the Academic Year 2015-2016 Onwards**

**FOURTH SEMESTER
PART- IV- AOC 2 – ASSEMBLY LANGUAGE PROGRAMMING LAB**

MAXIMUM CE:75

Total Hours : 36

Objective:

Imparting Programming skills in 8085 Microprocessor.

(ANY 12 EXPERIMENTS)

1. Develop an ALP program for addition and subtraction of 8 bit data.
2. Develop an ALP program for multiplication and division of 8 bit data.
3. Develop an ALP program for Multiprecision addition and subtraction.
4. Develop an ALP program for block data transfer.
5. Develop an ALP program for smallest / largest of N numbers.
6. Develop an ALP program to arrange in ascending / descending order.
7. Develop an ALP program for 1's and 2's complement of an array (8 bit).
8. Develop an ALP program for real time Digital clock.
9. Develop an ALP program for BCD to binary conversion.
10. Develop an ALP program to BCD to ASCII and vice versa.
11. Develop an ALP program to data transfer using 8255.
12. Develop an ALP program for up down counter using 7-segment display.
13. Develop an ALP program for logical operations.
14. Develop an ALP program for sum of N 8-bit numbers.
15. Develop an ALP program for Rolling of a message.

B.Sc (Information Technology) Degree Examination-Syllabus for Candidates admitted from the academic year 2015 – 2016 onwards.

**FOURTH SEMESTER
PART IV - EDC I: MICROPROCESSOR**

Maximum CE: 50

Total Hours: 24

Objective:

To inculcate knowledge on Microprocessor concepts.

UNIT - I

[5 Hours]

Microprocessors, Microcomputers and Assembly Languages-Microprocessor-Microprocessor and Instruction Set and Computer Languages-Introduction to 8085 Assembly Language Programming-The 8085 Programming Model-Instruction Classification-Instruction, Data Format and storage.

UNIT - II

[5 Hours]

Microprocessor Architecture and Microcomputer Systems-Microprocessor Architecture and its operations-Memory-Input and Output (I/O) Devices-8085 Microprocessor Architecture and Memory Interfacing-The 8085 MPU-Memory Interfacing-Interfacing the 8155 memory segment.

UNIT - III

[5 Hours]

Introduction to 8085 instructions-Counters and time delays- Counters and time delays-Hexadecimal Counter-Zero-to-Nine Counter-Stack and Subroutine-stack-subroutine.

UNIT - IV

[5 Hours]

Interrupts -The 8085 Interrupt-8085 Vectored Interrupts-Interfacing Data Converters-Digital-to Analog Converters-Analog-to-digital Converters-General purpose programmable peripheral devices-The 8255A programmable peripheral interface.

UNIT - V

[4 Hours]

Serial I/O and Data Communication-Basic Concepts in serial-Software controlled asynchronous serial I/O-The 8085 Serial I/Lines-Microprocessor Applications.

Text Book:

1. Ramesh Gaonkar, Microprocessor Architecture, Programming and Application with the 8085, Fifth Edition, 2010.

Reference Books:

1. A.Nagoorkani, Microprocessors & Microcontrollers, TMH 2012.
2. Steve Heath, Microprocessor Architectures: RISC, CISC and DSP, Elsevier, 2014.

B.Sc (Computer Science) Degree Examination-Syllabus for Candidates admitted from the academic year 2015 – 2016 onwards.

**THIRD SEMESTER
PART IV - AOC I: MICROPROCESSOR**

Maximum CE: 75

Total Hours: 36

Objective:

To inculcate knowledge on Microprocessor concepts.

UNIT - I

[7 Hours]

Microprocessors, Microcomputers and Assembly Languages-Microprocessor-Microprocessor and Instruction Set and Computer Languages-Introduction to 8085 Assembly Language Programming-The 8085 Programming Model-Instruction Classification-Instruction, Data Format and storage.

UNIT - II

[7 Hours]

Microprocessor Architecture and Microcomputer Systems-Microprocessor Architecture and its operations-Memory-Input and Output (I/O) Devices-8085 Microprocessor Architecture and Memory Interfacing-The 8085 MPU-Memory Interfacing-Interfacing the 8155 memory segment.

UNIT - III

[8 Hours]

Introduction to 8085 instructions-Counters and time delays- Counters and time delays-Hexadecimal Counter-Zero-to-Nine Counter-Stack and Subroutine-stack-subroutine.

UNIT - IV

[7 Hours]

Interrupts -The 8085 Interrupt-8085 Vectored Interrupts-Interfacing Data Converters-Digital-to Analog Converters-Analog-to-digital Converters-General purpose programmable peripheral devices-The 8255A programmable peripheral interface.

UNIT - V

[7 Hours]

Serial I/O and Data Communication-Basic Concepts in serial-Software controlled asynchronous serial I/O-The 8085 Serial I/Lines-Microprocessor Applications.

Text Book:

1.Ramesh Gaonkar, Microprocessor Architecture, Programming and Application with the 8085, Fifth Edition, 2010.

Reference Books:

1. A.Nagoorkani, Microprocessors & Microcontrollers, TMH 2012.
2. Steve Heath, Microprocessor Architectures: RISC, CISC and DSP, Elsevier, 2014.

B.Sc. (Electronics and Communication Systems) Degree Examination – Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards**FIFTH SEMESTER****PART III- Core 9 - INDUSTRIAL AND POWER ELECTRONICS**

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objective: Enable the students to acquire designing Knowledge in Industrial & Power Electronic circuits.

UNIT I (12 Hours)

THYRISTORS: Introduction– Principles, Construction, Operation & Characteristics of SCR – Two Transistor Model – TRIAC – DIAC – GTO – SCS – SUS – SBS – LASCR – MOSFET – UJT– Relaxation Oscillator– PUT.

UNIT II (14 Hours)

TURN ON/OFF MECHANISMS: Introduction– Types of Turn on Methods: AC Gate Triggering: Forward Voltage Triggering– Thermal Triggering– Radiation Triggering– DC Gate Triggering: Pulse Triggering – Types Of Turn Off Methods: Natural Commutation – Forced Commutation: Self Commutation – Complimentary Commutation – Auxiliary Commutation – External Pulse Commutation—Line Commutation – Thyristor Rating.

UNIT III (12 Hours)

CONTROLLED RECTIFIERS & INVERTERS: Introduction– Single phase Half Wave Controlled Rectifiers with Resistive Load – HWCR with Inductive Load – HWCR with Free Wheeling Diode – Single phase Full Wave Controlled Rectifiers with Resistive, Inductive Loads – FWCR with Freewheeling Diode. INVERTERS: Single Phase Half & Full Bridge Voltage Inverters.

UNIT IV (12 Hours)

CYCLO CONVERTERS AND CHOPPERS: Introduction – Single Phase Centre Tapped Step-Up Cyclo converter – Single Phase Centre Tapped Step-Down Cyclo converter – Three Phase to Single Phase Cyclo converter—Three Phase To Three Phase Cyclo converter— Step-up & Step-down choppers.

UNIT V (10 Hours)

APPLICATIONS: Introduction – Dielectric heating – Induction heating – SMPS – UPS – Static circuit breaker – Battery charger –Emergency lighting system – Time delay control – Static switches.

TEXT BOOKS:

1. MD Singh, “Power Electronics”, 2nd Edition, Tata- Mc Graw hill, 2007.
2. M. Ramamoorthy, “Thyristor and their Applications”, 2nd Edition, East west pvt.ltd, 1999.

REFERENCE BOOK:

1. Muhammed H Rashid, “Power Electronics Devices, Circuits and Applications”, 3rd Edition, Pearson Education, 2005.

B.Sc. (Electronics and Communication Systems) Degree Examination – Syllabus for candidates admitted from the Academic Year 2018 – 2019 onwards

**FIFTH SEMESTER
PART III- Core 10 – 8051 MICROCONTROLLER AND IT'S INTERFACING**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 60

Course Objective:

Enable the students to learn 8051 Microcontroller concepts and to develop programming skills in Assembly language & Embedded C.

Unit- I (14 Hours)

8051 MICROCONTROLLER ARCHITECTURE VIEW: Introduction–8051 microcontroller hardware – The 8051 oscillator and clock –Program counter and data pointer – A and B CPU registers– Flags and the Program Status Word (PSW) – Internal memory – Internal RAM– The stack and the stack pointer– Special Function Registers (SFR) – Internal ROM – External memory Interface.

Unit- II (14 Hours)

8051 ASSEMBLY LANGUAGE PROGRAMMING: Introduction to 8051 assembly programming – 8051 Data types and directives – 8051 Instruction set: Data transfer instructions – Arithmetic instructions – Logical and compare instructions – Branching instructions (Jump, Loop and Call instructions) – I/O port programming – 8051 Addressing modes.

Unit- III (12 Hours)

8051 PROGRAMMING IN C & TIMER PROGRAMMING: Data types and time delay in 8051 C – I/O programming in 8051 C – Logical operations in 8051 C – Data conversion programs in 8051 C- Programming 8051 timers – Counter programming – Programming timers0 and 1 in 8051 C.

Unit- IV (10 Hours)

8051 SERIAL PORT & INTERRUPTS: Basics of serial communication – 8051 connection to RS232 – 8051 serial port programming in assembly – Serial port programming in C. 8051 Interrupts – Programming timer interrupts – Programming external hardware interrupts.

Unit- V (10 Hours)

8051 INTERFACING CONCEPTS & REAL WORLD APPLICATIONS: LCD interfacing – Keyboard interfacing – ADC interfacing – DAC interfacing – Sensors interfacing – Stepper motor interfacing – DC motor interfacing.

Text Books:

1. Kenneth J Ayala, “The 8051 Microcontroller architecture, programming & applications”, 2nd Edition, 4th reprint 2005, Thomson Asia Pte.Ltd., Singapore [Unit I]
2. Muhammad Ali Mazidi, Janice Gillispie Mazidi and Rolin D. McKinlay, “The 8051 Microcontroller and Embedded Systems Using Assembly and C”, 2nd Edition, PHI, 2006. [Unit II, III, IV & V]

Reference Books:

1. Subrata Ghoshal– “8051 Microcontroller: Internals, Instructions, Programming & Interfacing” 1st Edition, Pearson Education, 2010.
2. M.Mahalakshmi, “The 8051 Microcontroller Architecture, Programming and Application”, Laxmi Publications, 2012.

**B.Sc. (Electronics and Communication Systems) Degree Examination – Syllabus for candidates admitted from the Academic year 2018 – 2019 onwards
FIFTH SEMESTER**

PART III- Core 11 – MICROWAVE AND FIBER OPTICS COMMUNICATION

Maximum CIA: 30
Maximum CE: 70
Total Hours: 60

Course Objective: Enable the students to acquire theoretical knowledge about Microwave and optical communication.

Unit- I (12 Hours)

INTRODUCTION TO MICROWAVES & ELECTROMAGNETICS: Introduction To Microwaves – Maxwell’s Equation – Amperes Law – Faradays Law – Gauss Law – Wave Equation – Types of Wave Guides – TE And TM Modes – Propagation Of TM Waves In Rectangular Wave Guide – TM Modes In Rectangular Wave Guides.

Unit -II (12 Hours)

MICROWAVE AMPLIFIERS AND OSCILLATORS: Introduction To Microwave Amplifiers - Microwave Tubes: - Two Cavity Klystron – Multi Cavity Klystron – Reflex Klystron – Traveling Wave Tube [TWT] – Introduction to Oscillators - Backward Wave Oscillator [BWO] – Magnetron – Applications.

Unit -III (12 Hours)

MICROWAVE DEVICES: Introduction to Microwave Devices - Microwave Transistors – Gallium Arsenide [GaAs] Metal Semi-Conductor FET – Varactor Diode – PIN Diode – Schottky Diode – Tunnel Diode – Gunn Diode – IMPATT Diode – TRAPATT Diode – BARITT Diode – Maser Principle – Applications.

Unit- IV (12 Hours)

RADAR: Introduction To Radar – Block Diagram – Classification – Radar Range Equation – Factors Affecting The Range of a Radar Receivers – Line Pulse Modulator – PPI [Plane Position Indicator] – Moving Target Indicator [MTI] – FM CW Radar- Applications.

Unit -V (12 Hours)

OPTICAL FIBER COMMUNICATION: Introduction to Optical Fiber Communication - A Basic Fiber Optic System – Frequencies – Fiber Optic Cables – Refraction – Numerical Aperture – Graded Index Cables – Single Mode – Multi Mode – Cable Constructions – Cable Losses – Connectors – Light Sources – Light Detector – Systems Components – Advantages And Disadvantages.

Text Books:

1. M.Kulkarni, Microwave and Radar Engineering, 2nd Edition, Umesh Publications,1998.
2. Kennedy Davis, Electronic Communication Systems, 3rd Edition, Tata Mcgraw Hill Publishing Company Limited,2006.

Reference Book:

1. Samuel Y.Liao, Microwave Devices and Circuits, 2nd Edition, PHI Private Limited,1995.

B.Sc. (Electronics and Communication Systems) Degree Examination – Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards

FIFTH SEMESTER

PART III- Core Lab 5 – INTEGRATED CIRCUITS AND POWER ELECTRONICS LAB

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Objective:

Imparting circuit designing skills with Integrated Circuits and Power Electronics Circuits.

(ANY 12 EXPERIMENTS)

1. Astable Multivibrator using IC 555 Timer
2. Monostable Multivibrator using IC 555 Timer
3. Integrator and Differentiator Circuits Using IC 741
4. Adder and Subtractor Using IC 741
5. Function Generator Using OP-AMPS
6. Voltage to Current Converter and Current to Voltage Converter
7. Wein Bridge Oscillator Using IC 741
8. Schmitt Trigger Circuits- Using IC 741 / IC 555
9. Burglar Alarm
10. Commutation techniques.
11. Rectifier Circuit Using SCR
12. Single phase AC voltage control using TRIAC
13. Automatic Street Light Controller
14. Fan Regulator/ Light Dimmer using TRIAC
15. Speed Control of DC Motor Using SCR.

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FIFTH SEMESTER

PART III - Core Practical 6 – MICROCONTROLLER AND ITS INTERFACING

Maximum CIA : 40

Maximum CE: 60

Total Hours : 60

Course Objective: Imparting Technical skills in 8051 Microcontroller and its Interfacing.

(ANY 12 EXPERIMENTS)

1. Addition and subtraction of 8 bit data.
2. Multiplication and division of 8 bit data.
3. Logical Operations.
4. 1's and 2's complement of an array.
5. Setting and Masking bits in 8-bit number.
6. Sum of Elements in an Array.
7. ASCII to Decimal Conversion.
8. Hex to Decimal Conversion.
9. Largest Element in an array.
10. Ascending Order of an array.
11. 8255 Interfacing.
12. ADC Interfacing.
13. DAC Interfacing.
14. Stepper motor Interfacing.
15. Traffic Light Controller Interfacing.

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**FIFTH SEMESTER
PART III- Elective I – PROGRAMMABLE LOGIC CONTROLLER**

Maximum CIA:30
Maximum CE:70
Total Hours: 60

Course Objective: Enable the students to acquire knowledge about basic PLC types and to enhance them to design PLC based automation.

Unit- I (15 Hours)
BASIC PLC PROGRAMMING: General PLC programming procedures - Programming on/off inputs and outputs: Relation of digital gate logic to contact/ coil logic - Creating ladder diagrams from process control descriptions - Logic gates. PLC Register Basics.

Unit- II (14 Hours)
BASIC PLC FUNCTION AND INTERMEDIATE FUNCTION: Programming Timers - On Delay Timer Instruction - Off Delay Timer Instruction. Programming Counters - Up Counter - Down Counter. Math Instruction - Addition - Subtraction - Multiplication - Division. Number comparison functions - Numbering systems and PLC number conversion functions.

Unit- III (15 Hours)
DATA HANDLING FUNCTIONS AND PLC FUNCTIONS WORKING WITH BITS: The PLC SKIP and MASTER CONTROL RELAY functions - JUMP Functions - Data Move Systems - Other PLC Data Handling Functions - Digital Bit Functions and Applications - Sequencer functions - Controlling Robot with a PLC - Matrix functions.

Unit- IV (14 Hours)
PLC INSTALLATION PRACTICES, EDITING AND TROUBLESHOOTING PLC Enclosures - Electrical Noise - Leaky Inputs and Outputs - Grounding - Voltage Variations and Surges - Program Editing - Programming and Monitoring - Preventive Maintenance - Troubleshooting - Connecting your Personal Computer and Your Programmable Logic Controller.

Unit- V (14 Hours)
INTRODUCTION TO SCADA: SCADA definitions, SCADA Functional requirements and components, SCADA Hierarchical concept, SCADA architecture, General features, SCADA Applications, Benefits. Remote Terminal Unit (RTU), Interface units, Human- Machine Interface Units (HMI), Display Monitors/Data Logger Systems, Intelligent Electronic Devices (IED).

Text Book:

1. Frank D. Petruzella, “Programmable Logic Controllers”, Third Edition, Tata McGraw Hill Education Private Limited, 2010.

Reference Book:

1. W.Bolton, “Programmable Logic Controllers”, Fifth Edition, Elsevier Publication

Introduction – Types of faults – Hardware and software – Nature of faults – Solids and intermittent–Fault elimination process – Systematic troubleshooting – FDC& HDC problems – CRT monitor problems – Keyboard problems – SMPS problems.

Text Books:

1.Govinda Rajulu B, “PC IBM and Clones – Hardware, Troubleshooting and Maintenance”, Tata McGraw Hill Publishing Company Ltd., New Delhi, 1991

2.Row Gilster “PC hardware a beginners guide”,Tata McGraw hill Publishing company Ltd.,New Delhi ,2001.

Reference Book:

1. Stephen J.Bigelow “Trouble shooting ,maintaining and repairing PCS “,Tata McGraw hill publishing Company Ltd., New Delhi .

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FIFTH SEMESTER

PART III- Elective I – CLOUD COMPUTING

Maximum CIA : 30
Maximum CE : 70
Total Hours: 60

Course Objective : On Successful completion of paper the students have expert knowledge in cloud computing.

Unit – I (12 Hours)

INTRODUCTION : Cloud Computing Introduction- From - Collaboration to Cloud - Working of Cloud Computing - Pros and Cons – Benefits - Developing Cloud Computing Services - Cloud Service Development - Discovering Cloud Services.

Unit – II (12 Hours)

CLOUD COMPUTING FOR EVERYONE : Centralizing Email Communications - Cloud Computing for Community - Collaborating on Schedules - Collaborating on Group Projects and Events- Cloud Computing for Corporation - Mapping Schedules Managing Projects, Presenting on Road.

Unit – III (12 Hours)

USING CLOUD SERVICES: Collaborating on Calendars - Schedules and Task Management- Exploring on Line Scheduling and Planning- Collaborating on Event Management- Collaborating on Contact Management- Collaborating on Project Management- Collaborating on Word Processing- Spreadsheets and Databases.

Unit – IV (12 Hours)

OUTSIDE THE CLOUD: Evaluating Web Mail Services- Evaluating Instant Messaging- Evaluating Web Conference Tools- Creating Groups on Social Networks- Evaluating on Line Groupware- Collaborating Via Blogs and Wikis

Unit – V (12 Hours)

STORING AND SHARING : Understanding Cloud Storage- Evaluating on Line File Storage- Exploring on Line Book Marking Services- Exploring on Line Photo Editing Applications- Exploring Photo Sharing Communities- Controlling it with Web Based Desktops.

Text Book :

1. Michael Miller, Cloud Computing, Pearson Education, New Delhi, 2009

Reference Book:

1. Mahamood Zaigham “Cloud Computing: Concepts, Technology & Architecture ” , Pearson Education, 2013.

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**SIXTH SEMESTER
PART III- Core 12 –EMBEDDED SYSTEMS**

Maximum CIA : 30
Maximum CE : 70
Total Hours : 60

Course Objective: Enable the students to learn the concepts of Embedded systems and its applications.

Unit - I (12 Hours)

INTRODUCTION TO EMBEDDED SYSTEMS: Embedded Systems–Processor Embedded in to a System –Embedded hardware units and devices in a system – Embedded software in a system – Classification of Embedded Systems – Examples of Embedded Systems – Embedded System-on-Chip (SOC) and use of VLSI circuit design technology.

Unit- II (12 Hours)

DEVICES AND COMMUNICATION BUSES FOR DEVICE NETWORK :

IO Types and Examples- Serial Communication Devices- Parallel Device Ports- Wireless Devices- Timer and Counting Devices- Watchdog Timer- Real Time Clock- Networked Embedded Systems- Serial Bus Communication Protocols- Parallel Bus Device Protocols- Internet Enabled Systems- Wireless and Mobile System Protocols.

Unit - III (12 Hours)

EMBEDDED HARDWARE, FIRMWARE DESIGN AND DEVELOPMENT:

Analog Electronic Components- Digital Electronic Components- VLSI and Integrated Circuit Design- Electronic Design Automation (EDA) tools- Embedded Firmware Design Approaches- Embedded Firmware Development Languages- Programming in Embedded C: “C” Vs Embedded “C”- Compiler Vs Cross- Compiler- Using “C” in Embedded “C”- Keywords and Identifiers- Data types- Arithmetic operations- Logical, Relational, Branching and Looping Instructions.

Unit- IV (12 Hours)

SYNCHRONIZATION OF PROCESS, THREADS & TASKS: Multiple process in an application– Multiple threads in an application – Tasks – Task States–Task and Data– Concepts of Semaphores– Counting semaphores – P and V semaphores.

INTERPROCESS COMMUNICATIONS: Interprocess communications – Signal function – Semaphore functions: Mutex, Lock and spinlock – Message queue functions – Mailbox functions – Pipe functions – Socket functions.

Text Books:

1. Raj Kamal, “Embedded systems architecture, Programming and Design”, 2nd Edition, Tata McGraw Hill - Publishing company Pvt. Ltd., Reprint-2008.
2. Shibu K V, “Introduction to Embedded systems”, Tata McGraw Hill Education - Pvt. Ltd., 2009.

Reference Book:

1. David E Simon, “An Embedded Software Primer”, Pearson Education – 12th Indian reprint, 2005.

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SIXTH SEMESTER

PART III- Core 13 – WIRELESS COMMUNICATION

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Course Objective: Enable the students to learn the most exciting area in telecommunications and networking

Unit-I (12 Hours)

TRANSMISSION FUNDAMENTALS: Introduction-Signals for conveying information: Time Domain & Frequency Domain Concepts- Data Rate and Bandwidth -Analog and Digital Data Transmission: Analog and Digital Data, signaling and Transmission-Channel Capacity: Nyquist Bandwidth-Shannon capacity formula-Transmission Media: Terrestrial Microwave-Satellite Microwave- Broadcast Radio- Infrared-Multiplexing: Frequency Division Multiplexing (FDM) - Time Division Multiplexing (TDM).

Unit -II (12 Hours)

COMMUNICATION NETWORKS: Introduction -LAN, MAN and WAN-Switching Techniques-Circuit Switching- Cellular Network- Packet Switching: Basic operation-Packet Size- Packet Switched Network-Asynchronous transfer mode (ATM): ATM Logic connections- ATM Cells – ATM Service Categories

Unit- III (12 Hours)

PROTOCOLS AND THE TCP/IP SUITE: The Need for a Protocol Architecture- The TCP/IP Protocol Architecture: Layers-Operation- Applications- The OSI Model- Internetworking: Routers- Internet Protocol: IPv4-IPv6- Transmission Control Protocol- User Datagram Protocol

Unit -IV (12 Hours)

CELLULAR WIRELESS NETWORKS: Principles of Cellular Networks: Cellular Network Organization-Operation- Mobile Radio Propagation- Hands-off- first generation Analog- GSM network Architecture- IS-95- Third generation systems

Unit -V (12Hours)

SATELLITE COMMUNICATIONS: Introduction- Need of Satellite Communication-Orbital Elements-Kepler's Law-Earth Orbit Satellites-Types: GEO-MEO-LEO-Look Angles-Launching of Satellites-Space Segment Subsystems: AOC-TTC-Power and Antenna-Transponders- Earth Segment Subsystems

Text Book:

1. William Stallings, “Wireless Communications & Networks”, 2nd Edition, Pearson Education 2005.

Reference Book:

1. Achyut S Godbole, “Data Communications and Networks”, Tata McGraw – Hill Publishing Company Limited 2006.

B.Sc. (Electronics and Communication Systems) Degree Examination – Syllabus for candidates admitted from the Academic year 2018 – 2019 onwards
SIXTH SEMESTER

PART III- Core Practical 7- ANALOG AND DIGITAL COMMUNICATION

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Course Objective: Imparting circuit designing skills in Communication Systems

[ANY 12 EXPERIMENTS]

16. AM Modulation and Detection
17. FM Modulation and Detection
18. Amplitude Shift Keying
19. Frequency Shift Keying
20. Pulse Amplitude Modulation
21. Study of Fiber Optic Communication.
22. Study about Alignment of Satellite Receiver
23. Pulse Width Modulation
24. Pulse Position Modulation
25. Pulse Code Modulation
26. Time Division multiplexing
27. Frequency Division multiplexing
28. Study of AM & FM Radio Receiver
29. Study of DTH Receiver
30. Signal sampling and Reconstruction

**B.Sc. (Electronics and Communication Systems) Degree Examination – Syllabus for
candidates admitted from the academic year 2018-2019 onwards**

**SIXTH SEMESTER
PART III- Elective II – ROBOTICS & AUTOMATION**

Maximum CIA: 30
Maximum CE : 70
Total Hours: 60

Course Objective:

Enable the students to acquire knowledge about robotics and its automation.

Unit -I (12 Hours)

CLASSIFICATION OF ROBOTIC SYSTEMS : Basic structure of a robot - Classification of robots: Cartesian, Cylindrical, Spherical, Articulated, SCARA. Accuracy, resolution and repeatability of robots- Robot application in manufacturing: Material transfers - Machine loading and unloading - Processing operations - Assembly and inspection.

Unit- II (12 Hours)

DRIVES AND CONTROL SYSTEMS: Hydraulic and Pneumatic systems: Cylinders- Control valves- Hydro motor- Types of mechanical power drive- Rotary to linear motion conversion mechanisms - Robot end effectors - Servomotors – operations- Stepper motors - Control loops using current and voltage amplifier- Robot controllers - Configuration of robot controller.

Unit- III (12 Hours)

SENSORS AND VISION SYSTEMS: Types of sensors- Tactile sensors- Proximity sensors and speed sensors – Encoder- Resolvers- Vision systems: Image processing and analysis- Segmentation- Feature extraction- Object Recognition.

Unit- IV (12 Hours)

ROBOT PROGRAMMING & AUTOMATION: Lead through programming - Textual programming- Programming examples - Social and Economical Aspects of Robots - Typical layouts of robots in Industries- AUTOMATION: Advantages of automation-Building blocks of automation- Automatic feeding lines- Material-handling devices- ASRS- Transfer lines- Automatic inspection- Intelligent automation.

COMPUTER NUMERICAL CONTROL (CNC): Block diagram of a CNC control system- Advantages- Power supply- CPU- CNC and PLC interfacing- Control loops- Feedback devices in CNC machine- Analog and digital CNC systems.

Text Book :

1. Mikell P.Groover, “Automation Production systems and Computer Integrated Manufacturing”, Prentice-Hall India, New Delhi, 1987. / Pearson Education, New Delhi .

Reference Books:

1. W. Bolton, “Mechatronics”, Pearson Education Asia, 2002.

2. K.S. Fu, R.C. Gonzalez and C S G Lee, “Robotics: Control, Sensing, Vision and Intelligence”, McGraw Hill, New Delhi, 1987

**B.Sc. (Electronics and Communication Systems) Degree Examination – Syllabus for
candidates admitted from the academic year 2018-2019 onwards**

SIXTH SEMESTER

PART III- Elective II – DIGITAL SYSTEM DESIGN

Maximum CIA: 30

Maximum CE : 70

Total Hours: 60

Course Objective:

Enable the students to acquire knowledge about digital system design.

Unit –I INTRODUCTION TO NUMBER SYSTEMS AND BOOLEAN ALGEBRA

(12 Hours)

Digital and Analog Basic Concepts- Some history of Digital Systems - Introduction to number systems - Binary numbers - Number Base Conversion - Complement Codes- Binary Arithmetic , Binary codes: BCD, Weighted codes -2421,8421,gray code - Binary Logic functions- Boolean Algebra-Theorems and Properties of Boolean Algebra.

Unit –II MINIMIZATION TECHNIQUES IN DIGITAL LOGIC (12 Hours)

Canonical forms- Generation of Switching Equations from Truth Table - K-map(Karnaugh map) 2 ,3,4 and 5 variables, K map with Don't care terms - Quine Mc-Cluskey minimization technique, Quine Mc-Cluskey using Don't Care Terms - Mixed logic Combinational circuits.

UNIT- III DESIGN OF COMBINATIONAL LOGIC CIRCUITS (12 Hours)

Introduction to Combinational Circuits- Analysis and Design Procedure - Binary Adder, Subtractor, Carry Look Ahead Generator- Decimal Adder- Binary Multiplier – Decoder- Encoder- Priority Encoder- Digital Multiplexer- Magnitude Comparator.

UNIT –IV SYNCHRONOUS SEQUENTIAL CIRCUITS (12 Hours)

Flip-flops- SR,D,JK,T - Analysis of Synchronous Sequential Circuit - State Reduction and Assignment - Design of Synchronous Sequential Circuit: Sequence Detector for D,JK,T flip-flops - BCD Counter, Registers: Shift Registers- Analysis of Asynchronous Sequential Circuit: Transition Table- Flow Table.

Introduction to HDL: Module Declaration-Gate delays- Boolean Expressions- User Defined Primitives - HDL models for Combinational Circuits: Gate Level Modeling, Data Flow , Behavioral Modeling - HDL flow Behavioural Sequential Circuits: HDL Models for Flip- Flops and Latches

Text Books :

1. John . M. Yarbrough,” Digital Logic: Applications and Design”, Cengage Learning, Reprint 2009.
2. M.Morris Mano, Michael D. Ciletti ,”Digital Design with an Introduction to the verilog HDL”, Pearson Publications, Fifth edition 2014.

Reference Book:

1. Giuliano Donzellini, Luca Oneto, Domenico Ponta, Davide Anguita “Introduction to Digital Systems Design”, Springer, 2019.

B.Sc. (Electronics and Communication Systems) Degree Examination – Syllabus for candidates admitted from the Academic Year 2015 – 2016 onwards

SIXTH SEMESTER

PART III- Elective II – MULTIMEDIA AND ITS APPLICATIONS

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Course Objective:

On successful completion of the paper the students should have acquired knowledge in the concepts of Multimedia, Images, Animation and Desktop Computing.

Unit- I (12 Hours)

What is Multimedia – Introduction to Making Multimedia – Hardware - Macintosh Vs. Windows – Networking Macintosh and Windows Computers - Basic Software Tools.

Unit- II (12 Hours)

Multimedia Skills – The Team - Multimedia Authoring tools – Types of Authoring Tools – Authoring Tools – card and Page Based – Icon and Object Based – Time Based - Text – Sound.

Unit- III (12 Hours)

Images – Making Still Images – Color – Image File Format – Animation – Video – Analog Display Standard – Digital Display Standard – Digital Video – Video Recording and Tape Formats – Shooting and Editing Video.

Unit- IV (12 Hours)

The Internet and How It Works – Tools for World Wide Web – Designing for the World Wide Web- Working on the Web – Text – Images – Sound – Animation.

Unit- V (12 Hours)

High Definition Television and Desktop Computing – Knowledge Based Multimedia Systems.

Text Books:

1. Tay Vaughan, Multimedia making it works, 7th Edition, Tata McGraw Hill, Reprint 2011, New Delhi (Unit I – IV).
2. John F. Koegel Bufford, Multimedia Systems, 4th Edition, Pearson Education, 2013, Asia (Unit V).

Reference Books:

1. Prabhat K. Andleigh, Kiran Thakrar, Multimedia System Design, 3rd Edition, Pearson Education, 2010, New Delhi.
2. Vic Costello, Multimedia Foundations, Taylor & Francis, 2012.

B.Sc. (Electronics and Communication Systems) Degree Examination – Syllabus for candidates admitted from the Academic Year 2018 – 2019 onwards**SIXTH SEMESTER****PART III- Elective III –REAL TIME OPERATING SYSTEMS**

Maximum CIA : 30
Maximum CE : 70
Total Hours : 60

Course Objective: Enable the students to learn the concepts of RTOS, RTOS Task Scheduling Algorithms and its applications.

Unit- I (12 Hours)

INTRODUCTION TO REAL TIME OPERATING SYSTEMS: OS Services- Process Management- Timer Functions- Event Functions- Memory Management- Device, File and IO subsystem Management- Interrupt Routines in RTOS Environment and Handling of Interrupt Source Calls.

Unit - II (12 Hours)

RTOS TASK SCHEDULING MODELS:

Real Time Operating Systems – Basic Design using an RTOS: Principles- Encapsulation using the Semaphores and Queues – RTOS Task Scheduling Models: Cooperative Scheduling Model- Cyclic and Round Robin Scheduling Model- Preemptive Scheduling Model- EDF and RMS Models- Fixed Real- Time Scheduling Model.

Unit- III (10 Hours)

REAL TIME OPERATING SYSTEM PROGRAMMING –I -Microc/ OS-II:

Basic Functions of RTOSes – Types of RTOSes- RTOS μ COS-II – System Level Functions- Task Service and Time Functions – Time Delay Functions- Memory Allocation related Functions- Semaphore Related Functions- Mailbox Related Functions- Queue related Functions.

Unit -IV (12 Hours)

REAL TIME OPERATING SYSTEM PROGRAMMING II – Vx Works and Windows CE:

RTOS Vx Works- Basic features- Task Management Library at the System Library Header File- Vx Works System Functions and System Tasks – IPC Functions- Windows CE: Windows CE Features- Windows CE Programming- Windows Management – Memory Management- File and Registry- Processes, Threads and IPCs.

Unit -V (14 Hours)

PROGRAMMING MODELING WITH RTOS: Case Study of Embedded System Design and Coding for an Automatic Chocolate Vending Machine(ACVM) μ COS-II RTOS: ACVM Hardware Architecture- Software Architecture- Creating List of Tasks, Functions and IPCs- Case Study of Digital Camera Hardware and Software Architecture: Requirements- Class Diagrams- Digital Camera Hardware Architecture- Digital Camera Software Architecture.

Text Book:

- 1 Raj Kamal, "Embedded systems architecture, Programming and Design", 2nd Edition, Tata McGraw Hill - Publishing company Pvt. Ltd., Reprint-2008.

Reference Book:

- 1 Shibu K V, "Introduction to Embedded systems", Tata McGraw Hill Education - Pvt. Ltd., 2009.

B.Sc. (Electronics and Communication Systems) Degree Examination – Syllabus for candidates admitted from the Academic Year 2018 – 2019 onwards

**SIXTH SEMESTER
PART III- Elective III – ARDUINO**

Maximum CIA : 30
Maximum CE : 70
Total Hours : 60

Course Objective:

To impart knowledge on Hardware Architecture of Arduino, Programming Tools of Arduino and Design development process for Specific Applications.

Unit- I ARCHITECTURE REVIEW OF ARDUINO UNO BOARD (12 Hours)
I/O ports Capability of Arduino Uno-ADC & its features- Interfacing of Digital Input (LED) and output devices(Switch)-Interfacing of Current sensor and LCD.

Unit- II EMBEDDED C PROGRAMMING FOR ARDUINO (12 Hours)
Variables- Looping statements- Logical Operators- Mathematical operators- Programming with Arduino IDE- Compiling and Debugging using IDE.

Unit- III DESIGN OF REAL TIME DIGITAL CLOCK USING ARDUINO (12 Hours)
Preparation of Bill of materials- Selection of Displays-Design of Drivers for LED display- Development of algorithm- Add on functions: Setting Time, Date, Selection of Time format, Alarms.

Unit- IV DESIGN OF ROOM TEMPERATURE MONITOR & VISITOR COUNTER (12 Hours)
Preparation of Bill of materials-Selection of Sensors- Interfacing of Temperature Sensor and IR sensors- Development of algorithm for monitoring and counting.

Unit- V DESIGN OF TRAFFIC LIGHT CONTROLLER (12 Hours)
Preparation of Bill of materials- Selection of Sensors - Development of algorithm for Traffic Light Control.

Text Books:

1. Massimo Banzi, “Getting Started with Arduino: The Open Source”, Shroff Publishers & Distributors Pvt Ltd, 2014
2. Simon Monk, “Programming Arduino: Getting Started with Sketches”, McGraw-Hill Education, Second Edition,2016

Reference Books:

1. Margolis, “Arduino Cookbook”, Shroff/O'Reilly Publication, 2nd edition 2012
2. WEB REFERENCES: <https://www.arduino.cc/>

SCHEME OF EXAMINATIONS (CBCS PATTERN)
For the Candidates admitted during the academic year 2018- 2019 Batch and onwards
DEPARTMENT OF CATERING SCIENCE & HOTEL MANAGEMENT

PART	SUB CODE	SUBJECT TITLE	INS. HRS. / WEEK	EX. DUR. HRS.	CIA	CE	TOTAL	CREDIT
SEMESTER - I								
I	15HMFR01	French – I	5	3	30	70	100	3
II	16ENG001	English –I	5	3	30	70	100	3
III	16BHM101	Core 1- Food Production and Patisserie-I	3	3	30	70	100	3
III	16BHM102	Core 2- Food And Beverage Service-I	3	3	30	70	100	3
III	16BHM103	Core 3- Housekeeping Management	3	3	30	70	100	3
III	16BHMP01	Core Practical 1- Food Production and Patisserie Practical-I	3	4	-	-	-	-
III	16BHMP02	Core Practical 2- Food and Beverage Service Practical-I	3	3	-	-	-	-
III	16BHMD1	IDC 1 : Personality Development	3	3	30	70	100	4
IV	18UFCA01	Foundation Course I : EVS #	2	3	-	50	50	2
		Total	30				650	21
SEMESTER – II								
I	15HMFR02	French –II	5	3	30	70	100	3
II	16ENG002	English – II	5	3	30	70	100	3
III	16BHM201	Core 4 - Food Production and Patisserie-II	3	3	30	70	100	3
III	16BHM202	Core 5- Food and Beverage Service-II	3	3	30	70	100	3
III	16BHMP01	Core Practical 1- Food Production and Patisserie Practical –I	3	4	40	60	100	4
III	16BHMP02	Core Practical 2 - Food and Beverage Service –I	3	3	40	60	100	4
III	16BHMP03	Core Practical 3 - Housekeeping Management Practical	3	3	20	30	50	3
III	16BHMD2	IDC - 2 – Practical - Computer Applications in Hospitality Industry	3	3	30	70	100	4
IV	18UFCA02	Foundation Course II : Value Education #	2	3	-	50	50	2
		Total	30				800	29

SEMESTER - III								
III	16BHM301	Core 6 - Food Production and Patisserie-III	5	3	30	70	100	3
III	19BHM302	Core 7- Food and Beverage Service-III	4	3	30	70	100	3
III	16BHM303	Core 8- Front Office Operations	3	3	30	70	100	3
III	19BHM304	Core 9 - Bakery and Confectionery	4	3	30	70	100	3
III	16BHMP04	Core Practical 4 - Food Production and Patisserie Practical-II	3	4	-	-	-	-
III	16BHMP05	Core Practical 5 - Food and Beverage Service Practical-II	3	3	-	-	-	-
III	16BHMID3	IDC 3 - Hotel Accounting	3	3	30	70	100	4
IV	16BHMAO1/16BHMAO2	AOC - @@	3	4	-	75	75	3
IV	16BTA001/16ATA001/18BHMED1	BT I/AT I/Communicative Hindi –I	2	2	-	50	50	2
		Total	30				625	21
SEMESTER - IV								
III	16BHM401	Core 10 - Food Production and Patisserie-IV	5	3	30	70	100	4
III	19BHM402	Core11- Food and Beverage Service-IV	4	3	30	70	100	4
III	16BHMP04	Core Practical 4 - Food Production and Patisserie Practical-II	3	4	40	60	100	4
III	16BHMP05	Core Practical 5 - Food and Beverage Service Practical-II	3	3	40	60	100	4
III	16BHMP06	Core Practical 6 - Front Office Operations Practical	3	3	20	30	50	3
III	16BHME01/02/03	Elective - I	4	3	30	70	100	4
III	19BHMID4	IDC 4 – Travel and Tourism	3	3	40	60	100	4
IV	16BHMAO3/O4	AOC - @@	3	4	-	75	75	3
IV	16BTA002/16ATA002/18BHMED2	BT II/AT II/ Communicative Hindi -II	2	2	-	50	50	2
V	15NCC001/15NSS001/15SPT001/15EXT001	NCC / NSS / Sports @/ Extension Activity	-	-	-	50	50	2
		Total	30				825	34

SEMESTER - V								
III	16BHM501	Core 12 - Food Production and Patisserie-V	5	3	30	70	100	4
III	20BHM502	Core13- Food and Beverage Service-V	4	3	30	70	100	4
III	16BHM503	Core14- Food and Beverage Management	4	3	30	70	100	3
III	16BHMP07	Core Practical 7 - Food Production and Patisserie Practical-III	6	4	40	60	100	4
III	16BHMP08	Core Practical 8 - Food and Beverage Service Practical-III	6	3	40	60	100	4
III	16BHME04/ 05/06	Elective - II	5	3	30	70	100	4
		Total	30				600	23
SEMESTER - VI								
III	16BHMPR1	Core - 15 - Industrial Exposure Training Report - Viva- Voce	-	3	40	60	100	12
		Total					3600	140

No Continuous Internal Assessment (CIA) only Comprehensive Examination (CE)
 @No Continuous Internal Assessment (CIA) and Comprehensive Examination (CE).
 IDC – Inter Disciplinary Course – Extra Disciplinary Course (EDC) – @@ Application Oriented Course (AOC)@@ -Practical Garde Manger

LIST OF ELECTIVE PAPERS			
SEMESTER - IV			
ELECTIVE – I	S.NO	SUBJECT CODE	SUBJECT
	01	16BHME01	Food Service Facilities and Planning
	02	16BHME02	Food Preservation
	03	16BHME03	Food Safety Microbiology
SEMESTER - V			
ELECTIVE – II	04	16BHME04	Human Resource Management in Hospitality Industry
	05	16BHME05	Hotel Law
	06	16BHME06	Fast Food Operations

APPLICATION ORIENTED COURSE (AOC)			
	S.NO	SUBJECT CODE	SUBJECT
AOC-1	01	19BHMAO1	Practical - Bakery and Confectionary
	02	16BHMAO2	Practical - Cake Icing and Decoration
AOC-2	03	16BHMAO3	Practical - Garde Manger
	04	16BHMAO4	Practical - Indian Sweets and Snacks

ADDITIONAL CREDIT PAPER

Part	Sub Code	Subject Title	Ins.Hrs/Week	Examination				
				Dur. Hrs.	CIA	CE	Total	Credit
SEMESTER III								
III	16BHMAC1	Event management	-	3	-	100	100	2
SEMESTER IV								
III	16BHMAC 2	Computer Applications in Hospitality Industry	-	3	-	100	100	2
SEMESTER V								
III	16BHMAC 3	Hotel Engineering and Maintenance	-	3	-	100	100	2

SUMMARY

Part	No of Papers	Total Credits	Total Marks
I	2	6	200
II	2	6	200
III –Core	15	52	1300
III – Core Practical	8	36	900
III – IDC	4	16	400
III – Elective	2	8	200
IV –Foundation Course	2	4	100
IV – EDC	2	4	100
IV – Application Oriented Course	2	6	150
V Extension Activities	-	2	50
Total	39	140	3600

REGULATIONS FOR BOARD OF CATERING SCIENCE AND HOTEL MANAGEMENT

(FOR UG COURSES ONLY)

(Effective from the academic year 2018-2019 and onwards)

1. REGULATION FOR SELECTION OF ELECTIVES

- a) Students have to choose the elective papers of one among 3 given papers.
- b) The Department will offer the chosen subject, only if the number of students opting such subjects is not less than ten.

2. INDUSTRIAL EXPOSURE TRAINING

1. Students should undergo Industrial Exposure Training during 6th semester for a period of four months in a reputed star hotel with the approval of the department.
2. At the end of the training the student has to submit a training report, log book and training certificate at the time of Viva Voce.
3. The Students have to maintain and submit their day to day training log book signed by the respective department head and Human Resource/ Training Manager with attendance percentage during training period.
4. Project guide will be allotted by the department to each student.
5. The student should submit the final IET Report to the department only after two reviews.
6. A copy of the certificate from the hotel should also be enclosed in the Project Report.

COMPONENTS OF INDUSTRIAL EXPOSURE TRAINING REPORT:

- Table of Contents
- Copy of the certificate
- Acknowledgment
- About the location
- Company Profile
- About my Hotel
- About my training
- Conclusion
- Annexure

7. Marks for the Industrial Exposure Training will be based on the report and viva voce Examination conducted by the department (Report- 60 marks and internal – 40 marks. Total marks -100 marks)

Mark Distribution for internal marks:

Review	10 Marks
Second Review	10 Marks
Log Book	20 Marks

	40 Marks

Mark Distribution for external marks:

Report	: 40 marks
Viva-voce	: 20 marks

	60 marks

3. SUBMISSION OF RECORD NOTE BOOKS FOR PRATICAL EXAMINATIONS

Candidates appearing for practical examinations have to submit bonafide Record Note Books prescribed for practical examinations, otherwise the candidates will not be permitted to appear for the practical examinations. If not the candidate has to submit a bonafide certificate issued by the concerned subject in charge duly signed by the Head of the department. In such case, the record marks will not be provided.

4. DISTRIBUTION OF MARKS:

The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum (Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	28	30	40
	75	75	30	-	30
	50	50	20	-	20
Practical Paper	100	60	24	40	40
Industrial Exposure Training	100	60	24	40	40
AOC	75	50	20	25	30

5. DISTRIBUTION OF INTERNAL MARKS FOR THEORY:

MAXIMUM MARKS : 30		
S. No	CIA	Distribution of marks
1.	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
TOTAL		180/6 = 30

Split of the marks for a SEMINAR is as follows:

Content	-10
Flow of the presentation	-10
Stage management and	-10
Body language	
TOTAL MARKS	30 marks

Breakup for ATTENDANCE:

Upto 74 %	- 4 Marks
75% - 84%	- 6 Marks
85% - 94%	- 8 Marks
95% - 100%	- 10 Marks

6. DISTRIBUTION OF INTERNAL MARKS FOR PRACTICALS:

MAXMIUM MARKS : 40		
S. No	CIA	Distribution of marks
1.	For the completion of all Practical Menus	20
2.	Model exam-I	10
3.	Model exam-II	10
TOTAL		40

7. DISTRIBUTION OF COMPREHENSIVE EXAM MARKS FOR PRACTICALS:

MAXMIUM MARKS : 60		
S. No	Comprehensive examination	Distribution of marks
1.	Record	10
2.	Experiment (minimum one menu)	50
TOTAL		60

QUESTION PAPER PATTERN

1. Question Paper Pattern

Time: 3 Hours

Max marks: 70

SECTION – A [10×1=10]

Answer ALL questions
Each Question carries One Mark
Ten Multiple Choice Questions

SECTION – B [5×4=20]

Answer ALL questions
Each question carries FOUR Marks

[INTERNAL CHOICE]

SECTION – C [5×8=40]

Answerer ALL questions
Each question carries EIGHT Marks
[INTERNAL CHOICE]

2. Question Paper Pattern

Time: 3 Hours

Max marks: 75

SECTION – A [10×1=10]

Answer ALL questions
Each Question carries One Mark
Ten Multiple Choice Questions

SECTION – B [5×5=25]

Answer ALL questions
Each question carries FIVE Marks
[INTERNAL CHOICE]

SECTION – C [5×8=40]

Answerer ALL questions
Each question carries EIGHT Marks
[INTERNAL CHOICE]

3. Question Paper Pattern

Time: 3 Hours

Max marks: 50

SECTION – A [10×1=10]

Answer ALL questions
Each Question carries One Mark
Ten Multiple Choice Questions

SECTION – B [5×3=15]

Answer ALL questions
Each question carries THREE Marks
[INTERNAL CHOICE]

SECTION – C [5×5=25]

Answerer ALL questions
Each question carries FIVE Marks
[INTERNAL CHOICE]

4. Question Paper Pattern

Time: 3 Hours

Max marks: 100

SECTION – A [10×1=10]

Answer ALL questions
Each Question carries One Mark
Ten Multiple Choice Questions

SECTION – B [5×8=40]

Answer ALL questions
Each question carries Eight Marks
[INTERNAL CHOICE]

SECTION – C [5×10=50]

Answerer ALL questions
Each question carries Ten Marks
[INTERNAL CHOICE]

NOTE:

1. The questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the Unit in the syllabus in all the sections of the question paper.
3. While framing questions with internal choice the questions must be identified as [a] or [b]. [e.g. 11. a or b]. Further, the internal choice must be from the same Unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

08. Conduct of Practical Examinations:

Practical examinations shall be conducted with one internal examiner and one external examiner and the question paper for practical examination shall be set by both Internal and External examiners.

B.Sc. (Catering Science & Hotel Management) Degree Examination- Syllabus- For Candidates admitted from 2016-2017 and onwards**FIRST SEMESTER****PART – III: CORE- 1, FOOD PRODUCTION AND PASTISERIE – I**

Maximum CIA -30

Maximum CE-70

Total hours: 36

Objective: Enabling students to acquire theoretical knowledge in basic cookery, Kitchen organization Terms used food preparation, methods of mixing food and methods of cooking food.

UNIT-I (7 Hours)**Introduction to Cookery**

Culinary History- Development of the Culinary Art from the middle ages to modern cookery. Modern hotel kitchen, Nouvelle Cuisine, Cuisine Minceur, Aims and objective of cooking food. Levels of skills and experiences. Attitudes and behavior in the kitchen. Food Safety – Three main types of food Contamination (An Introduction). Importance of Personal hygiene. Uniform and protective clothing. Different equipments used in food production (Capital and Operational-Names only). Safety procedure in handling equipment.

UNIT –II (7 Hours)

Hierarchy of kitchen Department - Classical Kitchen Brigade –Duties and responsibilities of each staff. Coordination of kitchen with other departments. Meaning of Main and satellite kitchen. Layout of main kitchen, Commissary kitchen and Receiving area. Cooking fuels - Uses and advantages of different cooking fuels.

UNIT-III (7 Hours)

Preparation of Ingredients: Washing, Peeling and scraping, pairing, cutting (terms used in vegetable cutting, Julienne, Brunoise, Macedoine, Jardinière, Paysanne), grating, grinding, mashing, sieving, milling, steeping, centrifuging, emulsification, evaporation, homogenization. Methods of mixing food: Beating, Blending, Cutting, Creaming, Folding, Kneading, marinating, Sealing, Stirring, Whipping, and Whisking. Mise en place meaning. Textures – Definition, Commonly found textures. Weighing and Measuring.

UNIT-IV (7 Hours)

Transference of heat to food by radiation, conduction and convection. Methods of cooking food: Boiling, Poaching, Stewing, Braising, Steaming, Baking, Roasting, Grilling, Broiling, Frying, Microwave - Magnetron waves meaning. Pot Roasting – Principles of each of the above Care and precautions to be taken selection of food for each type of cooking.

UNIT-V (8 Hours)

Classification of cooking materials and their uses: 1) Foundation ingredients - Meaning, action of heat on
a) Carbohydrates. b) Fats c) Proteins d) Minerals e) vitamins. 2) Fats and oils – Meaning and examples of fats and oils. Hydrogenation of oils, uses of fats and oils, quality for shortenings, commonly used fats and oils, their sources and uses. 3) Raising agents – Functions of raising

agents, Chemical, Biological, Mechanical raising agents and yeast. 4) Eggs – Uses of egg in cooking, characteristics of fresh eggs, deterioration of eggs, storage of eggs, egg preparation. 5) Salt – Uses. 6) Liquid –Water, stock, milk, and fruit juices, etc., uses of a liquid. 7) Flavorings and seasonings – Uses and examples. 8) Sweetening agents – Uses and examples.9) Thickening agents.

TEXT BOOKS:

- 1) Krishna Arora “Theory of cookery” 6th Edition” Frank brothers & Company.
- 2) Parvinder S. Bali “Food Production operation” 2009 Edition – Oxford University Press.

REFERENCE BOOKS:

1. Philip E. Thangam” Modern Cookery” (Vol-I) 5th Edition, Orient Longman, 2009.
2. Kinton & Ceserani, Foskett “Theory of Catering” 10th Edition, Book Power, 2006.
3. Kinton & Ceserani, Foskett “Practical Cookery” 10th Edition, Book Power, 2006.

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FIRST SEMESTER

PART – III: CORE – 2, FOOD AND BEVERAGE SERVICE –I

Maximum CIA -30.

Maximum CE-70

Total hours: 36

Objective: Enabling students to acquire theoretical knowledge in F&B outlets, duties and responsibilities, menu planning and equipments used in service dept.

UNIT – I (8 Hours)

Introduction to catering – Different types of catering establishments, scope for caterers in the Industry, relationship of catering industry with other industries. Status of a waiter/waitress in the Catering industry. Attributes of a waiter. Personal hygiene, punctuality, personality, attitude towards guests, appearance, salesmanship and sense of urgency.

UNIT – II (7 Hours)

Staff organization – The principle staff of different types of restaurants, duties and Responsibilities of restaurant staffs. Types of restaurants: overview and key characteristics of coffee shop, continental restaurants, Specialty restaurants, pubs, night clubs, discotheques, snack and milk bar.

UNIT – III (7 Hours)

Operating equipments: Classification of crockery, cutlery, glassware, hollowware, and flatware. Special equipments – up keep and maintenance of equipments.

UNIT – IV (7 Hours)

Ancillary departments: Pantry, still room, silver room, wash-up and hot-plate. Restaurant service: Mise en scene, Mise en place. Points to be remembered while laying a table. Do's and don'ts in a restaurant, Dummy waiter and its uses during service.

UNIT – V (7 Hours)

Different types of menu: Origin of menu, table d'hôte menu, a la carte menu, French classical Menu. Planning of simple menus; food and their usual accompaniments.

TEXT BOOKS:

1. Food & Beverage Service – Dennis R.Lillicrap & John A. Cousins – ELBS.
2. Food & Beverage Service Training Manual - Sudhir Address – Tata Mc Graw –Hill

REFERENCE BOOKS:

1. The Waiter – John Fuller & A.J.Currie – Hutchinson.
2. Modern Restaurant Service. A manual for students & Practitioners – John Fuller – Hutchinson.

B.Sc. (Catering Science & Hotel Management) Degree Examination- Syllabus- For Candidates admitted from 2016-2017 and onwards**FIRST SEMESTER****PART – III: CORE-3, HOUSE KEEPING MANAGEMENT**

Maximum CIA -30.

Maximum CE-70

Total hours: 36

Objective: This course aims to establish the important role of hotel housekeeping within the hospitality industry. It also gears the student to acquire skills and knowledge necessary to successfully identify the required standards in this area and to work.

UNIT -I. (7 Hours)

Introduction to Housekeeping Department: objective, Types of establishments; organizational structure of housekeeping department (small, medium large); duties and responsibilities of housekeeping personnel. Attributes of Housekeeping Personnel: Contract cleaning – types of contract cleaning, advantages and disadvantages. Housekeeping controls – purchase procedure, stores / budgets and budgetary control. Functions of Housekeeping Department: Desk control – records, registers, keys – types and control of keys; interdepartmental coordination; guest supplies.

UNIT – II (8 Hours)

Planning of Housekeeping Department: Physical survey; specifications; measurement of space; time(total allowed); number of staff required; plan of work and frequency; method of work and time calculated; work schedules and allocation of duty; inspection – standard of work expected. Cleaning and maintenance of guest rooms/areas: Cleaning equipment (Manual & Electrical) – selection, use, mechanism, care and maintenance. Cleaning agents – Selection, classification, use, care and storage; Composition, care and cleaning of various surfaces (metals, glass, leather, plastic, ceramics, Care & cleaning of wall finishes) Types of guest rooms. Types of cleaning Special cleaning programs, periodical cleaning, spring cleaning, public area. Cleaning; making up of a guest room – occupied room, vacant room, departure room; Turndown service; guest room inspection, neglected areas,(an over view): standard contents of a guest room.

UNIT – III (7 Hours)

Management of linen and uniforms. Classification of linen, sizes, selection criteria for the linen items; activities of the linen room; location, equipment and layout of a linen room (basic rules) purchase of linen/linen hire – quality and quantity; storage and inspection; issuing of linen to floors and departments – procedure and records, stock taking – procedure and records condemned linen. Number of sets, Designing a uniform – functional and aesthetic consideration, layout and planning of a uniform room. (Basic consideration). Safety, security and pest control: Safety and security: Emergencies and dealing with them; lost & found fire prevention and fire fighting. Safety awareness and accident prevention: First aid box procedures. Pest control: Different types of pests found in hotels; areas of infestation; prevention and control of pests.

UNIT – IV

(7 Hours)

Fabrics and fibers: Definition: classification of fibers – the characteristics and use of each item in the hotel to be explained. Stain removal: Definition, general rules of stain removal, classification of stain removal methods, classification of stains. Laundry: Duties and responsibilities of laundry staffs (laundry manager and shift – in – leader, dry cleaning supervisor, spotter, compressor, laundry clerks, valet runner, laundry attendant) . Importance and principles flow process of industrial laundering. Stages in attendant. Importance and principles flow process of industrial laundering, Stages in wash cycle. Equipment, layout and planning of laundry (basic rules) Role of laundry agents, classification of laundry agents (explain briefly) Dry cleaning guest laundry – services offered, collection and delivering , care in laundering guest articles.

UNIT – V

(7 Hours)

Interior Design:- Basic elements of art and principles of design. Colour, colour schemes. - Qualities of colour, classification, standard colour, harmonies, factors affecting colour scheme. Role of colour in interior design. - Types of floor and floor finishes and their treatment - Role of accessories in selection - Special consideration of rooms for physically handicapped and disabled - Redecoration and refurnishing of guest rooms. Flower Arrangement: - Principles of flower arrangement - Styles of flower arrangement –Western, Japanese, Free style arrangement-Purpose of flower arrangement - Equipments and materials required. Condition of plant material.

TEXT BOOK:

1. Sudhir Andrews “Hotel Housekeeping-A Training Manual” 2nd Edition 2010 Tata McGraw-Hill Publishers

REFERENCE BOOKS:

1. Hotel, Hostel and Hospital Housekeeping – John C.Branson & Margaret Lennox – Edward Arnold.
2. Housekeeping Supervision- Jane Fellows – Macdonald & Evans Limited.

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FIRST AND SECOND SEMESTER PRACTICALS

PART – III: CORE PRACTICAL- 1: FOOD PRODUCTION AND PATTISERIE – I

Maximum CIA -40.

Maximum CE-60

Total hours: 36

Objective:

Imparting Professional skills in mis en place, stocks, soups and preparation of Indian and Continental menu.

1. DEMONSTRATION

i) Equipments - Identification, Description, Uses & handling ii) Hygiene - Kitchen etiquettes, Practices & knife handling iii) Safety and security in kitchen

2. DEMONSTRATION

i) Identification of Raw materials. ii) Knife handling Skills. iii) Cuts - Julienne, Jardinière, Macedoine, Brunoise, Pay sane, Mignonette, Dices, Cubes, Shred, Mirepoix, Bouquet garni. iv) Assorted Sandwiches and canapés.

3. DEMONSTRATION.

Stock-White and Brown Stock Vegetable Stock, Chicken Stock, beef Stock and Fish Stock

4. DEMONSTRATION

Sauces - Basic mother sauces and two derivatives each.

1. Béchamel 2.Espagnole 3.Veloute 4.Hollandaise 5.Mayonnaise 6.Tomato

5. Menu's (Indian cuisine) to be framed with the following (Five dishes/menu)

Rice (or) Roti (Indian Breads)

Egg / Fish

Lamb / Mutton / Chicken

Legumes / Dals

Raitas / Cucumbers

Indian Sweets

6. Menu's (Continental/European cuisine) to be framed with the following (Five dishes/menu)

Salads / Soup

Egg / Fish / Pasta

Main course comprising – Lamb / Mutton / Chicken

Potato preparations (compulsory)

Legumes (boiled / steamed / cooked in butter)

Savory

Continental sweets (Dessert/Pastries) Hot / Cold

TEXT BOOK:

1. Modern cookery VOL-I & II Thangam E Philip

REFERENCE BOOKS:

1. Food Production Operation – Parvindar Bali, Oxford Publications 2009 / 2015
2. Practical Cookery – Kinton. Ceserani.

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FIRST AND SECOND SEMESTER PRACTICALS

PART – III: CORE PRACTICAL- 2: FOOD AND BEVERAGE SERVICE – I

Maximum CIA -40

Maximum CE-60

Total hours: 36

Objective:

Imparting Professional skills in basic Food and Beverage Service

1. Appraising and drawing of cutlery, crockery, glassware and miscellaneous equipments.
2. Serviette folds.
3. Laying and relaying of table cloths.
4. Cleaning and polishing / wiping of cutlery, crockery and glassware.
5. Carrying a light tray.
6. Carrying a heavy tray.
7. Carrying glasses.
8. Handling cutlery and crockery.
9. Manipulating service spoon and fork.
10. Service of water.
11. Arrangement of sideboard.
12. Table d'hôte cover laying.
13. A la carte cover laying.
14. Practice of simple menu compilation.
15. Receiving the guests, presenting the menu, taking orders.
16. Service of Hors d'oeuvre.
17. Service of soup, fish, and pastas.
18. Service of main course.
19. Service of salads.
20. Service of sweet.
21. Service of Cheese.
22. Service of non – alcoholic drinks, tea, and coffee.
23. Continental breakfast cover and tray set up.
24. English breakfast cover and tray set up.
25. Taking orders through telephone for room service.
26. Changing ashtray during service.
27. Presenting the bill.

REFERENCE BOOKS:

1. Book A. Dennis R. Lillicrap "Food and Beverage service" 7th Edition 2006
2. Book B. Sudhir Andrews "Food and Beverage Service Training Manual" Tata McGraw-Hill Publishers – 2009

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FIRST SEMESTER

PART III – IDC 1: PERSONALITY DEVELOPMENT

Maximum CIA -30.

Maximum CE-70

Total hours: 36

Objective:

Imparting the skills in personality development

UNIT-I

(8 Hours)

Self awareness: Meaning of self-awareness' – components –improving self-awareness – benefits of understanding self.Goal setting: Meaning of goal and goal setting – short term and long term goals – importance of goal settings – choice/selection of setting goals – step for goal setting –SMART Goals.Creativity: Meaning of creativity – difference with innovation – barriers to creativity – step to stimulate creativity – understanding and importance of human values – difference with ethics ideals in life. Become a role model.

UNIT -II

(7 Hours)

Interpersonal skill – meaning of interpersonal skill – need to develop interpersonal skills – component of interpersonal skill – techniques required to improve skills – benefit of effective interpersonal skills. Resolving conflict – A smiling face – Appreciative attitude – assertive nature-communication skills – listening skills – developing empathy.Stress Management: Meaning of stress –factors causing stress – positive and negative types of stress – effects of stress on body and mind – stress removal techniques.

UNIT -III

(7Hours)

Time management – what and why of time management – necessity and benefits of time management – tools of time management – how to use time management wisely.Personality Development: Meaning – Personality attributes – characteristics –concept of personality development (Swami Vivekananda concept). Attribute of taking bold decisions – Personality types and Leadership Qualities.

UNIT -IV

(7Hours)

Group Discussion – introduction – Ability to work as a team – Active listening – Nonverbal communication –Reasoning – Ability to influence – Flexibility. Group Discussion types – steps to succeed in a group discussion – Responsibility of first speaker. Guide lines – Dos and Don'ts during a group discussion.

Body Language: Introduction – Emotions displayed by Body language – Body language exhibited during different Professional Interactions. The most common Body language – Hand shake. Entry to my space – Personal zone –intimate zone – social zone – public zone.

UNIT -V

(7 Hours)

Interviews – introduction – ground work before then interview – dress code – importance of body language in interviews.Communication skills – Introduction – Stimulus and Response – speaking skills – effective speaking guidelines –Pronunciation Etiquette.

Curriculum Vitae: Introduction – Difference between a Resume and a CV.

TEXT BOOK:

1. Personality Development and Soft Skills. By Baurn K. Mitra, Oxford University Press. 2011

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SECOND SEMESTER

PART – III: CORE- 4: FOOD PRODUCTION AND PATISERIE – II

Maximum CIA -30.

Maximum CE-70

Total hours: 36

Objective: Enabling students to acquire theoretical knowledge in basic cookery, methods, organization, stocks and soups and to be successful in basic food production.

UNIT-I (7 Hours)

Vegetables – Classification of vegetables, cooking of vegetables, retention of colour, flavour and nutrients while cooking. Potatoes – Styles of presenting potatoes and their description. Reheating of food – Points observed while reheating.

UNIT- II (7 Hours)

Milk- Introduction, Processing of Milk, Pasteurization – Homogenization, Types of Milk - Skimmed and Condensed. Cream- Introduction, Processing of Cream, Types of Cream. Cheese- Introduction, Processing of Cheese, Types of Cheese, Classification of Cheese, Curing of Cheese and Uses of Cheese. Butter- Introduction, Processing of Butter, Types of Butter. Herbs – Uses of herbs. Salami and sausages – Meaning examples (Names Only). Glace – Meaning and uses. Yoghurt – Types. Thickening and Binding Agent-Types and uses.

UNIT – III (8 Hours)

Fish – Classification with examples, selection and cuts of fish, cooking of fish. Poultry – Selection of poultry and their cuts. Lamb and mutton - Selection and drawing the carcass of Lamb and identification of parts. Pork - Selection and drawing the carcass of pork and identification of parts. Beef - Selection and drawing the carcass of beef and identification of parts.

UNIT – IV (7 Hours)

Hors d'oeuvre – Meaning, types. Example for each type. (No recipe). Salads – Types of salads – simple and compound salads – Examples of Salad dressings. Classification of stocks, and their recipes, Court bullion (Types only no recipes). Classification of soups, meaning of each type with examples (only examples, no recipes). Classification of Sauces – Mother sauces with two derivatives each (Names Only).

UNIT – V (7 Hours)

Masalas - Blending of spices and concept of masalas, Different masalas used in Indian cookery - Wet masalas - Dry masalas. Composition of different masalas, Varieties of masalas available in regional areas. iii) Thickening agents - Role of thickening agents in Indian cuisine, Types of thickening agents. Types of paste used in Indian Kitchen.

TEXT BOOK:

1. Modern cookery vol I & II for teaching and trade – 2012 edition Thangam E.Philip – Orient Longman.

REFERENCE BOOKS:

1. Practical cookery – Ronald Kinton & Victor Ceserani – Hodder Starghton.
2. Theory of Catering – Ronald Kinton & Victor Ceserani – Hodder Starghton.

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SECOND SEMESTER

PART – III: CORE- 5, FOOD AND BEVERAGE SERVICE-II

Maximum CIA -30.

Maximum CE-70

Total hours: 36

Objective:

Enabling students to acquire theoretical knowledge in breakfast, types of service, and Control systems.

UNIT:I (7 Hours)

Breakfast: Types, menu for each type, terms used in the service of continental breakfast. Coverlaying for continental and English breakfast. Order taking procedures: In-person, telephone and door hangers.

UNIT:II (7 Hours)

Types of service: Different styles of service, factors influencing each type, table layout for different styles, advantages and disadvantages, styles of service often implemented these days.

UNIT:III (7 Hours)

Classification of beverages: Types of beverages, preparation of common non-alcoholic beverages. Examples tea, coffee, milk based drinks, juice, squash and aerated water, other bar non-alcoholic drinks used in dispense and main bar.

UNIT:IV (7 Hours)

Room service: meaning, hierarchy, duties and responsibilities of Room service personnel. Method of room service, tray setup, Menu card , breakfast service. Billing methods.

UNIT: V (8 Hours)

Cheese – Types and characteristics of English and European cheese, cover and its accompaniments.

Savory – types, example for each type, cover laying and its accompaniments. Ice-creams – categories of ice-creams – Sundae, parfait, biscuits, bombes and its cover laying. Sweets – Meaning of bavoroise, mousse, flan, soufflé, ,custard, jellies, fools. Cover laying, styles of presenting sweets. Dessert – Fruits and nuts – cover and accompaniments.

TEXT BOOKS:

- 1.Food & Beverage Service – Dennis R. Lillicrap & John A. Cousins – ELBS.
2. Food & Beverage Service Training Manual - Sudhir Andrews – Tata McGraw-Hill.

REFERENCE BOOK:

1. Modern Restaurant Service, A manual for students & Practitioners – John Fuller – Hutchinson.

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SECOND SEMESTER

**PART – III: CORE PRACTICAL- 3, HOUSEKEEPING MANAGEMENT
PRACTICAL**

Maximum CIA -40.

Maximum CE-60

Total hours: 36

Objective: To learn basic Housekeeping Etiquettes with Procedure, Equipments & its styles.

1. SAMPLE LAYOUT OF GUEST ROOMS • Single room • Double room • Twin room • Suite
2. IDENTIFICATION OF CLEANING AGENTS – classification, use and care.
3. AREAS OF CLEANING
 - Room, Bathroom, Toilet, Washbasin, Bath tub, Sink, Table, Floor, Water closet, Staircase, Corridor, Carpet.
4. SEQUENCE OF CLEANING
 - Cob web taking
 - Dusting
 - Sweeping
 - Scrubbing
 - Moping
 - Carpet Cleaning
 - Carpet Shampooing
5. POLISHING
 - Brassware
 - Tiles
 - Furniture
6. SITUATION HANDLING
 - With guest
 - With other departments
7. STAIN REMOVAL
 - Linen items
 - Uniform Items
 - Floors
 - Bathroom
 - Toilet
8. BED MAKING – Evening service
9. FLOWER ARRANGEMENT
 - a) Conditioning of plant materials
 - b) Different styles of flower arrangements
10. Duty Rota preparation for housekeeping department.

REFERENCE BOOK:

1. Sudhir Andrews “Hotel Housekeeping-A Training Manual” 2nd Edition 2010 Tata McGraw-Hill Publication.

B.Sc. (Catering Science & Hotel Management) Degree Examination- Syllabus- For Candidates admitted from the academic year 2016-2017 and onwards**THIRD SEMESTER****CORE – 6 - FOOD PRODUCTION AND PÂTISSERIE - III**

Maximum CIA-30

Maximum CE -70

Total hours: 60

Objectives: Enabling students to acquire theoretical knowledge about Indian cookery, Quantity cooking, basic gravies and regional cookery.

UNIT I

(12 Hours)

Condiments and spices: Introduction to spices used in Indian Cookery - Role of spices in Indian cookery. Quantity food production equipment (Names only), Selection of Kitchen equipment (Suitability, Appearance, Durability and Cost factors only) .Comparison of Institutional and Industrial Catering-Types of establishments (Names only). Outdoor catering work flow– Collection of data - Internal communication – Planning – Checklist for outdoor catering.

UNIT II

(12 Hours)

Indian breakfast preparation – Dosa, Idiyappam, Idly - Recipes. Basic Indian gravies - white, yellow, Red Gravy, Chettinadu, Green gravy and their recipes, dishes prepared from the above gravies (Names Only). Indian breads- Naan, roti, Parathas, Maki roti and their recipes. Indian rice cooking methods. Objectives of Dhum cooking – pulao, Biryani Examples (Names Only).

UNIT III

(12 Hours)

Regional cuisines of south India – Kerala-Ingredients, characteristics, Festival dishes, Karnataka-Ingredients, characteristics, Festival dishes. Andhra Pradesh-Ingredients, characteristics Festival dishes, Tamil Nadu-Ingredients, characteristics, Festival dishes. (All dishes names only).

UNIT IV

(12 Hours)

Regional cuisines of India – Maharashtra - Ingredients, characteristics, festival dishes. Punjab - Ingredients, characteristics. Festival dishes, Kashmir - Ingredients, characteristics, dishes. Bengal - Ingredients, characteristics, Goa-Ingredients, characteristics, Festival dishes. (All dishes names only).

UNIT V

(12 Hours)

Introduction to Tandoor cooking, Types of tandoor pot, seasoning of Tandoori pot. Types of Tandoori marination - Curd based, Cream based and Water based (Only Ingredients used for each)– Coloring agents used in Tandoori preparations – Thickening agents used in tandoor preparations, Tenderizing agents used in tandoor preparations. Flavorings, Spices and Aromatic agents used (Examples of any Five ingredients). Names of Tandoori dishes (Tandoori Chicken, Chicken Tikka, Boti Kebab, Hariyali Chicken).

TEXT BOOKS:

1. Quantity Food Production Operations and Indian Cuisine – Parvindar S.Bali – Oxford Publications 2012
2. Naan and Roti's of India –Puran Phobi

REFERENCE BOOKS:

1. Prashad cooking with Indian masters by J.Indersingh Karla Publisher Allied Publishers.
2. Modern Cookery Vol – I by Thagam.E.Phillip
3. Food production operations – Parvindar S.Bali – Oxford Publications. Edition - 2012

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THIRD SEMESTER

CORE 7- FOOD AND BEVERAGE SERVICE - III

Maximum CIA-30

Maximum CE -70

Total hours: 48

Objective:

Enabling students to acquire theoretical knowledge in Alcoholic and Non Alcoholic Beverages.

UNIT I (10 Hours)

Floor / Room service: Meaning, Full & Partial room service, Breakfast service in room, tray & trolley set-up for room service. Lounge service: Meaning, organization of lounge service. Afternoon tea service: Menu for high tea & afternoon tea, order of service. Reception tea service: Meaning & service procedure.

UNIT II (10 Hours)

Billing & Control: Introduction & checking systems. Types of checking – Duplicate & triplicate system, Checking for alcoholic and non alcoholic beverages. The Bill - methods of making bill & settling the account. Tobacco – Major tobacco producing countries of the world, quality of cigars & cigarettes. Strength & size of cigars, service method.

UNIT III (9 Hours)

Alcoholic beverage: Meaning, classification of alcoholic beverages. Beer: Manufacturing process, types of beer, sizes of draught beer containers, beer mixed drinks. Alcoholic strength calculation methods (Sikes, Gay Lussac and US). Spirit production methods - Pot still and Patent still.

UNIT IV (10 Hours)

Whisky – Types, production of malt & grain whisky. Brandy – production methods, Regions in France - Cognac & Armagnac. Other fruit brandies - Calvados, Applejack, Poire Williams, Kirsch, Slivovitz, Framboise, Marc. Rum - Production & Types. Gin – Production & Styles. Vodka - Productions & types. Tequila - Production and other spirits (Names only).

UNIT V (9 Hours)

Vermouth: Types, production & styles. Aperitifs & Digestives (Names). Liqueurs: Meaning, colour, flavor & country of origin of Absinthe, Advocate, Abricotine, Anisette, Aurum, Benedictine, Chartreuse, Cointreau, Crème de menthe, crème de mocha, Curacao, Drambuie, Glavya, Goldwasser, Grand Marnier, Kahlua, Sambuca, Tia Maria, Vander Hum.

TEXT BOOKS:

1. Food & Beverage Service – Dennis. Lillicrap & John.A.Cousins – ELBS
2. Food & Beverage Service –R.Singaravelan. Oxford Press.

REFERENCE BOOKS:

1. Modern restaurant Service – A manual for students and Practitioners – John Fuller – Hutchinson
2. Food & Beverage Service – Dennis. Lillicrap & John.A.Cousins – ELBS
3. Food & Beverage Service Training Manual – Sudhir Andrews – Tata McGraw-Hill

4. The Students Guide to Food and Drink – John Cousins & Andrew Durkan – Hodder & Stoughton
5. Table & Bar – Jeffery Clarke
6. The Beverage Book - John Cousins & Andrew Durkan – Hodder & Stoughton
7. The International Guide to Drinks – United Kingdom Bar tenders Guild.

B.Sc. (Catering Science & Hotel Management) Degree Examination- Syllabus- For Candidates admitted from the academic year 2016-2017 and onwards**THIRD SEMESTER****PART III - CORE 8 - FRONT OFFICE OPERATIONS**

Maximum CIA -30

Maximum CE -70

Total hours: 36

(8 Hours)

UNIT – I

Introduction to the hotel industry. Classification of hotels as per location, size, clientele, length of stay. Types of hotels. Room Rates – room rate, rack rate, corporate rate, commercial rate, airline rate, group rate, crib rate, and package plan rate, back to back rate, series rate, government rate, weekend rate, half- day charges. Meal plans – EP, CP, AP, and MAP. Types of hotel guests – pleasure travelers, DFIT, FFIT, CVGR, GIT, SIT, incentive tours, back to back series tours, business travelers. The front office department – Functions and sections and layout of front office department. Organization chart of a front office department (large, medium and small). Attributes and skills of front office staff. Duties of front office personnel – Reservationists, Receptionist, Information Assistant, front office cashier, Bell captain, Bell boy, concierge, Telephone Operator, Guest relations executive, front office manager, lobby manager, Business center co-ordinator, Night auditor. co-ordination between front office department with other departments.

UNIT – II

(7 Hours)

Equipments used in front office - information rack, alphabetical rack, mail and key rack, computers, billing machines, folio well, Log book. Guest cycle- Reservation - functions of a reservation system, types of reservation – Guaranteed, non – guaranteed, advanced and confirmed. Modes of Reservation enquiry, sources of reservation. The reservation process - importance of reservation, Reservation maintenance – Guaranteed reservation, non- guaranteed reservation, credit card guaranteed, advance deposit, other guaranteed reservations, over-booking, no- shows, group reservations- special details. Registration - Basic check – in procedure– pre – registration, registration records.

UNIT – III

(7 Hours)

Check –out procedures- Methods of account settlements- allowances, paid – outs. Creating a good lasting impression. Updating front office records (room status/ room rack, arrival/ departure register, guest history cards, departure intimation notice). Calculation of house count, room count, percentage of single occupancy, percentage of double occupancy.

UNIT –IV

(7 Hours)

Guest relation and social skills: The role of Guest relations officer; types of guest problems; Skills necessary for dealing with problems; solving problems; handling complaints; course of action to take when handling problems; follow up action; telephone handling skills. Information/ bell desk/ concierge Functions of the information department; handling guest mail and messages; registered and insured mail. Lobby hierarchy; duties of the bell desk; luggage handling; running errands; vending stamps; scanty baggage .

UNIT- V

(7 Hours)

Functions of front office accounting systems: Guest accounting cycle; the check out procedure; Credit control : Meaning ; hotel credit control policy ; credit control measures required when receiving reservations; credit control measures at check – ins; credit control measures after guest

departure; preventing walk –outs. Cash settlement – local currency, foreign currency, traveler’s cheque, personal cheque, bank credit cards; credit settlement; settlement of corporate account ; travel agents vouchers.

Forecasting: Importance of forecast, how to forecast, useful forecasting data; format of reservation forecast; calculation of reservation forecast (room revenue).

TEXT BOOK:

1. S.K Bhatnagar “Front Office Management” Frank Bros. & Co. Ltd

REFERENCE BOOKS :

1. Hotel Front Office Operations and Management- Jatashankar R.Tewari – Oxford University Press. Edition 2012
2. SK Kaushal, SN Gautam“ Accommodation Operation Management” Frank Bros. & Co
3. “Principles of Hotel Front Office Management, Pam Shiver and Sue Baker.

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THIRD SEMESTER

PART III : CORE 9 - BAKERY AND CONFECTIONERY

Maximum CIA -30

Maximum CE-70

Total Hours: 48

Objective:

Enabling students to acquire theoretical knowledge in dough, paste, and icing.

Unit-I (10 Hours)

Raw materials used in bakery – Types of Flour, fat, flavoring agents, sweetening agents and their role. Characteristics of Gluten. Equipments used in bakery, Weight volume equivalent.

Unit-II (10 Hours)

Bread: Bread making flow chart. Various Bread dough making method. Common faults found in bread - Recipe for plain bread, white and brown, bread. Artisanal Bread –sour dough culture, recipe for sour dough. Methods of mixing Cake - common faults in cakes. Recipe for Genoise sponge, Tea cake and Chocolate Muffins.

Unit-III (10 Hours)

Types of Icings-Butter cream, Fondant, Royal, Gum Paste (Pastillage), Water (Glaze), Fondant icing, American Frosting and difference between Dairy cream and Soy Cream (Fresh cream) icing. Petit Fours – meaning, types and materials used for petit fours. Hot and Cold desserts (Names Only). Recipes for caramel custard, queen of pudding, basic soufflé, mousse, bavoroise.

Unit-IV (10 Hours)

Basic pastes, meaning, short crust paste- Sweet short crust paste, Savoury short crust paste, Suet short crust paste, Flaky Short crust. Puff paste, choux pastry, recipe for the above. Common Faults in all the above products. Pies meaning, production of pies, rolling of pie dough. Common problems in fruit pies. procedure for making tart shell. Phyllo dishes examples (Names only)

Unit-V (8 Hours)

Types of meringue and their recipes. Types of cookies – methods of mixing cookies - Common faults and their causes in cookies. Recipe for any two - Chocolate chip, Peanut cookies, Nankhatai. Cooking for special needs – types, gluten free, lactose free, sugar free cooking. Sugar alternatives.

Text Books:

1. Theory of Bakery and confectionary, By Yogambal Ashok kumar, Publisher –Prentice – Hall of India Pvt Ltd, 2010 – reprinted..
2. Krishna Arora "Theory of cookery" 6th edition" Frank brothers and Company

Reference Books:

1. Wayne Gisslen "Professional Baking" John Wiley and sons).

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THIRD AND FOURTH SEMESTER

PART III - CORE PRACTICAL 4: FOOD PRODUCTION AND PATTISERIE-II

Maximum CIA-40

Maximum CE-60

Total hours: 36

Objective: This course aims at developing basic awareness of technical skills required in Indian cuisine. It aims to enable the student to acquire professional Food Production techniques

Preparation of Indian and International cuisine dishes consisting of soup, pasta, eggs, fish, chicken meat, Indian sweets and Desserts.

Demonstration – Naan, kulcha, roti, chicken tikka, fish tikka, sheek kebab, Tandoori chicken, Hariyali chicken/ fish tikka, tangri kebab.

TEXT BOOKS:

- 1) Thangam E Phillip "Modern Cookery Volume I" 4th Edition 2006, Reprint2015.
- 2) Quantity Food Production Operations and Indian Cuisine – Parvindar S.Bali – Oxford Publications

REFERENCE BOOK:

1. Naan And Roti's Of India –Puran Phobi
2. Quantity Food Production Operations and Indian Cuisine – Parvindar S.Bali – Oxford Publications 2011

16BHMP05

**B.Sc. (Catering Science & Hotel Management) Degree Examination- Syllabus- For
Candidates admitted from the academic year 2016-2017 and onwards**

**THIRD AND FOURTH SEMESTER
PART – III CORE PRACTICAL 5 - FOOD AND BEVERAGE SERVICE -II**

Maximum CIA-40

Maximum CE -60

Total hours: 36

Objective: Imparting Professional skills in Food & Beverage Service

- Recollecting I year portions.
- Enumeration of glassware.
- Beverage order taking procedure.
- Service of red wine.
- Service of white wine.
- Service of rose wine.
- Service of Sherry, Port, Madeira and Marsala.
- Service of sparkling wine.
- Service of bottled beer, canned beer and draught beer.
- Service of brandy.
- Service of whisky.
- Service of gin.
- Service of vodka.
- Service of rum.
- Service of tequila.
- Service of aromatized wine.
- Service of liqueur.
- Service of liqueur coffee and spirit coffee.
- Service of aperitifs.
- Compiling a wine list.
- Compiling and service of a menu with wine suggestions.

TEXT BOOK:

1. Food and beverage service –R.Singarvelan – Oxford University Press - 2014

REFERENCE BOOKS:

1. Dennis R. Lillicrap “Food and Beverage service” 7th Edition 2006
2. Sudhir Andrews “Food and Beverage Service Training Manual” Tata McGraw-Hill
Publishers – 2009

**B.Sc. Catering and Hotel Management Degree Examination Syllabus for the Candidates
admitted from the Academic Year 2015 - 2016 onwards**

THIRD SEMESTER

PART IV –IDC HOTEL ACCOUNTING

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objective: Enabling student to acquire basic accounting knowledge in Hotel Accounting

UNIT 1 (9 Hours)

Accounting – Definition – Objectives and Importance – Advantages –Classification –
Accounting Vs Book-keeping –Accounting Concepts and Conventions – Journal –Ledger –
Journal Vs Ledger

UNIT II (10 Hours)

Trial Balance –Meaning – Objectives –Preparation of Trial Balance – Bank
Reconciliation Statement – Need – Importance – Simple Problems.

UNIT III (10 Hours)

Subsidiary Books –Purchase Book – Sales Book – Purchase Return Book – Sales Return
Book – Petty Cash Book – Average Due Date

UNIT IV (10 Hours)

Final Accounts –Trading Account – Profit and Loss Account – Balance Sheet –Simple
Adjustments.

UNIT V (9 Hours)

Department –Classification of Department in Hotels based on Revenue – Negotiable
forms used in hotel Industry – Preparation of Income and Expenditure Account.

Note: Distribution of Marks Theory 40%, Problems 60%

TEXT BOOK:

1. T.S Reddy &A.Murthy, Financial Accounting, 2015, Margham Publications, Chennai

REFERENCE BOOKS:

1. S.P.Jain & K.L.Narang, Principles Of Accountancy, Reprint 2014, Kalyani Publishers, New Delhi.
2. Gupta .R.L, Gupta.V.K, Financial Accounting, Reprint 2013, Sultan Chand & Sons, New Delhi
3. OZi D’cunha Gleson OZi D’Cunha, Hotel Accounting and Financial Control, Dickey enterprises 2002, Mumbai

16BHMAO1

B.Sc. (Catering Science & Hotel Management) Degree Examination- Syllabus- For Candidates admitted from the academic year 2016-2017 and onwards

PART IV AOC-1 BAKERY AND CONFECTIONARY PRACTICAL

Maximum CE -75

Total hours: 36

Objective: Imparting Professional skills in Bakery and Confectionery

Menu consisting of Breads, Buns, Cakes, Sponges, Icings, Various Pastes, Tarts, Pies, Puddings, pastries, Cookies.

TEXT BOOK:

1. Theory of Bakery & confectionary, By Yogambal Ashok kumar, Publisher –Prentice –Hall of India Pvt Ltd, 2010 – reprinted.

REFERENCE BOOK:

1. Wayne Gisslen “Professional Baking” John Wiley & sons, Inc

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PART IV AOC-2 CAKE ICING AND DECORATION

Maximum CE -75

Total hours: 36

Objective:

Imparting Professional skills in cake icing and decoration

- Preparation of various Icings.
- Stencils.
- Preparations of paper piping bags.
- Wedding cake dummies and assembling of cakes.
- Making of Gum paste flowers.
- Royale Icing designs.
- Chocolate Garnishes.
- Working with fresh creams.
- Finishing of shape cakes.
- Working with butter cream.

TEXT BOOK:

Wayne Gisslen “Professional Baking” John Wiley & sons, Inc

REFERENCE BOOK:

Theory of Bakery & confectionary, By Yogambal Ashok kumar, Publisher – Prentice – Hall of India Pvt Ltd, 2010 – reprinted. TEXT BOOK:

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THIRD SEMESTER

CORE IV: PAPER II - BASICS OF INTERNET

Maximum CE-50

Total hours: 24

Objectives: Enabling students to acquire theoretical knowledge about internet, Usage and html.

UNIT I: [4 Hours]

Introduction: What is the Internet? – Using the Internet – Understanding the Internet – The Secret of the Internet: Clients and Servers. A Tour of the Internet: Mail – The Web – Web Search Engines – Usenet – Talk Facilities – Internet Relay Chat – Hardware Requirements to connect to the Internet.

UNIT II: [5 Hours]

Internet Addressing: Standard IP Addresses – Understanding a domain name: Sub – Domains – Variations of the Standard Internet Address – Top Level Domains – Pseudo Internet Addresses – IP Addresses and DNS.

UNIT III: [5 Hours]

Mail: SMTP: The Basics of the Internet Mail System – How to Access the Mail System – An Example of Moving Mail Around the Net – Understanding the Mail Header – Signatures – Mail Addresses – Sending Mail – Sending Copies of a Message – Reading Mail – Hints for Managing your mail – Replying to message – Forwarding and Bouncing a mail – How mail is stored – The difference between Text and Binary data – Using MIME and Mail Binary Data as an attachment – Hints for practicing Safe Mail.

UNIT IV: [5 Hours]

Netiquette: Prescriptions for Prose Politeness – Net Flora and Fauna. News and Views: Usenet – Newsgroups – Usenet Example – Accessing Usenet via a Email. Introduction to HTML: Specification – Writing Well Formed HTML – The basic structure of HTML documents.

UNIT V: [5 Hours]

The HTML Elements: HEAD, TITLE, META, BODY – P, BR, Align Elements – Text Style Elements – Lines and HR Element – A formatted HTML page. Web Page Formatting: The FONT and BASEFONT elements – Lists and the UL, OL and LI Elements – Definition Lists and the DL element – Preformatted Text and PRE element – Hypertext Links – The A and LINK elements – Absolute and Relative URLs.

TEXT BOOKS:

1. Navigating the Internet – Richard J. Smith, Mark Gibbs and Paul McFedries, Sams.Net Publishers, Fifth Edition, 2009.
2. The Internet – Complete Reference – Harley Hahn, 15th Edition, 2010, TataMcGraw Hill Publishing.
3. HTML: Introduction to Web Page Design and Development, David Mercer, Schaum's Outlines, Tata McGraw Hill Edtion, 2008.

REFERENCE BOOKS:

1. The Internet: The Basics, Jason Whittaker, 2008, Routledge Publishing.
2. HTML – Complete Reference – Harley Hahn, 2010, Tata McGraw Hill Publishing

B.Sc. (Catering Science & Hotel Management) Degree Examination- Syllabus- For Candidates admitted from the academic year 2016-2017 and onwards

FOURTH SEMESTER

PART III - CORE – 10 FOOD PRODUCTIONS AND PATTISERIE -IV

Maximum CIA -30

Maximum CE -70

Total hours: 60

Objective: Enabling students to acquire theoretical knowledge of International cuisines and aspects of plate presentations.

UNIT-1 (12 Hours)

Chinese cuisine -characteristics, ingredients used, equipments used Methods of cooking, Recipes for Fried rice and Wonton soup. Sri Lankan cuisine: characteristics, ingredients used, equipments used, Methods of cooking, Dishes with recipes for Ceylon Paratha and Yellow rice. Thai cuisine: characteristics, ingredients used, equipments used, Methods of cooking, Recipes for Satay and Tom yam Soup.

UNIT-II (12 Hours)

Japanese cuisine: characteristics, ingredients used, equipments used, Methods of cooking, Recipes for Vegetarian Sushi and Prawn tempura. Italian cuisine: characteristics, ingredients used, equipments used, Methods of cooking, Recipe for Spaghetti bolognaise and Lasagna.

UNIT- III (12 Hours)

Spanish cuisine: characteristics, ingredients used, equipments used, Methods of cooking, Recipes for Paella and Spanish Tortilla. French cuisine: characteristics, ingredients used, equipments used, Methods of cooking, Recipes for Puree saint Germaine and Ratatouille. Mediterranean cuisine characteristics, ingredients used, equipments used, Methods of cooking, Recipes for Tabuleh and Greek salad.

UNIT –IV (12 Hours)

Scandinavian cuisines: Characteristics, ingredients used, equipments used, Methods of cooking, Smorgasbord. United Kingdom cuisine: characteristics, ingredients used, equipments used, Methods of cooking, recipes for Yorkshire pudding and Bread and butter Pudding.

UNIT –V (12 Hours)

Mexican cuisine: characteristics, ingredients used, equipments used, Methods of cooking, Recipes of Salsa and Chicken Quesadillas. Concept of plate presentations - Emerging trends in food presentation. Fusion Cuisine- Characteristics and name of the dishes.(Butter Chicken Pies, pizza dosa, penne Chettinad, Chicken Sausage Samosa)

TEXT BOOKS:

1. Modern Cookery – Vol –I, and Vol –II, By Thangam E Phillips, Orient Longman.
2. International cuisine and food production management – Parvinder S.Bali – Oxford University Press. 2012.

REFERENCE BOOKS:

1. The Asian cook book by Charmie Solomon
2. La rouse -Gastronomique
3. Theory of catering by Ronald Kinton, Victor Ceserani, and David Fosket.
4. International Cuisine and Food Production Management – Parvinder S.Bali – Oxford University Press.

19BHM402

B.Sc. (Catering Science and Hotel Management) Degree Examination – Syllabus - for candidates admitted from the academic year 2018-2019 onwards

FOURTH SEMESTER

PART III : CORE 11 - FOOD AND BEVERAGE SERVICE - IV

Maximum CIA-30

Maximum CE-70

Total Hours: 48

Objective:

Enabling students to acquire theoretical knowledge in wines, wines of different countries, cocktails and Mocktails.

Unit-I (10 Hours)

Vermouth: Types, production and styles. Aperitifs and Digestives (Names). Liqueurs: Meaning, colour, flavor and country of origin of Absinthe, Advocate, Abricotine, Anisette, Aurum, Benedictine, Chartreuse, Cointreau, Crème de menthe, crème de mocha, Curacao, Drambuie, Glavya, Goldwasser, Grand Marnier, Kahlua, Sambuca, Tia Maria, Vander Hum.

Unit-II (10 Hours)

Types of bar, Parts of bar. Dispense bar: Meaning, glassware and equipment used in the dispense bar. Garnishes and Kitchen Supplies used in dispense bar.

Unit-III (10 Hours)

Introduction to Mixology. Bar layout and its design. Equipments, Glassware, Ingredients, Bar measurements and Mixology terms. Cocktails- Meaning, Methods of making cocktails, and points to be noted while making cocktails. Service of cocktails, cocktail garnishing, mi-en-place for making cocktails.

Unit-IV (10 Hours)

Cocktail- Recipes of Whisky, rum, Gin, Brandy, Vodka, Tequila, Champagne based cocktails. Mocktail - recipes of famous mock tails and Spirit coffee - Irish, Scandinavian, Monk's, Royal, Dutch, Mexican, German, Italian, Caribbean, Calypso, etc. – Recipes.

Unit-V (8 Hours)

Beverage list -Meaning and important. Method and order of listing and pricing beverages. Stocking of alcoholic beverages and bar control. Cellar inventory.

Text Book:

1. Food and Beverage Service –R.Singaravelavan – Oxford University Press 2011.

Reference Books:

1. Modern restaurant Service – A manual for students and Practitioners – John Fuller – Hutchinson.
2. Food and Beverage Service – Dennis. Lillicrap and John.A.Cousins – ELBS.
3. Food and Beverage Service Training Manual – Sudhir Andrews – Tata McGraw-Hill.

19BHMID4

B.Sc. (Catering Science and Hotel Management) Degree Examination – Syllabus - for candidates admitted from the academic year 2018-2019 onwards

FOURTH SEMESTER

PART III : IDC 4 -TRAVEL AND TOURISM

Maximum CIA - 30

Maximum CE -70

Total Hours: 36

Objectives:

To obtain theoretical knowledge on Travel and Tourism sector.

Unit-I (7 Hours)

Principles of Tourism: Definitions: Tourism, Tourist, Foreign Tourist, Domestic Tourist. Motivations for Tourism. Types of Tourism. Barriers to travel- Forms of Tourism, factor influencing tourism development.

Unit-II (8 Hours)

Travel Agencies: History and development of travel agencies, Role and functions of Indian and international travel agencies. Thomas cook, American Express, Cox and King. Modern travel agencies. Emerging trends in tourism.

Unit-III (7 Hours)

Role and function of World tourism organization, Impact of tourism: Cultural, Social, Economical and Ecological aspects. Government role in tourism Government Organizations: Ministry of Tourism and Culture - India Tourism Development Corporation (ITDC), Tamilnadu Tourism Development Corporation (TTDC). Private Organizations: International Air Transport Association (IATA) . Travel Agents Association of India (TAAI).

Unit-IV (7 Hours)

Emergence of tour operator, package tour, elements in tour broucher, passenger reservation forms, booking conditions, travelers advise. Passports, function, types, issuing authority, procedure for obtaining passport etc, VISA's: functions, type, issuing authority, procedure for obtaining visa.

Unit-V (7 Hours)

Role of Communication in Travel, Modern Mass media techniques. Scope of technology in airlines, cruise and railways. Foreign Exchange: Countries and currencies, procedure for obtaining foreign exchange, foreign exchange counters. Global tourism – 2020

Text Books:

1. Bhatia A.K. - Tourism Development: Principles and Practices, Sterling Publishers, New Delhi, India.
2. Rajeev R Mishra - Managing Hotel Front Office operation, CBD publishers and distributors pvt. Ltd. 2016.

Reference Books:

1. Sampada Kumar Swain, Jitendra Mohan Mishra Tourism Principles and practices- 2012/ 3rd editon-2015

2. Bhatia .A.K. - International Tourism, Sterling Publishers, New Delhi, India.
3. Kaul. R.N. - Dynamics of Tourism, Sterling Publishers Private Limited, New Delhi, India.
4. Burkhart A. and Medlik S. - Tourism Past, Present and Future, ELBS Publishers, London.
5. Travel Agents and Tourism – Merrisen James
6. Introduction to Tourism – Seth P.N. Sterling

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FIFTH SEMESTER

PART III - CORE 11: FOOD PRODUCTION AND PASTISERIE -V

Maximum CIA-30

Maximum CE -70

Total hours: 60

Objective: Enabling students to acquire theoretical knowledge about Garde manger kitchen operations, products prepared and about left over utilization.

UNIT-I (12 Hours)

Larder: Introduction, Functions of larder Department, Breakdown of work, Duties and responsibilities of Larder chef, Larder control, Relationship with other departments, layout of larder kitchen, larder equipment, using and care of larder equipment (Refrigerator, Mincing machine, Bowl cutter), larder tools. Butchery: Meaning, functions of Butchery.

UNIT-II (12 Hours)

Force meat: Meaning, uses, types and recipes. Panada: Meaning, uses, types and recipes. Compound butters: Meaning, uses, types and recipes. Marinade: Different types and uses. Brine: Types and uses.

UNIT-III (12 Hours)

Aspic jelly: Uses and preparation. Chaud Froid: Uses and preparation Cold Preparation: Galantine, Balantine, terrine, Pate, mousse, soufflé, mousselines, quenelles etc. Recipes for the above. Ice carving: Equipment, ice preparation, making a template, melting effects, storage.

UNIT-IV (12 Hours)

Garnishes: Definition of Garnish, types of garnish (Simple and Compound garnish), Points to considered while garnishing, Suggested garnishes for Tomato Juice, Selfish Cocktail, soups, Tandoori chicken, Pulaos, curries and Dals (Names only). Left over utilization

UNIT-V (12 Hours)

Standard Recipe - Importance of standard recipe. Advantages and disadvantages standard recipes. Kitchen Management: Objectives, Meal production, indenting, purchasing, storing, cost control, yield, and portion control. Stewarding: Importance of kitchen stewarding, Organization of the kitchen stewarding department, equipments found in kitchen stewarding department, work flow in kitchen Stewarding, garbage disposal.

TEXT BOOKS:

1. The Larder Chef – M.J.Letto – Butterworth Heinemann- Edition 2000.
2. International cuisine and food production management – Parvidar S.Bali – Oxford University Press- Edition 2012
- 3.Theory of cookery- Krishna Arora – Frank Bros- Edition 2014

REFERENCE BOOKS:

1. Practical cookery - Ronald Kinton& Victor Ceserani - Hodder Starghton – Edition 2013
2. Theory of Catering - Ronald Kinton& Victor Ceserani - Hodder Starghton - Edition 2013

B.Sc. (Catering Science & Hotel Management) Degree Examination- Syllabus- For Candidates admitted from the academic year 2018-2019 and onwards**FIFTH SEMESTER****PART III - CORE 12: FOOD AND BEVERAGE SERVICE - V**

Maximum CIA-30

Maximum CE -70

Total Hours: 48

Objective: Enabling students to acquire theoretical knowledge and to be successful in managing food and beverage department

Unit-I (8 Hours)

Gueridon Service: Introduction, Mise en place for Gueridon. Special equipments used, care and maintenance of equipment, taking the order, method of serving the dish at the table, carving and jointing at the table, carving trolley, dishes prepared on the Gueridon, flambéing.

Unit-II (12 Hours)

Function catering: Introduction, types of function, function service staff and responsibilities, service methods in function catering, booking and organization of functions, function menus, wines tabling, seating arrangements, banquets lay-outs. Instructions to service staffs, order of service for a formal function, reception and ordering of wines. Weddings organization - procedure at a wedding buffet, reception, family line-up, procedure for toasts. Planning of buffets - sit down and fork buffets, procedures required for exhibitions, seminars, fashion shows, trade fairs etc.

Unit-III (10 Hours)

Outdoor catering: Meaning, preliminary survey of the place and comfort of party, hiring of service personnel, making a list of service equipment required, setting" up counters and allotting stations Specialized forms of service: Hospital tray service, Airline service, Railway service.

Unit-IV (10 Hours)

Budgeting for the F&B Department: Budgeting control, the budgeting cycle, limiting factors, sales forecasting. Staff organization and training: Staff organization, level of demand, duty rota, staff training, terms used in training, planning of training. Customer relation: Introduction, minimizing customer relation problems, customer satisfaction, Social skills.

Unit-V (8 Hours)

Floor / Room service: Meaning, Full & Partial room service, Breakfast service in room, tray & trolley set-up for room service. Lounge service: Meaning, organization of lounge service. Afternoon tea service: Menu for high tea & afternoon tea, order of service. Reception tea service: Meaning & service procedure.

Text book:

1. Modern Restaurant Service, A manual for students & Practitioners - John Fuller - Hutchinson.

2. Food and Beverage Service –R.Singaravelavan – Oxford University Press 2011.

Reference books:

1. Food & Beverage Service - Dennis R. Lillicrap & John A. Cousins - ELBS.
2. Food & Beverage Service Training Manual - Sudhir Andrews - Tata McGraw-Hill.
3. Food & Beverage Management - Bernard Davis & Sally Stone - ELBS.
4. Profitable Food & Beverage Management - Richard Kotas & Chandana Jayewardene - Hodder & Stoughton.

16BHM503

B.Sc. (Catering Science & Hotel Management) Degree Examination – Syllabus - For Candidates admitted from the academic year 2015 - 2016 and onwards

FIFTH SEMESTER

PART III - CORE 13: FOOD AND BEVERAGE MANAGEMENT

Maximum CIA-30

Maximum CE -70

Total hours: 48

Course Objective: It also aims to enable the student to acquire theoretical knowledge for managerial level of principles of food & beverage service and its related activities.

UNIT-I (10 Hours)

Food & Beverage Management: Introduction - Food & Beverage function - Responsibilities & objectives of F&B department - Constraints of food & beverage management - Cost & market orientation (Cost structure & profitability, demand for product, capital intensity, nature of the product). The meal / drink experience: Food & drink, variety in menu choice, level of service, value for money, interior design, atmosphere & mood, expectation & identification, location / accessibility and staff.

UNIT-II (10 Hours)

Purchasing: The nature of purchasing - The main duties of purchase manager - Importance of purchase functions - The purchasing procedure - The selection of a supplier - supplier rating - Aids to purchasing - The purchasing of food & beverages - Standard purchase specification: Meaning & objective - The purchase specification for food & beverages. Receiving: Objective - Receiving procedure - Receiving of expensive commodities - Returnable containers - Blind receiving - Dispatch to stores or user department - Clerical procedures & forms used.

UNIT- III (8 Hours)

Storing & issuing: Storing & issuing of food & beverages. Stock taking of food & beverages - Stock turnover - Stock levels. Food control: Objectives of food cost control - The essentials of a control system - Calculation of food cost - Methods of food control - Food. Control check list - Obstacles to food cost control. Beverage Control: Objectives of beverage control - Calculation of beverage cost - Methods of beverage control - Beverage control checklist.

UNIT-IV (10 Hours)

Elements of cost: Cost defined, basic concepts of profit, control aspect, pricing aspects. Cost dynamics: Fixed & variable costs - Break even charts - Turn over & unit costs. Sales promotion, Advertising, Merchandising, & public relations.

UNIT- V (10 Hours)

Menu Engineering: Meaning, Menu Engineering Terminology, Menu Engineering Worksheet, Remedial action, Problems and Limitations. Menu Merchandising: Methods of pricing menus, Shape & fold of menu, Size of menu, Type & colour of paper or card, Typefaces, Layout, Printing & reprinting.

TEXT BOOKS:

1. Food & Beverage Management - Bernard Davis & Sally Stone – Elsevier 3rd edition
2. Dennis R. Lillicrap “Food and Beverage service” 7th Edition 2006.

REFERENCE BOOK:

1. Food and Beverage Service – R.Singaravelan – Oxford Press-Edition – 2012.

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FIFTH SEMESTER

CORE PRACTICAL VI - FOOD PRODUCTION AND PASTISERIE - III

Maximum CIA-40

Maximum CE -60

Total hours: 60

Objective: Imparting advanced professional skills in Continental cuisine.

- Menu consists of Salad, Soup, Egg, Pasta, Fish, Meat, Chicken, Savoury and Desert.

TEXT BOOKS:

1. M J Leto & W K H Bode “Larder Chef” Publisher: Butterworth- Heinemann.
2. Chef Parvinder S. Bali International Cuisine and Food production Management – Publishers Oxford University Press 2012.
3. Modern Cookery – Vol –I, and Vol –II, By Thangam E Phillips, Orient Longman.

REFERENCE BOOKS:

1. “Professional Chef” The Culinary Institute of America Published By John Wiley & Sons
2. Hamlyn “Larousse Gastronomique” Publisher Octopus Publishing Group London.
3. Le RolA.Polsom “The Professional Chef” (4th Edition)
4. Kinton&Ceserani “Practical Cookery”.
5. Kinton&Ceserani “Theory of Catering”.
6. Kauffman &Cracknell “Practical Professional Cookery”.

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FIFTH SEMESTER

CORE PRACTICAL – VII FOOD AND BEVERAGE SERVICE - III

Maximum CIA-40

Maximum CE -60

Total hours: 60

Objective:

Imparting Professional skills in Food and beverage service.

-To Develop The Perfect Skill And Techniques For Formal Banquet Services, Function, Calculation Of Space For Banquets, Banquet Menu, Setting Of Various Types Of Buffet, Gueridon And Flame Work And Induce Supervisory Responsibility In Students.

- Cooking and Carving at Table.
- Designing and Setting the Bar.
- Compiling an Alcoholic Beverage List.
- Service of Wines.
- Service of Spirits.
- Preparing and service of various food from the Gueridon.
- List of Restaurant Equipment Manufacturer (Assignment).
- Art of Mocktail Mixing
- Art of Cocktail Mixing.
- Compiling and service of Menu with Wine Suggestion.
- Bar Tending Procedures.

TEXT BOOK:

1. Food and beverage service – R.Singaravelan, Oxford press,

REFERENCE BOOK:

1. Dennis Lillicrap & John Cousins “Food and beverage service” Publisher – ELBS.

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FIFTH SEMESTER

**PART III – ELECTIVE II HUMAN RESOURCE MANAGEMENT IN HOSPITALITY
INDUSTRY**

Maximum CIA-30

Maximum CE -70

Total hours: 60

Objective: To gain theoretical knowledge in the area of Human Resource Management.

UNIT-I (12 HOURS)

Human Resource Management - Meaning, nature, scope, and objective - Functions of Human Resource Department - The role of HR Manager - Organization of HR Department - HR policies & procedures.

UNIT-II (12 HOURS)

Manpower plans - Concept, organization & practice, Manpower planning techniques - Short term and long term planning. Recruitment & Selection - Job analysis - Description - Job specification - Selection Process - Tests & Interviews—Placement & Induction.

UNIT-III (12 HOURS)

Performance appraisal - Job evaluation & merit rating - Promotion - Transfer and demotion - Human relations - Approaches to good human relations - Job satisfaction - morale and discipline - Labour turnover - Punishment

UNIT-IV (12 HOURS)

Wages and salary administration - Development Sound Compensation structure. Direct & Indirect costs, Fringe benefits, CTC (Cost to Company) Concepts & its implications - Regulatory provisions - Incentive system - Labour welfare and social security - Safety, health & security - retirement benefits to employees.

UNIT-V (12 HOURS)

Industrial relations - Trade unionism - Grievance handling - Developing Grievance Handling System - Managing conflicts - Collective bargaining and workers participation.

TEXT BOOK:

1. Personnel Management - C.B.Mamoria - Himalaya Publishing House.

REFERENCE BOOKS:

1. Personnel Management in Indian Organizations – Pramod Verma.

2. Personnel Management - Edwin B.Flippo - Tata McGraw Hill.

16BHME05

**B.Sc. (Catering Science & Hotel Management) Degree Examination – Syllabus - For
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**FIFTH SEMESTER
PART III - ELECTIVE II - HOTEL LAW**

Maximum CIA-30

Maximum CE -70

Total hours: 60

Objective:

Enabling students to acquire theoretical knowledge hotel law.

UNIT -I

THE INDIAN CONTRACT ACT (12 HOURS)

Definition of Contract-essential elements of a valid contract-classification of contracts-voidable contract-void contract illegal agreement-express contract-IMPLIED contract-executed contract-executory contract. Offer-definition-essentials of a valid offer when does as offer come to an end. Acceptance-essentials of valid acceptance-communication of offer acceptance revocation-when complete.

UNIT-II (12 HOURS)

FOOD LEGISLATION

principles of food laws-acts regarding prevention of food adulteration, definition, authorities under the act, procedure of taking a sample purchase right, warranties, guest control order or food services order in force from time to time. Essential commodities act, ISU, AGMARK

UNIT-III (12 HOURS)

Liquor legislation types of licenses, drinking in the licensed premises and different types of permits. Liquor control act, distinction between guest and bar, guest relationship, by laws as affecting catering establishments, (to be discussed in details)

UNIT-IV (12 HOURS)

Industrial legislation factories Act, Payment of Wages Act, Industrial Disputes Act, Apprentices Act, Provident Fund Act, Trade Unions Act (each Act to be discussed in brief with particular reference to hotel industry) .

UNIT- V (12 HOURS)

Laws relating to hospitality- hygiene, sanitation and adulteration what are food adulteration - laws for prevention of it in India - ISI standard, prevention of food adulteration act, agmark. Environment protection act powers of the central govt. Prevention and control of environment pollution shops and establishment act introduction-definition-adult-family-commercial establishment-employer-employee-exemption-registration-daily and weekly working hours-overtime-annual leave with wages. Consumer protection councils, procedure for redressal of grievances.

TEXT BOOK:

Food & legislation & policies-Dharma Raj

REFERENCE BOOK:

1.Hotel law – Amitabh Devendra.

16BHME06

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FIFTH SEMESTER

PART – III ELECTIVE II - FOOD PRESERVATION

Maximum CIA-30

Maximum CE -70

Total hours: 60

Objective: To gain theoretical knowledge about ways and means of preserving food.

UNIT I (12 HOURS)

Basic considerations: Aims and objectives of preservation & processing of foods, Characteristics of tissues and non-tissues foods, Degree of perishability of unmodified foods, Causes of quality deterioration and spoilage of perishable foods, intermediate moisture foods, wastage of foods.

Unit-II (12 HOURS)

Preservation of foods by low temperatures: (A) Chilling temperatures: Consideration relating to storage of foods at chilling temperatures, Applications and procedures, Controlled and Modified atmosphere storage of foods, Post storage Handling of foods. (B) Freezing temperatures: Freezing process, Slow and fast freezing of foods and its consequence, other occurrences associated with freezing of foods. Technological aspects of pre freezing, Actual freezing, Frozen storage and thawing of foods.

Unit-III (12 HOURS)

Preservation of foods by high temperatures: Basic concepts in thermal destruction of microorganisms D, Z, F values. Heat resistance and thermophilic microorganisms. Cooking, Blanching, Pasteurization and Sterilization of foods. Assessing adequacy of thermal processing of foods, General process of canning of foods, Spoilage in canned foods.

Unit-IV (12 HOURS)

Preservation by water removal: (a) Principles, Technological aspects and application of evaporative concentration process; Freeze concentration and membrane process for food concentrations. (b) Principles, Technological aspects and application of drying and dehydration of foods, Cabinet, tunnel, belt, bin, drum, spray, vacuum, foam mat, fluidized-bed and freeze drying of foods.

Unit-V (12 HOURS)

Principles, Technological aspects and application of sugar and salt, antimicrobial agents, Biological agents, non ionizing and ionizing radiations in preservation of foods. Hurdle technology.

TEXT BOOKS:

1. Food Processing and Preservation by Neelam Khetarpaul, Daya Publishing House Delhi, Year 2005.
2. Food Processing and Preservation, BY G. Subbulakshimi, New Age International (P) Limited.

**BACHELOR OF COMMERCE [BPS]
Scheme of Examination [CBCS Pattern]
For the Candidates admitted during the Academic Year 2018-2019**

Part	Sub Code	Subject Title	Ins.Hrs/ Week	Examination				
				Dur. Hrs.	CIA	CE	Total	Credit
SEMESTER I								
I	18LAHI01/ 15LAMY01/ 15LAFR01/ 16LATA01	Language – I	5	3	30	70	100	3
II	16ENG001	English –I	5	3	30	70	100	3
III	16BPS101	Core I:Financial Accounting -I	6	3	30	70	100	4
III	17BPS102	Core II: Principles of Business Organization	6	3	40	60	100	4
III	16BPSID1	IDC 1: Managerial Economics	6	3	30	70	100	4
IV	18UFCA01	Foundation Course I : Environmental studies#	2	2	-	50	50	2
		Total	30				550	20
SEMESTER II								
I	18LAHI02/ 15LAMY02/ 15LAFR02/ 16LATA02	Language –II	5	3	30	70	100	3
II	16ENG002	English – II	5	3	30	70	100	3
III	18BPS201	Core III: Finance and Accounting for Business process service	6	3	30	70	100	4
III	18BPS202	Core IV : Insurance For Business Process Service-I	6	3	30	70	100	4
III	18BPSID2	IDC II : Internet And Web Designing	6	3	30	70	100	4
IV	18UFCA02	Foundation Course II: Value Education #	2	2	-	50	50	2
		Total	30				550	20
SEMESTER III								
III	16BPS301	Core V: Financial Accounting II	5	3	30	70	100	4
III	18BPS302	Core VI : Principles of Auditing	5	3	30	70	100	4
III	18BPS303	Core VII :Insurance for Business process service- II	5	3	30	70	100	4
III	16BPS304	Core VIII: E-Commerce	5	3	30	70	100	4
III	17BPSID3	IDC III: Business Mathematics	5	3	30	70	100	4
IV	16BPSAO1/O2	AOC I:	3	3	-	75	75	3
IV	16BTA001/ 16ATA001/ 16BPSED1	EDC I:BTI/ATI/ Human Resource Management #	2	2	-	50	50	2
		Total	30				625	25

SEMESTER IV								
III	16BPS401	Core IX: Corporate Accounting	5	3	30	70	100	4
III	18BPS402	Core X: Retail Environment and Market Research	5	3	30	70	100	4
III	17BPS403	Core XI: Banking for BPS - I	5	3	30	70	100	4
III	18BPS404	Core XII: Campus to Corporate Transition	5	3	40	60	100	4
III	17BPSID4	IDC IV: Business Statistics	5	3	30	70	100	4
IV	17BPSAO3/ 16BPSAO4	AOC II:	3	3	-	75	75	3
IV	16BTA002/ 16ATA001/ 15EDC002	EDC II:BTII/ATII/ Communicative English #	2	2	-	50	50	2
V	15NCC001/ 15NSS001/ 15SPT001/ 15EXT001	NCC/NSS/Sports/ Extension Activity			50		50	2
Total			30				675	27
SEMESTER V								
III	16BPS501	Core XIII- Cost Accounting	5	3	30	70	100	4
III	18BPS502	Core XIV- Managing Business Process - I	5	3	30	70	100	4
III	16BPS503	Core XV- Income Tax Law and Practice	5	3	30	70	100	4
III	18BPS504	Core XVI - Capital Market for BPS	5	3	30	70	100	4
III	16BPS505	Core XVII: Banking for BPS - II	5	3	30	70	100	4
III	16BPSE01/02/03	Elective I:	5	3	30	70	100	4
III	16BPSPR1	Institutional Training	-	-	-	-	-	-
Total			30				600	24
SEMESTER VI								
III	16BPS601	Core XVIII: Management Accounting	5	3	30	70	100	4
III	18BPS602	Core XIX: MS Office and Tally Practical	5	3	30	70	100	4
III	18BPS603	Core XX: Managing Business Process - II	5	3	30	70	100	4
III	16BPSE04/05/06	Elective - II :	5	3	30	70	100	4
III	16BPSE07/08/09	Elective - III :	5	3	30	70	100	4
III	16BPSPR2	Project and Viva Voce	5	3	50	50	100	4
Total			30				600	24
Total							3600	140

No Continuous Internal Assessment [CIA] , only Comprehensive Examination [CE]

@ No Continuous Internal Assessment [CIA] and Comprehensive Examination [CE]

IDC- Inter disciplinary Course , EDC – Extra disciplinary Course ,

AOC –Application Oriented Course

List of Electives Papers

Elective I		
1	16BPSE01	Retail Business Management
2	16BPSE02	Brand Management
3	16BPSE03	Organizational Behavior
Elective II		
1	16BPSE04	Indirect Taxation
2	16BPSE05	Investment Management
3	16BPSE06	Supply Chain Management
Elective III		
1	16BPSE07	Working Capital Management
2	16BPSE08	Network Management
3	18BPSE09	Indian stock exchange

Application Oriented Course

	Code	List of AOC Papers
AOC - I	18BPSAO1	Commercial Law
	16BPSAO2	Industrial Law
AOC - II	17BPSAO3	Office Management and Documentation
	16BPSAO4	Cyber Law

List of Additional Credit Papers

Sem	Code	Subject Title	Credits	Maximum Marks
III	17BPSAC1	Management Information System	2	100
IV	16BPSAC2	Principles of International Trade	2	100
V	16BPSAC3	Export and Import Trade Procedures	2	100

Summary

Part	No of Papers	Total Credits	Total Marks
I	2	6	200
II	2	6	200
III –Core	20	80	2000
III – IDC	4	16	400
III – Elective	3	12	300
III –Project	1	4	100
IV –Foundation Course	2	4	100
IV – EDC	2	4	100
IV – Application Oriented Course	2	6	150
V Extension Activities	-	2	50
Total	38	140	3600

REGULATIONS
[Effective from the academic year 2016-2017 onwards]

1. Project and Viva Voce:

Each student in the UG final year shall compulsorily undergo Project Work in the 6th semester. Projects shall be done individually. Project Coordinators shall allocate the project title and the guide for each group. Project work shall be done only in the lab provided by the college, including Project Record Preparation. Project Reviews shall be conducted thrice in which the progress of project work shall be strictly evaluated by respective Project Guides and Project Coordinators. Viva-Voce shall be conducted only in the presence of Industrialists or academicians. Out of the Total of 100 marks, 50% of mark shall be allocated for CIA and 50% for CE VIVA VOCE.

2. Submission of Record Note Books for practical examinations

Candidates appearing for practical examinations shall submit bonafide Record work for the concerned practical examinations. If not the candidate has to submit a bonafide certificate issued by the concerned subject in charge duly signed by the Head of the Department in order to be permitted to take up the practical examinations. The candidate so permitted will not eligible for the record work mark.

3. Distribution of Marks:

The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall Passing minimum [Internal + CE]
		Max Marks	Passing Minimum		
Theory Paper	100	70	28	30	40
	75	75	30	-	30
	50	50	20	-	20
Practical Paper	100	60	24	40	40
Project	100	50	20	50	40

4. Distribution of Internal Mark for Theory:

[No Passing Minimum for CIA]

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6=30

Breakup for Attendance:

65% - 74 %	- 4 Marks
75% - 80%	- 6 Marks
81% - 90%	- 8 Marks
91% - 100%	- 10 Marks

5. Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 40		
S No	CIA	Distribution of Marks
1	For Completion of the Practical List	20
2	Test –I	10
3	Test –II	10
Total		40

6. Distribution of Comprehensive Exam Mark for Practical :

MAXIMUM MARKS : 60		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	10
2	Program – I a) Algorithm b) Coding c) Execution	5 10 10 TOTAL [25]
3	Program – II a) Algorithm b) Coding c) Execution	5 10 10 TOTAL [25]
Total		60

7. Distribution of Mark for Project VIVA-VOCE:

S.No	CIA	Distribution of Marks
1	INTERNAL a) Review –I b) Review –II c) Documentation & Final Review	10 10 30 Total [50]
2	EXTERNAL * a) Presentation b) Viva	30 20 Total [50]
Total		100

***Marks to be awarded by both External and Internal Examiners.**

**FIRST SEMESTER
PART III: CORE I- FINANCIAL ACCOUNTING – I****Maximum CIA: 30****Maximum CE: 70****Total Hours: 72****OBJECTIVE:**

To enable the students to learn principles, Conventions and concepts of Accounting

UNIT I [15 HOURS]
Meaning and scope of accounting - Accounting concepts and conventions - objectives of accounting - Double entry book keeping - Journal, Ledger, Subsidiary books, preparation of Trial Balance.

UNIT II [15 HOURS]
Preparation of final accounts with simple adjustments –Bank Reconciliation Statement - Rectification of Errors.

UNIT III [14 HOURS]
Accounting for Depreciation – Needs- Methods – Reserves and Provisions. - Self balancing ledger – Meaning and advantages – Accounting aspects – Transfers- Bills of Exchange [excluding Accommodation Bills]

UNIT IV [14HOURS]
Average Due Date and Account Current- Branch Accounts [Excluding foreign branches] Dependent and independent branches-Departmental Accounts-transfer at cost or selling prices

UNIT V [14HOURS]
Joint Venture and Consignment.

Note: Problems – 80% and Theory – 20%

TEXT BOOKS

1. Reddy T.S and Murthy.A, Financial Accounting, 5th Edition, Margham Publications, 2008, Chennai.
2. Banerjee.B.K, Financial Accounting, 8th edition, Sultan Chand and Co., 2008. Delhi.

REFERENCE BOOKS

1. Tulsian.P.C, Financial Accounting, 2nd Edition, Tata Mc Graw Hill, 2007, New Delhi.
2. Gupta.R.L, Gupta.V.K, Shukla.M.C, Financial Accounting, 9th edition, Sultan chand and sons, 2006, New Delhi.

FIRST SEMESTER

PART III-CORE II –PRINCIPLES OF BUSINESS ORGANIZATION

Maximum CIA: 30

Maximum CE: 70

Total Hours: 72

OBJECTIVE:

On the successful completion of this paper, the students will get an opportunity to examine and apply appropriate theories/concepts about managing business effectively.

UNIT I [15 HOURS]

Introduction to Business System: Business concepts and functions- Business system and its environment- objectives and social responsibilities of business.

UNIT II [15 HOURS]

Organizing Business: Forms of Business Organization- Sole proprietorship- Partnership organization and Joint Hindu family firm- company organization- co operative organization choice of form of organization- promotion of a business enterprise.

UNIT III [14 HOURS]

Location of Business: Location theories- freedom of location, errors in location- Steps in location, location and localization- location for small units and industrial policy 1991.

UNIT IV [14 HOURS]

Size of a business unit: Measurement of size- large size, small size and optimum firm- Small scale industries- growth of small scale industries- meaning- case for small enterprises- facilities- problems- small sector industrial policy and tiny enterprises.

UNIT V [14 HOURS]

Business and its environment: Business combination and monopoly causes of combination types and forms of combination- government and business- forms of government regulation- general regulation of business activity- industrial policy in India- control and regulation of prices.

TEXT BOOK

1. Kathiresan and Radha, Business Organisation, Prasanna Publishers,
2. B.S. Raman, Business Organisation, United Publishers, Mangalore, March 2008.

REFERENCE BOOKS

1. K.Aswathappa , M.Yadu murthy, Business organization and management, Himalaya publication, Reprint 2010.
2. Y.k.Bhusan, G.L. Toyal, Business organization and management, Sultan Chand and Sons publications, Reprint 2010.

**FIRST SEMESTER
PART III- IDC-I: MANAGERIAL ECONOMICS****Maximum CIA: 30****Maximum CE: 70****Total Hours: 72****OBJECTIVE:**

To enable the students to understand the applications of economic principles in business management.

UNIT I [15HOURS]

Introduction to Economics: definition, nature and scope of Economics –Economic theories applied to business analysis-decision making in business –objectives of a business firm.

UNIT II [15 HOURS]

Demand and supply functions: Meaning of demand – determinants of demand – distinctions of demand –Law of demand –Elasticity of demand – supply concepts – Equilibrium.

UNIT III [15 HOURS]

Consumer behavior: Meaning of utility –Law of Diminishing Marginal Utility – Equi-Marginal Utility – Indifference curve analysis –Definition –properties –consumer’s surplus-consumer’s equilibrium.

UNIT IV [14 HOURS]

Production and cost analysis : meaning and concepts of production –factors of production and production function – law of variable proportion –law of returns to scale – producer’s equilibrium – Economies of scale – Theories of wages, Rent, Interest.

UNIT V [13 HOURS]

Market structure and pricing: Types of competition –perfect competition –Monopoly – Monopolistic competition – Oligopoly – price and output determination under different competitive market conditions.

TEXT BOOKS

1. Sundharam.K.P.M and Sundaram.E.N, Business Economics, 4th Edition, Sultan Chand and Sons, 2007, New Delhi.
2. Sankaran.S, Business Economics,4th Edition ,Margham Publication ,2007,Chennai,

REFERENCE BOOKS

1. Ahuja.H.L, Business Economics 6th Edition, S.Chand & Company Ltd., 2007, New Delhi.
2. Varshney R.L and Maheshwari K.L, Managerial Economics, 19th Edition, Sultan Chand & Sons, 2009, New Delhi

18BPS201

B.Com [BPS] Degree Examination – Syllabus – for candidates admitted from the academic year 2018-19 onwards

SECOND SEMESTER
PART III –CORE III –FINANCE AND ACCOUNTING FOR BUSINESS PROCESS SERVICE

Maximum CIA: 30

Maximum CE: 70

Total Hours: 72

OBJECTIVE:

On the successful completion of this paper the student should have required knowledge in the practical applications of accounting.

UNIT I **[15HOURS]**

Need for Outsourcing – BPO –Terms & definition of BPO – E-logistics – Facility Management – Classification of BPO – Third party BPO – Major areas of BPO sector – Phases for process outsourcing – Transaction flows in Business Process Service – Roles and Responsibilities of Authorities – Tower wise End to End Operation- Role of Quality in BPO – Lean – Six Sigma

UNIT II **[15 HOURS]**

Account payable –Role of Technology in accounts payable- Accounts receivable- Sub categories- credit management- Sales order management

UNIT III **[15 HOURS]**

General ledger process – Chart of accounts- Tax Accounting – Tax Accounting in India – Indian accounting standards- Tax accounting in UK and US- Various reports[Statutory reports, schedules, variances].

UNIT IV **[15 HOURS]**

Emerging Trend in Finance and Accounting Technology- Traditional Accounting Method – Modern Accounting – ERP – Integrated System – ERP Software Companies – Other Application Tools – extensible Business Reporting Language [XBRL].

UNIT V **[12 HOURS]**

Internal Controls Over Financial Reporting – Operational Risk – Sarbanes Oxley Act 2002 – Internal Control Frame Work – Sarbanes Oxley Act Compliance in an Off shoring Environment-IFRS – Meaning & Advantages – International Accounting Standard Board – International Accounting Standards – Comparison between Indian GAAP, USGAAP and IFRS.

TEXT BOOK

1. TCS Study material. TCS Website: www.tcs.com/

SECOND SEMESTER

PART III- CORE IV- INSURANCE FOR BUSINESS PROCESS SERVICES -I

Maximum CIA: 30

Maximum CE: 70

Total Hours: 72

OBJECTIVE:

To enable the students to know the Basic Concepts of Domestic Insurance

UNIT I [15 HOURS]

Risk - Concept of Peril, Hazard - Types of Risk - Techniques of Risk Management – Insurance - Purpose & Need of Insurance - History of Insurance - Types of Insurance [Life & Non – life] - Contract - Characteristics of a Valid Contract - Principles & Practices of an Insurance Contract - Insurable Interest - Utmost Good Faith – Indemnity - Proximate Cause – Premium - Premium Calculation & Actuarial Valuation – Bonus – Types of Insurance Companies- Business Units in an Insurance Companies - Reinsurance - Types of Reinsurance.

UNIT II [15 HOURS]

Insurance Act, 1938 - The Insurance Regulatory and Development Authority [IRDA] Act, 1999 - Consumer Protection Act, 1986 – Ombudsman - Married Woman’s Property Act – Pension Fund Regulatory & Development Authority [PFRDA].

UNIT III [15 HOURS]

Life Insurance - Important Terminologies - Parties - Principles & Practices of Insurance policy – Term Insurance - Endowment Insurance - Whole Life Insurance - Unit Linked Insurance - With Profit & With-out Profit plans - Accidental Death & Disability Benefit – Critical Illness Benefit - Accelerated Death Benefit - Waiver of Premium Benefit - Steps involved in the life cycle of a Life insurance policy - New Business – Underwriting - Policy Servicing – Claims.

UNIT IV [15 HOURS]

Concept of Pension & Annuity - Key Terminologies in an Annuity contract - Types Pension plans - Types of Annuity options - Annuity Contract provisions - Principles of Group Insurance - Group Life Insurance - Group Retirement Schemes - Individual plans Vs Group Insurance plans.

UNIT V [12 HOURS]

Non-Life Insurance - Important Terminologies in a Non-Life Insurance policy - Principles & Practices of Non-Life Insurance policy - Non-Life Insurance concepts - Insurance providers – Marine Insurance - Fire Insurance - Motor Vehicle Insurance – Property Insurance – Personal Accident Insurance - Liability Insurance - Engineering Insurance – Health Insurance – Miscellaneous Insurance.

TEXT BOOK

1. Hand Book on Insurance for Business Process Services

SECOND SEMESTER**PART III-IDCII- INTERNET AND WEB DESIGNING****Maximum CIA: 30****Maximum CE: 70****Total Hours: 72****OBJECTIVE:**

Enabling students to acquire theoretical and practical knowledge to be successful in internet and web designing.

UNIT I [15HOURS]

Internet – Internet Access / Dial-Up Connection – Internet Service and Features – TCP/IP – Configuration the Machine for TCP/IP Account and Shell Account – Telnet – World Wide Web – Web Page – Hypertext – HTML Tags – Net Surfing - Internet/Web Browsing – Internet Addressing – IP Address – Domain Name – Uniform Resource Locator [URL] – Internet Protocol – TCP/IP – FTP – HTTP – Telnet – Gopher – WAIS.

UNIT II [15HOURS]

Searching the Web – Web Index – Web Search Engine – Web Meta – Search – Meta Search Site – Directories and Indexes – Specified Directories – Email – Email Messages – Customizing Email Programs – Managing Mails – Zen of Emailing – Address Book

UNIT III [15HOURS]

HTML – HTML Code – Basics – Setup and Display a Web Page – Heading – Pre Format Text – Comment – Special Character – Format Text – Emphasize – Super and Subscript – Font Style- Size and Color- Margins – Lists- Types – Images.

UNIT IV [15HOURS]

Links – Create Keyboard Shortcuts – Change the Tab Order – Tables Creating a Table- Add a Border – Caption – Column and Row Group – Color – Background Image – Alignment – Text Wrapping – Nested Table – Warp Text Around a Table.

UNIT V [12HOURS]

Sound and Videos – Introduction to Form – Setup a Form – Text Box – Checkbox – Radio Button – Menu – Organize from Elements – Label from Elements – Introduction to Form – Creating Frames – Link to a Frame – Scrollbar – Nested Frames – Inline Frames.

TEXT BOOK

1. Alexis Leon and Mathews Leon- Internet for Everyone- Leon Tech World, Chennai.

REFERENCE BOOKS

1. Eric Ladd and Jim O'Donell -Using HTML 4- XML and JAVA ,Platinum Edition, PHI
2. Elizabeth Castro- PERL and CGI, Pearson Education

B.Com (BPS) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2016-17 onwards**THIRD SEMESTER****PART III – CORE V – FINANCIAL ACCOUNTING II****Maximum CIA: 30****Maximum CE: 70****Total Hours: 60**

Objective:

After the successful completion of the course the student should have a thorough knowledge on the accounting practice prevailing in partnership firms and other allied aspects.

UNIT I (12 HOURS)

Introduction- Admission of a Partner - Treatment of Goodwill - Revaluation of Assets and Liabilities - Calculation of Ratios for Distribution of Profits - Capital Adjustments.

UNIT II (12 HOURS)

Retirement of Partner - Calculation of Gaining Ratio- Revaluation of Assets and Liabilities- Treatment of Goodwill – Adjustment of Goodwill through Capital A/c only - Settlement of Accounts - Retiring Partner’s Loan Account with equal Instalments only.

UNIT – III (12 HOURS)

Dissolution - Insolvency of Partners- Garner Vs Murray- Insolvency of all Partners - Deficiency A/c - .Piecemeal Distribution - Proportionate Capital Method only.

UNIT – IV (12 HOURS)

Insolvency of Individuals and Firms – Fire Claims: Normal Loss – Abnormal Loss.

UNIT - V (12 HOURS)

Voyage Accounts - Human Resources Accounting and Inflation Accounting (Theory only).

NOTE: Distribution of Marks: Theory - 20% and Problems- 80%

TEXT BOOKS:

1. S.P. Jain & K.L. Narang, “Advanced Accounting”, Kalyani Publications, NewDelhi.
2. Reddy & Murthy, “Financial Accounting”, Margham Publicatuions, Chennai, 2004.

REFERENCE BOOKS:

1. Dr. M. A. Arulanandam, Dr. K.S. Raman, “Advanced Accountancy Part-I”, Himalaya Publication, New Delhi.
2. Gupta R.L. & Radhaswamy M.,”Corporate Accounts “, Theory Method and Application -13th Revised Edition 2006, Sultan Chand & Co., New Delhi
3. Shukla M.C., Grewal T.S. & Gupta S.L., “Advanced Accountancy”, S. Chand & Co., NewDelhi.

B.Com (BPS) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2016-17 onwards

THIRD SEMESTER

PART III – CORE VI - CAMPUS TO CORPORATE

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To enable the students to know the principles and practice of Corporate Culture.

UNIT – I (12 HOURS)

Overview of Corporate Sector & BPO Industry : History of Corporate Sector - Corporate Culture – Overview of BPO – History of BPO – BPO Culture – Benefits of BPO – BPO Industry in World – BPO Industry in India.

UNIT – II (12 HOURS)

Difference between Campus and Corporate Sector : Change Management – Culture – Attitude and Behavior – Significance of Language – Maintaining Internal and External Relationship – Politeness – Building Confidence– Life Long Learning – Body Language.

UNIT- III (12 HOURS)

Grooming for Corporate Sector : Corporate Etiquette - Dressing and Grooming Skills – Workplace Etiquette – Business Etiquette – E-Mail Etiquette – Telephone Etiquette – Meeting Etiquette – Professional Competencies – Analytical Thinking – Listening Skills – Time Management – Assertiveness – Team Skills - Stress Management – Ownership – Attention to Detail.

UNIT – IV (12 HOURS)

Basics in Communication Grammar – Phonetics – One on one basic Conversation Skill Practice – Reading Comprehension – Listening Comprehension – Comprehension While Interacting Face to Face.

UNIT – V (12 HOURS)

Advanced Level English Communication: Interview Skills – Composition and Delivery - Group Discussions – Dynamics and Critical aspects - Social Conversation Skills – Formal and Informal Conversation Skills - Presentation Skills – Elements – Planning – Structuring.

TEXT BOOK

1. Hand Book on Corporate Culture for Business Process Services

REFERENCE BOOKS

1. Madhukumar.R.K., “Business Communication”, Vikas Publishing House Pvt Ltd., New Delhi.
2. Raghunathan.N.S., Santhanam.B., “Business Copmmunication”, Margham Publications, Chennai.
3. Rajendrapal & Koralahalli.J.S., “Essentials of Business Communication”, Sultan Chand Sons, New Delhi.
4. Raymond V.Lesikar, “Basic Business Communication”, Tata Mcgraw Hill Publishing Company Ltd., New Delhi.

B.Com (BPS) Degree Examination-Syllabus -For Candidates admitted from the academic year 2016 – 2017 onwards

THIRD SEMESTER

PART III-CORE – VII - INSURANCE FOR BUSINESS PROCESS SERVICES

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

Enabling students to acquire theoretical knowledge to be successful in Insurance for Business process services.

UNIT I (12 HOURS)

Insurance Generic Overview: Risk - Concept of Peril, Hazard - Types of Risk - Techniques of Risk Management - Insurance - Purpose & Need of Insurance - History of Insurance - Types of Insurance (Life & Non – life) - Contract - Characteristics of a Valid Contract - Principles & Practices of an Insurance Contract - Insurable Interest - Utmost Good Faith – Indemnity - Proximate Cause - Premium - Premium Calculation & Actuarial Valuation – Bonus – Types of Insurance Companies- Business Units in an Insurance Companies - Reinsurance - Types of Reinsurance.

UNIT II (10 HOURS)

Insurance Act, 1938 - The Insurance Regulatory and Development Authority (IRDA) Act, 1999 - Consumer Protection Act, 1986 – Ombudsman - Married Woman’s Property Act – Pension Fund Regulatory & Development Authority (PFRDA).

UNIT III (14 HOURS)

Life and non life insurance overview: Life Insurance - Important Terminologies - Parties - Principles & Practices of Insurance policy – Term Insurance - Endowment Insurance - Whole Life Insurance - Unit Linked Insurance - With Profit & With-out Profit plans - Accidental Death & Disability Benefit - Critical Illness Benefit - Accelerated Death Benefit - Waiver of Premium Benefit - Steps involved in the life cycle of a Life insurance policy - New Business – Underwriting - Policy Servicing – Claims- Non-Life Insurance - Important Terminologies in a Non-Life Insurance policy - Principles & Practices of Non-Life Insurance policy - Non-Life Insurance concepts - Insurance providers - Marine Insurance - Fire Insurance - Motor Vehicle Insurance – Property Insurance – Personal Accident Insurance - Liability Insurance - Engineering Insurance – Health Insurance - Miscellaneous Insurance.

UNIT IV (12 HOURS)

Pension, Annuity & Group insurance overview: Concept of Pension & Annuity - Key Terminologies in an Annuity contract - Types Pension plans - Types of Annuity options - Annuity Contract provisions - Principles of Group Insurance - Group Life Insurance - Group Retirement Schemes - Individual plans Vs Group Insurance plans.

UNIT V

(12 HOURS)

Regulator: National Association of Insurance Commissioners (NAIC) –Powers – Financial Services Authority (FSA) - Statutory Objectives – Regulatory principles– Department of Work and Pension(DWP) – Structure and functions– Third Party Administrators (TPA) – Importance.

TEXT BOOK:

1. Hand Book on Insurance for Business Process Services

REFERENCE BOOKS:

1. Mishra .M.N & Mishra S.B., “Insurance Principles And Practice”, Sultan Chand & Sons, New Delhi.
2. Inderjit Singh, Rakesh, Katyal, Surjeet Kaur., “Insurance Principles and Practice”, Kalyani Publishers, New Delhi.
3. Dr. Premavathy. N. “Elements of Insurance”, Sri Vishnu Publications, Chennai.
4. Dr. Periasamy, “Principles and Practice of Insurance”, Himalaya Publishers, NewDelhi.

B.Com (BPS) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2016-17 onwards

THIRD SEMESTER

PART III – CORE VIII – E-COMMERCE

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

After the successful completion of the course the student must be aware of techniques in the application of e-Commerce.

UNIT I (12HOURS)

Electronic commerce-Main activities E-Commerce-Goals of E-Commerce-Technical Components of E-Commerce-Advantages & disadvantages of E-Commerce- Electronic Commerce and Electronic Business (C2C) (2G,G2G, B2G, B2P, B2A, P2P, B2A, C2A, B2B, B2C)

UNIT II (12 HOURS)

The Internet - Domain Names and Internet Organization (.edu , .com, .mil,.gov, .net etc.- Types of Network -Building Own Website-Reasons for building own website-Benefits of Website-Cost, Time, Reach-Registering a Domain Name-Target email, Baner Exchange, Shopping Bots- Intranets & Extranets

UNIT III (12 HOURS)

Internet Marketing-The PROS and CONS of online shopping-Internet marketing techniques - The E-cycle of Internet marketing-Personalisation e-commerce Electronic Data Exchange-Introduction-Concepts of -Applications of EDI-Advantages and Disadvantages of EDI-EDI model

UNIT IV (12 HOURS)

Electronic Payment System - -Credit Card System –Electronic Fund Transfer-Paperless bill - Modern Payment Cash- Electronic Cash-Internet Security-Secure Transaction-Computer Monitoring-Privacy on Internet-Corporate Email privacy-Computer Crime(Laws , Types of Crimes)- Encryption- E-security

UNIT V (12 HOURS)

Intra organisational electronic commerce- Internal information system- work flow automation and co-ordination- supply chain management- corporate digital library- types of digital documents- corporate data warehouses- multimedia and digital video

TEXT BOOKS:

1. Dr. K. Abirami Devi, Dr. M. Alagammai, E-Commerce, Margham Publications , Chennai, Reprint 2015.

2. Elias Awad, E-Commerce, Prentice Hall of India Publications, New Delhi, 2002
3. Ravi kalakota, Andrew B Whinston, Frontiers of Electronic Commerce, Pearson Education, Reprint 2006.

REFERENCE BOOKS:

1. E-Commerce Concepts, Models, Strategies- :- G.S.V. Murthy Himalaya Publishing House, New Delhi, 2008.
2. David Whitley, E - Commerce: Strategy, Technologies and Applications, Tata McGrawHill, New Delhi, 2002

B.Com (BPS) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2016-17 onwards**THIRD SEMESTER
IDC 3 – BUSINESS MATHEMATICS****Maximum CIA - 30****Maximum CE - 70****Total Hours: 60**

Objective: To enable students to gain Fundamental Knowledge about the Mathematical skills and to improve of analytical skills.

UNIT I (14 HOURS)

Set Theory - Venn diagrams-Simple and compound interest - Effective rate of interest, sinking fund - Annuities - present value, Discounting of Bills-True discount ,bankers gain

UNIT II (10 HOURS)

Matrices; Introduction - Types of matrices - Addition of matrices - multiplication of matrices –Determinants - Inverse of a matrix - Rank of matrix-solving simultaneous linear equations using Cramer’s rule method

UNIT III (12 HOURS)

Limits - Constants and variables- limits of algebraic functions – Differentiation - Method of derivatives - Applications to Business Problems.

UNIT IV (12 HOURS)

Numerical Methods - System of simultaneous linear Algebraic equations - Gauss Elimination -Gauss Jordan - Numerical Integration - Trapezoidal Rule - Simpson’s Rule. (No derivation).

UNIT V (12 HOURS)

Interpolation-Newton’s Forward Interpolation Formula-Newton’s Backward Interpolation Formula- Lagrange’s formula (No derivation).

Note: The proportion of marks between theory and problems shall be 20%and 80% respectively.

TEXT BOOKS:

1. P.A. Navnitham, Business Mathematics and Statistics, Reprint 2014 ,Jai Publications , Trichy.
2. P. Kandasamy, K. Thilagavathi and K.Gunavathi, Numerical Methods , Reprint 2013, S.Chand and Company Ltd., New Delhi.

REFERENCE BOOK:

1. M. K. Venkataraman, Numerical Methods in Science and Engineering, Edition 2013, National Publishing Company V, Chennai.

B.Com (BPS) Degree Examination – Syllabus – for candidates admitted from the Academic Year 2016– 2017 onwards**THIRD SEMESTER****PART IV – AOC I - BANKING THEORY AND FOREIGN EXCHANGE****Maximum CE: 75****Total Hours: 36**

Objective:

To enable the student to have a thorough knowledge on banking and foreign exchange.

UNIT I (7 HOURS)

Definition of Banker and Customer- General Relationship – Special Relationship – Evolution of Commercial Banks – Functions of Modern Commercial Banks – Branch Banking – CRM In Banking – Multinational Banking – Customer Service.

UNIT II (8 HOURS)

Opening of a New Account – General Precautions – Types of Accounts – Fixed Deposit – Savings Account – Current Account – Recurring Deposit – Special Type OF Customers – Minor – Lunatic – Drunkards – Joint Accounts – Partnership Account – Public Limited Account – Closure Of Accounts.

UNIT III (7 HOURS)

Negotiable Instruments – Meaning – Characteristics – Types – Bills Of Exchange – Essentials – Promissory Note – Essentials – Cheques – Essentials – Endorsements – Crossing Of Cheques – Marking Of Cheques.

UNIT IV (7 HOURS)

Foreign Exchange Markets – Features – Participants – Interbank Transactions – Interbank Quotations – Interbank Rates And Arbitraging – Interbank Dealings – Cover Deals – Trading – Funding Of Vostro Account – Swap Deals.

UNIT V (7 HOURS)

Exchange Management By Banks – Dealing Position – Exchange Position – Cash Position – Accounting And Reporting – Foreign Exchange Risk Management – Measuring Of Value At Risk (VAR).

TEXT BOOKS:

1. Sundaram and Varsh ney , Banking Theory Law and Practice, ,Sultan Chand & Son, New Delhi, 2006
2. Gordon and natarajan , Banking theory law and practice, Himalaya publishing house,New Delhi, 2010

REFERENCE BOOKS:

1. N.C .Majumdar , Fundamentals of Modern Banking , New central book agency (P) Ltd, New Delhi, 2010.
2. C. Jeevanandham , Foreign exchange and risk management, Sultan Chand, New Delhi, 2010.

B.Com (BPS) Degree Examination – Syllabus – for candidates admitted from the Academic Year 2016– 2017 onwards

**THIRD SEMESTER
PART IV – AOC I – INDUSTRIAL LAW**

**Maximum CE: 75
Total Hours: 36**

Objective: To enable the students to acquire theoretical knowledge in Industrial Law.

UNIT I (8 HOURS)

Factories Act 1948 - Provision Relating to Health, Safety, Welfare-Employment of Children and Young People-Adult Welfare and Women Workers.

UNIT II (7 HOURS)

Industrial Dispute Act 1947 - Provisions Relating To Strike, Lockout- Retrenchment - Layoff - Closure - Machinery to Solve Disputes.

UNIT III (7 HOURS)

Trade Unions Act 1926- Definitions- Registrations-Rights and Privileges-Cancellation of Registration-Payment of Wages Act 1926-Permissible Deductions-Time and Mode of Payment.

UNIT IV (7 HOURS)

Payment of Bonus Act, 1965-Meaning-Eligibility For Bonus- Minimum And Maximum Bonus-Exemption-Applicability of The Act-ESI Act 1948-Definition-Medical Board-Benefits-Purpose of Which Funds Can Be Spent.

UNIT V (7 HOURS)

The Minimum Wages Act, 1948-Workmen Compensation Act 1923-Employees Liability – Partial-Permanent - Total Disablement-Accusation-Diseases.

TEXT BOOK:

1. N.D.Kapoor, Handbook of Industrial Law, 6th Edition, 2011, Sulthan Chand & Sons, New Delhi.

REFERENCE BOOKS:

1. N.D.Kapoor, Elements of Industrial Law, 6th Edition, 2011, Sulthan Chand & Sons, New Delhi.
2. H.L.Kumar & Gaurav Kumar, Labour Laws, 11th Edition, 2011, Universal Law Publishing Co Pvt. Ltd. and Co, New Delhi.
3. M.C.Kuchhal & Vivek Kuchhal, Business and Industrial Law, Reprint, 2011, Sulthan Chand & Sons, New Delhi.

B.Com (BPS) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2016-17 onwards

THIRD SEMESTER

PART – IV-EDC1:- HUMAN RESOURCE MANAGEMENT

Maximum CE: 50

Total Hours: 24

Objective:

On the successful completion of this paper, the student will acquire knowledge in Role of a HR manager, Job description and Job analysis.

UNIT-I (4 HOURS)

Human Resource Management - Definition - Objectives - Functions - Scope - Importance - HRM in India – Strategic human resource management.

UNIT-II (4 HOURS)

Job Analysis: Introduction- Meaning- Process- Methods- Job Description- Job Specification.

UNIT-III (6 HOURS)

Recruitment and Selection - Sources of Recruitment - Selection Process - Test Types - Interview Types.

UNIT-IV (4 HOURS)

Training - Methods of Training - Executive Development - Performance Appraisal - Methods of Performance Appraisal - Transfers – Promotion.

UNIT-V (6 HOURS)

Career Planning- Process- Career stages- Career development- career management- Industrial Relations - Meaning & Characteristics Industrial Relations - Parties to Industrial relations - Nature of Trade Unions - Problems of Trade Union - Measures to Strengthen Trade Union Movement in India - Causes for Industrial Disputes - Settlement of Industrial Disputes.

TEXT BOOKS

1. Human Resource Management - Dr. C.B. Gupta - Sultan and Sons, 2014 Revised Edition.
2. Human Resource and Personnel Management - K. Aswathappa - Tata Mc Graw Hill Publishing Co. Ltd, 2013 Edition.

REFERENCE BOOKS

1. C.S. Venkata Rathnam & B.K. Srivastava, Personnel Management & Human Resources, TMPL,2010.
2. Dr. C.B. Memoria, Dr. Satish Memoria &S.V. Gankar –Dynamics of Industrial Relations, Himalaya Publishing House, 2013

B.Com (BPS) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2016-17 onwards

THIRD SEMESTER

PART III - MANAGEMENT INFORMATION SYSTEM

Maximum CE - 100

Objective:

Unit I

Foundations of Information Systems: A framework for business users - Roles of Information systems - System concepts - Organisation as a system - Components of Information Systems - IS Activities - Types of IS.

Unit II

IS for operations and decision making: Marketing IS, Manufacturing IS, Human Resource IS, Accounting IS and Financial IS - Transaction Processing Systems- Information Reporting System - Information for Strategic Advantage.

Unit III

DSS and AI: DSS models and software: The decision making process - Structured, Semi Structured and Unstructured problems; What if analysis, Sensitivity analysis, Goal-seeking Analysis and Optimizing Analysis. Overview of AI, Neural Networks, Fuzzy Logic Systems, Genetic Algorithms - Expert Systems.

Unit IV

Managing Information Technology: Managing Information Resources and technologies - IS architecture and management - Centralised, Decentralised and Distributed - EDI, Supply chain management & Global Information technology Management.

Unit V

Security and Ethical Challenges: IS controls - facility control and procedural control - Risks to online operations - Denial of service, spoofing - Ethics for IS professional - Societal challenges of Information technology.

TEXT BOOKS

1. James A O'Brien, "Management Information Systems", Tata McGraw Hill, Fourth Edition, 1999.
2. Effy Oz, "Management Information Systems", Vikas Publishing House, Third Edition, 2002.

REFERENCE BOOK

1. Kenneth C Laudon and Jane P Laudon, "Management Information System", 9th Edition, PHI, New Delhi, 2006.

B.Com (BPS) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2016-17 onwards

FOURTH SEMESTER

PART III - CORE IX - CORPORATE ACCOUNTING

Maximum CIA - 30

Maximum CE - 70

Total Hours: 60

Objective:

To enable the students understand the preparation of accounts of companies.

UNIT I (12 HOURS)

Issue of shares and Debentures – various kinds – Forfeiture – Reissue including pro rata allotment – surrender of shares.

UNIT II (12 HOURS)

Issue of Equity and preference shares – Redemption of Equity and Preference shares - Underwriting of shares (Including Firm underwriting)

UNIT III (12 HOURS)

Issue of Debentures – Par, Premium and Discount Rating - Redemption of Debentures.

UNIT IV (12 HOURS)

Liquidation of Companies – Preparation of Statement of affairs and Deficiency account - Valuation of Goodwill and Shares.

UNIT V (12 HOURS)

Profits prior to incorporation – Preparation of Final Accounts of companies – (including Managerial Remuneration Calculation).

NOTE: Distribution of marks: Theory 20% and Problems 80%

TEXT BOOKS

1. T.S. Reddy, A. Murthy, Corporate Accounting , Revised Edition, Margham Publication, New Delhi, 2015
2. Jain.S.P, Narang.K.L, Advanced Accounting, 14th Edition, Kalyani Publications, New Delhi. 2008.

REFERENCE BOOKS

1. Gupta R.L, Radhaswamy .M ,Corporate Accounts, 13th Revised Edition, Sultan Chand and Co., New Delhi, 2006.
2. Shukla M.C , Grewal T.S., Gupta S.L., Advanced Accountancy, 12th Edition, S. Chand and Co., New Delhi, 2005.

B.Com (BPS) Degree Examination – Syllabus – for candidates admitted from the Academic Year 2016– 2017 onwards

FOURTH SEMESTER

PART III – CORE X- COMPANY LAW AND SECRETARIAL PRACTICE

Maximum CIA - 30

Maximum CE - 70

Total Hours: 60

Objective:

To enable the student to have a thorough knowledge on Company Law and Secretarial Practice

UNIT-I (12 HOURS)

Formation of Companies – promotion – Meaning – Promoters – their functions – Duties of Promoters – Incorporation – Meaning – certification of Incorporation – Memorandum of Association – Meaning – Purpose Alteration of Memorandum – Doctrine of Ultravires – Articles of Association - Meaning – Forms – Contents – Alteration of Article – Relationship between Articles and Memorandum – Companies Act 1956 and 2013.

UNIT-II (12 HOURS)

Prospectus – Definitions – Contents – Deemed Prospectus – Misstatement in prospectus – Kinds of Shares and Debentures- Doctrine of Indoor Management – Exceptions to Doctrine of Indoor Management – Directors – Qualification and Disqualification of Directors – Appointment of Directors – Removal of Directors – Director’s remuneration – Powers of Directors – Duties of Directors – Liabilities of Directors.

UNIT-III (12 HOURS)

Kinds of Company meetings – Board of Directors Meeting – Statutory meeting – Annual General meeting – Extra ordinary General meeting -Duties of a Company Secretary to all the company meetings – Drafting of Correspondence – Relating to the meetings – Notices - Agenda – Chairman’s speech – Writing of Minutes.

UNIT-IV (12 HOURS)

Company Secretary- Meaning- Types of secretaries- Legal position- Qualification- Appointment- Rights, Duties and Liabilities- Dismissal of Company Secretary.

UNIT-V (12 HOURS)

Companies Authorised to Register under companies act- Companies incorporated outside India- Government companies- National Company law tribunal and Appellate tribunal

TEXT BOOKS

1. Dr. G. K. Kapoor, Company Law (A Comprehensive Text Book on Companies Act, 2013), 18th Edition, Taxmann, New Delhi,2015.
2. N.D.Kapoor, Company Law and Secretarial Practice, 6th Edition, Sulthan Chand and Sons , New Delhi, 2015.

REFERENCE BOOKS

1. M.C.Kuchhal , Secretarial Practice ,Vikas Publishing House ,New Delhi,2002
2. Varma .M.M, Agarwal.S.P .R.K, Company Law and Secretarial Practice, 1st edition, Forward Book Depot Educational publishers, 1996.

B.Com (BPS) Degree Examination – Syllabus – for candidates admitted from the Academic Year 2016– 2017 onwards

**FOURTH SEMESTER
PART III – CORE XI- BANKING FOR BUSINESS PROCESS SERVICE – I**

Maximum CIA - 30

Maximum CE - 70

Total Hours: 60

Objective: To enable the students to learn the new concepts in Banking sector.

UNIT I (12HOURS)

Bank - Definition - Introduction to types of Banks : Commercial Banks - functions – Central Bank - functions - Credit Control- Methods adopted by Central Bank- State Bank of India- structure and functions - Co-operative Banks in India - Rural Banks - Commercial Banks role in rural financing - NABARD - Foreign Banks - Recent trends in Indian Banking – E-Banking – Core Banking – Universal Banking – Corporate Banking.

UNIT II (12HOURS)

Overview of Banking - Legal aspects of Banking - Risks and Control - Customer service - Customer complaints & Dispute Handling - Pricing Methodologies - Anti-Money Laundering - Know your Customer - Information Security.

UNIT III (12HOURS)

Account Origination - customer types - account types - Account servicing: Record maintenance- account closures- signature maintenance- check issuance and payment- Passbook- debit card - internet Banking - Mobile Banking-customer correspondence - ATM Management and services - challenges - White Label ATM- Payment system - Payment instruments - messaging and settlement - Retail wealth management- Investment objectives - Investment Avenues : Mutual funds - Equities - Bonds - Structured notes .

UNIT IV (12HOURS)

Cards - Overview of cards- Types - entities involved-overview on association- Card Transactions - Transaction cycle - STIP authorizations - Settlement: Settlement cycle - statement generation- Payment processing - Card operations - Card life cycle.

UNIT V (12HOURS)

Cards: Charge back & Dispute resolution - charge back lifestyle - Customer Service - roles and responsibilities - Fraud Management - Different methods of frauds - fraud prevention, detection and Investigation - Card collections, delinquency and recovery.

TEXT BOOKS: TCS MATERIALS

Pedagogy: Lecture, Seminar, PPT, Group Discussion.

B.Com (BPS) Degree Examination – Syllabus – for candidates admitted from the Academic Year 2016– 2017 onwards

FOURTH SEMESTER

PART III – CORE XII- MS OFFICE AND TALLY PRACTICAL

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Objective: On successful completion of this course, the student should be able to work efficiently in Ms-Word and Ms-Excel.

COMPUTER APPLICATIONS PRACTICAL– MSWORD AND TALLY 9.2

MS Word

1. Create the front page of a News Paper.
2. Type a document and perform the following:
 - i. Change a paragraph into two column cash book.
 - ii. Change a paragraph using bullets (or) numbering format.
 - iii. Find any word and replace it with another word in document.
3. Prepare a class time table using a table menu.
4. Prepare a mail merge for an interview call letter.
5. Create a resume wizard.
6. Design a cheque book of a bank.
7. Create a table with the following field name: EMP-no, Emp-name, designation, department, experience.

MS Excel

1. Develop the Students Mark List worksheet and calculate total, average and save it. Specify the Result also (Field names: S.NO, Name of the student, course, mark1, mark2, mark3, total, average and result).
2. Design a chart projecting the cash estimate of a concern in the forth coming years.
3. Create a Pivot table showing the performance of the salesmen's.

TALLY 9.2

1. Company Creation and Alteration
2. Creating and Displaying Ledger
3. Voucher Creation
4. Voucher Alteration and Deletion
5. Inventory Information – Stock Summary
6. Inventory Information – Godown Creation and alteration
7. Final Accounts
8. Bank Reconciliation Statement
9. Accounting and Inventory Information's
10. Bill wise Statements.

B.Com (BPS) Degree Examination – Syllabus – for candidates admitted from the Academic Year 2016– 2017 onwards

**FOURTH SEMESTER
IDC 4 – BUSINESS STATISTICS**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To enable students gain Fundamental Knowledge about the application of the Statistical concepts.

UNIT I (10 HOURS)

Introduction – Definition - Meaning and Scope of Statistics - Basic Concepts of Statistics - Collection of data - Classification and Tabulation - Presentation of data - Frequency Distribution.

UNIT II (12 HOURS)

Measures of Central Tendency – Introduction - Arithmetic Mean - Median and Mode - Geometric mean - Harmonic mean.

UNIT III (12 HOURS)

Measures of dispersion: Introduction – Range - Quartile deviation - Mean Deviation - Standard deviation and Co-efficient of Variation.

UNIT IV (12 HOURS)

Correlation - Karl Pearson's Coefficient of Correlation - Rank Correlation Regression - Regression equations -Relationship between Correlation & Regression.

UNIT V (14 HOURS)

Time Series - Meaning and Definition – Uses - Components of time series - Semi average method - Moving Average Method- Least square method. Index Numbers - Unweighted and Weighted Index numbers - Consumer Price Index numbers.

Note: The proportion of marks between theory and problems shall be 30% and 70% respectively.

TEXT BOOKS:

1. P.A. Navnitham, Business Mathematics and Statistics, Reprint 2014, Jai Publications, Trichy.
2. P.R.Vital, "Business Mathematics", Reprint 2013, Margham Publication, Chennai.

REFERENCE BOOK:

1. R.S.N. Pillai and Bagavathi, Statistics, Reprint 2012, S.Chand and Co, New Delhi.

B.Com (BPS) Degree Examination – Syllabus – for candidates admitted from the Academic Year 2016– 2017 onwards

**FOURTH SEMESTER
PART IV – AOC II – OFFICE MANAGEMENT AND DOCUMENTATION**

Maximum CE - 75

Total Hours: 36

Objective: The objective of the course is to impart knowledge about the office and documentation to be followed in the business.

UNIT - I (7 HOURS)

Office - Meaning- importance- Emerging trends - Concept of paperless office. Office management - Meaning- functions.

UNIT- II (8 HOURS)

Computer fundamentals – Concept - Components and types of computers. Operating system - Concept - functions- types. Managing files and folders – Internet – Basics – features- methods of access. Applications and benefits of Computerization and Internet in office.

UNIT-III (7 HOURS)

Office record management - Importance- filing essentials- modern methods of filing- modern filing devices- indexing system.

UNIT-IV (7 HOURS)

Office Information System - Concept- basic types and business applications. Planning and designing of Information System: System Development Life Cycle- Flow Charts. Office reports: Types of reports- report writing and précis writing.

UNIT - V (7 HOURS)

Office Correspondence - Types- centralized and decentralized correspondence- procedure of handling inward and outward correspondence- electronic communication.

TEXT BOOKS

1. Pillai R.S.N and Bagavath - Office Management- S. Chand and co.
2. Tanon B.N- Manual of Office Management and Correspondence- S. Chand and Co.

REFERENCE BOOKS

1. Computer Fundamentals And Office Automation: Vishal Verma, New Revised Syllabus w.e.f. 2008 PUNE, Maharashtra (INDIA) – Vision Publications.
2. Computer Basics with Office Automation- Archana Kumar (Author) Jan 2011:I.K.International Publishing House Pvt.Ltd.,

B.Com (BPS) Degree Examination – Syllabus – for candidates admitted from the Academic Year 2016– 2017 onwards

**FOURTH SEMESTER
PART IV – AOC II –CYBER LAW**

Maximum CE - 75

Total Hours: 36

Objectives: To enlighten the students' knowledge in the basic application of Cyber Law in E - Commerce.

UNIT – I (8 HOURS)

Cyber Law: Introduction- Concept of Cyberspace-E-Commerce in India-Privacy factors in E – Commerce – Cyber law in E-Commerce Contract.

UNIT – II (7 HOURS)

Security Aspects: Introduction-Technical Aspects of Encryption-Digital Signature - Data Security. Intellectual Property Aspects: WIPO-GII-ECMS-Indian Copyrights Act on Soft Propriety Works-Indian Patents Act on Soft Propriety Works.

UNIT – III (7 HOURS)

Evidence Aspects: Evidence as part of the Law of Procedures –Applicability of the Law of Evidence on Electronic Records-The Indian Evidence Act1872.Criminal Aspect: Computer Crime-Factors influencing Computer Crime- Strategy for Prevention of Computer Crime-Amendments to Indian Penal Code 1860.

UNIT – IV (7 HOURS)

Global Trends- Legal Framework for Electronic Data Interchange: EDI Mechanism-Electronic Data Interchange Scenario in India.

UNIT – V (7 HOURS)

The Information Technology Act 2000 -Definitions-Authentication of Electronic Records-Electronic Governance-Digital Signature Certificates.

TEXT BOOK

1. Dr.B.Kirubhashini & P.Kavitha, 1st Edition 2013, Nandhini Pathippagam, Coimbatore.

REFERENCE BOOKS

1. Aparna Viswanathan, Cyber Law Indian and International Perspectives, 2013, Lexis Nexis butterworth wadhwa, Nagpur.
2. Chander H, Cyber Laws and it Protection, Reprint 2012, PHI Learning Private Limited, New Delhi.
3. Suresh T.Viswanathan, The Indian Cyber Law, Reprint 2012, Bharat Law House, New Delhi.

B.Com (BPS) Degree Examination – Syllabus – for candidates admitted from the Academic Year 2016– 2017 onwards

**FOURTH SEMESTER
PART III - PRINCIPLES OF INTERNATIONAL TRADE**

Maximum CE-100

Objective :

To enable the students to learn principles and concepts of International Trade.

UNIT I (7 HOURS)

The global Economy – Perspective on the theory of International Trade – The importance of International trade – Counter Trade – Forms of Counter Trade – Reasons for Growth of Counter Trade – Global Trade and Developing Countries.

UNIT II (8 HOURS)

World Trade Organisation – GATT – Objectives-Evolution of WTO-Functions- Principles of WTO- Organisation structure- WTO agreements-GATS-TRIMS-TRIPS-Objectives of IPRS benefits-Limitations-Procedure of dispute settlement –WTO and anti dumping measures-Evaluation of WTO- drawbacks/Criticisms.

UNIT III (7 HOURS)

Tariff – Meaning – Tariffs, Taxes and Distortions – Imports Tariffs and Export Taxes – Export Subsidies – Arguments for free Trade – Arguments for protection – Demerits of protection – Trade barriers.

UNIT IV (7 HOURS)

International Investments – Types of Foreign Investment – significance of Foreign Investments – Limitations and Dangerous of Foreign Capital – Factors affecting International Investment – Foreign Investment by Indian companies.

UNIT V (7 HOURS)

Multinational Corporation – Definition and Meaning – Importance of MNCS – benefits of MNCs – Criticism – Globalizations – Meaning – stages – Essential conditions for Globalization – Implications and Importance of Globalization – Benefits – Obstacles to Globalization in India – Factors favoring Globalization.

TEXT BOOK

1. James R.Markusen, James R.Melvin, William H.Kaempfer & Keith E.Maskus, International Trade – Theory and Evidence, 2010.

REFERENCE BOOKS

1. Francis Cherunilam, International Trade and Export Management –PHI Learning Pvt. Ltd, 2009.
2. Francis Cherunilam, International Business, PHI Learning Pvt. Ltd, 2010.

B.Com [BPS] Degree Examination – Syllabus for Candidates admitted from the academic year 2017-2018 onwards

**FIFTH SEMESTER
PART III: CORE XIII- COST ACCOUNTING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

After the successful completion of the course the student should have a thorough knowledge on the cost accounting principles and the methods of accounting cost

UNIT I [12HOURS]

Cost Accounting – Definition – Meaning and Scope – Concept and Classification – Costing an aid Management — Types and Methods of Cost – Elements of Cost Preparation of Cost Sheet and Tender.

UNIT II [12HOURS]

Material Control: Levels of material Control – Need for Material Control – Economic Order Quantity – ABC analysis – Perpetual inventory – Purchase and stores Control: Purchasing of Materials Procedure and documentation involved in purchasing – Requisition for stores – Stores Control – Methods of valuing material issue.

UNIT III [12HOURS]

Labour: System of wage payment – Idle time – Control over idle time – Labour turnover. Overhead Classification of overhead – allocation and absorption of overhead.

UNIT IV [12HOURS]

Process costing – Features of process costing – process losses, wastage, scrap, normal process loss, abnormal loss, abnormal gain. [Excluding inter process profits and equivalent production].

UNIT V [12HOURS]

Operating Costing - Contract costing – Reconciliation of Cost and Financial accounts.

NOTE: Distribution of marks : Theory 40% and Problems 60%

TEXT BOOKS:

1. S.P. Jain and KL. Narang , “Cost Accounting”, Kalyani Publishers, New Delhi.Edn.2005
2. R.S.N. Pillai and V. Bagavathi , “Cost Accounting”,S. Chand and Company Ltd., NewDelhi.Edn.2004

REFERENCE BOOKS

1. Cost Accounting., Shukla M.C. and Grewal T.S.
2. A.Murthy and S.Gurusamy, “Cost Accounting”, Tata Mc GrawHill.Edn.

B.Com BPS Degree Examination – Syllabus for Candidates admitted from the academic year 2017-2018 onwards

FIFTH SEMESTER

PART-III: CORE XIV-MANAGING BUSINESS PROCESS SERVICES -I

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

To enable the students to know the Principles and Practice of Operations Management

UNIT I

[12 HOURS]

Process Definition – Identification of Business Process – Difference between Core, Process and Support Process – Components of Process Management – Understanding Internal Customer Vs End User- Kano Model

UNIT

[12 HOURS]

Role of BPO Industry in Process Management – Typical Business Processes Outsourced to India – BPO Operating Models – BPO Life Cycle

UNIT III

[12 HOURS]

Process Mapping Techniques – SIPOC – Swim Lane Diagram – Process Mapping Tools.

UNIT IV

[12 HOURS]

Introduction to Quality Management – Introduction to Quality Certifications – ISO 9001:2000, Customer Operation Performance Center (CPOC)- Capability Maturity Model (CMMI)- Quality System Audit (QSA)- Transaction Monitoring (TM)- Quality Assurance.

UNIT V

[12 HOURS]

Customer Management – Knowledge Management – Capacity Management – People Management – Transition Management – Finance Management.

TEXT BOOK

1. Hand book on Operations Management - Part I for Business Process Service

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FIFTH SEMESTER

PART III: CORE XV-RETAIL CPG AND MARKET RESEARCH

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

To impart knowledge about Modern Concepts of Marketing and Market Research

UNIT I

[12HOURS]

Meaning of Market-Evolution -Classification –Marketing-Marketing Concepts- Functions of Marketing-Classification of Goods: Consumer Goods, Industrial Goods- Concept of Consumer Packaged Goods (CPG) – CPG Industry –Global CPG Manufacturers-Consumer Behaviour and CPG-Influencers of CPG.

UNIT II

[12HOURS]

Marketing Mix- Product – Features – Classification –Product Planning- Product Mix,-New Product Development-Product Life Cycle-Pricing-Factors Affecting Pricing Decisions-Types of Pricing Strategies-Place – Supply Chain Management –Elements – Promotion: Branding – Private Labels-Advertising- Media Vehicles-Market Research and 4 P's.

UNIT III

[12HOURS]

Market Segmentation – Need for Segmentation - Segmentation Criteria- Types of Segmentation – Retail Marketing – CPG & MR Offerings- Input Services – Input Validation Offerings – Data Management - Reporting-Introduction to KPO Offerings .

UNIT IV

[12HOURS]

Primary Research - Secondary Research - Custom Study - Syndicated Study - Quantitative Research Methodology - Qualitative Research Methodology.

UNIT V

[12HOURS]

Consumer Research –Importance –Consumer Research Cycle-Research for New Product and Existing Product – Media Research – Importance –Types – Media Data - Retail Audit –Importance - Retail Data - Data Validation – Retail Audit Reports – Consumer Panels –Importance - Types of Consumer Panel.

TEXT BOOK

Hand Book on Retail, CPG and Market Research for Business Process Services, TCS.

REFERENCE BOOK:

1. Marketing Management – R.S.N Pillai, S Chand Publication, 2010 edition

B.Com BPS Degree Examination – Syllabus for Candidates admitted from the academic year 2017-18 onwards

**FIFTH SEMESTER
PART III: CORE XVI-INCOME TAX LAW AND PRACTICE**

**Maximum CIA: 30
Maximum CE: 70
Total Hours: 60**

OBJECTIVE:

After the successful completion of the course the student should have a thorough knowledge on the income tax norms and procedures.

UNIT I [12 HOURS]

Income Tax Act – Definition of Income – Assessment year – Previous Year – Assessee – Scope of Income – Charge of Tax – Residential Status – Exempted Income.

UNIT II [12 HOURS]

Heads of Income: Income from Salaries – Income from House Property.

UNIT III [12 HOURS]

Profit and Gains of Business or Profession – Income from Other Sources.

UNIT IV [12 HOURS]

Capital Gains – Deductions from Gross Total Income.

UNIT V [12 HOURS]

Set off and Carry forward of losses – Aggregation of Income- Computation of Tax liability – Assessment of Individuals.

NOTE: Distribution of Marks between theory and problem shall be 40% and 60% respectively.

TEXT BOOK:

1. Gaur and Narang, “Income Tax Law and Practice” Kalyani publishers New Delhi

REFERENCE BOOK:

1. Dr. HC Mehrotra, “Income-tax Law and Accounts” Sahithya Bhavan publishers

B.Com BPS Degree Examination – Syllabus for Candidates admitted from the academic year 2017-18 onwards

**FIFTH SEMESTER
PART III: CORE XVII-BANKING FOR BPS –II**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

After the successful completion of the course the student should have a thorough knowledge on the banking perspectives.

UNIT I

[12 HOURS]

Forms of credit-Principles of lending-Secured and unsecured loans-micro credit- Modes of Securing Advances – Lien, Hypothecation and Mortgages – Advances against Security- syndicated loans-corporate advances-receivable finance-supplier finance –commodity finance-Channel finance and bill finance and discounting.

UNIT II

[12 HOURS]

Mortgages-Purpose of mortgage loan-US mortgage-brief history-Federal regulation on borrower's right-Mortgage products-Mortgage schemes or programmes-Major parties in the mortgage industry-Mortgage loan cycle-Mortgage insurance-Mortgage frauds-Recent developments in mortgage industry.

UNIT III

[12 HOURS]

Introduction to trade-Various trade payment method-Role of bank in international trade-Documents in international trade-Guarantee /SBLC-types of guarantee-issuance, amendment, claim/settlement & cancellation.

UNIT IV

[12 HOURS]

Reimbursement-authorization, claim/ payment, irrevocable undertaking-Basics and outline of UCP 600, ISBP, URC 522, URR 725, URDG and ISP98-Value added services-after service-customer service [voice/non-voice], trade compliance, trade advisory, customer owner-Importance of trade finance professionals in banking services-Overview on specialized training course for CDCS certification.

UNIT V

[12 HOURS]

Payments overview and definition- brief overview on major kinds of payment system-clearing settlement cycle- various types of fund transfers- messaging- know your customer- corporate account-post account opening below is the product range services- Nostro account-Vostro account- risks and liquidity issues.

TEXT BOOK

1. TCS Material – Hand Book

FIFTH SEMESTER**PART III: ELECTIVE I- CAPITAL MARKET FOR BUSINESS PROCESS MANAGEMENT****Maximum CIA: 30****Maximum CE: 70****Total Hours: 60****OBJECTIVE:**

To enable the students to know the various concepts and techniques of Capital Markets

UNIT I**[12 HOURS]**

Meaning of Capital Market – Importance of Capital Market-Capital Market in India- Market Types – Primary & Secondary Market – OTC Vs Exchange Markets- Participants in a Trade - Trade Life Cycle - Business Process in TLC - Parties involved in TLC - Role of the Process - Master Agreement - Order Management - Trade Execution - Overview of regulators & Important regulations.

UNIT II**[12 HOURS]**

Meaning of Securities – Types of Securities - Equities - Preference Stock - Warrants LEAPS & LEPO - Types of Capital - Debt / Equity - Cost of Capital – Fixed Income & Govt. Securities - Introduction & Features - Classification - Cash Flow Pattern - Interbank Money Market - Repo & Types - Security borrowing. Types of Securities & Markets - Bankers Acceptance - US Treasuries - Bond Types & Interest Types - Inverse & Super Floater - Euro Currency Market - Types of Ratings – Concept of Interest calculation - Simple Vs Compounding - Day Count Basis - Risk Free Rate.

UNIT III**[12 HOURS]**

Meaning of Derivatives – Basics on Derivatives -Growth of Derivatives Market - Accounting Definition - Leverage - Asset Classes - General Types - Market Risk - Speculation - Pricing Principles - Hedging & Speculation - Forward - Hedging - Speculation - Performance Caselet – Futures Strategies, Future - Quotations & Terminologies - Trade Guarantee - Margining - SPAN Mechanism – EFRP – Swaps - CFD - Swap Vs Other Derivatives - Application of IRS - Currency Swaps– Options - Option Styles, Exposures, Pay offs - Non Linear & Linear - FX Option. Introduction – Types of Risk - Settlement & Clearing - Counterparty Credit Risk Management – Assessment of Credit Risk - Market Risk Management – Sovereign and Counter Part Risk.

UNIT IV**[12 HOURS]**

Mutual Fund Objectives & Industry Players - Responsibilities of Fund Accountant - Fund Expenses - NAV & Components - benefits of Mutual Funds – Transfer Agency - Overview of Transfer Agency - TA Activities ,Processing & Systems – Workflow – Meaning of Hedge Funds - Overview & Structure - Types & Classification - Understanding Hedge Funds - Hedge Fund strategies - Hedge Funds Vs Mutual Funds.

Meaning of Private Equity - Understanding Private Equity Operations - Fund Accounting & NAV calculations - Direct Private Equity Funds - Role of Private Equity - Fund of Fund and Structure - Realization & Investors in Private Equity - Private Equity Vs Hedge Funds - Performance Reporting - Reconciliations in Asset Management.

UNIT – V: Basics of Investment Banking

[12 HOURS]

Meaning of Investment Banking - Trade Life Cycle - Trade Capture & Booking - Trade Enrichment - Confirm / Affirm / Match - Allocation & Reporting - Position Reconciliation - Mark to Market & Margining – Clearing and Settlement - Clearing - Novation in Clearing - Netting - Settlement - Physical & Cash Settlement - Early Termination & Post Settlement - Statics Data - Security Identifier – Securities Lending - Legalities in Security Lending - Stockloan Fees - Prime Brokerage - Global Custody services - Risk Management , Advisory services& Consulting Services - Collateral Management – Need for Collateral Management - Multiple Complex and interrelated functions – Corporate Actions - Mandatory - Dividends - Stock splits - Spin offs - Mergers and Acquisitions - Return of Capital - Voluntary - Rights exercise - Tender offer - Corporate Actions : How they affect securities.

TEXT BOOK

Hand Book on Capital Markets for Business Process Services, TCS

REFERENCE BOOK:

Capital Markets – Dr. S Gurusamy 2nd Edition, 2009 Publication, Publisher: McGraw Hill Publication

B.Com BPS Degree Examination – Syllabus for Candidates admitted from the academic year 2017-18 onwards

FIFTH SEMESTER

PART III: ELECTIVE I-BRAND MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

On successful completion of the paper the students should understand the manufacturer's Perspective on their brands & retailing a product.

UNIT I [12 HOURS]

Brand Concepts- Basic understanding of brands- Evolution of brands- Characteristics & Functions- Types- Brands vs. Products- Branding- Factors affecting branding- Brand Management- Selecting a brand name- Co-branding- Brand Positioning.

UNIT II [12 HOURS]

Brand Management Decisions- Brand ambassadors- Brand as personality- Brand image building- Brand extension- Brand loyalty- Brand equity- Revitalization of brands- Brand architecture- Brand valuation- Building brands global- Issues & challenges.

UNIT III [12 HOURS]

Introduction to retail and Retail Formats- Introduction-Functions of Retailer - Retail as a Career - The Global Retail Market - Retail in India – Evolution - Size of Retail - FDI in retail - Challenges to development. Retail Models and Theories of Retail Development- Evolution of Retail Formats – Concept of Life Cycle – Business Models. Understanding the Retail Consumer-Need – Factors Influencing–Consumer Decision Making Process – Market Research.

UNIT IV [12 HOURS]

Retail Franchising & Merchandising- Retail Franchising: Concept – Evolution – Types – Franchising in India. Retail Store Location: Types – Steps Involved In Selecting Retail Location – Trading Area Analysis. Retail Store Design and Visual Merchandising. Retail Merchandising: Concept – Evolution– Factors Affecting - Role and Responsibilities - Merchandise Planning Process. Retail Pricing- Elements and Determining the Retail Price –Pricing Policies- Evaluating Merchandise Performance.

UNIT V [12HOURS]

Retail Marketing and Communication- Retail Marketing and Communication: Retail Marketing Mix – STP Approach – Retail Communication Mix – CRM in Retail – Supply Chain Management in Retail - Role of IT in Supply chain management.

TEXT BOOKS

1. Kevin Lane Keller, Strategic Brand Management, PHI/Pearson, New Delhi
2. SwapnaPradhan - Retailing Management Text and Cases, Tata McGraw Hill Co, 2007.

REFERENCE BOOKS:

1. JN Kapferer, The new strategic brand management, 4th edition, 2004.

B.Com BPS Degree Examination – Syllabus for Candidates admitted from the academic year 2017-18 onwards

FIFTH SEMESTER

PART III: ELECTIVE I-ORGANIZATIONAL BEHAVIOUR

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

On the Successful completion of this course, the students should have acquired knowledge in the Organizational Behaviour

UNIT I [12 HOURS]

Concept of Organizational Behaviour-Importance and Scope of Organizational Behaviour – Discipline Contributing to Organizational Behaviour- Concept of Behaviour- Individual Differences – Concept of IQ, EQ & SQ.

UNIT II [12HOURS]

Perception– Process- Personality – Determinants of Personality- Trait[Big Five Model, MBIT Model, Type A & B]- Motivation- Concept– Theories[Maslow’s, Equity & Theory X &Y] – Financial And Non – Financial Motivation – Techniques of Motivation. Attitude- Meaning- Concept of Value – Attitude change – Determinants of attitude change

UNIT III [12 HOURS]

Leadership - Styles – Theories [Trait, Managerial Grid, Life Cycle Theory] – Importance - Qualities and Characteristic of Leader –Morale – Importance – Factor’s Affecting Morale.

UNIT IV [12 HOURS]

Group Dynamics – Formation of group – Types – Concept - Group cohesiveness- Concept – Group Norm- Concept - Team Development- Types- Creation Process - Conflicts – Types – Managing Conflicts

UNIT V [12 HOURS]

Organizational Climate- Concept – Organizational Culture – Concept - Organizational Effectiveness – Concept – Organizational Development –Meaning, Process- Merits and Demerits- Counseling and Guidance – Types of Counseling – Information Needed for Counseling.

TEXT BOOKS

1. L. M. Prasad, “Organizational Behaviour”, Mc Graw Hill, 7th Edition 2006, New Delhi
2. Fred Luthans, “Organizational Behaviour”, Mc Graw Hill, 5th Edition, 2005, USA

REFERENCE BOOKS:

1. Stephen P. Robbins, “Organizational Behaviour”, P H I, 5th Edition, 2007, New Delhi.
2. Ramasami.N, “Organizational Behavior”, T.R.Publications, 6th Edition, 2008, Chennai

B.Com BPS Degree Examination – Syllabus for Candidates admitted from the academic year 2017-18 onwards

SIXTH SEMESTER

PART III: CORE XVIII-MANAGEMENT ACCOUNTING

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

On the Successful completion of this course, the students should have acquired knowledge in the management accounting principles

UNIT I [12 HOURS]

Management Accounting – Meaning – Objectives and Scope – Relationship between Management Accounting , Cost Accounting and Financial Accounting.

UNIT II [12 HOURS]

Ratio Analysis – Analysis of liquidity – Solvency and Profitability – Construction of Balance Sheet.

UNIT III [12 HOURS]

Working Capital – Working capital requirements and its computation – Fund Flow Analysis and Cash Flow Analysis.

UNIT IV [12 HOURS]

Marginal costing and Break Even Analysis – Managerial applications of marginal costing – Significance and limitations of marginal costing.

UNIT V [12 HOURS]

Budgeting and Budgetary control – Definition – Importance, Essentials – Classification of Budgets – Master Budget – Preparation of cash budget, sales budget, purchase budget, material budget, flexible budget.

Note: Distribution of marks: Theory 40% and Problems 60%

TEXT BOOKS

1. Dr. S.N. Maheswari. “Management Accounting”, Sultan Chand & Sons, New Delhi, 2004.
2. S.P. Jain and KL. Narang , “Cost and Management Accounting”, Kalyani Publishers, New Delhi.

REFERENCE BOOKS

1. Sharma and S.K.Gupta “Management Accounting”, Kalyani Publishers, New Delhi,2006.
2. S.K.Bhattacharya, “Accounting and Management”, Vikas Publishing House.
- 3.

B.Com BPS Degree Examination – Syllabus for Candidates admitted from the academic year 2017-18 onwards

SIXTH SEMESTER

PART-III: CORE XIX- PRINCIPLES OF AUDITING

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

After the successful completion of the course the student should have a thorough knowledge on the auditing principles and practices.

UNIT I [12 HOURS]

Auditing– Origin – Definition – Objectives – Types – Advantages and Limitations – Qualities of an Auditor – Audit Programmes.

UNIT II [12 HOURS]

Internal Control – Internal Check and Internal Audit –Audit Note Book – Working Papers. Vouching – Voucher – Vouching of Cash Book – Vouching of Trading Transactions – Vouching of Impersonal Ledger.

UNIT III [12 HOURS]

Verification and Valuation of Assets and Liabilities – Auditor’s position regarding the valuation and verifications of Assets and Liabilities – Depreciation – Reserves and Provisions – Secret Reserves.

UNIT IV [12 HOURS]

Audit of Joint Stock Companies – Qualification – Dis-qualifications – Various modes of Appointment of Company Auditor – Rights and Duties – Liabilities of a Company Auditor – Share Capital and Share Transfer Audit – Audit Report – Contents and Types.

UNIT V [12 HOURS]

Investigation – Objectives of Investigation – Audit of Computerised Accounts – Electronic Auditing – Investigation under the provisions of Companies Act.

TEXT BOOK

1. B.N. Tandon, “Practical Auditing” ,S Chand Company Ltd

REFERENCE BOOKS:

1. F.R.M De Paula, “Auditing-the English language Society and Sir Isaac Pitman and Sons Ltd,London
2. Spicer and Pegler, “Auditing: Khatalia’s Auditing” 4. Kamal Gupta, “Auditing “ , Tata Mcgriall Publications

**SIXTH SEMESTER
PART III: CORE XX-FINANCIAL MANAGEMENT**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE

The objective is to enable students to understand the basic concepts of Financial Management and the role of Financial Management in decision-making.

UNIT 1: [12 HOURS]

Introduction to financial management: Introduction – Meaning of Finance – Business Finance – Finance Function – Aims of Finance Function – Organization structure of finance - Financial Management – Goals of Financial Management – Financial Decisions – Role of a Financial Manager – Financial Planning – Steps in Financial Planning – Principles of a Sound Financial Planning.

UNIT 2: [12 HOURS]

Time value of money: Introduction – Meaning & Definition – Need – Future Value (Single Flow – Uneven Flow & Annuity) – Present Value (Single Flow – Uneven Flow & Annuity)– Doubling Period – Concept of Valuation – Valuation of Bonds & Debentures – Preference Shares – Equity Shares – Simple Problems.

UNIT 3: [12 HOURS]

Financing decision and investment decision: Financing Decisions: Introduction – Meaning of Capital Structure – Factors influencing Capital Structure – Optimum Capital Structure – EBIT – EBT – EPS – Analysis – Leverages – Types of Leverages – Simple Problems.

Dividend decision: Introduction – Meaning and Definition – Determinants of Dividend Policy – Types of Dividends Provisions under Companies Act in relation to dividends.

UNIT 4: [12 HOURS]

Investment Decisions: Introduction – Meaning and Definition of Capital Budgeting – Features – Significance – Process – Techniques – Payback Period – Accounting Rate of Return – Net Present Value – Internal Rate of Return – Profitability Index - Simple Problems

UNIT 5:

[12 HOURS]

Working capital management: Introduction – Concept of Working Capital – Significance of Adequate Working Capital – Evils of Excess or Inadequate Working Capital – Determinants of Working Capital – Sources of Working Capital –Cash Management – Receivables Management – Inventory Management.

NOTE: 60% Theory, 40% Problem

TEXT BOOK:

1. S N Maheshwari, Financial Management., Sultan Chand.
2. Khan and Jain, Financial Management, Tata McGraw Hill

REFERENCE BOOK:

1. R.M.Srivastava : Financial Management –Management and Policy, Himalaya Publishers.
2. Dr. K.V. Venkataramana, Financial Management, SHB Publications. 8. Sudhindra Bhatt: Financial Management, Excel Books.

B.Com BPS Degree Examination – Syllabus for Candidates admitted from the academic year 2017-18 onwards

SIXTH SEMESTER

PART III-ELECTIVE II- MANAGING BUSINESS PROCESS SERVICE-II

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

To enable the students to know the problem solving techniques and process improvements of Operations Management.

UNIT I [12 HOURS]

Problem Solving Techniques - Process Solving Steps Containment Action –Why Why analysis – Benefits – Significance -Steps to Complete the 5 whys-7QC Tools for Simple Problem Solving – Histograms- Cause and Effect Diagram- Check Sheets - Pareto Diagrams – Graphs- Control Charts – Scatter Diagram- Failure Mode and Effects Analysis

UNIT II [12 HOURS]

New QC Tools- Relations Diagram- Tree Diagram- Arrow Diagram- Affinity Diagram- Matrix Diagram- Matrix Data Analysis Diagram- Process Decision Programming Chart(PDPC)

UNIT III [12 HOURS]

Six Sigma Methodology Overview – Six Sigma Organization - Six Sigma - Project Methodology- Sampling.

UNIT IV [12 HOURS]

Introduction to Lean – Lean Evolution – Principles – 8 Types of Waste (TIMWOODS) – Kaizen - Lean Tools – Value Stream Mapping – Poke Yoke – Difference between Pull system and Push system – 5S Principles.

UNIT V [12 HOURS]

Introduction to Risk Management – Risk Factors – Information Security Awareness – Fraud Management – Password and Identity Management – Business Continuity Plan.

TEXT BOOK

Handbook of TCS.- Part II, Business Process Services, TCS

SIXTH SEMESTER

PART III-ELECTIVE II- INVESTMENT MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

To explain the concept of investments with special reference to securities market.

UNIT I

[12HOURS]

Investment – Meaning – Nature – Types – Features – Factors Influencing Investments – Risk and Return – Financial Markets – Financial Institutions.

UNIT II

[12HOURS]

Capital Market and Stock Exchange in India – Structure – Primary Markets and Secondary Markets – Mechanics of Trading – SEBI and Its Role.

UNIT III

[12HOURS]

Investment Alternatives: Bonds – Preference and Equity Shares – LIC – UTI – Mutual Funds – National Saving Scheme.

UNIT IV

[12HOURS]

Fundamental and Technical Analysis and Evaluation: Economic Analysis – Industrial Analysis – Company Analysis – Technical Analysis.

UNIT V

[12HOURS]

Portfolio Analysis and Management – Scope – Types – Portfolio Evaluation – Portfolio Selection – Portfolio Revision.

Distribution of marks: 80%for Theory, 20% for Problem

TEXT BOOKS

1. Dr. Preeti Singh- Investment Management- Himalaya Publishing House Pvt.
2. Investment Management , V.K.Bhall, 2007 Edition, S. Chand and Co.

REFERENCE BOOKS

1. Alexander- Gordon J. and Sharpe, William, Fundamental of Investment, Prentice Hall Inc- Englewood Cliffs [Pearson Education] 1989, New Jersey.
2. Ballad- V. K, Investment Management Security Analysis and Portfolio Management, 8th Edition- Sulthan and Chand, 2005, New Delhi

SIXTH SEMESTER

PART III-ELECTIVE II- SUPPLY CHAIN MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE: To explain the concept of supply chain management

UNIT I [12HOURS]

Concept of supply chain: Integrated supply chain- Growth of Supply chain- Strategic decision in supply chain.-Scope of Supply Chain Management-Supply Chain Management as a Management Philosophy-Function of SCM-Value chain for Supply Chain Management.

UNIT II [12HOURS]

SCM Strategies Performance: Supply chain strategies- achieving strategic fit- value chain- Supply chain drivers and obstacles- Strategic Alliances and Outsourcing- purchasing aspects of supply chain- Supply chain performance measurement: The balanced score card approach- Performance Metrics- Planning demand and supply- Demand forecasting in supply chain- Aggregate planning in supply chain- Predictable variability.

UNIT III [12HOURS]

The role of IT in Supply chain :Uses of IT in inventories- transportation & facilities within a supply chain -The Supply Chain It frame Work-macro Processes- Advent of internet business technologies-Supply chain information System Design –Planning , Capacity ,Performance requirement manufacturing requirement ,Operation , Transportation ,Inventory development .E-Business –Role in Supply chain, Framework ,Impact on Cost

UNIT IV [12HOURS]

Integrating Impact of IT integrated SCM: Infrastructure- impact of e-commerce-framework for IT integrated SCM- Impact of integrating IT with SCM-Decision support systems for SCM- introduction DSS, Components, types, processing information, specific types of DSS-Information Technology (IT) Support System for Effective Supply Chain Decision Making.

UNIT V [12HOURS]

The future of IT in the Supply Chain: Internal Supply Chain management- Supply relationship management- The Transaction Management Foundation -Data mining –Methods application area in supply chain

TEXT BOOK:

1. Supply Chain Management: Author: Peter Meindl, Sunil Chopra,2000.

REFERENCE BOOK:

1. Essentials of supply chain management: Author:Michael H.Hugos,2003.

B.Com BPS Degree Examination – Syllabus for Candidates admitted from the academic year 2017-18 onwards

**SIXTH SEMESTER
PART III – ELECTIVE III- WORKING CAPITAL MANAGEMENT**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

To educate the importance of Working Capital Management concepts.

UNIT I [12 HOURS]

Working Capital Management – Meaning – Concept – Classification – Factors – Principles – Importance – Needs – Determinants - New trends in Working Capital.

UNIT II [12 HOURS]

Financing of working capital – Money market instruments – Bank Finance – Managing corporate liquidity and financial flexibility.

UNIT III [12 HOURS]

Receivables Management – Meaning – factors – Forecasting – Objectives – Dimensions – Executing Credit Policy.

UNIT IV [12 HOURS]

Cash Management – Inventory Management.

UNIT V [12 HOURS]

Working Capital Control and Banking policy –Working capital Requirements for Various Industries – New system of assessment of working capital finance.

TEXT BOOK

1.V.K.Bhalla, Working Capital Management, Text and Cases, sixth edition, Anmol publications

REFERENCE BOOKS

1. Prasanna Chandra, Financial Management, Theory and Practice, Tata McGraw Hill

2. Khan and Jain, Financial Management, Tata McGraw hills

B.Com BPS Degree Examination – Syllabus for Candidates admitted from the academic year 2017-18 onwards

**SIXTH SEMESTER
PART III – ELECTIVE III- NETWORK MANAGEMENT**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

Enabling Students to Acquire Theoretical knowledge in fundamental concepts of data communications.

UNIT I [12 HOURS]

Data Communication Concepts and Applications-Components of Data Communications- Trends in Computer Communications and Networking- Network Applications.

UNIT II [12 HOURS]

Fundamentals of Data Communications and Networking- Architectures- Devices and Circuits- Data Link Layer-Media Access Control, Error Control in Networks.

UNIT III [12 HOURS]

Networking- Network Layer and its Protocols- Network Addressing and Routing- Local Area Network [LAN]- LAN Components-Selecting a LAN- Improving LAN Performance.

UNIT IV [12 HOURS]

Back Bone Networks- Backbone Network Components-FDDI- Metropolitan Area Network [MAN] and Wide Area Network [WAN]

UNIT V [12 HOURS]

Network Management- Designing of Business Networks- Network Security.

TEXT BOOK

1. Jerry, Fitzgerald And Alan,Dennis,Business Data Communications and Networking, John Wiley & Sons, 2002.
- 2.Bagad V.S and Dhotre I.A, Computer Networks,1 st Edition, TCH publications Pvt Ltd, 2003.

REFERENCE BOOKS

1. Tanenbaum A. S., Computer Networks. Pearson Education, 2004.
2. David A Stamper , Business Data Communications, Addison Wesley, 2003.

B.Com BPS Degree Examination – Syllabus for Candidates admitted from the academic year 2017-18 onwards

SIXTH SEMESTER

PART III – ELECTIVE III-INDIAN STOCK EXCHANGE

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

On successful completion of this paper the students should have gained knowledge about Stock Exchanges, SEBI, Internet stock trading and Internet Stock Trading.

UNIT I [12 HOURS]

Stock Exchange-Meaning and Functions –Indian Stock Exchanges-Origin and Growth-Organization Structure-Mode of Organization-Membership-Stock Exchange Traders – Stock Exchange Trading-Jobbers Vs. Brokers-Stock Exchange Dealings.

UNIT II [12 HOURS]

Trading in stock exchange- Listing-Meaning, Characteristics, Steps, Legal provisions, Benefits, Consequences of Non-Listing – Delisting – Insider Trading – Speculation- Speculation Vs. Gambling-Investors Vs Speculators – Investor Protection.

UNIT III [12 HOURS]

Stock Exchange Regulatory Framework-Under the SEBI Act, BSCC Act, Defence of India Rules, Capital Issues Control Act 1947, Securities Contract Act 1956, Securities Contracts Rules 1957 – Profile of Indian Stock Exchanges-BSE,NSE, etc.,

UNIT IV [12 HOURS]

The Securities Contracts (Regulation) Act, 1956-Important provisions – SEBI-Functions and working. Restructuring Indian Stock Exchanges-Demat.

UNIT V [12 HOURS]

Internet Stock Trading-Meaning and features-Current Scenario-Regulating Internet Stock Trading-IPOs on the Internet-e-IPO – E-commerce Act and Internet Stock Trading – Stock Index Futures

TEXT BOOKS

1. Dr.S.Gurusamy , Financial Services and Markets, 2nd edition, Vijay Nicole Imprints (P) Ltd, Chennai.
2. . Khan.M.Y , Financial Service, 5th edition, Tata Mc Graw-Hill Publishing Company Limited, 2000, New Delhi.

REFERENCE BOOKS

1. Dr.D.Joseph Anbarasu & Others, Financial Services, Sultan Chand & Sons, 2002, New Delhi.
2. Bhole.L.M, Financial Institutions and Markets, 2nd edition, Tata McGraw – Hill Publishing Company Limited, 1998, New Delhi.

**VLB JANAKIAMMAL COLLEGE OF ARTS AND SCIENCE
(AUTONOMOUS)
B.Sc., COSTUME DESIGN AND FASHION
Scheme of Examination (CBCS Pattern)
For the Candidates admitted during the academic year 2018-2019**

Part	Sub Code	Subject Title	Ins. Hrs/Week	Examination				
				Dur.Hrs.	CIA	CE	Total	Credit
SEMESTER I								
I	16LATA01/ 18LAHI01/ 15LAMY01 /15LAFR01	Language- I Tamil I/Hind I/Malayalam I/French I	5	3	30	70	100	3
II	16ENG001	English -I	5	3	30	70	100	3
III	17CDF101	Core Paper – I Basics of Apparel Designing	5	3	30	70	100	4
III	16CDFP01	Core Practical – I Basics of Apparel Designing	5	3	25	50	75	3
III	16CDF102	Core Paper – II Fundamentals of Pattern Making	4	3	30	70	100	4
III	16CDFID1	IDC – I Illustration Technique Practical	4	3	25	50	75	3
IV	18UFCA01	Foundation Course I EVS#	2	2	-	50	50	2
Total			30				600	22
SEMESTER II								
I	16LATA02/ 18LAHI02/ 15LAMY02 /15LAFR02	Language- II Tamil II/Hind II/Malayalam II/French II	5	3	30	70	100	3
II	16ENG002	English -II	5	3	30	70	100	3
III	16CDFP02	Core Practical -II – Customer Oriented Sketching	6	3	25	50	75	3
III	16CDFP03	Core Practical – III- Kids Garment Production	5	4	25	50	75	3
III	16CDF201	Core Paper – III Finished Textiles Maintenance	3	3	30	70	100	4
III	16CDFID2	IDC – II Sewing Operation System	4	3	30	70	100	4
IV	18UFCA02	Foundation Course II Value Education#	2	2	-	50	50	2
IV	16CDFPR1	15 days Internship in any Apparel Unit	-	-	-	-	-	-
Total			30				600	22
SEMESTER III								
III	16CDF301	Core Paper -IV – Indian Historic Costumes and Textiles	4	3	30	70	100	4
III	16CDF302	Core Paper –V- Fashion Art	5	3	30	70	100	4
III	16CDFP04	Core Practical – IV Fashion Art	4	3	25	50	75	3
III	16CDF303	Core Paper- VI- Fiber to Fabric	4	5	30	70	100	4
III	16CDFP05	Core Practical – V – Fiber to Fabric	5	3	25	50	75	3
III	16CDFID3	IDC – III Fashion and Clothing Psychology	3	3	30	70	100	4
IV	16CDFAO1/ 16CDFAO2	AOI Basic Draping Practical/ Interior Designing Practical	3	3	-	75	75	3
IV	16BTA001/ 16ATA001/ 16CDFED1	EDC1:BT/AT/ Basics of Photography #	2	2	-	50	50	2
Total			30				675	27

SEMESTER IV								
III	16CDF401	Core Paper –VII- Fabric Structure and Design	5	3	30	70	100	4
III	16CDFP07	Core Practical – VII Fabric Structure and Design.	3	3	25	50	75	3
III	16CDF402	Core Paper- VIII- Textile Processing	4	3	30	70	100	4
III	16CDFP08	Core Practical – VIII – Textile Processing	4	3	25	50	75	3
III	16CDFP06	Core Practical –VI- Women’s Garment Production	5	4	25	50	75	3
III	16CDFID4	IDC – IV Surface Embellishments Practical	4	3	25	50	75	3
IV	16CDFAO3/ 16CDFAO4	AOC II Garment Quality and Cost Control/Beauty Care	3	3	-	75	75	3
IV	16BTA002/ 16ATA002/ 15EDC002	EDC 2: BT/AT/ Communicative English #	2	2	-	50	50	2
V	15NCC001/ 15NSS001/ 15SPT001/ 15EXT001	NCC/NSS/Sports/Extension Activity	-	-	50	-	50	2
IV	16CDFPR2	15 days Internship in any Apparel Processing Unit	-	-	-	-	-	-
Total			30				675	27
SEMESTER V								
III	16CDF501	Core Paper –IX- Visual Merchandising	6	3	30	70	100	4
III	16CDF502	Core Paper– X Computers in the Garment Industry	6	3	30	70	100	4
III	16CDFP09	Core Practical –IX- Men’s Apparel Production	8	4	25	50	75	3
III	16CDFP10	Core Practical - X- Computer Aided Design- I	6	3	25	50	75	3
III	16CDFE01/ 16CDFE02/ 16CDFE03	Elective I Functional Clothing / Fashion Promotion / Home Furnishings.	4	3	30	70	100	4
Total			30				450	18
SEMESTER VI								
III	16CDF601	Core Paper– XI Fundamental of Knitting	5	3	30	70	100	4
III	16CDFP12	Core Practical - XII- Fundamental of Knitting	5	3	25	50	75	3
III	16CDFP11	Core Practical –XI-Computer Aided Design -II	6	3	25	50	75	3
III	16CDFE04/ 16CDFE05/ 16CDFE06	Elective II Apparel Marketing / Apparel Production Management/ Fashion Merchandising and Marketing.	4	3	30	70	100	4
III	16CDFE07/ 16CDFE08/ 16CDFE09	Elective III Organization of Garment Unit / Export Analysis and Documentation /Apparel Quality Management.	4	3	30	70	100	4
III	16CDFPR3	PROJECT- Fashion Port folio Presentation	6	3	75	75	150	6
Total			30				600	24
Grand Total							3600	140

No Continuous Internal Assessment (CIA), only Comprehensive Examination (CE)

@ No Continuous Internal Assessment (CIA), only Comprehensive Examination (CE)

IDC – Inter Disciplinary Course, EDC – Extra Disciplinary Course, AOC – Application Oriented Course.

List of Additional Credit Papers

Sem	Sub Code	Subject Title	Credits
III	16CDFAC1	Retail Management	2
IV	16CDFAC2	Industrial Technology	2
V	16CDFAC3	Quality Research	2

List of AOC Papers

Sem	Sub Code	Subject Title
III	16CDFAO1/ 16CDFAO2	Basic Draping Practical/ Interior Designing Practical
IV	16CDFAO3/ 16CDFAO4	Garment Quality and Cost Control/ Beauty care

LIST OF ELECTIVE PAPERS

SUBJECT CODE	SUBJECT TITLE
16CDFE01	Functional Clothing
16CDFE02	Fashion Promotion
16CDFE03	Home Furnishings
16CDFE04	Apparel Marketing
16CDFE05	Apparel Production Management
16CDFE06	Fashion Merchandising and Marketing
16CDFE07	Organization of Garment Unit
16CDFE08	Export Analysis and Documentation
16CDFE09	Apparel Quality Management.

Summary

Part	No of papers	Total Credits	Total Marks
I	2	6	200
II	2	6	200
III – Core	23	80	2000
III - IDC	4	14	350
III - Elective	3	12	300
III- Project	1	6	150
IV – Foundation Course	2	4	100
IV – EDC	2	4	100
IV – Application Oriented Course	2	6	150
V Extension Activities	-	2	50
Total	41	140	3600

REGULATIONS FOR BOARD OF B.Sc (CD&F)
(Effective from the academic year 2016-2017 onward)

1. Project and viva voce

Each student in the UG final year shall compulsorily undergo project work in the 6th semester. Projects shall be done individually. Project Coordinators shall allocate the project title and to guide for each. Project work shall be done in the Industry specified in the syllabus and project record presentation has evaluated by the External examiner in the college. Viva-voce shall be conducted only in the presence of Industrialists or Academicians. Out of the total of 150 marks, 50% of mark shall be allocated for CIA and 50% for CE VIVA VOCE.

2. Submission of Record Note Books for practical examination

Candidates appearing for practical examination shall submit bonafide Record Note Books prescribe for practical examinations. If not the candidates has to submit a bonafide certificate issued by the concerned subject in charge duly signed by the head of the department. In such case, the record marks will not be provided.

3. Distribution of marks

The following are the distribution of marks for Comprehensive Examinations and CIA for Theory and Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal marks	Overall passing minimum (Internal+ CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	28	30	40
	75	75	30	-	30
	50	50	20	-	20
Practical Paper	75	50	20	25	30
Project	150	75	30	75	60

4. Distribution of Internal Mark for Theory

(No Passing Minimum for CIA)

S.No	CIA	Distribution of Marks
1	Pre Model Examination	70
2	Model Examination	70
3	Seminar	30
4	Attendance	10
	Total	180/6 (months)=30

Seminar

S.No	SEMINAR SPLIT UP	Marks
1	Content	10
2	Flow of the presentation	10
3	Stage management and Body language	10
	Total	30

Breakup for Attendance

65%-74%	-4 Marks
75%-80%	-6 Marks
81%-90%	-8 Marks
91%-100%	-10 Marks

5. Distribution of Internal Mark for Practical

MAXIMUM MARKS 25		
S.No	CIA	Distribution of Marks
1	For the Completion of the Practical List	15
2	Test - I	5
3	Test-II	5
Total		25

6. Distribution of Comprehensive Exam Mark for Practical

MAXIMUM MARKS 50		
S.No	Comprehensive Examination	Distribution of Marks
1	Record	10
2	Designing	20
	Construction	20
Total		50

7. Distribution of Mark for Project VIVA – VOCE

S.No	CIA	Distribution of Marks
1	INTERNAL	
	Review –I	20
	Review –II	20
	Documentation & Final Review	35
		Total (75)
2	EXTERNAL *	
	Presentation	45
	Viva	30
		Total (75)
Total		150

*Marks to be awarded by both External and Internal Examiners.

8. Question Paper Pattern

Time 3 Hour

Max marks 70

SECTION –A (10x1 =10)
Answer all questions
Each question carries ONE mark
(NO CHOICE)

Ten multiple choice questions

SECTION –B (5x4 =20)

Answer all questions

Each question carries FOUR marks

(INTERNAL CHOICE)

SECTION –C (5x8 =40)

Answer all questions

Each question carries EIGHT marks

(INTERNAL CHOICE)

9. Question Paper Pattern

Time 3 Hour

Max marks 75

SECTION –A (10x1 =10)

Answer all questions

Each question carries ONE mark

(NO CHOICE)

Ten multiple choice questions

SECTION –B (5x5 =25)

Answer all questions

Each question carries FIVE marks

(INTERNAL CHOICE)

SECTION –C (5x8 =40)

Answer all questions

Each question carries EIGHT marks

(INTERNAL CHOICE)

10. Question Paper Pattern

Time 3 Hour

Max marks 100

SECTION –A (10x1 =10)

Answer all questions

Each question carries ONE mark

(NO CHOICE)

Ten multiple choice questions

SECTION –B (5x8=40)

Answer all questions

Each question carries EIGHT marks

(INTERNAL CHOICE)

SECTION –C (5x10 =50)
Answer all questions
Each question carries TEN marks
(INTERNAL CHOICE)

NOTE

1. The question should be numbered continuously running through the section A, B and C.
2. Question should be evenly distributed among the unit in the syllabus in all the sections of the question paper.
3. While framing questions with internal choice the question must be identify as (a) or (b). (E.g.11.a or b). Further, the internal choice must be from the same unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chair persons of the respective Board of Studies.

10. Conduct of Practical Examination

Practical Examination shall be conduct with one Internal Examiner and one External examiner and the question paper for External examiner and the question paper for Practical examination shall be set by both Internal both External examiner.

11. Industrial Training

The student has to go for Industrial Training to specified in the syllabus for a minimum period of 15 days at the end of the II and IV Semester and has to submit the Report during the III and V Semester and the Report is adjudicate with External examiners. The results are given as Complete or Incomplete.

B.Sc. CDF (Costume Design and Fashion) Degree Examination- syllabus for Candidates admitted From the Academic year 2016-2017 Onwards

**FIRST SEMESTER
CORE PAPER-I BASICS OF APPAREL DESIGNING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objectives: To enable the students to gain basic knowledge about the tools and different parts of the apparel.

UNIT-I (12 HOURS)

Parts and functions of a single needle machine, essential tools – cutting tools, measuring tools, marking tools, general tools, pressing tools, seams and seam finishes – types, working of seams and seam finishes Hems – types, stitches used.

UNIT-II (12 HOURS)

Fullness- definition, types. Darts, tucks, pleats, flares and gadgets, gathers and shirrs, frills or ruffles, flounces, facings – bias facing, shaped facing and decorative facing. Binding – single bias binding, double bias binding.

UNIT – III (12 HOURS)

Plackets – definition, characteristics of a good placket, types – inconspicuous placket and conspicuous plackets. Method of constructing the same. Fasteners – conspicuous (Button and button-holes, button loops, button with holes, shank buttons, eyelets and cords). Inconspicuous (press, buttons, hooks and eyes, zips).

UNIT – IV (12 HOURS)

Sleeves – definition, types, set-in-sleeves – plain sleeve, puff sleeve, bishop sleeve, bell, circular. Modified armhole – squared armhole. Cap sleeve and Magyar sleeve. Sleeve and bodice combined – raglan, kimono and dolman. Yokes – types, simple yoke, yoke with fullness within the yoke, yoke supporting.

UNIT-V (12 HOURS)

Collars – definitions, types, peter pan, scalloped, puritan, sailor, square, rippled, full shirt collar, open collar, Chinese, turtle neck, shawl collar pockets – types – patch pocket, bound pocket, pocket in a seam, front hip pocket.

Text Book:

1. Practical Clothing Construction – Part I and II, Mary Mathews, Cosmic Press, Chennai (1986)

Reference Books:

1. The Complete Book of Sewing – Dorling Kindersley Limited, London (1986)
2. Sewing and Knitting – A Readers Digest, step- by – step guide, Readers Digest Pvt Ltd, Australia.

FIRST SEMESTER

CORE PRACTICAL-I BASICS OF APPAREL DESIGNING

Maximum CIA: 25

Maximum CE: 50

Total Hours: 60

Objectives: To enable the students to gain practical knowledge about preparation of basic parts of apparel.

1. Preparation of samples for seam (any 5)-plain, Top Stitched, Flat fell, piped seam.
2. Preparation of samples for seam finishes (any 3) - overcast, Hem, Edge stitched, bound.
3. Preparation of samples for fullness-darts, tucks (any 3)-pin, cross, group tucking with scalloped effect, Pleats (any 3)-knife, box, kick, gathering by machine, elastic. Ruffles-single, double.
4. Preparation of samples for facing and binding-bias facing, shaped facing, binding.
5. Preparation of samples for plackets and fasteners-continuous, bound, faced and zipper plackets, button and buttonhole, press button, hook and eye.
6. Preparation of samples for sleeves-plain sleeve, puff sleeve (any one type), raglan or cap sleeve.
7. Preparation of samples with yoke –simple yoke, yokes supporting fullness.
8. Preparation of samples for collar - peter pan collar , shirt collar,
9. Preparation of samples for pocket-patch pocket

Text Book:

1. Practical Clothing Construction – Part I and II, Mary Mathews, Cosmic Press, Chennai (1986)

Reference Books:

3. The Complete Book of Sewing – Dorling Kindersley Limited, London (1986)
4. Sewing and Knitting – A Readers Digest, step- by – step guide, Readers Digest Pvt Ltd, Australia.

B.Sc. CDF (Costume Design and Fashion) Degree Examination- syllabus for Candidates admitted from the Academic year 2016-2017 Onwards.

FIRST SEMESTER

CORE PAPER-II FUNDAMENTALS OF PATTERN MAKING

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objectives: To enable the student to gain fundamental knowledge about the methods of pattern making

UNIT-I (12 HOURS)

Body measurement –importance, preparing for measuring, ladies measurements, boys and men’s measurements. Standardizing body measurements –importance, techniques used. Relative length and girth measures in ladies /gentlemen Preparation of fabric for cutting – importance of grain in cutting and construction, steps in preparing the fabric for cutting.

UNIT-II (12 HOURS)

Pattern making –method of pattern making – (Drafting and draping), merits and demerits. Types of paper patterns (Patterns for personal measurements and commercial patterns) Principles of pattern drafting. Pattern details, steps in drafting basic bodice front and back and sleeve.

UNIT-III (12 HOURS)

Styles created by shifting of blouse darts , adding fullness to the bodice, converting darts to seam and partial yokes and incorporating darts in to seams forming yokes. Fitting - Standards of a good fit, steps in preparing a blouse for fitting, checking the fit of a blouse, solving fitting problems in a blouse, fitting techniques.

UNIT- IV (12 HOURS)

Pattern alteration –importance of altering patterns, general principles for pattern alteration, common pattern alteration in a blouse. Pattern grading –definition, types, manual –master grades, basic front, basic back basic sleeve, basic collar and basic grading.

UNIT-V (12 HOURS)

Pattern layout- definition, purpose, rules in layout, types of layouts for length wise stripped designs, fabric with bold design, asymmetric designs, one way designs. What can be done if cloth is insufficient , fabric cutting ,transferring pattern marking, stay stitching, ease stitching.

Text Book:

1. Zarapker system of cutting –zarapker. K. r., Navneet publications Ltd.

Reference Books:

1. Practical clothing construction -part I and part-II Mary Mathews, cosmic press Chennai (1986)
2. Pattern Grading for women’s clothing, the technology of sizing –Gerry cooklin, Blackwell Science Ltd (1990)

B.Sc. CDF (Costume Design and Fashion) Degree Examination- syllabus for Candidates admitted from the Academic year 2016-2017 Onwards.

FIRST SEMESTER

IDC I - ILLUSTRATION TECHNIQUE – PRACTICAL

Maximum CIA: 25

Maximum CE: 50

Total Hours: 60

Objectives: To enable the student to develop practical skill towards the illustration technique

1. Lines and line drawings – object drawing and perspective view drawings, enlarging and reducing motifs.
2. Drawing a stick figure for both normal and fashion figure. Forming a fleshy figure over a stick figure.
3. Dividing the figure into various parts using lines like plumb line, center front line, Princess line, waistline, side seam, armholes, jewel neckline, panty line, bust line etc., practicing the art of creating textures.
4. Illustrating pattern details- pockets, sleeves, yokes, skirts, trousers, tops etc., Illustrating different type of ornaments and accessories.
5. Illustrating details of ruffles, cowls, shirring, smocking, quilting, draping, gathers, pleats, frills and flounces.

Text Books:

1. Fashion Design Drawing & Presentation, Ireland Patrick John.
2. Fashion design Illustration: Children, Ireland Patrick John,

Reference Books:

1. Fashion Design Illustration : Men, Ireland Patrick John
2. Fashion Design illustrations, Ritu
3. Foundation in fashion design and illustration – Julian Seaman.

B.Sc. CDF (Costume Design and Fashion) Degree Examination- syllabus for Candidates admitted from the Academic year 2016-2017 Onwards.

**SECOND SEMESTER
CORE PRACTICALS -II CUSTOMER ORIENTED SKETCHING**

Maximum CIA: 25

Maximum CE: 50

Total Hours: 60

Objectives: To enable the students to get practice to satisfy the customer need through sketching

1. Developing illustrations from the pictures of magazine:

Analyzing a normal figure into fashion figure – front face to be done using pictures from Magazines.

2. Creating illustrations with various garment styles for Men, Women and Children – for casual wear, party wear and sportswear.

3. Drawing the stylized figures of Men, Women and Children (using 10 heads or 12 heads).

4. Drawing garments for different seasons – summer, winter, autumn and spring – for Men, Women and Children.

5. Men and Women illustration on the background of party and office, children illustration on the background of party and picnic.

Text Books:

1. Fashion Design Drawing & Presentation, Ireland Patrick John.
2. Fashion design Illustration: Children, Ireland Patrick John,

Reference Books:

1. Fashion Design Illustration : Men, Ireland Patrick John
2. Foundation in fashion design and illustration – Julian Seaman.
3. Fashion Sketch Book, Fair child publication, New York

B.Sc. CDF (Costume Design and Fashion) Degree Examination- syllabus for Candidates admitted from the Academic year 2016-2017 Onwards

**SECOND SEMESTER
CORE PRACTICAL –III KIDS GARMENT PRODUCTION**

Maximum CIA: 25

Maximum CE: 50

Total Hours: 60

Objectives: To enable the student to gain practical knowledge to produce kids garments.

Designing, drafting and constructing the following garments for the features Prescribed

List the measurements required and materials suitable calculate the cost of the garment

Calculate the material required-Layout method and direct measurement Method

1. Bib- Variation in outline shape
2. Panty-plain or plastic lined panty
3. Jabla- without sleeve, front open (or) Magyar sleeve, back opens
4. Baba suit- knicker with chest piece attached (or) Romper
5. A-Line petticoat- double pointed dart, neck line and arm hole finished with Facing (or) petticoat with gathered waist
6. Summer frock- with suspenders at shoulder line, without sleeve/collars (or) Angel top with raglan sleeve, fullness at neck line
7. Yoke frock- yoke at chest line, with open, puff sleeve, gathered skirt9OR0 frock-with collar, without sleeve, gathered/ circular skirt at waist line(or) Princess line frock
8. Knicker- elastic waist, side pockets
9. Shirt- open collar, with pocket

Text Book:

1. Zarapker System of Cutting- Zarapker. K. R, Navneet Publications ltd.

Reference Books:

1. Practical Clothing Constructing-Part I and II, Mary Mathews, Cosmic Press, Chennai (1986)
2. Practical cutting and tailoring part II Eshwasri Anwahi, Lakhranj Hans R.B Publications, Delhi

B.Sc. CDF (Costume Design and Fashion) Degree Examination- syllabus for Candidates admitted from the Academic year 2016-2017 Onwards.

**SECOND SEMESTER
CORE PAPER –III FINISHED TEXTILIES MAINTENANCE**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objectives: To enable the students to get knowledge about textiles maintenance and storage

UNIT-I (12HOURS)

Water- hard and soft water, methods of softening water. Laundry soaps – Manufacture of soap (Hot process, cold process), composition of soap types of soap, soap less detergents, chemical action, detergent manufacture, advantages of detergents

UNIT-II (12HOURS)

Finishes – Stiffening Agents – Starch (cold water and hot water), other stiffening agents, preparation of starch. Laundry blues, their application.

UNIT-III (12HOURS)

Laundry equipment – for storage, for steeping and Washing – Wash board, suction washer, wash boiler, washing machine. Drying equipments – outdoor and indoor types. Irons and ironing board – types of iron (box, flat, automatic, steam iron). Ironing board – different types.

UNIT-IV (12HOURS)

Principles of washing – suction washing, wash by kneading and squeezing, washing by machine - Process details and machine details. Laundering of different fabrics – cotton and linen, woolens, colored fabrics, silks, rayon and nylon.

UNIT-V (12HOURS)

Special types of Laundry – water proof coats, silk ties, leather goods, furs, plastics, lace. Dry cleaning – using absorbents, using grease solvents. Storing – points to be noted. Stain removal – food stains, lead pencil, lipstick, mildew, nose drops, paint, perfume, perspiration / mildew, tar, turmeric and kum- kum. Care labels – washing, bleaching, Drying, ironing and different placements of label in garments.

Text Book:

1. Family Clothing – Tate of Glession , John Wiley & Sons I n c, Illinois

Reference Books:

1. Textiles fabrics and their Selection – Wingate I B, Allied publishers Ltd, Chennai. 2. Fundamentals of Textiles and their Care- Susheela Dantyagi , Orient Longmann Ltd (1980)..
2. Household Textiles and Laundry Work – Durga Duelkar , Amla Ram & Sons, Delhi

B.Sc. CDF (Costume Design and Fashion) Degree Examination- syllabus for Candidates admitted from the Academic year 2016-2017 Onwards

SECOND SEMESTER
IDC- II SEWING OPERATION SYSTEM

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objectives: To enable the student to gain knowledge about sewing operation system

UNIT-I

Sewing Machineries- Classification of sewing machines, parts functions of single Needle machine, over lock machine, bar tacking machine, button Hole making machine, button fixing machine, blind stitching Machine, fabric examining machine. Special attachments, care and maintenance, Common problems and remedies

UNIT-II

Stitching mechanism- Needles, bobbin and bobbin case, bobbin winding, loops and loop Spreader, upper and lower threading, auxiliary hooks, throat plates, take-ups, tension discs- upper and lower thread tension, stitching auxiliaries, pressure foot and its types, Feed mechanisms - drop feed, differential fed, needle feed, compound feed, unison feed, puller feed.

UNIT-III

Cutting technology – definition, function, scope. Cutting equipment and tools, vertical reciprocity cutting machine, rotary cutting machine band knife cutting machine, die cutters. Types of spread and its quality, spreading equipment and tools used for spreading, spreading methods.

UNIT- IV

Marking methods, positioning marking types of markers, efficiency of a marker plan, requirements of marker planning. Pressing Equipments – purpose, pressing equipments and methods – iron, steam press, steam air finisher, steam tunnel, special types – pleating, permanent press.

UNIT – V

Sewing federal standards for stitch and stitch classification, federal standards for seam and seam classification, fabric sewability, Sewing threads- types, essential qualities of a sewing thread, manufacturing process of cotton and synthetic threads, twisting process.

Text Book:

1. A complete guide for sewing – Coles M Sew, Heinemann Professional Publishing, Singapore.

Reference Books:

1. The Technology of Clothing Manufacture – Harold Carr and Barbara Latham, Blackwell Science (1994)
2. Reader's digest Sewing guide, Complete Guide to Sewing 13th Edition, The Reader's Digest Association Inc, Pleasant Ville.

B.Sc. (Costume Design and Fashion) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2016-2017 onwards**THIRD SEMESTER****PART III - CORE -IV – INDIAN HISTORIC COSTUMES AND TEXTILES**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objectives: To enable the students to gain knowledge about the Indian Historic Costumes and Textiles for ethnic designing

UNIT I (10 HOUR)

Beginning of costume, development of dress out of painting, cutting, tattooing. A view on dyed and printed textiles of India-Bandhini, patola, ikkat, kalamkari- Woven textiles of India- Dacca Muslin, Banaras/Chanderi brocades, baluchar, himrus and amrus, Kashmir shawls, silk sarees of kancheepuram.

UNIT II (9 HOUR)

Costumes of North India – Maharashtra, Rajasthan, Haryana, Himachal Pradesh, Uttarpradesh, Jammu and Kashmir, Gujarat, Madhyapradesh. Assam, Orissa, Bihar, Mizoram, Tripura, Nagaland, W.Bengal, Sikkim. Pubjab

UNIT III (10 HOUR)

Costumes and Jewelry of South India- TamilNadu, Kerala, AndraPradesh, Karnataka, Goa. The pallava and chola period, symbolic jewellery of south India, Temple Jewellery of South India

UNIT IV (9 HOUR)

North Indian Jewellery –Jewelleries used in the period of Indus valley civilization, Mauryan period, Gupta period, Mughal period. Tribal Jewellery.A brief study of gems and precious stones.

UNIT V (10 HOUR)

Traditional Embroideries of India –Origin, embroidery stitches used–embroidery of Kashmir, Philkari of Punjab and Gujarat –Kutch and Kathiawar, embroidery of Rajasthan, Kasuti of Karnataka, chickenkari work of luck now, kantha of Bengal– in all the above- types and colours of fabric/thread used.

TEXT BOOKS

1. Indian Jewellery–M.L Nigam, Lustre press Pvt Ltd, India.2001.
2. The Costumes and Textiles of Royal India–by Ritu kumar 2006 Hardcover, 344 pages Published July 14th 2006 by ACC Distribution

REFERENCE BOOKS

1. Costume, Textiles and Jewellery of India: Traditions in Rajasthan Vandana Bhandari From BookVistas (New Delhi, DELHI, India) AbeBooks Seller .2010
2. Embroidery from India and Pakistan (Fabric Folios) Paperback by Sheila Paine, Publisher: University of Washington Press 2001
3. Asian Textile Journal- National Journal.

B.Sc. (Costume Design and Fashion) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2016-2017 onwards

**THIRD SEMESTER
PART III-CORE –V- FASHION ART**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objectives: To enable the students to gain knowledge about elements and principles of designs to do fashion sketching.

UNIT I (10 HOUR)

Fashion Designing, elements of design- line, shape or forms, column, size and texture. Design-definition and types- structural and decorative design. Requirements of a good structural and decorative design. Application of structural and decorative design in a dress.

UNIT II (10 HOUR)

Principles of design- Balance- Formal and informal rhythm- through repetition, radiation and gradation, emphasis, harmony and proportion, application of principal of design in a dress.

UNIT III (16 HOUR)

Fashion terminology- fashion, style, fad, classic, garment, apparel, silhouette, craze, accessory, chic, costume made, fitted garment, fashion trend, fashion show, forecasting, fashion cycle, high fashion,haute couture, couture, couturiers, avant-garde, knock off,Pre-a-porter. Theories of fashion adoption.

UNIT IV (8 HOUR)

Color- definition, color theories- prang color chart and munsell color system, Dimensions of color- hue, value, and intensity. Standard color harmonies- application in dress design, monochromatic analogous, complimentary, split complimentary, testing triad, achromatic, neutral.

UNIT V (16 HOUR)

Designing dresses for unusual figures – becoming and unbecoming – for the following figure types. Stout figure, thin figure, slender figure, narrow shoulders, broad shoulders, round shoulders, large bust, flat chest, large hip, large abdomen, round face, large face, small face, prominent chin and jaw, prominent forehead, Fashion accessories- shoes, handbags, hats, ties – different types/ shapes.

TEXT BOOKS

1. Fashion Sketch Book –Bina Abling, Fair Child Publications, New York Wardrobe.2012.
2. Strategies for Women –Judith Rasband, Delmar publishers London.2001

REFERENCE BOOKS

1. Inside the Fashion Business- Heannette a Jarnow et-al, macimilan Publishing Company, New York.2002.
2. Art and Fashion in Clothing Selection –Mc Jimsey and Harriet, Iowa State University Press, Jowa.2012
3. Femina, Women’s era, Vogue-National Magazine.

**B.Sc. (Costume Design and Fashion) Degree Examination- Syllabus for Candidates
admitted from the Academic Year 2016-2017 onwards**

**THIRD SEMESTER
PART III-CORE PRACTICAL-IV FASHION ART**

Maximum CIA: 25

Maximum CE: 50

Total Hours: 48

Objectives: To enable the students to gain practical knowledge about application of elements of designs and principles of design to fulfill the fashion sketching work.

1. Prepare the following Charts (6 HOUR)
 - a. Prang color chart
 - b. Value Chart
 - c. Intensity Chart
2. Illustrate garment designs for the Elements of Design (6 HOUR)
 - a. Line
 - b. Color
 - c. Texture
 - d. Shape or form
 - e. Size
3. Illustrate garment designs for the Principles of Design (8 HOUR)
 - a. Balance in dress
 - b. Harmony in dress
 - c. Emphasis in dress
 - d. Proportion in dress
 - e. Rhythm in dress
4. Illustrate the color harmony in dress design (10 HOUR)
 - a. Monochromatic color harmony
 - b. Analogous color harmony
 - c. Complimentary color harmony
 - d. Double complementary color harmony
 - e. Split complementary color harmony
 - f. Triad color harmony
5. Application of color and principles of design in dress (10HOUR)
 - a. Harmony through color
 - b. Emphasis through color
 - c. Proportion through color
 - d. Rhythm through color
 - e. Balance through color
6. Designing for Home Textiles- Home Furnishing (8 HOUR)
 - a. Living room linen
 - b. Bed linen
 - c. Table linen

- d. Kitchen linen
- e. Bath linen.

TEXT BOOKS

1. Fashion Sketch Book – Bina Abing, Fair Child Publications, New York Wardrobe.2012.
2. Strategies for Women – Judith Rasband, Delmar publishers London.2001.

REFERENCE BOOKS

1. Inside the Fashion Business- Heannette a Jarnow et-al, Macimilan Publishing Company, New York.2002.
2. Femina, Women's era, Vogue-National Magazine.
3. Home Textile views – National Magazine.

16CDF303

B.Sc. (Costume Design and Fashion) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2016-2017 onwards

**THIRD SEMESTER
PART III- CORE - VI- FIBER TO FABRIC**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objectives: To enable the students to gain basic knowledge about the various fibers and its fabric formations

UNIT I (8 HOUR)

Introduction to the field of textiles-classification of fibers- natural and chemical. Spinning- Definition, spinning- blending, opening, cleaning, doubling, carding, drawing, roving, spinning. Spinning Methods, Classification-chemical and mechanical

UNIT II (12 HOUR)

Process flow, Properties and application of natural fibers – cotton, linen, jute, pineapple, Banana, Flex, Hemp, silk, wool, hair fibers, ramie, sisal, Bamboo. Manmade fibres-viscose rayon, acetate rayon, nylon, polyester, acrylic, aramid, elastomeric.

UNIT III (12 HOUR)

Yarn classification-Definition, classification-simple and fancy yarns- slub, core, injection core. Manufacturing process-open end, vortex spinning

UNIT IV (10 HOUR)

Classification-Wovens-basic weaves-plain, twill, satin. Fancy weaves-pile, double cloth, leno, swivel, dobby and jacquard.

UNIT V (6 HOUR)

Types and Application of Non wovens- felting, fusing, bonding, lamination, netting, braiding and calico, tating and crocheting.

TEXT BOOK

1. Textiles- Fibre to fabric, corbmann B.P, International student's edition, Mc Graw Hill Book Company, Singapore 1985.
2. Introduction to Textile Fibres H. V. Sreenivasa Murthy 2015 by WPI Publishing

REFERENCE BOOKS

1. Fabric Science 10th Edition by Allen C. Cohen, Ingrid Johnson, Joseph J. Pizzuto. 2011
2. Handbook of Technical Textiles edited by A R Horrocks and S C Anand, Wood head publication limited.2000.
3. Indian Journal of Fibre and Textile Research.

B.Sc. (Costume Design and Fashion) Degree Examination- syllabus for Candidates admitted from the Academic Year 2016-2017 onwards

**THIRD SEMESTER
PART III-CORE PRACTICAL – V – FIBER TO FABRIC**

Maximum CIA: 25

Maximum CE: 50

Total Hours: 60

Objectives: To enable the students to gain practical knowledge about identification of different fibers, yarns and fabrics through tests.

Identification of Textile fibers

Fibers-Cotton, Silk, Wool, Nylon, Polyester, Linen, Rayon, Jute. (6 HOUR)

1. Microscopic method.

2. Flame test.

3. Chemical test.

Testing of yarns/fabrics.

1. counting of the yarn using warp reel. (6 HOUR)

2. Counting of the yarn using beesly's balance. (6 HOUR)

3. Twist of the yarn using twist tester. (6 HOUR)

4. Determining the weight of the fabric. (6 HOUR)

5. Determining the fabric count by (6 HOUR)

a. Raveling method.

b.Pick Glass method.

6. Course length and loop length of knitted fabric. (6 HOUR)

7. Colour fastness to water. (6 HOUR)

8. Test of Shrinkage. (6 HOUR)

9. Test of Absorbency. (3 HOUR)

10. Tensile Strength (3 HOUR)

TEXT BOOK

1. Textiles- Fibre to fabric, corbmann B.P, International student's edition, Mc Graw Hill Book Company, Singapore. 1985.

2. Introduction to Textile Fibres H. V. Sreenivasa Murthy 2015 by WPI Publishing

REFERENCE BOOKS

1. Fabric Science 10th Edition by Allen C. Cohen, Ingrid Johnson, Joseph J. Pizzuto. 2011
2. Handbook of Technical Textiles edited by A R Horrocks and S C Anand, Wood head publication limited. 2000.
3. Indian Journal of Fibre and Textile Research.

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B.Sc. (Costume Design and Fashion) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2016-2017 onwards

THIRD SEMESTER

PART III - IDC – III - FASHION AND CLOTHING PSYCHOLOGY

Maximum CIA: 30

Maximum CE: 70

Total Hours: 36

Objectives: To enable the students to gain knowledge about fashion, clothing and its psychology towards fashion cycle.

UNIT I (6 HOUR)

Factors influencing fashion changes-Psychological needs of fashion, Social psychology of fashion, technological, economical, political, legal and seasonal influence. Role of costume as a status symbol, Personality and dress, cloth as sex appeal, cultural value.

UNIT II (10 HOUR)

Fashion evolution-fashion cycles, length of cycles, consumer groups in fashion cycles-fashion leaders, fashion innovators, fashion motivation, fashion victim, fashion followers. Adoption of Fashion Theories- Fashion-trickle down, trickle up and trickle across theory. fashion forecasting-market research, evaluating the collection, fashion services and resources(fashion services, colour services, video services, News letter services, web sites, Directories and references.

UNIT III (10 HOUR)

Visual merchandising of fashion, types of displays – window displays, interior displays, Elements of display – the merchandise, mannequins and forms, props, signage, lighting.

Merchandising presentation- tools and techniques-back drop, forms, fixtures.

Fashion show-Definition, planning, budgeting, location, timings, selection of models, collection, set design, music preparing, rehearsal.

UNIT IV (6 HOUR)

Understanding fashion designer-types-classicist, idealist, influenced, realist, thinking poet. Indian Fashion designers-Haute couture-gitanjali kashyap, hemant Trivedi, J.J. Valaya, James ferrerira, Ritu kumar, Rohit bal, Ritu Beri Tarun Tahiliani minimalists-Himanshu and sonali sattar, sangeetha chopra, Wendell Rodricks.

UNIT V (4 HOUR)

World fashion centers-France, Italy, America, and Fareast. Contributions of well known designers from France, Italy, America, Britain and Fareast countries, Fashion week

TEXT BOOKS

1. Retail Fashion promotion and advertising-Drake et-al, Macmillan Publications Company, new York.2000.

2. Mind What You Wear: The Psychology of Fashion by Professor Karen J. Pine
Kindle Edition 2013

REFERENCE BOOKS

1. Fashion-from concept to consumer-Gini Stephens Frings, 9th edition, Pearson. 2008
2. Inside the fashion business-kitty G.Dickerson 2002.

16C DFA01

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**THIRD SEMESTER
PART IV -AOC I -BASIC DRAPING PRACTICAL**

Maximum CE: 75
Total Hours: 36

Objectives: To enable the students to gain practical knowledge about basic draping methods for different parts of the garments.

List of Experiments

- | | |
|--|----------|
| 1. Introduction to draping and dress forms. | (7 HOUR) |
| 2. Draping basic front and back. | (8 HOUR) |
| 3. Draping basic skirts. | (7 HOUR) |
| 4. Draping yokes, shirt yoke and midriff yoke. | (7 HOUR) |
| 5. Draping collar -Peter pan, Mandarin and shirt collar. | (7 HOUR) |

TEXT BOOK

1. Draping Basic Sally DiMarco Fairchild Books – Bloomsbury. 2009.

REFERENCE BOOK

1. The art of fashion Draping-3rd edition Connie Amadon-Crawford, Fairchild Publishers, Newyork. 2010.

16C DFA02

**B.Sc. (Costume Design and Fashion) Degree Examination- Syllabus for Candidates
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THIRD SEMESTER

PART IV -AOC I- INTERIOR DESIGNING- PRACTICAL

Maximum CE: 75

Total Hours: 36

Objectives: To enable the students to gain practical knowledge on Interior designing.

1. Introduction to Home Interior Design and Decoration. (9 HOUR)
 - a. Fundamental elements of design in 2-D and 3-D.
 - b. Principles and elements of design.

2. Application of Color Wheel in Interior Design. (9 HOUR)
 - a. Primary.
 - b. secondary.
 - c. tertiary colors.
 - d. modification of color hues.

3. Application of Design Drawing and Graphics in Office. (9 HOUR)
 - a. object drawings.
 - b. Architectural symbols.
 - c. Interiors and furniture sketching.

4. Application of Furnishings and Arrangements in Living room. (9 HOUR)
 - a. Lighting.
 - b. furnishings.
 - c. window treatment.
 - d. flower arrangement.

TEXT BOOKS

1. Professional Practice for Interior Designers Christine M. Piotrowski.2013.
2. Interior Design Illustrated Francis D. K. Ching, Corky Binggeli. 2012.

REFERENCE BOOK

1. Color in Interior Design CL John Pile, publisher McGraw- Hill Education, 1997
2. Home Textile views- National magazine.

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**B.Sc. (Costume Design and Fashion) Degree Examination- Syllabus for Candidates
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**THIRD SEMESTER
PART IV -EDC 1-BASIC OF PHOTOGRAPHY**

Maximum CE: 50
Total Hours: 24

Objective: To inculcate knowledge and develop the skills involved in photography.

UNIT I (5 HOUR)

Introduction to Photography, Characteristics of light, Camera – structure and function of camera, Exposure –focusing, aperture, shutter speed, Depth of field. Basic shots, angle, and view. Different styles of Photography – Portrait, Landscape and Documentary.

UNIT II (5 HOUR)

Types of camera, Lens and its function, types of lenses and their use, Characteristics of lens, lens speed, covering power and other features.

UNIT III (5 HOUR)

Sources of Light –Nature, Artificial and Available. Lighting techniques – three point lighting. Kinds of light indoor and outdoor – Electronic flash and artificial lights, Light meters, Different kinds of filter for B& W and color photography.

UNIT IV (4 HOUR)

Films, film speed and types of film, Papers - kinds of paper, developing and printing. Accessories used in photography.

UNIT V (5 HOUR)

Digital photography, optical system, power system, memory storage, resolution; understanding exposure and controls, Flash and lighting, Transferring image to PC, file formats, managing digital pictures.

TEXT BOOKS

1. The Basic Book of Photography (Fourth Edition) (Paperback)-by Tom Grimm.

REFERENCE BOOKS

1. Julian Calder, John Garrett 1999. The 35 mm Photographer's Handbook, Marshall Editions Limited, London.

2. Alain Solomon 1987. Advertising Photography, American Photographic Publishing and Imprint of Watson Guptill Publication, New York.
3. Dave Johnson 2001. How to do everything with your Digital Camera, Tata McGrawHill, and New Delhi.

16CDFP06

B.Sc. (Costume Design and Fashion) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2016-2017 onwards

**FOURTH SEMESTER
PART III – CORE PRACTICAL –VI- WOMEN’S GARMENT PRODUCTION**

Maximum CIA: 25
Maximum CE: 50
Total Hours: 60

Objectives: To enable the students to gain practical knowledge about production of women’s garments and also to overcome the practical difficulties.

Designing, drafting and constructing the following garments for the features prescribed
List the measurements required and materials suitable.

Calculate the cost of the garment.

Calculate the material required – Layout method or Direct measurements method.

- | | |
|--|-----------|
| 1. Saree Petticoat-six panel with decorated bottom. | (5 HOUR) |
| 2. Skirts- Flared/Umbrella with style variations. | (7 HOUR) |
| 3. Blouse- Basic Design/ Princess line/ Single katori/
Double Katori/ Fashion neck designs | (16 HOUR) |
| 4. Middi Top-Kimono/Ragon, tulip Sleeve. | (5 HOUR) |
| 5. Lehenga skirt/Lehenga gowns/Variations | (10 HOUR) |
| 6. Salwar / Churithar / Parallels / Bell Bottom. | (5 HOUR) |
| 7. Kammez-with/without slit, with or without flare, with/without opening, with or without panels,
with /without yoke, with/without Sleeve and variations, Neck Variation. | (12 HOUR) |

TEXT BOOKS

1. Easy cutting-Juvekar commercial Tailors Corporation pvt 166 Dr.Ambedkar Road dadar.1999.
2. Metric pattern cutting for Women’s Wear Hardcover-Import, by Winifred Aldrich 2008.

REFERENCE BOOKS

1. Zarapker system of cutting-K.R.Zarapker, Navneet publication ltd.2008.
2. Dress making-smt thangam Subramanian Bombay Tailoring and Embroidery College, 32 North park street, Ambattur, Chennai.2009.

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**FOURTH SEMESTER
PART III - CORE –VII- FABRIC STRUCTURE AND DESIGN**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objectives: To enable the students to gain knowledge about fabric and its formation technique

UNIT I (12 HOUR)

Elements of woven design, methods of fabric representation, draft and lifting plan, construction of elementary weaves-plain, wrap rib, weft rib, twill, modification of twills, satin and sateen weaves-their derivatives.

UNIT II (12 HOUR)

Ordinary and brighten honey comb, its modification, huck a back and its modifications, crepe, mock and leno weaves.

UNIT III (12 HOUR)

Extra warp and extra weft figuring-single and two colours, planting, backed fabric, warp and weft backed fabrics.

UNIT IV (12 HOUR)

Pile fabric-basic structure, twill back and sateen back, weft plush, terry pile-3 pile, 4 pile, 5 pile and 6 pile, length density and fastness of pile.

UNIT V (12 HOUR)

Double cloth-classification, self stitched-face to back, back to face, stitched double cloth-warp and centre stitched double cloth.

TEXT BOOKS

1. Textile Design Principles and advances application k Townsend 2011
2. Watson's advanced textile design, Grosichkli Z Newness, Butter worths, London 1989.

REFERENCE BOOK

1. Fabric structure and design N.Gokarneshan New Age international (p) limited Publishers. 2004.
2. Apparel views – National magazine.

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**FOURTH SEMESTER
PART III – CORE PRACTICAL – VII - FABRIC STRUCTURE AND DESIGN**

Maximum CIA: 25
Maximum CE: 50
Total Hours: 36

Objectives: To enable the students to gain practical knowledge about identification of different weaves through understanding of weaves designs, drafts and its peg plans.

Identification of the following weaves Design and Draft a peg plan for the same.

- | | |
|--|----------|
| 1. Plain weave and its derivatives (warp rib, weft rib). | (3 HOUR) |
| 2. Twill weave-Right hand twill and left hand twill. | (4 HOUR) |
| 3. Satin Weave. | (4 HOUR) |
| 4. Sateen weave. | (4 HOUR) |
| 5. Honey comb weave. | (4 HOUR) |
| 6. Huck a back weaves. | (4 HOUR) |
| 7. Extra warp and weft figuring. | (5 HOUR) |
| 8. Double cloth. | (4 HOUR) |
| 9. Terry pile structures. | (4 HOUR) |

TEXT BOOKS

1. Textile Design Principles and advances application k Townsend 2011
2. Watson's advanced textile design, Grosichkli Z Newness, Butter worths, London 1989.

REFERENCE BOOK

1. Fabric structure and design N.Gokarneshan New Age international (p) limited Publishers 2004
2. Apparel views – National magazine.

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**FOURTH SEMESTER
PART III - CORE - VIII- TEXTILE PROCESSING**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 48

Objectives: To enable the students to gain knowledge about textile processing procedure.

UNIT I (4 HOUR)

Introduction sequence of textile fabrics-flowchart-brief description Finishes-Classification-Mechanical, Chemical, Enzyme. Importance of Finishes. Fabric Preparation-Singeing, Desizing, Scouring, Bleaching, Mercerizing, Carbonizing.

UNIT II (8 HOUR)

Dyeing-dyes-classification and properties - direct, vat, reactive, acid, basic, azoic dyes Natural and Herbal dyes-types and colours commonly used significance of herbal dyes. Stages of dyeing-fiber, yarn, fabric and garment- advantages and limitations.

UNIT III (13 HOUR)

Methods of dyeing - Batch dyeing-winch, jigger, padding, package dyeing, combination dyeing, machines used and process involved Fastness properties of fabrics-laundrying, rubbing, sunlight.

UNIT IV (8 HOUR)

Aesthetic finishes-Luster-glazed, moiré, schreiner, embossed, drape-crisp and transparent, sizing, weighting, and texture-sheared, brushed, embossed, pleated, flocked, embroidered, napped, fullered. Special purpose finishes- Stabilization, anti bacterial, antimicrobial, water repellent, flame retardant,uv protection ,wrinkle free finishes. Effluent treatment- Discharge control, recycling of dyed water

UNIT V (15 HOUR)

Printing-Introduction to printing, difference between printing and dyeing, preparation of fabric for printing.Classification- Direct printing, Block printing-Stencil printing- screen printing-Flat screen and rotary screen printing, printing paste, screen printing process. Discharge printing-chemicals used, process involved. Resist printing-Batik printing-Tie and Dye, other printing methods-Ink jet printing, heat transfer printing, photo printing.

TEXT BOOKS

1. Textiles-Nineth edition, sara J Radolph and Anna L Lanford, Prentice hall, New Jersey.2002.
2. Textile processing-JL Smith, Abhishek Publications, Chandigarh. 2003.

REFERENCE BOOKS

1. Textile Chemistry- by Arora publisher Abhishek Publications 2011
2. Textile Processing and Properties, T.L.Vigo Elsevier Science; 2nd impression March 2002 edition

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**FOURTH SEMESTER
PART III - CORE PRACTICAL – VIII – TEXTILE PROCESSING**

Maximum CIA: 25
Maximum CE: 50
Total Hours: 48

Objectives: To enable the students to gain practical knowledge about sample preparation and dyeing methods.

Preparation of samples for processing

- Desizing (3 HOUR)
- Scouring (3 HOUR)
- Bleaching (4 HOUR)
- Mercerizing (4 HOUR)

Dye the given fabric using suitable dye

- Direct Dye (2 HOUR)
- Sulphur dyes (3 HOUR)
- Vat Dyes (3 HOUR)
- Disperse Dyes (4 HOUR)
- Reactive Dyes (2 HOUR)
- Acid Dyes (2 HOUR)
- Basic Dyes (2 HOUR)
- Tie and dye (4 HOUR)
- Natural dyes (any three) (2 HOUR)
- Block Printing (2 HOUR)
- Stencil Printing (2 HOUR)
- Screen printing (2 HOUR)
- Batik printing (4 HOUR)

TEXT BOOKS

1. Textiles-Ninth edition, Sara J Radolph and Anna L Lanford, Prentice hall, New Jersey.2002.
2. Textile processing-JL Smith, Abhishek Publications, Chandigarh. 2003.

REFERENCE BOOKS

1. Textile Chemistry- by Arora publisher Abhishek Publications 2011
2. Textile Processing and Properties, T.L.Vigo Elsevier Science; 2nd impression March 2002 edition
3. Asian Dyers-National Magazine.

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**FOURTH SEMESTER
PART III - IDC – IV SURFACE EMBELLISHMENTS PRACTICAL**

Maximum CIA: 25

Maximum CE: 50

Total Hours: 48

Objectives: To enable the students to gain practical knowledge about application of different embellishments in the fabric surface.

Prepare samples for the following.

1. Basic Hand embroidery Stitches-Running stitch, Stem stitch, Back stitch, Chain stitch, Satin stitch, Couching stitch, Herringbone stitch, Button hole stitch, fly stitch, Bullion knot, French knot, Fish bone stitch. (4 HOUR)
2. Machine Embroidery stitches -Satin stitch, Cord stitch, filling stitch, Long and short Stitch, Cut work. (6 HOUR)
3. Traditional Embroidery Stitches.
Kashida(kahmir),Phulkari(Punjab),chamba(Himachal),kutch,(Gujarat) Chikankari (Luck now),kasuti (Karnataka), kantha (west Bengal) (6 HOUR)
4. Appliqué (machine/hand)-3 types (4 HOUR)
5. Smocking – Any 3 types (6 HOUR)
6. Tassels and Fringes (2 HOUR)
7. Belts-any 2 types (Different material) (2 HOUR)
8. Bows-any 2 types (Different Design) (2 HOUR)
9. Aari work- chain stitch filling, Bead work – 1 sample, Sequins work-1 sample, Zardosi work-1 sample (10 HOUR)
10. Mirror work-1 sample (4 HOUR)
11. Fixing the stones-1 sample (2 HOUR)

TEXT BOOKS

1. Indian Jewellery–M.L Nigam, Lustre press Pvt Ltd, India.2001.
2. The Costumes and Textiles of Royal India–by Ritu kumar 2006 Hardcover, 344 pages Published July 14th 2006 by ACC Distribution

REFERENCE BOOKS

1. Costume, Textiles and Jewellery of India: Traditions in Rajasthan Vandana Bhandari

- From BookVistas (New Delhi, DELHI, India) AbeBooks Seller .2010
- Embroidery from India and Pakistan (Fabric Folios) Paperback by Sheila Paine, Publisher: University of Washington Press 2001
 - Asian Textile Journal- National Journal.

16C DFAO3

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FOURTH SEMESTER

PART IV - AOC II - GARMENT QUALITY AND COST CONTROL

Maximum CE: 75

Total Hours: 36

Objectives: To enable the students to gain knowledge about garment quality and how to control cost based on its quality of production.

UNIT I (5 HOUR)

Definition and scope of quality control-establishing merchandising standards-establishing raw material quality control specifications-quality of raw material.

UNIT II (6 HOUR)

Establishing Processing quality specification-training quality control personnel-the quality standard control-quality control inspection, procedures for processing-quality control of finished garments-quality control and government contacts-quality control for packaging, warehousing and shipping-statistical quality control. Sampling plans-industry-wide quality standards

UNIT III (5 HOUR)

Function of production control – production analysis- quality specifications-qualitative specifications-scope of apparel manufacturing activity-coordinating departmental activities-Distribution of documents and records.

UNIT IV (10HOUR)

Types of control forms-basic production systems-principles for choosing a production system-evaluating production systems-flow process grids for production control-Scheduling calculation, graph methods, Scheduling bundles of varying amounts, mathematical formulas for scheduling-producing many styles simultaneously-producing many styles consecutively in one line.

UNIT V (10HOUR)

Functions of cost control, types of costs and expenses-apparel manufacturing cost categories-sales cost control, purchasing cost control, production cost control, administration cost control-cost ration policies-the manufacturing budget-cash flow controls-standard cost sheet, break even-charts.

TEXT BOOKS

- Garment Manufacturing Technology 1st Edition Rajkishore Nayak Rajiv Padhye Woodhead Publishing. 2015.
- Solinger, Jacob, Apparel manufacturing analysis, New York, textiles books. 1961.
- Garment Manufacturing, Process, practices and technology, Prasanta Sarkar. 2015.

REFERENCE BOOKS

- Garments Merchandising, Prof. M. A. Kashem-2009.
- Solinger, Jacob, Apparel manufacturing hand book, analysis principles and Practice, Columbia media corp.1988.

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**FOURTH SEMESTER
PART IV - AOC II - BEAUTY CARE**

Maximum CE: 75

Total Hours: 36

Objectives: To enable the students to gain knowledge about basic steps in process of Beauty care

- | | |
|---|----------|
| 1. Bleaching. | (4 HOUR) |
| 2. Herbal facial. | (5 HOUR) |
| 3. Threading. | (4 HOUR) |
| 4. Waxing. | (4 HOUR) |
| 5. Hair cut-3 styles. | (5 HOUR) |
| 6. Make up –face makeup, Bridal makeup, party makes up. | (5 HOUR) |
| 7. Nail treatment-Pedicure, Manicure. | (4 HOUR) |
| 8. Massages- Head, Body. | (5 HOUR) |

TEXT BOOK

1. Body and Beauty care, Dr.Neena Khanna., Pustakmahal Publishers.2002.

REFERENCE BOOK

1. Hair and Beauty Government Publications, Postal Trade Section, Langley Freeman Design Group. 2000.

16CDFAC1

B.Sc. (Costume Design and Fashion) Degree Examination- Syllabus for Candidates admitted from the Academic Year 2016-2017 onwards

**THIRD SEMESTER
PART III- ALC: RETAIL MANAGEMENT**

Maximum CE: 100

Objectives: To enable the students to get knowledge about Retail Management in Apparel market.

UNIT-I (4 HOUR)

Introduction to Retailing: Definition, Classification of retailing, product retailing, retail stores.

UNIT-II (5 HOUR)

Understanding the Retail Consumer: Retail consumer behavior, Factors influencing the Retail consumer, Customer decision making process.

UNIT-III (5 HOUR)

Retail Location Selection: Importance of Retail locations, Types of retail locations, Factors determining the location decision, Steps involved in choosing a retail locations, Measurement of success of location

UNIT-IV (5 HOUR)

Retail Operations and Retail Pricing: Store administration, Premises management, Inventory Management, Store Management, Receipt Management, Customer service, Retail Pricing, Factors influencing retail prices

UNIT-V (5 HOUR)

Emerging trends in retailing: Changing nature of retailing, organized retailing, Modern retail formats, E-tailing, Challenges faced by the retail sector

TEXT BOOK

1. Retail Management- Sajal Gupta, Gurpreet Randhawa, Atlantic publishers and Distributers (P) Ltd, 2008

REFERENCE BOOKS

1. Retail Management- Chetan Bajaj, Nidhi Varma Srivastava Oxford University Press, 2005.
2. Retailing Buying 3rd edition from basics of fashion by Richard Clodfelter,2008

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**FOURTH SEMESTER
PART III- ALC: INDUSTRIAL TECHNOLOGY**

Maximum CE: 100

Objectives: To enable the students to get wider knowledge about Industry and Technologies which is used for innovative and fast production of Textiles.

Unit-I (4 HOUR)
Manufacturing and internal geometric of textiles: Introduction- hierarchy of textile material, textile yarn, woven fabric, braided fabric, non-crimp fabrics.

Unit-II (5 HOUR)
Mechanical properties of textile composites: Introduction, elastic behavior, failure and impact behavior.

Unit-III (5 HOUR)
Flammability and fire resistance of composites: Introduction, constituents, flammability of composite structures, methods of imparting flame retardancy to composites.

Unit-IV (5 HOUR)
Application of textile composites in the construction industry: introduction, fiber reinforced polymers, membrane structures, future developments.

Unit- V (5 HOUR)
Textile composites in sports products: Introduction, material design, production technology, applications.

TEXT BOOK

1. Design and Manufacture of Textile Composites- AC Long wood head Publishing Ltd. Cambridge-2005.

REFERENCE BOOK

1. Structural mechanics of fibers, yarn and fabrics- Hearle J.W.S, Grosberg P, and Bakers Wiley interscience, 2008

2. Textiles- Fibre to fabric, corbmann B.P, International student's edition, Mc Graw Hill 2.
Book Company, Singapore 1985.

REFERENCE BOOKS

1. The Complete Book of Sewing –Author Deni Bown – Dorling Kindersley Limited, London (1986)
2. Sewing and Knitting – A Readers Digest, step- by – step guide, Readers Digest Pvt Ltd, Australia.

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**FIFTH SEMESTER
PART III - CORE –IX- VISUAL MERCHANDISING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 72

OBJECTIVE:

To impart knowledge on elements and environments of visual merchandising, store planning and assortment planning.

UNIT I (15 HOURS)

Fundamentals of Visual Merchandising: Visual Merchandising - meaning, objectives and scope. Display basics – colour and texture, line and composition, lighting. Types of display and display settings. Execution of a Visual Presentation: Application of colour schemes, colour psychology, creating mood by colour used in garment display.

UNIT II (15 HOURS)

Elements of Visual Presentation: Store Design, materials and props, lighting and colour, signage and graphics, points of purchase, sound usage. Display Fixturing, mannequins and other human forms, alternatives to mannequins, dressing the mannequins-wigs and make up, Fixtures – criteria for selection of fixtures, dressing fixtures, modular fixtures, furniture as props

UNIT III (13 HOURS)

Environment for Visual Presentation: Store exterior – marquee, facade, exterior display, surrounding stores and window displays and types; Store interior – store atmospheric, aesthetic, execution of store lay out - selection of display locations, lifts, staircase, elevators, utilisation of store space. Points of display – visual merchandising planning, point of purchase display, industrial display, fashion shows, trade organizations and sources.

UNIT IV (15 HOURS)

Display Techniques and store planning: Attention getting devices, familiar symbols, masking and proscenia, sales ideas, fashion accessories, graphics and signage. Store display layout planning- grid, race track, freeform – direction of flow and planogram; Seasonal and trend decision for point of emphasis – creativity in display; Planning of assortment, theme, ensemble, racks, shelves, bins, etc. and balance of display in a show room

UNIT V (14 HOURS)

Approaches in Visual Merchandising- In house staffing, Department Store Approach Small Store Approach. Role of Visual Merchandising in changing face of retailing.

Assortment planning, Optimize apparel assortments; Computer Aided Visual merchandising- Information technology in data management, assortment planning and inventory management. Budgeting and safety factors in visual merchandising.

TEXT BOOKS:

1. Pegler M.M., “Visual Merchandising and Display”, IV Edition, Fair child Publications, New York, 2001.
2. Diamond. J, Diamond, E., “Contemporary Visual Merchandising”, Prentice Hall Inc. New Jersey 2003.

REFERENCE BOOKS:

1. Diamond. E, Fashion Retailing – A Multi Channel Approach, II Edition, Prentice Hall Inc. New Jersey 2006.
2. Curtis E, Fashion Retail, John Wiley and Sons Ltd, England, 2004
3. Tony Morgan- Visual Merchandising, Laurence King, 2008
4. Martin.M.Pegler- visual Merchandising and Display, Loomsurry Publishing India Private Limited , 2011

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**FIFTH SEMESTER
PART III - CORE –X- COMPUTERS IN THE GARMENT INDUSTRY**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 72

OBJECTIVE:

To help students to understand the fundamentals and principles of Computer Aided Designing.

- UNIT-I (14 HOURS)
Role of computers in fashion industry – Information flow – CAD, CAM, CIM, CAA, PDC – Definition and functions. Computers in production planning and production scheduling, computerized colour matching system.
- UNIT-II (15 HOURS)
CAD in pattern making and grading – system description – information flow – process involved in pattern making, process involved in pattern grading.
- UNIT-III (15 HOURS)
CAD in designing, Textile designing – Weaving, Knitting and printing - Creating embroidery designs.
- UNIT-IV (14 HOURS)
CAD in Jacquard and Dobby, Garment designing – 2D and 3D forms. 3D mapping.
- UNIT-V (14 HOURS)
Computer application in fabric defect checking, laying / spreading, cutting marker planning, labeling – parts and functions. Computerized sewing machines.

TEXT BOOKS:

1. Computer Technology for Textiles and Apparel is 1st Edition Jinlianhu, Woodhead Publishing, 2011
2. Computer- Aided Pattern Designing and Product Development Alison Beazley, Terrybond, 2003

REFERENCE BOOKS:

1. Jane D.Espinoza-Alvarado Computer Aided Fashion Design using Gerber Technology 1st Edition Fairchild Books, 2007.
2. A Text Book of Computer Aided Apparel Fashion Designing and Production Pattern Making- Meenu Sri Vastava, Himanshu Publications 2011
3. Computer Aided manufacturing- P.N.Rao, N.K.Tewari, T.K.Kundra, McGraw Hill Education 2017.

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**FIFTH SEMESTER
PART III - CORE PRACTICAL –IX- MEN’S APPAREL PRODUCTION**

Maximum CIA: 25

Maximum CE: 50

Total Hours: 96

OBJECTIVE:

To enable the students to gain knowledge about production of men’s garments and also to overcome the practical difficulties.

- Designing, drafting and constructing the following garments for the features Prescribed
- List the measurements required and materials suitable
- Calculate the cost of the garment
- Calculate the material required – layout method and direct measurement method

- | | |
|---|------------|
| 1. S.B.Vest – with/ without collar, button attached, sleeveless | (14 HOURS) |
| 2. T – shirt – front half open, zip attached, with collar | (14 HOURS) |
| 3. Slack shirt – with collar, half sleeve, and patch pocket | (14 HOURS) |
| 4. Full sleeve shirt – full open, shirt collar, patch pocket, full sleeve with cuff | (14 HOURS) |
| 5. Kalidhar kurtha – kali piece, side pocket, round neck, half open | (13 HOURS) |
| 6. Pleated Pant –with dart, with back and front pocket, with front pleat, with waist band | (13 HOURS) |
| 7. House Coat – knee length, shawl collar, overlap front, with belt | (14 HOURS) |

TEXT BOOKS:

1. Zarapker system of cutting – K R Zarapker Navneet Publications ltd,2008
2. Classic Tailoring Techniques for Menswear : A Construction guide –Roberto Cabreto, Fairchild publication, 2015

REFERENCE BOOKS:

1. The Blue Book of Men’s tailoring: grand Edition of Supreme System for producing Men’s Garment- Frederick T.Croonborg, R.L.Shep Publications, 2005.
2. The Cut of Men’s Clothes: 1600-1900, Norah Waugh, Routledge publication, 2015

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**FIFTH SEMESTER
PART III - CORE PRACTICAL –X- COMPUTER AIDED DESIGN-I**

Maximum CIA: 25
Maximum CE: 50
Total Hours: 72

OBJECTIVE:

To provide students with the knowledge of CAD and their applications

Create the following designs

- | | |
|---|------------|
| 1. Motifs / small designs.
Embroidery designs for Kerchiefs, Neck lines
Chest prints for T-shirts | (11 HOURS) |
| 2. Children's Garments
Jabla- different styles
Frocks- different styles
Middi and Tops - different styles | (11 HOURS) |
| 3. Women's Garments
Churidhar- different styles
Full gowns - different styles
Middi & Tops - different styles
Princess line Dress- different styles.
House coats, Aprons, Nighties | (11 HOURS) |
| 4. Men's Garments
S B vest
T- Shirt - different styles
Shirts - different styles
Kurta pyjama - different styles | (11 HOURS) |
| 5. Create logos for branded companies. | (9 HOURS) |
| 6. Create label for garments / companies | (9 HOURS) |
| 7. Prepare charts for production planning and scheduling. | (10 HOURS) |

TEXT BOOKS:

1. Computer Technology for Textiles and Apparel is 1st Edition Jinlianhu, Woodhead Publishing, 2011
2. Computer- Aided Pattern Designing and Product Development Alison Beazley, Terrybond, 2003

REFERENCE BOOKS:

1. Jane D. Espinoza-Alvarado Computer Aided Fashion Design using Gerber Technology 1st Edition Fairchild Books, 2007.
2. Kathy.K.Mullet, Concepts of Pattern Grading Techniques for manual and Computer Grading 3rd Edition, Fairchild Books, 2015.

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**FIFTH SEMESTER
PART III - ELECTIVE -I - FUNCTIONAL CLOTHING**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 48

OBJECTIVE:

To acquire knowledge on functional requirements of clothing and factors influencing functional performance of clothing, fibres, fabrics and technology adopted in medical textiles, protective clothing, and application of smart wears.

UNIT I (10 HOURS)

Introduction: Functional design of textiles; properties of textiles for specific functions: structural, aesthetic, Smart fibres: Nano fibres, Photo adaptive fibres, Chameleon fibres, Conductive fibres – properties and applications in textiles and apparels.

UNIT II (10 HOURS)

Medical Wear: Classification of medical textiles and their functions – Textile materials used for implants and non-implants –Textiles for extracorporeal devices- Healthcare and hygiene products

UNIT III (10 HOURS)

Protective Wear: Materials used, requirements and functions of flame resistant protective clothing chemical protective clothing- mechanical protective clothing – UV protective clothing and radiation protection

UNIT IV (9 HOURS)

Sports Wear: Clothing requirements, developments of functional fibres, yarns and fabrics suitable for sportswear application and its properties; Footwear Clothing - Fabric requirements, finishing adaptability and evaluation methods

UNIT V (9 HOURS)

Smart and Intelligent Textiles: Phase change materials: production and applications. Shape memory polymers and properties. Stimuli sensitive intelligent textiles, Smart textiles incorporating functional devices, Functional properties – comfort and fit, Application of Non-woven in different areas of textiles.

TEXT BOOK:

1. Horrocks A. R. and Anand S. C, Handbook of Technical Textiles, The Textile Institute, 2nd Edition Woodhead Publications, Cambridge, UK, 2016

REFERENCE BOOKS:

1. Susan Watkins and Lucy Dunne, Functional Clothing Design – From Sportswear to Spacesuits, Blooms Burry Printers, 2015.
2. Vladan Koncar, Smart Textiles and Their Applications, A Volume in Woodhead Publishing Series, Cambridge, 2016

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**FIFTH SEMESTER
PART III – ELECTIVE -I - FASHION PROMOTION**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 48

OBJECTIVE:

To understand fashion communication process and the decision making process of consumers, fundamentals of advertisement, creating an advertisement, media for advertisement and their evaluation.

- UNIT I (10 HOURS)**
Fashion Communication - Fashion and Anti fashion, Fashion clothing and Deception, Fashion clothing and culture, Fashion power and Ideology. Function of Fashion Clothing - Material function – protection, modesty and concealment, immodesty and attraction. Cultural functions – individuality expressions, social status, social role, economic status, political status, religious status.
- UNIT II (10 HOURS)**
Fashion and Society: Fashion and modernity, fashion and post modernity, fashion art, performance, masquerade fashion and allegory, fashion and un-decidability, fashion and pastiche, fashion and bricolage, fashion and ambivalence.
- UNIT III (10 HOURS)**
Advertising: Definition, advertising objectives, benefits, economic aspects and ethics in advertising. Advertising and marketing mix.
Advertising Business: Organization, advertising manager, advertising agency, advertising plan, basic principles, agency compensation. Public relations
- UNIT IV (9 HOURS)**
Advertising Appeal: Message – reach, frequency, impact and effectiveness
Media Overview: Types of media, media selection, media plan, media cost and availability.
Matching media and market. Geographical selectivity, media strategy, media mix, media scheduling. Comparative evaluation.
Advertising Budget: Allocation of budget for various components of advertising. Methods of determining budget for advertisement. Administering the advertisement budget
- UNIT V (9 HOURS)**
Fashion Product Development: Fashion Products and its importance – Fashion Industry and new Product Development – Fashion Designers role in apparel market – Branded Products – personal labels – stores that seek the merchandise.

TEXT BOOKS:

1. Mike Easey, “Fashion Marketing”, Blackwell Science, 2000.
2. Maurice J. Johnson and Evelyn C. Moore, “Apparel Product Development”, Prentice Hall Inc., 2001.

REFERENCE BOOKS:

1. Smith, P. R. and Taylor, J., "Marketing Communications: An Integrated Approach", Kozan Page, London, U.K. 2005.
2. Agins, T. "The end of Fashion; How Marketing Changed the Clothing Business Forever", Perennial, 2000.
3. Hines, T and Bruce, M. "Fashion Marketing-Contemporary Issues", CIM, 2001
4. George Belch, Michael A Belch, "Advertising Promotion: An Integrated Marketing Communication Perspective", Tata Mc Graw Hill, 2001.
5. John M Penrose, Robert W Rasberry, Robert J. Myers, "Advanced Business Communication", South Western Publication Company, 2001

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**FIFTH SEMESTER
PART III - ELECTIVE - I - HOME FURNISHINGS**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 48

OBJECTIVE:

To gain knowledge on importance and market trends in home furnishings knowledge on types, design and development, care and maintenance of different types of home furnishings.

UNIT I (10 HOURS)

Introduction: Introduction of Textile Furnishing - definition – different type of furnishings materials – Woven and non-woven – Factors affecting selection of home furnishings – fibre, fabric, and value added finishing for home furnishings - soil repellency, mosquito repellency, flame proofing, dust repellency, antimicrobial finish.

UNIT II (10 HOURS)

Window Treatment Doors and Windows – types. Window Treatment – exterior, interior -hard and soft. Curtains and Draperies – types, parts, factors for selection and construction, accessories used.

UNIT III (10 HOURS)

Living Room Furnishing: Living Room furnishings - sofa Cover, cushion, cushion cover, bolster, bolster cover, teapoy cover. Floor covering – types - resilient floor coverings, soft floor coverings - carpet, rugs, mats. Wall coverings – types.

UNIT IV (9 HOURS)

Bed And Bath Linen: Bed linens – types – bed sheets, blankets, blanket covers, comforters, comforter covers, bed spreads, mattress and mattress covers, pads, pillows and pillow covers. Care and Maintenance of bed linen. Bath linen –types - towel, mats. Care and maintenance of bath linen.

UNIT V (9 HOURS)

Kitchen And Table Linen: Kitchen linens – types - dish cloth, towels, fridge cover, fridge handle cover, mixie cover, and grinder cover, napkin, apron. Table Linen – Types - table mats, table cloth, hand towel, doilies, runners. Cleaning materials – wipes and mops. Care and maintenance of kitchen and table linen

TEXT BOOKS:

1. Jay Diamond and Ellen Diamond, “Fashion Apparel, Accessories, Home Furnishings”, Pearson Prentice Hall, New Jersey, 2007.
2. Hamlym, “Bed and Table linen”, Octopus Publishing Group Ltd, Newyork, 2001.
3. David Holloway, “The Essential Book of Home Improvement Techniques”, Marshals Publications, London, 2000.

REFERENCE BOOKS:

1. Emma Callery, "The Home Decorator's Colour Source Book", Apple Press Ltd, London, 2006.
2. Heather Luke, "Design and Make Cushions", Silverdale Books Ltd, Leicester, 2001.
3. Hamlym, "Curtains and Blinds", Octopus Publishing Group Ltd, Newyork, 2001.

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**SIXTH SEMESTER
PART III - CORE –XI- FUNDAMENTALS OF KNITTING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

To obtain knowledge on knitted clothes and their manufacturing techniques

UNIT-I (12 HOURS)

Knitting – Definition, history and classification, types of knitting- hand and machine, characteristics of knitted goods.

UNIT-II (12 HOURS)

General terms – loop, stitch density, gauge. Basic knitting elements - types and functions. Needle and its classification- spring, beard, compound, latch. Advantages and disadvantages.

UNIT-III (12 HOURS)

Weft knitting –classification -single jersey machine, double jersey, interlock, rib, purl knitting machine. 3 way technique to develop design-knit, tuck, miss-effect of stitches on fabric properties.

UNIT-IV (12 HOURS)

Warp knitting-Classification-tricot, raschel, simplex and milanese-kitten raschel
Application of warp knitted fabric in medical textiles.

UNIT-V (12 HOURS)

Knitted fabric defects. Care and maintenance of knitted material-washing, drying, ironing, storing.

TEXT BOOKS:

1. Sadhan Chandra Ray, Fundamentals and Advances in Knitting Technology, Woodhead Publishing series in textile, 2011
2. D.J. Spencer, knitting technology (third Edition), Woodhead publishing series in textile, 2017

REFERENCE BOOKS:

1. Knitting Fundamentals, Machines, Structure and Developments, N.Anbumani-2007
2. Elsevier, Advances in Knitting Technology, Woodhead publishing series in textile, 2011.
3. D.F.Paling, Warp Knitting Technology, Harlequin press 2009.

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**SIXTH SEMESTER
PART III - CORE PRACTICAL –XII- FUNDAMENTALS OF KNITTING**

Maximum CIA: 25
Maximum CE: 50
Total Hours: 60

OBJECTIVE:

To provide students with the knowledge of knitted clothes types and their defect analysis.

Identify the given fabric

Methodology used – unravel and graphic representation

- Plain Knit (6 HOURS)
- Rib Knit – 1x1, 2x2 (6 HOURS)
- Interlock (6 HOURS)
- Pique – any 2 structures (6 HOURS)
- Tricot (6 HOURS)
- Raschel (6 HOURS)

Defect Analysis

- Vertical and horizontal lines (6 HOURS)
- Holes and cuttings (6 HOURS)
- Distorted stitches (6 HOURS)
- Any other (6 HOURS)

TEXT BOOKS:

1. Sadhan Chandra Ray, Fundamentals and Advances in Knitting Technology, Woodhead Publishing series in textile, 2011
2. D.J. Spencer, knitting technology (third Edition), Woodhead publishing series in textile, 2017

REFERENCE BOOKS:

1. Elsevier, Advances in Knitting Technology, Woodhead publishing series in textile, 2011.
2. D.F.Paling, Warp Knitting Technology, Harlequin press 2009

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**SIXTH SEMESTER
PART III - CORE PRACTICAL –XI- COMPUTER AIDED DESIGN-II**

Maximum CIA: 25

Maximum CE: 50

Total Hours: 72

OBJECTIVE:

To provide students with the knowledge of CAD and their applications

1. Application of colour harmony in Design (12 HOURS)
 - Monochromatic colour harmony
 - Analogous colour harmony
 - Complementary colour harmony
 - Double Complementary colour harmony
 - Split complementary colour harmony
 - Triad colour harmony
 - Tetrad colour harmony
 - Neutral colour harmony
2. Applications of Principles of design in dress design (12 HOURS)
 - Balance –Formal and informal
 - Rhythm – by line movement, gradation, repetition.
 - Emphasis
 - Proportion
 - Harmony
3. Design Garments for the following. (12 HOURS)
 - Party Wear – Women, Men, Children.
 - Sports Wear- Tennis, Basket ball/foot ball (men and Women), Golf, any other.
 - Fashion show – Children, men and women
 - Winter Wear - Children, men and women
 - Summer Wear - Children, men and women
 - Spring Wear - Children, men and women
 - School uniforms – Preschool, school, higher secondary and college going students-boys and girls.
4. Prepare pattern for the following. (12 HOURS)
 - Bib
 - Jabla
 - Knicker
5. Grade the following patterns. (12 HOURS)
 - Bodice front
 - Bodice back
6. Scan designs from books / Magazines / photos and edit the designs – colour or features or back ground etc., or add details like ornaments & accessories. (12 HOURS)

TEXT BOOKS:

1. Computer Aided manufacturing- P.N.Rao, N.K.Tewari, T.K.Kundra, McGraw Hill Education 2017.
2. Computer- Aided Pattern Designing and Product Development
Alison Beazley, Terrybond, 2003

REFERENCE BOOKS:

1. Jane D.Espinoza-Alvarado Computer Aided Fashion Design using Gerber Technology
1st Edition Fairchild Books, 2007.
2. Kathy.K.Mullet, Concepts of Pattern Grading Techniques for manual and
Computer Grading 3rd Edition, Fairchild Books, 2015
3. Carolyn L.Moore & Kathy.K.Mullet, Concepts of Pattern Grading Techniques for manual
and Computer Grading, Margaret.B.Prevatt Young, 2010

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**SIXTH SEMESTER
PART III - ELECTIVE -II - APPAREL MARKETING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

OBJECTIVE:

To develop the marketing skills of apparel among the students & to familiarize the students with the process and procedure of advertising, sales promotion and pricing.

UNIT-I (10 HOURS)

Meaning and classification of Marketing ,fashion Marketing ,fashion Market – Size and structure, Marketing environment – Micro and macro marketing environment , Trends in marketing environment .

UNIT-II (10 HOURS)

Marketing Function – Assembling, standardization and Grading and packaging, product planning and development ,importance of fashion products , Nature of fashion products. The fashion industry and new product development, product mix and range planning, Fashion and related cycles.

UNIT-III (10 HOURS)

Fashion Advertising and preparation of advertising for apparel market, Advertising media used in apparel market – Advantages and limitations, Advertising department – structure and functions , advertising agencies – structure and functions, Advertising Budget.

UNIT-IV (9 HOURS)

Fashion sales promotional programme for apparel marketing , communication in prop motion, Personal selling, point of purchase, sales promotion – Objectives and methods, Marketing Research – Definition, Scope and Process – Areas of research.

UNIT-V (9 HOURS)

Pricing policies and strategies for apparel products, importance of price policies, Functions and factors Influencing pricing- internal and external, pricing strategies for new products, methods of setting prices.

TEXT BOOKS:

1. O.C.Ferrell- Marketing Concepts and Strategies, Houghton Mifflin, 2005
2. Mike Easey- Fashion marketing (third Edition), Blackwell Publishing, 2009.
3. Harriet Posner- Marketing fashion: Strategy, Branding and Promotion, Laurence king, 2015.

REFERENCE BOOKS:

1. The End of Fashion: How Marketing Changed the Clothing Business Forever- Teri Agins, William Marrow, 2000.
2. Dr. Frances Brassington- Principles of Marketing, Financial Times/Prentice hall,2006

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**SIXTH SEMESTER
PART III - ELECTIVE-II - APPAREL PRODUCTION MANAGEMENT**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

OBJECTIVE:

To obtain the knowledge on production sequence management in apparel manufacturing industry.

UNIT I: (10 HOURS)

Nature and scope of management – Management Science/Art – Development of management theory – Scientific management – Henry Foyal’s principles of management.

UNIT II: (10 HOURS)

Planning – Meaning and purpose of planning – Steps in planning – Types of planning – Objectives and policies – Objectives, policies, procedures and methods, nature and types of policies – Decision making – Process of decision making – Types of decisions – Problems involved in decision making.

UNIT III: (10 HOURS)

Organizing – Types of organization – Organizational structure – Span of control – Committees. Delegation and centralization line & staff relationship – staffing – Sources of recruitment – Selection process – Training methods – Performance appraisal.

UNIT IV: (9 HOURS)

Directing – Nature and purpose of directing – Motivation – Discipline – Leadership – Supervision – Communication – Requirements for effective controls – Critical control points and standards.

UNIT V: (9 HOURS)

Controlling – Need for co-ordinating – Meaning and importance of control – control process – types of control.

TEXT BOOKS:

1. Apparel Production Management and the Technical Package – Paula.j.Myers-McDevitt, Fairchild Publications, 2010
2. O.P.Khanna, Industrial Engineering and Management, Dhanapat Rai Publications, NewDelhi(2006).
3. Patrick.J.Montana and Bruce.H.Charnov,Management, Barrows(2000).

REFERENCE BOOKS:

1. Apparel Production Terms and Processes- Janace e. Bubonia, Fairchild Publications, 2001.
2. Production Planning and control in Apparel Manufacturing: The Beginner’s Guide-Prasanta Sarkar-2017.

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SIXTH SEMESTER

PART III – ELECTIVE -II - FASHION MERCHANDISING AND MARKETING

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

OBJECTIVE:

To impart knowledge about marketing and merchandising and understand the role played by the fashion buying offices.

UNIT I (10 HOURS)

Introduction to Merchandising, Requirements of a merchandiser, Responsibilities of a merchandiser, merchandising terminology, 6 months merchandising plan-buying calendar

UNIT II (10 HOURS)

Types of Merchandising - Export House – manufacturer Exporter-Merchant exporter – Buying house- Buying Agency –Types of Buying agency, Selection of Buyer's & Buying Agency, Functions of merchandiser in an Export house, buying house and buying agency, Importance of LC amendments

UNIT III (10 HOURS)

Importance of costing in Apparel industry-elements of costing, fabric construction/GSM calculation, patterning vs. costing, fabric consumption calculation, fabric costing- woven and knits, value added materials in garments, Garment costing-men's style, ladies style, childrens style, shipping charges, trial costing

UNIT IV (9 HOURS)

Introduction, Meaning, nature, functions, importance, marketing environment

•Definitions of Marketing, Concept of Marketing,

•Marketing Mix

•Segmentation

•Targeting

•Positioning

Analysis of consumer markets and buyer behaviour, criteria consumers use in fashion selection, Consumer identification with fashion life cycle, Merchandising the fashion life cycle, Understanding consumer behaviour, Role of the Digital marketing (internet): technological development, development of ecommerce, different commercial models and diverse roles of websites.

UNIT V (9 HOURS)

Product Mix, Product Life Cycle, New Product Development customer profiles, marketing research methods, test marketing, Types of Resident buying offices, Fashion consultant, trade publications.

TEXT BOOKS:

1. Mary G. Wolfe, Fashion Marketing and Merchandising, 3rd Edition, 2009.
2. Suzanne G. Marshall, Hazel O. Jackson M. Sue Stanley, Mary Kefgen, Individuality in clothing Selection and Personal Appearance, Phyllis Touchie Specht, New Jersey, 2011.
3. Kitty G. Dickerson, Inside the Fashion Business, Pearson Education, Singapore, 2003.

REFERENCE BOOKS:

1. Kathryn Mokelvey, Janine Munslow, Fashion Design Process, Innovation and Practice, Black Well Science Ltd, U.K, 2005.
2. Dudeja V.D., Professional Management of Fashion Industry, Gangandeeep Publications, New Delhi, 2005.

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**SIXTH SEMESTER
PART III - ELECTIVE -III - ORGANISATION OF GARMENT UNIT**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 48

OBJECTIVE:

To develop entrepreneurship skills among the students & to familiarize the students with the process and procedure of setting up new enterprises.

UNIT-I (10 HOURS)
Entrepreneur- Meaning definition and types , need for Entrepreneurs, Entrepreneurship- qualities and types of Entrepreneurship. Difference between Entrepreneur and manager. Management- Definition, Management as a process –Planning ,organizing ,Directing Controlling, Co ordination.

UNIT-II (10 HOURS)
Institutions supporting entrepreneurs- DIC, NSIC ,SISI,SIPCOT, TII,KVIC, CODISSIA, SBI and other financial institutions. Organizational structure of a garment unit –Hierarchical organization, production planning and control.

UNIT-III (10 HOURS)
Different department in a garment unit – Design department, Finance department, purchasing department, Production department, Organizing different sections – hierarchy, Personnel involved in all the departments, nature of the job .

UNIT-IV (9 HOURS)
Factory Design and layout – importance of factory design, factors affecting factory design, Types of buildings, (single and Multi –storey) –advantages and limitation. Factory layout – Process, Product and combined layout Design requirement – requirements relating to health, safety and welfare

UNIT-V (9 HOURS)
Performance of Indian Garment Export, SWOC Analysis Setting up of garment unit for export market, Export Document ,Export finance- Payment method ,Export shipping. Role of merchandiser in a garment unit

TEXT BOOKS:

1. Principles of Management- Robert Kreitner, South-Western College Pub, 2012.
2. Garment Exports – Darlie O Koshy, Prentice Hall of India, 2006.
3. Vasanth Desai, The dynamics of entrepreneurial development & Management: 6th edition Himalaya publish house. 2009

REFERENCE BOOKS

1. Bruno Dyck- Principles of Management, International Edition- South Western College, 2009.
2. SangramKeshariMohanti, Fundamentals & Entrepreneurship: 2009: PHI learning.
3. Pravin Durai, Principles of Management, Text and cases, Pearson 2015

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**SIXTH SEMESTER
PART III - ELECTIVE -III - EXPORT ANALYSIS AND DOCUMENTATION**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

OBJECTIVE:

To get the knowledge on export analysis and documentation in garment export industry.

UNIT I: (10 HOURS)

Cost estimation of yarn, knitted fabric, dyeing, printing & finishing. Cost estimation for cutting, stitching, checking, forwarding, shipping and insurance –INCO terms & their relationship with costing. Estimation of factory cost for vest, briefs, shorts, T-Shirts, pyjamas, children's wear and women's wear. Various factors to be considered in costing for domestic products & international products.

UNIT II: (10 HOURS)

Introduction – Apparel Export promotion Council and its role – Registration formalities – Registration cum membership certificate – Import Export code – RBI code. Benefits and incentives offered by Government of India to garment export. Role of SEZ and apparel parks in export.

UNIT III: (10 HOURS)

Need, rationale and types of documents relating to goods – Invoice – Packing note and list – Certificate of origin – Certificates related to shipment – Mate receipt – Shipping bill – Certificate of measurement – Bill of lading – Air way bill – Documents related to payment – Letter of credit – Bill of exchange – Letter of hypothecation – Bank certificate for payment – Document related to inspection – Certificate of inspection – GSP and other forms. Importance of insurance of goods in foreign trade – ECGC and its role.

UNIT IV: (9 HOURS)

Import license – Procedure for import license – Import trade control regulation procedure – Special schemes – Replenishment license – Advance license – Split up license – Spares for after sales service license – Code number – Bill of entry.

UNIT V: (9 HOURS)

Pre shipment inspection and quality control – Foreign exchange formalities – Pre shipment documents. Shipment of goods and port procedures – Customs clearance.

TEXT BOOKS:

1. C. Rama Gopal- Export Import Procedures- Documentation and Logistics, Newage Publication, 2006.
2. Rupnarayan Bose- A Complete Guide to Letter of Credit and the UCP, Laxmi Publications, 2015.

REFERENCE BOOKS:

1. Justin Paul- Export Import Management, Oxford Publisher, 2013
2. Ram Singh- International Trade Logistics , Oxford University Press Publisher, 2015.

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**SIXTH SEMESTER
PART III - ELECTIVE -III - APPAREL QUALITY MANAGEMENT**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 48

OBJECTIVE:

To obtain the knowledge on quality in apparel manufacturing and management quality practices in garment industry.

UNIT I: (10 HOURS)

Meaning of quality, testing and standard and their importance in apparel industry – Quality terminologies – Sources of international standards. Quality Parameters of yarn: Yarn evenness & hairiness and their effect on fabric quality. Quality parameters of fabric: Brief study of fabric pilling resistance, bursting strength, colour fastness and dimensional stability. Testing of sewing threads, zippers, fusible interlings, buttons and fasteners.

UNIT II: (10 HOURS)

Inspection: Incoming and raw material inspection: Fabric inspection – 4-point system. In process/ on-line inspection: Advantages – On line inspection during spreading, pattern making, cutting, sewing and ironing.

Final inspection: Sampling plans and AQL charts – Level of final inspection. Packing & packaging quality tests. Care labeling and international care symbols.

UNIT III: (10 HOURS)

Principles of TQM – Deming's PGDCA Cycle - KAIZAN concepts – 5 'S' applications in apparel industry. Application of seven QC tools in apparel industry.

UNIT IV: (9 HOURS)

Understanding of ISO 9001:2000 standards: QMS, management responsibility, resource management, product realization and measurement analysis & improvement – Various documents required for ISO 9001:2000 implementation and its contents – Development of quality system manual for garment industry.

UNIT V: (9 HOURS)

Documented procedures required for ISO 9001:2000 implementation – Procedures for internal quality audit – Management review meeting – Certification process – Surveillance audit.

TEXT BOOKS:

1. Pradeep V Mehta Quality Management Handbook for the Apparel Industry, Newage International Private limited, 2012.
2. The Fundamentals of Quality Assurance in the Textile Industry- Stanley Bernard Brahams Productivity Press, 2016.

REFERENCE BOOKS:

1. Subrata Das- Quality Characterisation of Apparel, CRC Press, Publisher, 2010.
2. Impact of Quality Attributes on Customer Satisfaction in Apparel Retailing- Richa Kumari Grin Publishing, 2012.

**B.Sc. (Costume Design and Fashion) Degree Examination- Syllabus for Candidates
admitted from the Academic Year 2016-2017 onwards**

**SIXTH SEMESTER
PART III - PROJECT- FASHION PORTFOLIO PRESENTATION**

Maximum CIA: 75
Maximum CE: 75
Total Hours: 72

OBJECTIVE:

To develop the creativity of garment designing as per the satisfaction of customers along with their needs.

- Portfolio development and presentation technique;
- To be planned for a season or occasion
- Mood board, Story board, Fabric board, colour board – to be presented separately or in a combined form.
- Fabric development chart
- Design development chart
- Final presentation
- Number of garments in a collection – 4-6 garments.

TEXT BOOKS:

1. Fashion Portfolio: Design and Presentation, Anna Kiper-2016
2. Designing your Fashion portfolio: From Concept to presentation, Joanne Barrett-2012.

REFERENCE BOOKS:

1. Portfolio for Fashion Designers, Kathryn Hagen, Julie Hollinger-2012.
2. Portfolio Presentation for Fashion Designers- Linda Tain-2018.

B.Sc., VISUAL COMMUNICATION
Scheme of Examination (CBCS Pattern)

For the candidates admitted from the Academic Year 2018 – 2019 and onwards

Part	Sub Code	Subject Title	Ins. Hrs/Week	Examination				
				Dur. Hrs.	CIA	CE	Total	Credit
SEMESTER I								
I	16LATA01/18LAHI01/ 15LAMY01/15LAFR01	Language – I Tamil/Hindi/Malayalam/French	5	3	30	70	100	3
II	16ENG001	English – I	5	3	30	70	100	3
III	16VCM101	Core 1- Introduction to Visual Communication	6	3	30	70	100	4
III	16VCMP01	Core Lab I – Fine Art Production	6	3	40	60	100	4
III	16VCMID1	IDC 1: Writing for the media	6	3	30	70	100	4
IV	18UFCA01	Foundation Course I: EVS #	2	2	-	50	50	2
		Total	30				550	20
SEMESTER II								
I	16LATA02/18LAHI02/ 15LAMY02/15LAFR02	Language –II Tamil/Hindi/Malayalam/French	5	3	30	70	100	3
II	16ENG002	English – II	5	3	30	70	100	3
III	16VCM201	Core 2: Media History	6	3	30	70	100	4
III	16VCMP02	Core Lab 2 – Graphic Arts – Info. design	6	3	40	60	100	4
III	16VCMID2	IDC 2: Advertising	6	3	30	70	100	4
IV	18UFCA02	Foundation Course II: Value Education #	2	2	-	50	50	2
		Total	30				550	20
SEMESTER III								
I	16LATA03/15LAHI03/ 15LAMY03/15LAFR03	Language – III Tamil/Hindi/Malayalam/French	5	3	30	70	100	4
II	16ENG003	English – III	5	3	30	70	100	4
III	16VCM301	Core 3: Communication Theories	5	3	30	70	100	4
III	16VCMP03	Core Lab 3: Digital Photography	5	3	40	60	100	4
III	16VCMID3	IDC 3: Creative Writing	5	3	30	70	100	4
IV	16VCMAO1 / 16VCMAO2	AOC I: Web Designing I / Basics of Multimedia #	3	3	-	75	75	3

IV	16BTA001 / 16ATA001 / 16VCMED1	EDC 1: BT-I/AT-I / E-Commerce	2	2	-	50	50	2
		Total	30				625	25
SEMESTER IV								
I	16LATA04/15LAHI04/ 15LAMY04/15LAFR04	Language – IV Tamil/Hindi/Malayalam/French	5	3	30	70	100	4
II	16ENG004	English – IV	5	3	30	70	100	4
III	16VCM401	Core 4: Television Production Techniques	5	3	30	70	100	4
III	16VCMP04	Core Lab 4: Script Writing I	5	3	40	60	100	4
III	16VCMID4	IDC 4: Media, Society and Culture	5	3	30	70	100	4
IV	16VCMAO3 / 16VCMAO4	AOC II: Web Designing II / E-Content Development #	3	3	-	75	75	3
IV	16BTA002 / 16ATA002 / 16VCMED2	EDC 2: BT/AT / Social Media Marketing	2	2	-	50	50	2
V	15NCC001 / 15NSS001 / 15SPT001/ 15EXT001	NCC/NSS/Sports/ Extension Activity	-	-	50	-	50	2
		Total	30				675	27
SEMESTER V								
III	16VCM501	Core 5: Media, Laws and Ethics	5	3	30	70	100	4
III	16VCM502	Core 6: Film Studies	5	3	30	70	100	4
III	16VCMP05	Core Lab 5: 2D Animation and 3D Modeling	5	3	40	60	100	4
III	16VCMP06	Core Lab 6: Audio Production	5	3	40	60	100	4
III	16VCMP07	Core Lab 7: Video Editing	5	3	40	60	100	4
III	16VCME01/ 16VCME02/ 16VCME03	Elective I: Social Psychology/ Integrated Marketing Communication/World Cinema	5	3	30	70	100	4
		Total	30				600	24
SEMESTER VI								
III	16VCM601	Core 7: Public Relations	5	3	30	70	100	4
III	18VCMP08	Core Lab 8: Package and Design Principles	5	3	40	60	100	4
III	16VCMP09	Core Lab 9: Compositing and Visual Effects	5	3	40	60	100	4

III	16VCME04/ 16VCME05/ 16VCME06	Elective II: Cultural Studies/ Event Management / Film Appreciation and Criticism	5	3	30	70	100	4
III	16VCME07/ 16VCME08/ 16VCME09	Elective III: Political Communication/ Media Management/ Film Distribution and Marketing	5	3	30	70	100	4
III	16VCMR1	Project (Short Film and Documentary Production) and Viva Voce	5	3	50	50	100	4
		Total	30				600	24
Total							3600	140

students who opted AOC I a. in third semester has to opt AOC II a. in fourth semester and students who opted AOC I b. in third semester has to opt AOC II b. in fourth semester respectively.

@ students who opted Elective I a. in fifth semester has to opt Elective II a. and Elective III a. in sixth semester respectively. Students who opted Elective I b. in fifth semester has to opt Elective II b. and Elective III b. in sixth semester respectively. Students who opted Elective I c. in fifth semester has to opt Elective II c. and Elective III c. in sixth semester respectively.

IDC – Inter-disciplinary Course, EDC – Extra-disciplinary Course

AOC – Application-oriented Course

List of Additional Credit Papers

Semester	Code	Subject Title	Max Marks	Credits
III	16VCMAC1	English Poetry	100	2
IV	16VCMAC2	New Media Studies	100	2
V	16VCMAC3	Cyber Security	100	2

List of Elective Papers

Subject Code	Subject Title
16VCME01	Social Psychology
16VCME02	Integrated Marketing Communication
16VCME03	World Cinema
16VCME04	Cultural Studies
16VCME05	Event Management
16VCME06	Film Appreciation and Criticism
16VCME07	Political Communication
16VCME08	Media Management
16VCME09	Film Distribution and Marketing
List of Application Oriented Course Papers	
Subject Code	Subject Title

16VCMAO1	Web Designing I
16VCMAO2	Basics of Multimedia
16VCMAO3	Web Designing II
16VCMAO4	E-Content Development

Summary			
Part	No of Papers	Total Credits	Total Marks
I	2	6	200
II	2	6	200
III – Core	20	80	2000
III – IDC	4	16	400
III – Elective	3	12	300
III - Project	1	4	100
IV – Foundation Course	2	4	100
IV – EDC	2	4	100
IV – Application Oriented Course	2	6	150
V – Extension Activities	-	2	50
Total	38	140	3600

REGULATIONS FOR THE BOARD OF VISUAL COMMUNICATION
(Effective from the academic year 2016-2017 onwards)

1. Project and Viva-Voce :

Each student in the UG final year shall compulsorily undergo Project Work in the sixth semester. Projects shall be done individually. Student should submit either a documentary or short film for a duration not exceeding 30 minutes. Project reviews shall be conducted thrice in which the progress of project work shall be strictly evaluated by respective project guides. Viva-Voce shall be conducted only in the presence of academicians. Out of the Total of the total 100 marks, 50 marks shall be allocated for CIA and 50 for CE VIVA-VOCE.

2. Submission of Record Note Books for practical examinations

Candidates appearing for practical examinations shall submit bona-fide Record Note Books prescribed for practical examinations. If not, the candidate has to submit a bona-fide certificate issued by the concerned subject in-charge duly signed by the Head of the Department. In such case, the record marks will not be provided.

3. Distribution of Marks: The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum(Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	28	30	40
	75	75	30	-	30
	50	50	20	-	20
Practical Paper	100	60	24	40	40
Project	100	50	20	50	40

4. Distribution of Internal Mark for Theory : (No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1.	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6(Months)=30

Breakup for Attendance:

65% - 74 % - 4 Marks
 75% - 80% - 6 Marks

SECTION – A (10×1=10)

Answer ALL questions

Each question carries ONE mark

(NO CHOICE)

Ten multiple choice questions

SECTION – B (5×4=20)

Answer ALL questions

Each question carries FOUR Marks

(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answerer ALL questions

Each question carries EIGHT Marks

(INTERNAL CHOICE)

9. Question Paper Pattern

Time: 3 Hour

Max marks: 75

SECTION – A (10×1=10)

Answer ALL questions

Each question carries ONE mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B (5×5=25)

Answer ALL questions

Each question carries FIVE Marks

(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answerer ALL questions

Each question carries EIGHT Marks

(INTERNAL CHOICE)

10. Question Paper Pattern

Time: 3 Hour

Max marks: 50

SECTION – A (10×1=10)

Answer ALL questions

Each Question carries ONE Mark

(NO CHOICE)

Ten Multiple Choice Questions

SECTION – B (5×3=15)

Answer ALL questions

Each question carries THREE Marks

(INTERNAL CHOICE)

SECTION – C (5×5=25)

Answerer ALL questions

Each question carries FIVE Marks

(INTERNAL CHOICE)

NOTE:

1. The questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the unit in the syllabus in all the sections of the question paper.
3. While framing questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

8. Conduct of Practical Examinations:

Practical examinations shall be conducted with one internal examiner and one external examiner and the question paper for practical examination shall be set by both Internal and External examiners.

IDC- Inter-disciplinary Course, EDC – Extra-disciplinary Course,
AOC – Application-oriented Course

B.Sc., (Visual Communication) Degree Examination- syllabus for Candidates admitted from the Academic Year 2016 - 2017 Onwards.

**FIRST SEMESTER
CORE I: INTRODUCTION TO VISUAL COMMUNICATION**

Maximum CIA: 30

Maximum CE: 70

Total hours: 72

OBJECTIVE:

To inculcate the knowledge of communication skills, process, levels and fundamental aspects in the minds of student fraternity.

UNIT-I (14 HOURS)

Communication: need and importance. Communication models with case studies. Communication as expression, skill and process. Message, meaning, connotation, denotation, culture/codes, with case studies.

UNIT-II (14 HOURS)

Levels of communication: technical, semantic and pragmatic. The semiotic landscape: language and visual communication, narrative representation.

UNIT-III (15 HOURS)

Fundamentals of design: definition, approaches, centrality and elements. Shape, space, color, texture and form. Principles of design: symmetry, rhythm, contrast, balance, mass/scale. Design and designers: need, role, process and methods. Text, image, design and sound.

UNIT-IV (15 HOURS)

Principles of visual and other sensory perceptions. Color psychology and theory. Definition, optical/visual illusions. Various stages of design process, problem identification, search for solution refinement, analysis, decision making and implementation. Basics of graphic design: definition, elements and approaches. Design concepts and developing ideas. Verbal, visual and thematic thinking and techniques, tools, execution and presentation.

UNIT-V (14 HOURS)

Digital histories and new media technologies. Visual communication on the Web. Influence of smart phone on visual communication and design principles.

Text Book:

1. Keval J.Kumar (1994) Mass Communication in India Jaico Publishing House fourth Edition.
- 2.

Reference Books:

1. Lester, E (2000) Visual Communications: Images with Messages. Thomson Learning.
2. Schildgen, T (1998). Pocket Guide to color with digital applications. Thomson Learning.
3. Picture this: Media Representation of Visual Arts and artists. University of Luton Press.
4. Palmer, Frederic: Visual Elements of Art and Design,1989, Longman.

5. Porter, Tom and Goodman, Sue: Manual of Graphic Technique 2: For Architects.
6. Graphic Designers, and Artists,1982, Astragal Books. London.
7. Palmer. F: Visual Awareness (Batsford, 1972).
8. Arora, Deva Yashwant Singh. Multimedia 98: Shaping the Future.
9. Graham, L (1999) The principles of Interactive Design. Thomson Learning.

B.Sc., (Visual Communication) Degree Examination- syllabus for Candidates admitted from the Academic Year 2016 - 2017 Onwards.

**FIRST SEMESTER
CORE LAB I: FINE ART PRODUCTION**

**Maximum CIA: 40
Maximum CE: 60
Total hours: 72**

OBJECTIVE:

To instill the students with the basic knowledge of creative drawing through pencil sketching, water colours, acrylic, oil painting and modern art.

1. Basics of drawing (Colours, light and shade)
2. Perspective
3. Types of shading
4. Pencil sketching
5. Water color – Landscape
6. Acrylic – Live model portrait
7. Oil Painting - Still life
8. Mixed media – Relief/modern art

B.Sc., (Visual Communication) Degree Examination- syllabus for Candidates admitted from the Academic Year 2016 - 2017 Onwards.

**FIRST SEMESTER
IDC 1: WRITING FOR THE MEDIA**

Maximum CIA: 30

Maximum CE: 70

Total hours: 72

OBJECTIVE:

To inculcate the knowledge of writing skills with special reference to Print, Electronic and New Media.

UNIT-I (14 HOURS)

Types of writing. Inverted Pyramid format of news writing. Understanding news writing and newspaper design. Hard news and feature stories. Types of news stories: spot news, features, editorials, columns, opinion pieces, Op-Ed, obituaries and news interviews.

UNIT-II (14 HOURS)

Elements of news story: Timeless, proximity, personality, conflict, human interest, rarity and impact. Structure of a news story. Font styles. Headlines - types. Leads – types.

UNIT-III (15 HOURS)

Writing crime story, accident story, court story, news interview, sports story, business story, civic story, science-technology story and human-interest story. Editing symbols.

UNIT-IV (15 HOURS)

Writing for radio: planning and scripting for radio programmes, news reading and presentation. Writing for television: news gathering, story formatting, news scripts and visual sync for a news story.

UNIT-V (14 HOURS)

Writing for the Web: understanding the internet and urgency, writing and editing, search engine optimization, keyword considerations and linking.

Text Book:

1. Usha Raman, Writing for the Media, Oxford University Press, 2010.

Reference Books:

1. Sunny Thomas, Writing for the Media, Career Information & Guidance.
2. Fred Fedler, John .R.Bender, reporting for the media, Oxford University press, New York, 2000.

B.Sc., (Visual Communication) Degree Examination- syllabus for Candidates admitted from the Academic Year 2016 - 2017 Onwards.

**SECOND SEMESTER
CORE 2: MEDIA HISTORY**

Maximum CIA: 30

Maximum CE: 70

Total hours: 72

OBJECTIVE:

To inculcate the knowledge of historical development and the related aspects to the students with special reference to Print, Film and Electronic Media.

UNIT-I (14 HOURS)

Historical development of the press as a media institution in India. Advent of printing press in India and newspaper. Role of the press in the Indian freedom movement.

UNIT-II (15 HOURS)

Study of leading newspapers journalists in India since 1947. The vernacular press in India and the development of news agencies. History and development of the press as a medium of mass communication in Tamil Nadu.

UNIT-III (15 HOURS)

Invention and development of radio as a medium of mass communication. Development of radio in the pre-independent and post-independent India. Invention and development of television as medium of mass communication in India. Advent and growth of satellite and cable television networks in India.

UNIT-IV (14 HOURS)

Film as medium of mass communication. Historical development of film in India and its influence in Tamil Nadu.

UNIT-V (14 HOURS)

Development of the new media technologies in India. Smartphones and the World Wide Web: proliferation, access, uses and impact, digital divide.

Text Book:

1. Keval J.Kumar (1994) Mass Communication in India Jaico Publishing House fourth Edition.

Reference Books:

1. Nadiq Krishna moothy Indian Journalism, Prasaranga, University of Mysore, 1966.
2. Chatterjee, P.C, Broadcasting in India, Sage, New Delhi, 1990.
3. Luthra, I.I.R Indian Broadcasting, Publications Division, New Delhi, 1986.

B.Sc., (Visual Communication) Degree Examination- syllabus for Candidates admitted from the Academic Year 2016 - 2017 Onwards.

**SECOND SEMESTER
CORE LAB 2: GRAPHIC ARTS – INFORMATION DESIGN**

Maximum CIA: 40

Maximum CE: 60

Total hours: 72

OBJECTIVE:

To instill the students with the basic knowledge of graphic designing with regard to print media.

1. Practical knowledge on Image editing – color correction and morphing (Photoshop)
2. Designing Letter art (Photoshop and Illustrator)
3. Design creation by means of (Photoshop and Illustrator)
4. Practical knowledge on Logo design
5. Practical knowledge on Ad design
6. Practical knowledge on Brochure design
7. Practical knowledge on designing Visiting card and letterhead.
8. Practical knowledge on Book cover design
9. Practical knowledge on Photoshop layer effects
10. Practical knowledge on Image composite creation

B.Sc., (Visual Communication) Degree Examination- syllabus for Candidates admitted from the Academic Year 2016 - 2017 Onwards.

**SECOND SEMESTER
IDC 2: ADVERTISING**

**Maximum CIA: 30
Maximum CE: 70
Total hours: 72**

OBJECTIVE:

To inculcate the knowledge with regard to the nature, scope, growth and latest trends in Advertising Industry.

UNIT-I (14 HOURS)

Definition, origin and growth of advertising in India. Nature and scope of advertising. Roles of advertising. Social, communication, marketing and economic functions of advertising.

UNIT-II (14 HOURS)

Advertising based on target audience, geographic area, media and purpose. Corporate and promotional advertising. Web advertising.

UNIT-III (14 HOURS)

Latest trends in advertising (India and abroad). Ad agencies and their types. Structure of small, medium and big agencies. Functions, services, legal aspects and ethical issues.

UNIT-IV (15 HOURS)

Client briefing, account planning, creative strategy and briefing, communication plan, brand management and positioning, brand personality, brand image and brand equity. Case studies.

UNIT-V (15 HOURS)

Conceptualisation and ideation. Translation of ideas to campaigns, visualization, designing and layout, copy writing, slogans and catchlines. Logos and trademarks.

Text Book:

1. Sotakki, C.N (1999): Advertising. Kalyani Publishers.

Reference Books:

1. Sandage, frylruger and Rotzoll (1996): Advertising theory and Practice. AAITBS Publishers.
2. Mohan: Advertising Management: Concepts & Cases. Late McGraw – Hiss
3. Jewler, E (1998): Creative strategy in Advertising. Thomson learning.

B.Sc., (Visual Communication) Degree Examination – Syllabus for Candidates admitted from the Academic year 2016 – 2017 Onwards.

THIRD SEMESTER

PART III - CORE 3: COMMUNICATION THEORIES

Maximum CIA: 30

Maximum CE: 70

Total hours: 60

OBJECTIVE:

To provide the students with the knowledge on various theories in communication and also to throw light on the various factors affecting the communication process as well as the current system of communication networks.

UNIT - I (12 HOURS)

Communication: Definitions, scope, forms and purpose; Types of Communication – Inter personal, Intra personal, Mass, Organizational, Verbal, And Non-verbal. Process of Communication: Source, message, channel, receiver (SMCR), feedback, encoder, decoder, noise in communication

UNIT - II (12 HOURS)

Elements of Basic models in communication – Noise factors – Theoretical concepts and constructs in Communication models: Lasswell's model, Two-step flow theory, Schramm's circular model, Whites Gatekeeper theory, Shannon & Weaver's mathematical model, Dance's helical model, Westley and Maclean model.

UNIT - III (14 HOURS)

Communication and human development – Role and functions of mass media in society –Media system and theories: Authoritarian, Libertarian, Social responsibility and communist theories.

UNIT - IV (12 HOURS)

Uses and Gratifications Theory – Media dependency theory; Knowledge gap hypothesis. Effects of Mass Communication –Bullet Theory. Media effects: Social Learning theory: Internet and children- new media and digital divide.

UNIT - V (10 HOURS)

Innovation Diffusion: Process of diffusion, variables, innovation adoption process. Information society – concepts and theories of information society –information super highway – knowledge society and knowledge gap theory – Technological determinism and Global village.

Reference Books:

1. Denis McQuail, Mc.Quails Mass Communication Theory, Vistaar Publications, 2005
2. Arvind kumar , The mass media , Anmol publications, 1999.
3. Mattelart et al, Theories of Mass Communication, Sage, London, 1998.
4. Asa Berger,Essentials of Mass Communication, Sage, New Delhi, 2000.
5. Rosengren et al, Media Gratifications Research, Sage, London, 1985.
6. Webster, Frank, Theories of the Information Society, Routledge, London, 1995.

B.Sc., (Visual Communication) Degree Examination – Syllabus for Candidates admitted from the Academic year 2016 – 2017 Onwards.**THIRD SEMESTER****PART III - CORE LAB 3: DIGITAL PHOTOGRAPHY**

Maximum CIA: 40

Maximum CE: 60

Total hours: 60

OBJECTIVE:

To inculcate the knowledge of camera handling techniques, skills, lighting techniques and creative aspects in the minds of student fraternity.

Basics of Camera (Aperture, Shutter Speed, Focal length, Depth of field etc.). Types of Camera. Types of Lenses. (4 HOURS)

Types of lighting- Key light, Fill light and Backlight. Natural Lighting and Artificial Lighting. Exposure Meters, Differential Focus, Filters, Flashes. (4 HOURS)

Perspectives: Central, Linear etc., Framing, Texture, Pattern, Composition and Design (4 HOURS)

List of Practicals

1. Lighting- Types-key –fill- back - Rim- op-low- silhouette (3 HOURS)
2. Special Effects – Freeze frame – Slow shutter- Motion Blur (3 HOURS)
3. After Dark (3 HOURS)
4. Aperture (2 HOURS)
5. Black and White (2 HOURS)
6. Depth of Field (2 HOURS)
7. Nature (2 HOURS)
8. Reflection (2 HOURS)
9. Shutter speed (2 HOURS)
10. Through the seasons (3 HOURS)
11. Portraits (2 HOURS)
12. Product – Indoor, Outdoor (3 HOURS)
13. Advertising Photography (3 HOURS)
14. Architecture- Interior, Exterior (3 HOURS)
15. Environmental Photography (3 HOURS)
16. Industrial Photography (2 HOURS)
17. Photo-journalism 1 (3 HOURS)
18. Photographs on Foods and Beverage (2 HOURS)
19. Photo Essay – Photo feature (3 HOURS)

Note: The above list of practical have to be taken and submit the compiled work as a record for evaluation

Reference Books:

1. Tom Grimm, The Basic Book of Photography. Fifth Edition, Penguin USA, 2003.
2. Michael Langford: Basic Photography, Focal Press, 2010.
3. Michael Langford: Advanced Photography, Focal Press, 2011.

B.Sc., (Visual Communication) Degree Examination – Syllabus for Candidates admitted from the Academic year 2016 – 2017 Onwards.

THIRD SEMESTER

PART III - IDC 3: CREATIVE WRITING

Maximum CIA: 30

Maximum CE: 70

Total hours: 60

OBJECTIVE:

To inculcate the knowledge of writing techniques, skills, process, levels and fundamental aspects in the minds of student fraternity.

UNIT - I (10 HOURS)

History of writing – Elements of Language – Concept of Literate Societies – Language as a tool of Communication – Writing as coding of contents.

UNIT - II (12 HOURS)

Readability – Techniques of readability – Gunning’s fog Index- Point score – Flesch’s reading Ease Score (RES) and Human Interest Score (HIS) – Practical exercises.

UNIT - III (14 HOURS)

Writing News - Headlines - Writing Lead - Writing Sports news - Writing Features.

UNIT - IV (12 HOURS)

Writing Editorials - Editing Principles - Editing symbols - News selection - Agency reports - Writing Cutline - Editorial page - Writing Reviews - Page layout.

UNIT - V (12 HOURS)

Creative writing – principles and practice – Copyrighting – Classifieds – Displays – testimonials - Practical exercises and review of published articles.

Reference Books:

1. Mencher, Melvin, ‘Basic News Writing’, Universal Bookstall, New Delhi, 1993.
2. Sreenivas Rao, Handbook for Writers and Editors. Academic Book Centre, 1981
3. Reah, Danuta, Language of Newspapers, Routledge, London, 2002.
4. Ferguson, Rowena, ‘Editing A Small Magazine’, Columbia Univ.Press, 1976.
5. Hicks, Wynford, English for Journalism, Routledge, London, 1993.
6. Evans, Harold. ‘Newsman’s English’. Heinemann, London, 1972.

B.Sc., (Visual Communication) Degree Examination – Syllabus for Candidates admitted from the Academic year 2016 – 2017 Onwards.

THIRD SEMESTER

PART IV - AOC I: a. WEB DESIGNING I

Maximum CE: 75

Total Hours: 36

OBJECTIVE:

To inculcate the knowledge of fundamental aspects of Internet, html and web designing and its elements in the minds of student fraternity.

UNIT – I (7 HOURS)

Web basics and overview: Networking – Internet – Domain name system – Web – Content types – Putting information on the web – Web hosting – Domain registration.

UNIT – II (8 HOURS)

Design Basics: Fundamentals of web designing – Design and perception – Brief history of design on the web – Elements of design – Unity and variety – Emphasis, Focal point and Hierarchy – Contrast – Visual balance.

UNIT – III (7 HOURS)

Information architecture, Page layout: Layout overview – Website architecture - Information architecture – Typography basics – Choosing types – Spacing type – Reading type on the web – Web page layout grids.

UNIT – IV (7 HOURS)

HTML basics: History of HTML – HTML Command tags – Defining web page – Main body of the text – Putting headers – Adding paragraph – Formatting text in HTML (font type, size, bold, italics – alignment – setting colours – text colours) – Inserting graphics – Wrapping text between images - Page layouts – Setting background colour – Tables.

UNIT – V (7 HOURS)

Graphics, Audio and Video: Graphics for web – cropping and scanning – Types of artwork – Audio on the web – Video on the web – Video streaming.

Reference Books:

1. Paul.S. way and Sanda Katila, An Introduction to Web design and Programming, Thomson leaning, 2008.
2. Ramesh Bangia, Internet and Web design, Firewall media, Newdelhi, 2008.
3. Internet Bible, IDG Books, New Delhi, 1998.
4. Leno et al., Internet for everyone, Lone Techworld, Chennai, 1998.
5. Tim Worsley, Orling Kindersely, Building a Website, New Delhi, 2000.
6. Daniel Gray, Web Design Fundamentals, Dreamtech Press, New Delhi, 2000.
7. Preston Gralla, How the internet works, QUE, 2006.

B.Sc., (Visual Communication) Degree Examination – Syllabus for Candidates admitted from the Academic year 2016 – 2017 Onwards.

THIRD SEMESTER

PART IV - AOC I: b. BASICS OF MULTIMEDIA

Maximum CE: 75

Total Hours: 36

OBJECTIVE:

To inculcate the knowledge of Multimedia and its elements and authoring features in the minds of student fraternity

UNIT – I (7 HOURS)

Multimedia: Introduction – Presentations and Productions – Characteristics – Elements of Multimedia – Applications of Multimedia: Business Schools – Entertainment – Public places – Virtual reality – Delivering Multimedia.

UNIT - II (7 HOURS)

Text: Fonts and faces – Computers and text – Font editing and design tools – Images: Image representations – color and color palettes – Image file formats.

UNIT - III (7 HOURS)

Sound: Digital audio – MIDI audio – MIDI vs Digital audio – Audio file formats – Adding sound to Multimedia project – Video: Representations – Codecs – Converters – Video editing – NLE.

UNIT – IV (7 HOURS)

Animation: Principles – techniques – cell animation – computer animation – File formats – 2d and 3d animation – Rendering – Delivery: testing – CD and DVD technology and standards – Delivering on WWW.

UNIT – V (8 HOURS)

Authoring: Introduction – Authoring approaches (programming, screen based, information centred) – features of authoring systems – Cross platform systems – Cost – Technical support - Ease of interface design.

References Books:

1. Tay Vaughan, Multimedia; making it work, Tata Mc Graw Hill, 2011.
2. Ranjan Parekh, Principles of Multimedia, Tata Mc Graw Hill, 2006.
3. Brian Underdahl, Macromedia Flash MX: The Complete Reference, McGraw Hill, 2002.
4. Tay Vaughan, Multimedia – Making it work, Mc Graw Hill, NewYork, 1998.
5. J. Keyes, The Ultimate Multimedia Handbook, Mc Graw Hill, NewYork,2000.

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**THIRD SEMESTER
PART IV – EDC1 – E-COMMERCE**

Maximum CE: 50

Total Hours: 24

OBJECTIVE:

To inculcate knowledge for the students to electronic modes of commercial operations.

UNIT I (4 HOURS)

Basic Terms and Introduction - Network, Internet, Transaction - Types of Network - Working of Internet - Web Server – Browser – Server – Client - Web Page.

UNIT II (4 HOURS)

World Wide Web – Portal - Search engine – Cybernetics - Protocol and Protocol Suite - TCP/IP – URL – ISP – Gateway – Modem – Firewall – Mcommerce – VAN.

UNIT III (4 HOURS)

Electronic Devices used for E-Commerce - I-Commerce - I-Commerce Value Chain - Non-Internet based E-Commerce & their Advantages and Disadvantages.

UNIT IV (6 HOURS)

Types of E-Commerce B2B, B2C, & C2B, C2C, G2B (Government to Business), G2C (Government to Citizens) - AI2S (Academic Institutions to Students) - Case studies - Various e-Commerce websites - Electronic Payment System - Internet Banking - Online Share Dealing - Network and Internet Security Need - Data encryption – Cryptography - Digital Signatures – Password - Encrypted smartcard - Bio-matrices - Firewall.

UNIT V (6 HOURS)

Information Technology Act – 2000 - background of InformationTechnology Act 2000 - Preliminary, Definitions - Digital Signatures - Electronic Governance – Attribution - Acknowledgment and Dispatch of electronic records - Secure records and secure digital signatures - Functions of controller - UNCITRAL (United Nations Commission on International Trade Law) - Salient features provisions.

Reference Books:

1. David Whiteley, E-Commerce, Strategy, Technologies and Applications, Tata McGraw, 2001.
2. Mahapatra P.B.S. E-commerce and its applications, Chand Publication, 2001.

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FOURTH SEMESTER

PART III - CORE 4: TELEVISION PRODUCTION TECHNIQUES

Maximum CIA: 30

Maximum CE: 70

Total hours: 60

OBJECTIVE

To introduce students to the field of television production and to understand the basics and techniques involved in television production.

UNIT – I (12 HOURS)

Television and video standards – Frames – Lines – Timing – Scanning – PAL – NTSC – SEECAM – Aspect ratio – Resolution – HD.

UNIT - II (12 HOURS)

Video production: Introduction – Production approach – Production crew: Producer – Director – Assistant director – Floor manager – Technical director – Lighting director – Camera operator – Set designer.

UNIT - III (12 HOURS)

Production techniques: Single and multi camera production – Illusion of reality – Cameras role – Camera as an observer – Persuasive camera – Production methods – Audio: Acoustics – Mono – Stereo – Microphones – Directional features – Microphone stands and mounts.

UNIT - IV (12 HOURS)

Writing for video: script writing - Scripts purpose – Script formats – Full script – Drama script – Assimilation – Relative space – Style – Camera: Controlling the zoom – Basics of shoot – Composing pictures – shooting people – shooting instructional productions.

UNIT - V (12 HOURS)

Lighting for video: Lighting techniques - 3 point lighting – lighting instruments – Chroma key productions – Television graphics – Editing: Shhoting order – running order – transitions – NLE – Continuity techniques.

Reference Books:

1. Vasukibelavadi , Video Production, Oxford University Press, 2008.
2. Gerald Millerson, Video Production Handbook, Focal press, 2008
3. Gerald Millerson, Television Production, Focal press, London, 1999.
4. Ken Pender, Digital Video for the Desktop, Focal Press, 2002.
5. John Watkinson, An Introduction to Digital Video, Focal Press, London, 1994.
6. Tom Letourneau, Lighting Techniques For Video Production , Mc will publications, Tanzania, 1996.
7. Thomas A. Ohanian, Digital Non-Linear Editing, Focal Press. London, 1998.

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THIRD SEMESTER

PART III - CORE LAB 4: SCRIPTWRITING I

Maximum CIA: 40

Maximum CE: 60

Total hours: 60

OBJECTIVE:

To inculcate the knowledge of various formats of scripts and practice them to write scripts for various medium.

1. Radio: Documentary (12 HOURS)
Radio drama
Interview
2. Television: Formats (12 HOURS)
Structure
Page breakdowns
Sitcoms
3. Fact film: Proposal outline (13 HOURS)
Film treatment
Sequence outline
Shooting script
Writing narration
4. Feature film: Story (13 HOURS)
Character
Story treatment
Art of Confrontation
Step outline
Dialogue devices
Master scene script

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FOURTH SEMESTER

PART III - IDC 4: MEDIA, SOCIETY AND CULTURE

Maximum CIA: 30

Maximum CE: 70

Total hours: 60

OBJECTIVE:

To inculcate the knowledge of various functions of mass media, to analyze the media audience and also to provide the students with the contemporary importance of Media in modern society.

UNIT I (12 HOURS)

Mass Communication: Characteristics; Mass media – Growth, New media context, access, control and use; Contemporary relevance of Gandhian model of Communication.

UNIT II (12 HOURS)

Contemporary importance of Media in democratic modern society - influence on audiences thinking and social behavior; Mediated role and social conferment, status conferral, socialization; Media dependency - Pluralistic media and Indian society.

UNIT III (12 HOURS)

Market oriented media and social dilemma; Communication – mediated culture, social conflicts, religion, etc.

UNIT IV (12 HOURS)

Political economy of policy perspectives - Social Norm, Status conferral, Privatization, Monopolization, Canalization, Inoculation.

UNIT V (12 HOURS)

Mass society and Mass culture- Dysfunctions: stereotyping, cultural alienation, impact on children; Regulatory mechanism: government, professional bodies and citizen groups.

Reference Books:

1. K.S.Seetharam, Communication and culture – A World View, MC Graw hill Publishers. New Delhi, 1991.
2. Jeff Shires, Media Culture and Society, Blackwell Pub, 2008.
3. Srivastava K M, Media Issues, Sterling Publication, 1991.
4. France Webstar, Theory of Information Society, Routledge, 1997.
5. Micheal R. Real, Mass Mediated Culture, Prentice Hall, 1977.
6. John Fisk, Introduction to Communication studies, Routledge, 1998.
7. Richard Butney, Social Accounting in Communication, Sage Publications, 1993.
8. Hamid Mowlana, Global Information and World Communication, Sage, 1997.
9. Sideny Krans and Richards Perlof, Mass Media and Political Thought (Ed) , Sage 1985
10. George N Gorden, Hustings Hower, The language of Communication, 1969
11. France Webstar, Theory of Information Society, Routledge, 1997
12. Micheal R. Real, Mass Mediated Culture, Prentice Hall, 1977
13. John Fisk, Introduction to Communication studies, Routledge, 1998
14. David morley, Television Audience and Cultural Studies, Routledge, 1998

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FOURTH SEMESTER

PART IV - AOC II: a. WEBDESIGNING II

Maximum CE: 75

Total Hours: 36

OBJECTIVE:

To inculcate the knowledge and learn digital art and design principles and conceptualize ideas in graphic form.

UNIT I (7 HOURS)

Concept of CSS: Creating Style Sheet - CSS Properties -CSS Styling(Background, Text Format, Controlling Fonts) - Working with block elements and objects - Working with Lists and Tables.

UNIT II (7 HOURS)

CSS Id and Class - Box Model(Introduction, Border properties, Padding Properties, Margin properties) - CSS Advanced(Grouping, Dimension, Display, Positioning, Floating, Align,Pseudo class, Navigation Bar, Image Sprites, Attribute sector) - CSS Color - Creating page Layout and Site Designs.

UNIT III (8 HOURS)

Defining a Dreamweaver site Using the Welcome screen - Selecting a CSS layout - Saving a page - Modifying the page title - Changing headings - Inserting text - Inserting images - Selecting and modifying CSS styles - Adjusting text fonts, colors, and sizes - Using the Property inspector - Previewing a page in Live view - Previewing pages in a browser.

UNIT IV (7 HOURS)

Web design basics Working with thumbnails and wireframes - Previewing your completed file - Adding a background image to the header - Inserting an image placeholder - Inserting placeholder text - Modifying the footer.

UNIT V (7 HOURS)

Creating a template from an existing layout - Inserting editable regions - Producing child pages - Updating a template - Using Library items - Using server-side includes.

Reference Books:

1. Ian Pouncey, Richard York Beginning CSS: Cascading Style Sheets for Web Design Wiley India.
2. Dreamweaver CS4 in Simple Steps, Kogent Learning Solutions Inc, Dreamtech Press, 2010
3. Adobe Dreamweaver CS5 Revealed, Sherry Bishop, Cengage Learning, 2010.

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FOURTH SEMESTER

PART IV - AOC II: b. E-CONTENT DEVELOPMENT

Maximum CE: 75

Total Hours: 36

OBJECTIVE:

To inculcate the knowledge with regard to various E-Content development tools and techniques.

UNIT – I (7 HOURS)

New Media- Beginning with technology- Digital Natives - Introduction to ICT Technology Improvement- ICT definitions-understanding e-content -use of ICT across world- Uses of ICT in education & ICT development - Human Computer Interaction (HCI)- Issues involved in ICT.

UNIT – II (7 HOURS)

Introduction to E-content - Multi Media- E-content development - E-content Writing - E-Content Tools - Designing of E-content- Modules & structure - E-content Planning, Production Techniques Software's- Effectiveness of E-content - pedagogy-Evaluation of E-Content.

UNIT – III (8 HOURS)

E-Learning- History of e-learning- E-Learning Environment - E-learning Ability - Elearning Technologies- E-learning Platforms- Production & Learning- e-content management- E-Learning Website & courses- Content creation tools - Planning for Elearning- SCROM model , LMS, Models and theory for e-content.

UNIT – IV (7 HOURS)

Smart Class- E-publishing- E-Commerce - E-governance - Mobile learning- IP learning Video conferencing- Blending Learning- software as in E-Learning

UNIT – V (7 HOURS)

E-content for different types of Industries – Education, Marketing, Training, Agriculture, E-Learning website- e-courses- Open source Learning

Reference Books:

1. Bruck, A. Peter, Andrea Buchholz, Zeger Karssen and Ansgar Zerfass, Econtent: Technologies and Perspectives for the European Market, 2005
2. Bruck, A. Peter, Multimedia and E-Content Trends: Implications for Academia, 2008.
3. Hmelo Silver, C.E, Nagarajan, A. and Derry, S.J, From Face-to-Face to Online Participation:Tensions in facilitating problem-based learning, 2006.
4. Mcalpine, I. and Allen, B. Designing for active learning online with learning design templates, 2007.
5. Allen, I.E and Seaman, J. Making the grade: Online education in the United States, 2006.

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THIRD SEMESTER

PART IV – EDC1 – SOCIAL MEDIA MARKETING

Maximum CE: 50

Total Hours: 24

OBJECTIVE:

To make students aware of importance, tools and techniques involved in social media marketing.

UNIT I (5 HOURS)

The Social Media Mix: Making Business Case for Social Media - Tallying the Bottom Line - Plotting Social Media Marketing Strategy - Managing Cyber social Campaign.

UNIT II (5 HOURS)

Cyber social Tools: Discovering Helpful Tech Tools - Leveraging Search Engine Optimization (SEO) for Social Media - Using Social Bookmarks - News and Share Buttons.

UNIT III (5 HOURS)

Blogs, Podcast, and Video: Growing the Brand - Building the Blog - Using Podcasts or Video in Content - Sharing Images. Twitter: Using Twitter as a Marketing Tool - Using Twitter as a Networking Tool - Finding the Right Twitter Tools - Supplementing Online Marketing Tools with Twitter - Hosting Twitter Chats.

UNIT IV (5 HOURS)

Facebook: Using Facebook as a Marketing Tool - Creating and Sharing Content on Facebook - Gaining Insight about Your Facebook Community - Finding the Facebook Sweet Spot. Google +: Leaping into Google+ - Socializing in Circles and Building through Pluses - Shares and Comments - hanging with Google+ Community.

UNIT V (4 HOURS)

Pinterest: Pinning Down Pinterest - Marketing with Pinterest - Driving Sales with Pinterest.

Reference Books:

1. Jan Zimmerman Social Media Marketing All-in-One for Dummies, John Wiley & Sons, 2015.
2. Shiv Singh, Social Media Marketing for Dummies, ohn Wiley & Sons, 2014.
3. Dave Evans, Social Media Marketing. The Next Generation of Business Engagement, John Wiley & Sons, 2010.

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**THIRD SEMESTER
PART III - ALC - ENGLISH POETRY**

Maximum CE:100

OBJECTIVE:

The aim of the course is to enhance the level of critical thinking of the students to such a degree that the students could critically interact with poems from different contexts: social, political, economic, historical and national as subject's conscious of their own socio-historic specificity. To inculcate knowledge of students to the basic elements of poetry.

UNIT - I

William Shakespeare	Sonnet 19
John Donne	Valediction – A Forbidding Mourning

UNIT - II

Thomas Gray	Elegy Written in the Country Churchyard
Alexander Pope	Rape of the Lock

UNIT - III

P.B.Shelley	Ozymandias
Robert Browning	The Patriot

UNIT - IV

Wifred Wilson Gibson	The Stone
Samuel Taylor Coleridge	Kubla Khan

UNIT - V

Nissim Ezekiel	The Night of the Scorpion
Robert Frost	Stopping by Woods on a Snowy Evening

Text Book:

1. D.K.Barua. *Whispering Reeds- An Anthology of English Poetry*, OUP,2013

Reference Book:

1. Green, David. *The Winged Word- An Anthology of Poems for Degree Course*. Trinity Press, 2015

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FOURTH SEMESTER

PART III - ALC – NEWMEDIA STUDIES

Maximum CE: 100

OBJECTIVE:

To inculcate the knowledge with regard to new media and Information society.

UNIT I

New media Technology – characteristics: Information Superhighway, Convergence, Structure and Functions; - social and cultural consequences: fragmentation and digital Isolation; Social Control and Democracy – Privatization and Competition – New media access and control – Digital Divide: - E-governance – process, social and legal frameworks – Policy initiatives.

UNIT II

Information and Knowledge society – Definitions and characteristics of Information Society, Post-industrial society – Information Society Theories: Daniel Bell, Machlup, Webster, Schiller – Evolution of New media audiences: Elite, Mass, Specialized and Interactive – New media uses and gratifications – Influencing factors.

UNIT III

Social and Cultural effects of New Media: Social Networking, Information Overload, Information Rich and Information Poor, Knowledge Gap and Cultural Alienation New media impact on old media – ICTs for Development – Empowerment, right to information.

UNIT IV

New Media Theory – Perspectives, Technological Determinism, Constructivism, Functionalism, Postmodernism, Characteristics of New Media – Uses, Adoption ICT and Social Transformation – socio-technical paradigm, Information commodification new consumption norms – knowledge gap.

UNIT V

New media issues: Invasion of Privacy, Piracy, Cybercrimes and Pornography IT policies, Information Bill and Regulations.

Reference Books:

1. Hamid Mowlana, Global Communication in Transition: The end of diversity, Sage Publications, Newbury Park, 1996
2. Subhash Bhatnagar and Robert Schwann, Information and Communication Technology in Development: Cases from India – Ed. Sage Publications, New Delhi, 2000
3. Mark Hukill et al. Electronic Communication Convergence: Policy challenges in Asia – Ed. Sage publications, New Delhi, 2000

4. Hamid Mowlana, Global Information and World Communication (2nd edition)– Sage Publications, New Delhi, 1997
5. Barrie Oxford and Richard Huggins, New media and Politics Ed. Sage Publications, New Delhi, 2001
6. Alaine Modouz, World Communication Report: The media and the challenge of the new technologies – Ed.UNESCO Publishing 1997
7. Paschel Preston, Reshaping Communications: Technology, Information and Social change, Sage Publications, New Delhi, 2001
8. John DH Downing, Internationalizing media theory: Transition, Power, Culture, Sage Publications, New York 1997
9. Frank Webster, Theories of Information Society Routledge Publications, London, 1995
10. John V. Pavlik, New Media Technology – Cultural and Commercial Perspectives Allyn and Bacon Publications
11. E-Governance, Pankaj Sharma, APH Publishing Corporation, 2004.

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FIFTH SEMESTER

PART III – CORE 5: MEDIA, LAWS AND ETHICS

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

To inculcate the knowledge of various media laws and ethics, make the students to get familiarize about Right to communicate and to understand the legal aspects of Journalism profession.

UNIT -I: (12 HOURS)

Media & Freedom- Concept of media freedom, Theories of media liberty and democracy; Rights and obligation of the media; Fundamental rights- Press freedom - Constitutional provisions- Press and the public opinion.

UNIT -II: (12 HOURS)

Right to Information- Evolution of articles of 19; Universal declaration of human rights: Right to Information Act 2005 and its implication: Right to reply; Right to knowledge; Role of the media.

UNIT- III: (12 HOURS)

Media agenda – private and public media institutions – Media conglomeration Commercial Vs Public interests – Media and politics – media and corporate – Ad. Revenue +– Editorial policy – implications of foreign press in India.

UNIT- IV (12 HOURS)

Important Laws- Defamation, Contempt of Court , Legislature, Official Secrets Act, Intellectual property rights copyright and piracy; Wages and working conditions of journalists; Measures to curb piracy- Case studies about cyber laws.

UNIT –V (12 HOURS)

Cyber Laws- Laws regulating FDI in media; Cyber laws in India; Cyber security concerns preventive measure, penalties, adjudication and offences; IT Act; Network service provider's protection; Criminal procedure; IPC.

Reference Books:

1. Law and the Media – An Everyday Guide for Professionals – Crone; Media and Ethics – S K Aggarwal.
2. Mass Media Laws and Regulations in India – K S Venkataramaiah.
3. Press and the Law – An Grover.
4. Press in Chains – Zamir Naizi.
5. Freedom of the Press – Some Recent Incidents – K S Venkataramaiah.
6. Mass Media and Freedom of Press in India – K S Padhy.
7. The Press Council- T N Trekha.

8. Ahuja, B.N. History of Press, Press Laws and Communications. New Delhi: Surjeet
9. Publications, 1988.
10. Nalini Rajan (Ed.). Practicing Journalism. London: Sage Pub.
11. Joseph, N.K. Freedom of the Press. New Delhi: Anmol Pub. 2016

B.Sc., (Visual Communication) Degree Examination – Syllabus for Candidates admitted from the Academic year 2016 – 2017 Onwards.**FIFTH SEMESTER****PART III – CORE 6: FILM STUDIES**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

To prepare Students to analyze and appreciate good cinema. To make them understand the relationship of film with other mass media

UNIT -I: (12 HOURS)

Cinema and other mass media: The growth and development of cinema in India as a media of mass communication, entertainment and art in 21st Century; Cinema as an entertainment industry.

UNIT II: (12 HOURS)

Planning, pre-production- Concept / Story development, Scripting / Screen play writing, Budgeting, Casting, Locations, Financing. Production- Shooting, Direction & Cinematography. Post production- Editing, Sound recording, Dubbing, Special effects, Graphics & Final mixing. Distribution & Exhibition.

UNIT III: (12 HOURS)

The concept of form in films, principles of film, narrative form, non-narrative form, dividing a film into parts and Genres (language, style, grammar, syntax, film perception, signs and codes, mise en scene, montage, sound chapters) Film appreciation – Film criticism - writing a film review.

UNIT- IV: (12 HOURS)

Regulations for the film industry – Problems of film industry: Piracy - Government's initiatives and policies – Film institute and organizations: Children's Film Society and professional Associations – Film Clubs – International and National Film Festivals and Awards – Award winning films- a review.

UNIT V: (12 HOURS)

Great directors: an outline of the development of the art of film making with screenings of one major film of important personalities such as D.W.Griffith, Eisenstein, Vittorio De Sice, Akira Kurosawa, Ingmar Bergman, Jean Luce Godard, Satyajit Ray and Mirnal Sen and other contemporary personalities.

Reference Books:

- 1.Thoraval, Yves(2000) The Cinema of India(1896-2000); Roberge, Gaston: the Subject of Cinema; Roberge, Gaston (1977): Films for ecology of Mind
- 2.Halliwell,: The Filmgoers Companion 6th Edition
- 3.Arora: Encyclopedia of indian Cinema; Baskar, Theodor: Eye of the Serpent
- 4.Edited by Gerald Mast, Cohen Marshall and Braudy Leo. 1992. Film Theory and criticism: Introductory Readings. 4th Edition. Oxford University Press. New Delhi.
- 5.M.Madhava Prasad,1998, The Ideology of the Hindi Film, New Delhi, Oxford University Press

6. Ernest Lind grin (Ed.) 1990, The Art of films, New Delhi, Oxford University Press
7. Gaston Roberge,(Ed.)2006, The Subject of Cinema, New Delhi, Oxford University Press

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FIFTH SEMESTER

PART III – CORE LAB 5: 2D ANIMATION AND 3D ANIMATION MODELING

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

OBJECTIVE:

To inculcate the knowledge and learn digital art and animation principles and conceptualize ideas in graphic animation form.

- | | |
|---|------------|
| 1. Animate Tween motion | (05 HOURS) |
| 2. Create A Button | (05 HOURS) |
| 3. Create a Movie Clip using 2D Animation | (05 HOURS) |
| 4. Animate a 2D object using Flash. | (05 HOURS) |
| 5. Create a cell animation using Flash. | (05 HOURS) |
| 6. Create a Stop motion advertisement. | (05 HOURS) |
| 7. Create a 3D animation using 3D Software. | (06 HOURS) |
| 8. Key Frame Animation Using 3D Software | (06 HOURS) |
| 9. Create a title with special effects in 2D animation. | (06 HOURS) |
| 10. Create a title with special effects in 3D animation. | (06 HOURS) |
| 11. Create an animation using Light effects in 3D software. | (06 HOURS) |

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Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

OBJECTIVE:

To inculcate the knowledge and learn digital audio production principles and conceptualize ideas in audio production.

1. Write a script for a 2 minutes radio production and produce a PSA (Public Service Advertisement). (07 HOURS)
2. Write a script for a 2 minutes radio production and produce a product advertisement. (07 HOURS)
3. Record 2 minutes speech based recording for older listeners.(slow pace & mellow); (07 HOURS)
4. Record 2 minutes music based live recording between a radio jock and College Student. (more dynamic & cheerful). (07 HOURS)
5. Conduct and record live interview with senior Sports man (6 min)-(intelligence & maturity) (08 HOURS)
6. Location recording of a festival /sports event.(6 min)-(convey immediacy -impromptu-natural qualities of the occasion) (08 HOURS)
7. Create 2 minutes of audio work to convey space and time to the listener using audio clips. (Filler) (08 HOURS)
8. Record a radio drama (6min) -create localization of sound & effects by microphone placement, obstruction and electronic means). (08 HOURS)

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Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

OBJECTIVE:

To inculcate the knowledge and learn digital video editing principles and techniques.

1. Making a material - setting of the NLE (Non-Linear Editing). (05 HOURS)
2. Project settings - create various project setting (05 HOURS)
3. Capturing process - capture a video from source. (05 HOURS)
4. Create a NLE workspace for a project. (05 HOURS)
5. Cutting clips, adding transition and graphics. (05 HOURS)
6. Export settings - export edited video. (05 HOURS)
7. Produce 3 minutes of TV news and edit the news video in proper sequence. (06 HOURS)
8. Produce 3 minutes of TV talk show as host/anchor/guest edit the show content and include songs. (06 HOURS)
9. Produce 3 minutes news presentation and add video footage for the news. (06 HOURS)
10. Submit a video work to showcase your chroma key skill. (06 HOURS)
11. Submit your photography course work, by adding vfx, efx present in .AVI format. (06 HOURS)

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FIFTH SEMESTER

PART III – ELECTIVE: SOCIAL PSYCHOLOGY

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

To understand the sociological and psychological settings of media.

UNIT I

(12 HOURS)

The Nature and Scope of Social Psychology-The Methods of Social Psychology – The Development of Social Psychology: Early beginnings – The Contribution of Sociologists and Psychologists: Comte; Le Bon; Durkheim; Cooley; GH Mead; Mc Doug all; Ross and F H All port.

UNIT II

(12 HOURS)

Socialization: Social Learning Process. Socialization and Motivation: Dependency; Aggression; Need Achievement: Affiliation: etc.- Social factors in perception – Society and personality.

UNIT III

(12 HOURS)

Groups and Group Processes: Nature and Types of Groups; Conditions conducive to Development of Groups; Group Dynamics; Group Norms and Conformity; Social Facilitation – Group Structure and Group Performance; Co-operation and competition.

UNIT IV

(12 HOURS)

Attitudes and Opinions – The Nature and Dimensions of Attitudes – The Formation and Change of Attitudes – Communication and Persuasion – Public Opinion Formation and Change.

UNIT V

(12 HOURS)

Mass Psychology: Audiences and Collective Behavior – Classification of Collective masses – Casual Audiences, International Audiences and Audiences and Mass Media – Collective Behavior – Mobs and different kinds of Mobs – The Psychology of Mass Movements.

Reference Books:

1. Handbook of Social Psychology – Edited by Gardner Lindzey and Elliot Arnsion.
2. Volume I– V (1969), Addison – Wesley Publishing.
3. Sociology and Social Anthropology- Veena Das -Volume I & II (2003), The Oxford India Companion.
4. Elements of Social Psychology. – William Flexner (2004), Sarup & Sons.
5. Perspectives of Social Psychology. – Self and Social Identity – Marilyn. B. Brewer (2004), Blackwell
6. Introduction to Social Psychology – B. Kuppuswamy. (1980), Tamilnadu Text Book Society
7. Social Psychology – Muzafar Sherif and Carolyn W. Sherif (1969), Harper & Row.

8. Social Psychology- David Myers (2006), McGrawHill
9. Introduction to Social Psychology. Colin Fraser (2001), Polity Press
10. Social Psychology- Stanly E. Taylor (2006), Tata McGrawHill Publishing
11. Social Psychology – Paliwal Suprithy (2002), RBSA Publishers
12. Social Psychology – Nilambar Mukharjee (2004), Dominant Publishers and Distributors.
13. J W McDavid and H Harari: Social Psychology Harper and Row, 1968

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FIFTH SEMESTER

PART III – ELECTIVE: INTEGRATED MARKETING COMMUNICATION

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

To understand the sociological and psychological settings of media.

UNIT I: (12 HOURS)

An Introduction to Integrated Marketing Communications IMC as an Integral Part of Marketing Strategy.

UNIT II: (12 HOURS)

Understanding Consumer Behavior - Understanding the Communications Process - Structure of the Advertising & Promotions World

UNIT III: (12 HOURS)

Advertising Research - Advertising Strategy - Finding the Big Idea - Creative Execution in Advertising - Creative Execution and Design in Print - Creative Execution on Radio- Creative Execution on Television - Creative Execution Online

UNIT IV: (12 HOURS)

Sales Promotion - Direct Marketing- Public Relations, Publicity and Corporate Advertising - Unconventional Promotional Media (includes mobile advertising)

UNIT V: (12 HOURS)

Print Media - Broadcast Media- Support Media- Developing the Media Plan - Promotion Objectives and Budget Determination - Monitoring, Evaluation and Controlling Promotions- The Legal, Ethical and Economic Environments of Promotions

References Books:

1. Advertising and Promotions an IMC Perspective Kruti Shah, Alen D. Edition: 1 - Pub Date: 01-SEP-08 Tata McGraw Hill
2. IMC, The Next Generation Don Schultz, Heidi Schultz Edition: 1 - Pub Date: 02-JUL-10 Tata McGraw Hill
3. Principles of Advertising and IMC Tom Duncan. Edition: 2 - Pub Date: 18-MAR-04 Tata McGraw Hill
4. IMC: Using Advertising & Promotion to Build Brands Tom Duncan. Edition: 1 - Pub Date: 03-MAY-02 Tata McGraw Hill

B.Sc., (Visual Communication) Degree Examination – Syllabus for Candidates admitted from the Academic year 2016 – 2017 Onwards.

FIFTH SEMESTER

PART III – ELECTIVE: WORLD CINEMA

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

To familiarize with certain theoretical ideas presented by major film makers and to learn how to develop, write and revise workable screenplays.

UNIT I

(12 HOURS)

Russian Cinema: Sergi Eisenstein: Battleship Potemkin (1925), Vsevolod Pudovkin: Mother (1926). Italian Cinema: Vittorio De Sica: Bicycle Thieves (1948), Federico Fellini: La Strada (1954), Roberto Benigni: Life is Beautiful (1997)

UNIT II

(12 HOURS)

The Films of Akira Kurosawa: methods, techniques and style - Rashomon (1950), Seven samurai (1954) - Alfred Hitchcock: Form and theory – Vertigo (1958), Psycho (1960) - David Lean: Style and Approach - The bridge on the River Kwai (1957), Orson Welles: Citizen Kane (1941).

UNIT III

(12 HOURS)

French New wave: Francois Truffaut: The 400 Blows (1959), Iranian Film: Majid Majidi: Children of Heaven, American Film: Quentin Tarantino: Pulp Fiction (1994), Martin Scorsese: Taxi Driver (1976).

UNIT IV

(12 HOURS)

Film Craft of Satyajit Ray: Pather Panchali (1954) – Guru Dutt: Pyasa (1957) – V. Shantharam: Jhanak Jhanak Paayal Baaje (1955).

UNIT V

(12 HOURS)

Mahendran: Uthiripookal (1979) – Adoor Gopalakrishnan: Mathilugal (1990) – Girish Kesaravalli: Dweepa (2002) - K. Viswanath – Sankarabharanam (1980)

Reference Books:

1. Notes on the Cinematographer: Robert Bresson, Jonathan Griffin
2. Sculpting in Time: Andrei Tarkovsky, Kitty Hunter-Blair
3. Satyajit Ray: The Inner Eye: Andrew Robinson
4. Cinema 1: The Movement-Image: Gilles Deleuze, Hugh Tomlinson
5. What is Cinema?; Volume I: André Bazin, Hugh Gray, Jean Renoir
6. The Great Movies: Roger Ebert, Mary Corliss

B.Sc., (Visual Communication) Degree Examination – Syllabus for Candidates admitted from the Academic year 2016 – 2017 Onwards.

SIXTH SEMESTER

PART III- CORE 7: PUBLIC RELATIONS

Maximum CE: 70
Maximum CIA: 30
Total Hours: 60 Hrs

OBJECTIVE:

To study the growth, impact and implications of the Media Revolution in the context of the Public Relations.

UNIT I (12 HOURS)

Definition of Public Relations, Historical Origins and Models of PR, Communication Effects and Public Opinion, Need of PR in changing media, Role of Public Relations Officials in Private and Government firms.

UNIT II (12 HOURS)

Overview of PR Techniques, Planning and Programming, Internal Relations and Employee Communication, Media Relations: Press Release, Press Conference, Government and Public Affairs, Ethics and Professionalism.

UNIT III (12 HOURS)

Digital PR " PR in the age of New Media: Scope, Challenges and Opportunities, PR Tools of the Internet – Uses and their Online Application (Online Media Relations, Online Media Releases).

UNIT IV (12 HOURS)

Social Media –Platforms, Analytics and Campaigns Online PR Strategies – Usage of websites, social networking sites and other digital platforms to communicate with their Stakeholders. Relationship Building in an Internet era.

UNIT V (12 HOURS)

Public Relations Ideas for Special events – Planning and Organization. Corporate Social Responsibility, Corporate Communication Channels; Corporate Websites, social networks Facebook, Twitter, LinkedIn, You Tube Accounts, Corporate Blog, Building Online Corporate Community.

Reference Books:

1. The Public Relations Handbook (Media Practice), Author: Alison Theaker
2. Handbook of Public Relations & Communications, Author: Philip Lesly
3. Handbook of Public Relations, Author: R K Ravindran
4. The Handbook of Strategic Public Relations and Integrated Marketing Communications, Author: Clarke Caywood
5. Spinning the Web: A Handbook for Public Relations on the Internet, Author: Diane F. Witmer

B.Sc., (Visual Communication) Degree Examination – Syllabus for Candidates admitted from the Academic year 2018 – 2019 Onwards.

SIXTH SEMESTER

PART III- CORE LAB 8: PACKAGE AND DESIGN PRINCIPLES

Maximum CE: 60

Maximum CIA: 40

Total Hours: 60 Hrs

OBJECTIVE:

To inculcate the knowledge on package and designing principles practice them how to design various package design by using software such as Corel draw, illustrator and Photoshop.

1. A brief history of graphic design – (04 Hours)
2. Elements of design – Principles of design – (04 Hours)
3. Process of Design – Functions of Design – (04 Hours)
4. Creativity and creative process (04 Hours)
5. Text and images: typography – styles and features –Color in design (04 Hours)
6. Design a package for soap product (07 Hours)
7. Design a package for a Chocolate (07 Hours)
8. Design a package for Mobile Phone (08 Hours)
9. Design a package for a Television (or) Refrigerator (10 Hours)
10. Design a package for a Food Product (08Hours)

B.Sc., (Visual Communication) Degree Examination – Syllabus for Candidates admitted from the Academic year 2016 – 2017 Onwards.

SIXTH SEMESTER

PART III- CORE LAB 9: COMPOSITING AND VISUAL EFFECTS

Maximum CE: 70
Maximum CIA: 30
Total Hours: 60 Hrs

OBJECTIVE:

Aim of the paper is to develop the students in a core set of technical and creative skills related to digital filmmaking.

UNIT – I (12 HOURS)

Visual Effects- Description- Types- Particles – Analysis- Size- Sand Effects – Smoke Effects- Fire Effects – Cloud Effects – Snow Effects.

UNIT- II (12 HOURS)

Fluid Effects - Coloring- designing Clouds Background – Designing Fog Effects – Explosion Effects– Fire Effects with flames - Space Effects and designs- Designing Thick Smoke.

UNIT-III (12 HOURS)

Designing Paint Effects – Coloring paints- Designing Trees and green effects – Designing Weather and seasons –Effects on seasons- Designing Glass image – Designing Different glass reflection- Designing Glow Effects – Liquid Effects and Reflection design.

UNIT- IV (12 HOURS)

Designing Special Effects – Designing effects of Hair and shape – Designing Fur Effects- Designing Clothes and effects.

UNIT- V (12 HOURS)

Visual Effects Tool and advanced functions– Converting images from 2D to 3D Pictures - Creating 3D Effects- Differentiation 2D effects and 3D effects.

Reference Books:

1. The Invisible Art, Author: Mark Cotta Vaz
2. Visual Effects Cinematography, Author: Zoran Perisic
3. Industrial Light & Magic: The Art of Special Effects, Author: Thomas G. Smith
4. The Art and Science of Digital Compositing, Author: Ron Brinkmann
5. The Language of Visual Effects, Author: Micheal J. McAlister
6. Special Effects: The History and Technique, Author: Richard Rickitt
7. Autodesk Maya, 2011
8. Adobe After Effects cs

B.Sc., (Visual Communication) Degree Examination – Syllabus for Candidates admitted from the Academic year 2016 – 2017 Onwards.

SIXTH SEMESTER

PART III- ELECTIVE: CULTURAL STUDIES

Maximum CE: 70
Maximum CIA: 30
Total Hours: 60 Hrs

OBJECTIVE:

Aim of this paper is to understand culture in all its complex forms and to analyze the social and political context within which it manifests itself.

UNIT I (12 HOURS)

Understanding Cultural Studies, Evolution of Cultural studies, Evolutionary psychology, Modern Minds and its origins, Cultural Theories, Marxism theory and its origins.

UNIT II (12 HOURS)

Origin Theories – Myth ritual and Mythology. Evolutionary theories-concept of evolution, cultural evolutionists, myth rituality, devolutionary theories- elitists- merits, demerits and relevance to folklore studies.

UNIT II (12 HOURS)

Folklore and Culture, Cultural Studies in Relation to Tamilnadu Conceptualizing. Cultural Movements in Tamilnadu.

UNIT III (12 HOURS)

Media and Culture, Role of media in cultural development, Gender and Culture, Tourism and Culture.

UNIT IV (12 HOURS)

Ethnicity and Nationalism, Digital Cultural, Role of Social Media in Digital Cultural Development, influence of internet in cultural shaping, Smart phones and culture.

Reference Books:

1. Making Sense of Cultural Studies: Central Problems and Critical Debates, Author Chris Barker
2. Cultural Studies: Theory and Practice, Author: Chris Barker
3. The Cultural Studies Reader, Author: Simon During
4. Cultural Studies: A Critical Introduction, Author Simon During

B.Sc., (Visual Communication) Degree Examination – Syllabus for Candidates admitted from the Academic year 2016 – 2017 Onwards.

SIXTH SEMESTER

PART III- ELECTIVE: PART III EVENT MANAGEMENT

Maximum CE: 70
Maximum CIA: 30
Total Hours: 60 Hrs

OBJECTIVE:

To give formal instructions and training to students to be future managers of the Event Industry. So that, they technical proficiency to effectively adjust, grow and excel in the field of Event Management.

UNIT I (12 HOURS)

Historical Perspective, Introduction to event Management, Size & type of event, Event Team, Code of ethics, Principles of event Management, concept and designing. Analysis of concept, Logistics of concept.

UNIT II (12 HOURS)

Feasibility, Keys to success, Develop a mission, Establish Objectives Preparing event proposal, Use of planning tools, Protocols.

UNIT III (12 HOURS)

Nature of Marketing, Process of Marketing, Sponsorship, Image, Branding, Advertising Publicity and Public relations.

UNIT IV (12 HOURS)

Written communications, Verbal communications, Nature of Marketing, Process of Marketing, Sponsorship.

UNIT V (12 HOURS)

Marketing– Meaning, Definition, threats & Opportunities, Organisational Environment, Social-Cultural Environment.

Reference Books:

1. Event management, an integrated & practical approach By Razaq Raj, Paul Walters & Tahir Rashid
2. Event management, a professional approach By Ashutosh Chaturvedi
3. Event Management By Lynn Van Der Wagen & Brenda R Carlos.
4. Successful Event Management By Anton Shone & Bryn Parrys

B.Sc., (Visual Communication) Degree Examination – Syllabus for Candidates admitted from the Academic year 2016 – 2017 Onwards.

SIXTH SEMESTER

PART III- ELECTIVE: FILM APPRECIATION AND CRITICISM

Maximum CE: 70
Maximum CIA: 30
Total Hours: 60 Hrs

OBJECTIVE:

Through this paper that offer a foundation for understanding cinema-and its relation to culture, history, technology and aesthetics-Film Studies.

UNIT I (12 HOURS)
Theme, Story and Screenplay Characteristics Semiotics Cinematic Terms
Cinematography.

UNIT II (12 HOURS)
Feature Films and Short Films Documentaries, Introduction to Indian Cinema, History of Indian Cinema - Dadasaheb Phalkey, Bombay Talkies, mythological etc.,

UNIT III (12 HOURS)
History of Indian Cinema, Cubism, Realism, Neo-realism Other arts and cinema - theater, painting.

UNIT IV (12 HOURS)
Major turning points and trends in cinema, Parallel cinema in India. Editing - Time and Space, Narrative, Shot Set and Design, Lighting Sound/Music

UNIT V (12 HOURS)
Japanese Cinema, British Cinema, Iranian Cinema, Chinese/Korean Cinema, Latin American Cinema Regional Cinema in India.

Reference Books:

1. Agee on Film, Author: James Agee
2. The Immediate Experience, Author: Robert Warshow, Stanley Cavell and Lionel Trilling
3. What is Cinema? Volume 1, Author: by André Bazin
4. Negative Space, Author: Manny Farber
5. The New Biographical Dictionary of Film Author: David Thomson

B.Sc., (Visual Communication) Degree Examination – Syllabus for Candidates admitted from the Academic year 2016 – 2017 Onwards.

SIXTH SEMESTER

PART III- ELECTIVE: POLITICAL COMMUNICATION

Maximum CE: 70
Maximum CIA: 30
Total Hours: 60 Hrs

OBJECTIVE:

This paper critically analyze issues and trends in media and communication, including the impact of technologies and globalization.

UNIT I (12 HOURS)

Political Communication: Communication as power relationship, media as a source of new political power, Modernity and new political thought, Propaganda, publicity and public relations.

UNIT II (12 HOURS)

Press and political leadership, Political communication in India: Post independence movements, Emergency, rise of regional parties, economic reforms.

UNIT III (12 HOURS)

Structure and Process of Governance: Indian Model of Democracy, Parliament, Party Politics and Electoral behavior, Federalism, The Supreme Court and Judicial Activism, Units of Local Governance (Grassroots Democracy) Political Communication -Nature, Forms and Importance.

UNIT IV (12 HOURS)

Contemporary Political Economy of Development in India: Policy Debates over Models of Development in India, Recent trends of Liberalization of Indian Economy in different sectors, E-governance.

UNIT V (12 HOURS)

New Social Movements, Understanding the political significance of Media and Popular Culture, International and Political Communication, Multinational ownership of media, media imperialism, Media in troubled times- War and conflicts, Media, security and terrorism.

Reference Books:

1. An Introduction to Political Communication Author: Brian McNair
2. Political Communication, Author: Philip Seib
3. The Dynamics of Political Communication: Media and Politics in a Digital Age, Author: Richard M. Perloff

B.Sc., (Visual Communication) Degree Examination – Syllabus for Candidates admitted from the Academic year 2016 – 2017 Onwards.

SIXTH SEMESTER

PART III- ELECTIVE: MEDIA MANAGEMENT

Maximum CE: 70
Maximum CIA: 30
Total Hours: 60 Hrs

OBJECTIVE:

Aim of the paper is to understand the media management sector and give knowledge about how to organize the events.

UNIT I (12 HOURS)

Introduction to Media Management, theories in Media Management, Nature and aims of Media Management.

UNIT II (12 HOURS)

Social Media and Media Management, Media in Digital Era, Media and social Development, Media Management design different approaches in Media Management.

UNIT III

Digital Visual Arts Graphic Communication Management – Definition, nature & scope. Elements of design, Principles of design, Design process.

UNIT IV (12 HOURS)

Importance of marketing ; Key marketing terms and concepts- need, want, demand, exchange; marketing myopia and marketing orientations ; Distinction between selling and marketing; Marketing Research: Definition; Marketing Research Process ; Types of Research: Primary, Secondary, Qualitative, Quantitative.

UNIT V (12 HOURS)

The art of Promo, Advertisement & In serial promotions, Art of Writing Copy, Designing for various mediums, Public Relations, Planning, organizing and managing events. Managing the internet and social Media. Vendor selection and management, Media Planning & Buying .

Reference Books:

- 1.Competing For The Future By C.K. Prahalad & Gary Hamel.
- 2.Kotler on Marketing: How to Create, Win, and Dominate Markets By Philip Kotler.
- 3.How to Win Friends and Influence People By Dale Carnigie.
- 4.Market Research: A Guide to Planning, Methodology and Evaluation By Paul Hague.
- 5.Art of War By Sun Tzu.
- 6.Strategic Management By Gregory Dess, Lumpkin & Taylor.
- 7.How Winners Sell: 21 Proven Strategies to Outsell Your Competition and Win the Big Sale By Dave Stein.

B.Sc., (Visual Communication) Degree Examination – Syllabus for Candidates admitted from the Academic year 2016 – 2017 Onwards.

SIXTH SEMESTER

PART III- ELECTIVE: FILM DISTRIBUTION AND MARKETING

Maximum CE: 70
Maximum CIA: 30
Total Hours: 60 Hrs

OBJECTIVE:

Aim of the paper is to understand and analyze the network of film distribution and marketing.

UNIT I (12 HOURS)

Fundamentals of film production Stages of film production from script to screen— various technicians and artistes involved in the production work. Production- three important stage — pre-production stage— preliminary works to be done for film production- Production stage-Post-production stage.

UNIT II (12 HOURS)

Film Distribution Process Areas of distribution in India - Different terms of contract — M.G. Basis — our right basis - advance basis and royalty basis — Contemporary distribution methods. Exhibition — Different types of theatres in Tamilnadu - Methods of film exhibition — in the various centers.

UNIT III (12 HOURS)

Budgeting Usefulness of budgeting— Budget formats — the various methods of acquiring Finance for film production — Govt. control over film industry — Film laws- Associations and their role.

UNIT IV (12 HOURS)

Film as a medium & Language Characteristics – Film and other forms of art - Film Perception: Levels of Understanding – Film and Psycho-analysis –Reception – Film Appreciation—Aesthetics – Abstraction: Subtlety – Signs: Denotation and Connotation— Paradigmatic and Syntagmatic – Film Semiotics: Signifier, Signified, and Signification.

UNIT V (12 HOURS)

Introduction to film theory Dichotomies of film theory - Transposition — Interdependence of questions— Formative film theory — Form and function — the purpose of film— Cinematic means— Montage — Typage: Battleship Potemkin and its five chapters — Realistic film theory— Compositional forms— the purpose of cinema -the plastic image — Deep focus.

Reference Books:

- 1.An Introduction to film art-by David Bordweil and Kristin Thompson.
- 2.Film Appreciation — Alan Casabier. The Art of film — Ernest Lindgren.
- 3.Making movies — Lee. R. Booker & Loins Marinates

B.Sc., (Visual Communication) Degree Examination – Syllabus for Candidates admitted from the Academic year 2016 – 2017 Onwards.

FIFTH SEMESTER

PART III- ALC: CYBER SECURITY

Maximum CE:100

OBJECTIVE:

On successful completion of this paper the students should have acquired expert knowledge in basics of Cyber Security.

UNIT I

Cyber Security Fundamentals – Network and Security Concepts – Information Assurance Fundamentals – Basic Cryptography – Symmetric Encryption – Public Key Encryption – Domain Name Systems – Firewalls. Microsoft Windows Security Principles – Window Tokens – Window Messaging – Windows Program Execution – Windows Firewall.

UNIT II

Attacker Techniques and Motivations – How Hackers Cover Their Tracks – Tunneling Techniques – Fraud Techniques.

UNIT III

Exploitation – Techniques to Gain Foothold – Misdirection, Reconnaissance and Disruption methods. Malicious Code : Self-Replicating Malicious Code – Evading Detection and Elevating Privileges-Spyware.

UNIT IV

Defense and Analysis Techniques - Memory Forensics – Honeypots – Malicious Code Naming – Automated Malicious Code Analysis Systems – Intrusion Detection Systems. Defense Special File Investigation Tools.

UNIT V

Vulnerabilities in Information Systems – Vulnerabilities in the Organization – Secure Information System.

Reference Books:

1. James Graham, Richard Howard, Ryan Olson,” Cyber Security Essentials “, CRC Press, Taylor & Francis Group,2010.
2. George K. Kostopoulos ,” Cyberspace and Cyber security “, CRC Press , Taylor & Francis Group , 2013.

Master of Commerce(M.Com)
Scheme of Examination (CBCS Pattern)
For the Candidates admitted from the Academic Year
2018-2019 onwards

Sub Code	Paper	Subject Title	Ins. Hrs/Week	Examination				
				Dur. Hrs.	CIA	CE	Total	Credit
SEMESTER I								
15MCM101	Core 1	Corporate Accounting	5	3	30	70	100	4
15MCM102	Core 2	Managerial Economics	5	3	30	70	100	3
18MCM103	Core 3	Human Resource Management	5	3	30	70	100	4
18MCM104	Core 4	International Business	5	3	30	70	100	4
18MCM105	Core 5	Legal Aspects in Banking and Insurance	5	3	30	70	100	4
15MCM106	Core 6	Business Environment	5	3	30	70	100	4
Total			30				600	23
SEMESTER II								
18MCM201	Core 7	Advanced Cost Accounting	5	3	30	70	100	4
17MCM202	Core 8	Indirect Taxation	5	3	30	70	100	4
16MCM203	Core 9	Marketing Management	5	3	30	70	100	4
15MCM204	Core 10	Financial Management	5	3	30	70	100	4
18MCME01/ 16MCME02/ E03	Elective I	Elective	5	3	30	70	100	4
15MCMID1	IDC 1	Business Research Methods	5	3	30	70	100	3
Total			30				600	23
SEMESTER III								
15MCM301	Core 11	Direct Taxes	5	3	30	70	100	4
18MCM302	Core 12	Investment Management	5	3	30	70	100	4
17MCM303	Core 13	Labour Law and Industrial Relations	4	3	30	70	100	4
17MCM304	Core 14	E-Commerce and MIS	4	3	30	70	100	4
18MCM301	Practical I	Computer Application in Business	5	3	40	60	100	3
16MCME04/ 05/06	Elective II	Elective	5	3	30	70	100	4

17MCMED1	EDC 1	Business Ethics	2	3	-	50	50	2
17MCMPR1		Minor Project						
Total			30				650	25
SEMESTER IV								
17MCM401	Core 15	Management Accounting	5	3	30	70	100	4
18MCM402	Core 16	Strategic Management	5	3	30	70	100	3
18MCM E07/08/09	Elective III	Elective	5	3	30	70	100	4
15MCMPR2	Project	Major Project		3	50	100	150	8
Total			15				450	19
Total							2300	90

List of Elective Papers			
Elective I	1	18MCME01	Foreign Exchange Management
	2	16MCME02	Institutions Facilitating International Trade
	3	16MCME03	Export & Import Procedures
Elective II	1	16MCME04	Security Analysis & Portfolio Management
	2	16MCME05	Fundamental and Technical Analysis
	3	16MCME06	Futures & Options
Elective III	1	18 MCME07	Entrepreneurship & Small Business Management
	2	18MCME08	Micro finance Management
	3	18MCME09	Retail Marketing Management

Additional Credit Course

Sem	Code	Subject Title	Marks	Credits
II	15MCMAC1	Financial Treasury and FOREX Management	100	2
III	15MCMAC2	Cost Audit and Operational Audit	100	2

Summary

Part	No of Papers	Total Credits	Total Marks
Paper , Elective and Project	20	84	2150
IDC –Inter Disciplinary Course	1	4	100
EDC –Extra Department Course	1	2	50
Total		90	2300

REGULATIONS

1. Project and Viva Voce :

Each student in the PG final year shall compulsorily undergo Project Work in the 4th semester. Projects shall be done individually. Project Coordinators shall allocate the project title and the guide for each student. Project work shall be done in any Banking, Financial institutions and companies. Project Reviews shall be conducted thrice in which the progress of project work shall be strictly evaluated by respective Project Guides and Project Coordinators. Viva-Voce shall be conducted only in the presence of Industrialists or Academicians. Out of the Total of 150 marks, 50 marks shall be allocated for CIA and 100 for CE VIVA VOCE.

2. Submission of Record Note Books for practical examinations:

Candidates appearing for practical examinations shall submit bonafide Record Note Books prescribed for practical examinations. If not the candidate has to submit a bonafide certificate issued by the concerned subject in charge duly signed by the Head of the department. In such case, the record marks will not be provided.

3. Distribution of Marks: The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum (Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	35	30	50
	50	50	25	-	25
Practical Paper	100	60	30	40	50
Project	150	100	50	50	75

4. Distribution of Internal Mark for Theory:

(No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6=30

Breakup for Attendance:

65% - 74 %	- 4 Marks
75% - 80%	- 6 Marks
81% - 90%	- 8 Marks
91% - 100%	- 10 Marks

Seminar Mark Split Up:

Content	- 10 Marks
Body Language & Stage management	- 10 Marks
Flow of Presentation	- 10 Marks

5. Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 40		
S No	CIA	Distribution of Marks
1	For Completion of the Practical List	20
2	Test –I	10
3	Test –II	10
Total		40

6. Distribution of Comprehensive Exam Mark for Practical:

MAXIMUM MARKS : 60		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	10
2	Program – I a) Algorithm b) Coding c) Execution	5 10 10 TOTAL (25)
3	Program – II a) Algorithm b) Coding c) Execution	5 10 10 TOTAL (25)
Total		60

7 .Distribution of Mark for Project VIVA VOCE:

S.No	CIA	Distribution of Marks
1	INTERNAL a) Review –I b) Review –II c) Documentation & Final Review	10 10 30 Total (50)
2	EXTERNAL * a) Presentation b) Viva	40 60 Total (100)
Total		150

*Marks to be awarded by both External and Internal Examiners.

8. Question Paper Pattern

Time: 3 Hour

Max marks: 70

SECTION – A (10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Five Definition Questions

Five Multiple Choice Questions

SECTION – B (5×4=20)

Answer ALL questions

Each question carries FOUR Marks

(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answer ALL questions

Each question carries EIGHT Marks

(INTERNAL CHOICE)

9. Question Paper Pattern

Time: 3 Hour

Max marks: 75

SECTION – A (10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Five Definition Questions

Five Multiple Choice Questions

SECTION – B (5×5=25)

Answer ALL questions

Each question carries FIVE Marks

(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answerer ALL questions

Each question carries EIGHT Marks

(INTERNAL CHOICE)

10. Question Paper Pattern

Time: 3 Hour

Max marks: 50

SECTION – A (10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Five Definition Questions

Five Multiple Choice Questions

SECTION – B (5×3=15)

Answer ALL questions

Each question carries THREE Marks

(INTERNAL CHOICE)

SECTION – C (5×5=25)

Answerer ALL questions

Each question carries FIVE Marks

(INTERNAL CHOICE)

11. Question Paper Pattern

Time: 3 Hours

Max marks: 100

SECTION – A

(10×1=10)

Answer ALL questions
Each Question carries One Mark
(NO CHOICE)

Five Definition Questions
Five Multiple Choice Questions

SECTION – B

(5×8=40)

Answer ALL questions
Each question carries EIGHT Marks
(INTERNAL CHOICE)

SECTION – C

(5×10=50)

Answerer ALL questions
Each question carries TEN Marks
(INTERNAL CHOICE)

NOTE:

1. The questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the unit in the syllabus in all the sections of the question paper.
3. While framing questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

12. Conduct of Practical Examinations:

Practical examinations shall be conducted with one internal examiner and one external examiner and the question paper for practical examination shall be set by both Internal and External examiners.

13. Minor Project:

The Student has to undertake a minor level Research study in any area of Commerce and has to publish the same in any reputed journal, by the end of the III Semester.

15MCM101

M.Com Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

**FIRST SEMESTER
CORE 1: CORPORATE ACCOUNTING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To enable the students to learn principles and concepts of Corporate Accounting

UNIT I (12 HOURS)

Preparation of Final accounts – Schedule VI Part I and Part II – Profit prior to incorporation – Managerial remuneration – Dividend declaration out of the past and the current profits – Issue of Bonus shares – Preparation of Balance Sheet.

UNIT II (12 HOURS)

Amalgamation – Absorption (Excluding inter – company holdings) – External reconstruction – Internal reconstruction (Excluding scheme of reconstruction).

UNIT III (12 HOURS)

Holding company accounts (excluding inter-company holdings) – Liquidation of companies.

UNIT IV (12 HOURS)

Accounts of Banking companies (new format) and Insurance Companies.

UNIT V (12 HOURS)

Human Resource Accounting - Principles of Government accounting – Responsibility Accounting.

Note: Distribution of marks: Theory 20% and Problems 80%.

TEXT BOOK:

1. Reddy. T.S and Dr.Murthy.A, Corporate Accounting, 7th Edition, Margham Publications, 2008,Chennai.

REFERENCE BOOK:

1. Dr.Maheshwari.S.N and Dr.Maheshwari S.K, Corporate Accounting,5th Edition, Vikas Publishing House Pvt Ltd,2010,New Delhi.

2. Gupta.R.L and Radhaswamy. M, Corporate Accounting , 13th Edition, Sultan Chand and Sons, 2006, NewDelhi

M.Com Degree Examination – Syllabus for Candidates admitted from the academic year 2013-14 onwards

**FIRST SEMESTER
CORE 2 - MANAGERIAL ECONOMICS**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

On the Successful completion of this paper the students should have developed their knowledge on Principles of Managerial economics.

UNIT I

Managerial Economics – Meaning, Nature and scope – Managerial Economics and business Decision Making – Role of Managerial Economist – Fundamental concepts of Managerial Economics – Demand Analysis – Determinants and types of demand – Elasticity of demand.

UNIT II

Supply – Determinants – Production decisions – Production functions – Isoquants, Expansion path – Cobb-Douglas function. Cost concepts – Cost-Output relationship – Economies and diseconomies of scale – Cost Functions.

UNIT III

Market structure – Characteristics – Pricing and Output decisions – Methods of Pricing – Differential Pricing – Transfer Pricing – Price discrimination – Government intervention and Pricing.

UNIT IV

Profit – Meaning and nature – Profit Policies – Profit Planning and forecasting – Cost volume profit analysis – Investment analysis.

UNIT V

National income – Business Cycle – inflation and deflation – Balance of payments – Monetary and fiscal policies.

TEXT BOOKS:

1. Joel Dean, Managerial Economics, 3rd Edition, Prentice Hall, 2004, New Delhi.
2. Rangarajan. C, Dholakia. D. H, Principles of Macro Economics, 1st Edition, Tata McGrawHill, 1994, Mumbai.

REFERENCE BOOK:

1. Athmanand. R, Managerial Economics, 3rd Edition, Excel Publishers, 2002, New Delhi.

2. P.L. Mehta, Managerial Economic Analysis, Problems and cases, 1st Edition, S. Chand and Sons Company Ltd, 2004, New Delhi.

18MCM103

M.Com Degree Examination – Syllabus for Candidates admitted from the academic year 2018-19 onwards

FIRST SEMESTER

CORE 3: HUMAN RESOURCE MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To enable the students to learn the principles and concepts of Human Resource Management.

UNIT I (12 HOURS)

Meaning – Importance – Evaluation – Objectives – Scope – Hawthorn Studies – Its Implications – Recognition of Participation – Theories X & Y – Organization Structure.

UNIT II (12 HOURS)

Human Resource Planning – Job Analysis – Role Analysis – Selection and Recruitment – Testing – Interview – Placement Training – Promotion – Performance Appraisal. Job Evaluation and Merit Rating. Job Satisfaction and Morale (Theories of Motivations). Case Studies.

UNIT III (12 HOURS)

Human Behavior Process – Perception Learning – Motivational and Personality Development – Definition of Learning – Learning Theories – Concept – The Meaning of Human Motivation – Comprehensive Stages – Main Determinants of Personality – Theories of Personality – Group Dynamics and Internal Organization. Case Studies.

UNIT IV (12 HOURS)

Discipline – Meaning – Causes of Indiscipline – Acts of Indiscipline – Procedure for Disciplinary Action – Grievance – Meaning – Characteristics of Grievances – Causes of Grievance – Causes of Grievance – Methods of Knowing Grievance – Grievance Redressal Procedure. Case Studies.

UNIT V (12 HOURS)

Organization Conflict – Conflict in Organizational Behaviors – Individual Aspect of Conflict – Organizational Conflict – Management of Conflict – Leadership – Leadership Theories. Case Studies.

TEXT BOOK:

1. Rao V.S.P, Human Resource Management, 2nd Edition, Excel Books Publication, 2008(Last Edition), Mumbai.

REFERENCE BOOKS:

1. K.Asawthappa, Human Resource Management; Text and Cases, MC Graw Hill Education,2013.

2. Prasad .L.M, Human Resource Management, 2nd Edition, Sultan Chand & Co, 2014, New Delhi.

18MCM104

M.Com Degree Examination – Syllabus – for candidates admitted from the Academic Year 2018– 2019 onwards

**FIRST SEMESTER
CORE 4- INTERNATIONAL BUSINESS**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To familiarize the students with intricacies of International Business in terms of Investment, Monetary and Strategies

UNIT I (12HOURS)

International Business – Meaning – Nature – Significance - Changing Dimensions in International Business - Driving forces for Globalization - Factors affecting International Business Decision- Types of International Business- International Stages and Orientation- Social and Ethical responsibility in International Business.

UNIT II (12 HOURS)

International Business Environment- Political Environment- Economic Environment- Legal Environment- Cultural Environment- Religion – Language- Education- Culture and Work Place- Difference in Culture- Stages in Transition –Cultural Change- Cross Cultural literacy- Culture and Competitive environment- Risk in international Business.

UNIT III (12HOURS)

International Trading Environment- Trade Strategies- Export and Import Policy – Regulation and Promotion of foreign Trade- Arguments for Free Trade - Protection – Methods of Protection- Tariff and Non Tariff Barrier- Balance of Payments – Determinants of Exports and Imports- Trade Deficit- Major Problems faced by the India's Exports in balance of Payment

UNIT IV (12 HOURS)

Global Trade and Investment Environment- International Trade Theory – Introduction- Overview of Trade Theory- New Trade theory- Overview of Competitive Advantage- National Competitive Advantage- Porter Diamond theory- Development of Multi Trading System- Regional Grouping of Countries and Impacts

UNIT V (12 HOURS)

FDI Introduction- Types of FDI- Global Monetary System- Foreign Exchange Market- WTO – Evaluation of WTO- GATT- TRIPs- Copy Rights- Industrial Property TRIMs- Strategies in International Business- Strategic Alliance- Export and Import Finance- Export Assistance

TEXT BOOK:

1. Francis Cherunilam, International Business , PHI Learning Pvt Ltd, 2009

REFERENCE BOOKS:

1. Anant K.Sundaram/J.Stewart Black, The International Business Environment PHI Learning Pvt Ltd, 2000, Sixth Edition, New Delhi.
2. P.K. Vasudeva, International Trade, Excel Books, 2011, First Edition, New Delhi

18MCM105

M.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2018-19 onwards

FIRST SEMESTER

CORE 5 – LEGAL ASPECTS IN BANKING AND INSURANCE

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To enable the students to learn principles and concepts of laws relating to the Banking and Insurance Business.

UNIT -I (12 HOURS)

Banking Laws – Meaning - Scope – Types of Accounts – Types of Customers – Relationship between and Customer – Rights and Obligations – Commercial Banks vs. Central Banks – Banking Regulation Act 1949 – RBI – Functions.

UNIT -II (12 HOURS)

Negotiable Instruments – Meaning – Characteristics - Types – Features – Crossing – Marking and Endorsement – Cheque - Feature of Valid Cheque – Collection of Cheque – Payment of Cheque – Refusal of Payment of Cheque – E- Cheques

UNIT –III (12 HOURS)

Paying Bank – Paying Banker - Statutory Protection -- Duties of Paying Banker and Collecting Banker.- Bank Loan and Advances - Bankers Lien. Modern Banking - Recent Developments of Modern Banking: ATM- Tele Banking- EFT- SWIFT- Demat Accounts - Online Banking- Digital Payment System

UNIT -IV (12HOURS)

The Principles of the Law of Contract –Indian Contract Act 1872 - Ingredients of a Valid Contract – Contracts of Indemnity - Guarantee – Bailment – Assignment - Law of Agency – Law of Arbitration – Application to Insurance.

UNIT –V (12 HOURS)

Insurance Act 1938 – Life Insurance Corporation Act, 1956 – Insurance Regulatory Development and Authority - General Insurance Business Act 1973- - Motor Vehicle Act 1939 and 1988 -Marine Insurance Act – The Indian Railways Act 1980.

TEXT BOOK:

1. Gordon and Natarajan, Banking theory law and practice, Himalaya publishing house, New Delhi 2014

REFERENCES BOOKS:

1. N.C. Majumdar, Fundamentals of Modern Banking, New Central Book Agency (P) Ltd, Mumbai 2010.
2. Nalini Prava Tripathy, Financial Services, Prentice Hall of India Private Limited ,New Delhi,2012

15MCM106

M.Com Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

FIRST SEMESTER CORE 6: BUSINESS ENVIRONMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To enable the students to understand the business environments.

UNIT I (12 HOURS)

Concept of Business Environment – Significance – Types of environment – External and Internal – Macro environment – Impact of environment on business and strategic decisions – Culture and business – Social responsibilities of business

UNIT II (12 HOURS)

Industrial policies and regulations – Industrial policy up to 1991 – New industrial policy – public private , joint and co – operative sectors – Privatization and Disinvestment – Ways of privatization – Benefits and arguments against privatization – Privatization in India.

UNIT III (12 HOURS)

Economic systems – Meaning – Characteristics – Types of economic systems – Capitalism – Socialism – Mixed economy – Economic planning – Nature, Scope and Significance of economic planning in India – Achievements and failures of economic planning. Monetary policy and fiscal policy.

UNIT IV (12 HOURS)

Technological environment- factors governing technological environment – Management of technology – Patents and Trademarks – Financial institution in India – IFCI – ICICI – IDBI – IIBI – SIDBI – SFCs.

UNIT V (12 HOURS)

Globalization – Meaning and Dimensions – Features of Current Globalization – Essential conditions for Globalization- Globalization of Indian Business – Foreign Direct Investment – Concept, Advantages , Disadvantages and Determinants – India’s policy toward FDI – Multinational Corporation – Meaning – Merits and Demerits – Control over MNCs in India.

TEXT BOOKS

1. Francis Cherunilam, Business Environment, 1st Edition, Himalaya Publishing house, 2006, Mumbai.

2. Raj Agarwal, Business environment.2nd Edition, Dorling Kindersley India pvt Ltd ,2002,New Delhi.

REFERENCE BOOK

1. Justin Paul, business environment, 1st Edition, Tata McGraw- Hill Publishing company Ltd,2006, New Delhi.

18MCM201

M.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2018-19 onwards

FIRST SEMESTER

CORE 7- ADVANCED COST ACCOUNTING

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To enable the students to learn principles and concepts of Cost Accounting

UNIT I (12 HOURS)

Introduction of Cost Accounting — Difference between Financial and Cost Accounting – Relationship with Management Accounting – Nature and Significance of Cost Accounting – Installation of Costing System – Characteristics of Ideal Costing System – Elements of Cost – Cost Concept – Preparation of Cost Sheet- Tenders and Quotations.

UNIT II (12 HOURS)

Classification of Materials - Coding of Materials –Level setting– EOQ – Purchase Procedure – Storage of Materials – ABC, VED Analysis- Issue of Materials (FIFO, LIFO, Simple Average, Weighted Average, Standard Price, Base Stock) – Pricing of Material Issues and Returns – Inventory Control –Physical verification – periodical and perpetual inventory – Analysis of Discrepancies - Correction Measures.

UNIT III (12 HOURS)

Labour: Classifications of Labour – Wage Payment and Incentive System (Halsey, Halsey-weir, Rowan's plan) – Idle Time – Over Time- Accounting of Labour cost - Labour Turnover - Work Study – Time and Motion Study. Over Heads – Classification – Absorption of Overhead – Over Absorption and Under Absorption.

UNIT IV (12 HOURS)

Process Costing – Features of Process Costing – comparison between Job Costing and Process Costing – Process Losses - Inter-Process Profits and Loss - Equivalent Production - Job Costing- Joint Products and By Products – Distinction between By – products, Main products and Joint Products. Reconciliation of Cost and Financial Accounts

UNIT V (12 HOURS)

Marginal Costing – Meaning, Definition, Benefits and Limitations of Marginal Costing – Break Even Analysis – Application of Marginal Costing in Business Decision Making.

Note: Distribution of marks: Theory 20% and Problems 80%.

TEXTBOOK:

1. S.P.. Jain & K.L. Narang, Cost accounting, 2nd Edition, Tata McGraw Hill, 2015, New Delhi.

REFERENCE BOOKS:

1. A.Murthy & S.Gurusamy, Cost Accounting, 3rd Edition, Vijay Nicole Publishers 2017, Chennai

2. T.S.Reddy & Y. Hari Prasad Reddy , Cost accounting, 4th Edition, Margham Publishers 2016, Chennai.

17MCM202

M.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2017-18 onwards

**SECOND SEMESTER
CORE 8: INDIRECT TAXATION**

Maximum CIA-30

Maximum CE-70

Total Hours: 60

Objective:

To enable the students to learn the basic principles and concepts of Goods and Service Tax.

UNIT I (12 HOURS)

Indirect Taxation – Origin and Importance – Features – Contribution to Government Revenues – Taxation under the Constitution – Direct Taxes and Indirect Taxes – Advantages and Disadvantages of Indirect Taxes.

UNIT II (12 HOURS)

GST – Introduction and Origin – Features – Objectives – Benefits: Central Government, State Government, Individuals and Companies – Goods and Service Tax Network (GSTN)- Difference between Previous Taxation and New GST in India

UNIT III (12 HOURS)

GST Constitutional Amendment Bill 2016 - CGST Act – IGST Act – SGST Act — Provision of demand under GST- Types of GST in India: CGST, SGST, IGST – Categories GST Exemptions: Exempted, Essential, Standard and Special Goods & Services Categories.

UNIT IV (12 HOURS)

Authorities implementing GST - Registration Procedure – Penalties for Non Compliance – Self Assessment under GST – Goods and Service Tax System

UNIT V (12 HOURS)

Application of GST – Mechanism of GST – Applicable GST Rate – Levy of GST – Implementation of GST Bill : Benefits and Challenges.

TEXT BOOK:

1. Bimal Jain and Isha Bansal, GST Law and Analysis with Conceptual Procedures, Young Global Publications, 2016.

REFERENCE BOOKS:

1. Jayaram Hiregange and Deepak Rao, India GST for Beginners, White Falcon Publishing, 2016
2. CA. Chitresh Gupta, An Insight into GST, GB Books, 2015.

16MCM203

M.Com Degree Examination – Syllabus for Candidates admitted from the academic year 2016-17 onwards

SECOND SEMESTER

CORE 9: MARKETING MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To enable the students to understand the business environments.

UNIT I (12 HOURS)

Introduction- Concept- nature- scope and importance of marketing- Marketing concept and its evolution- Strategic marketing planning--Market Analysis and Selection-Marketing environment- Macro and micro components and their impact on marketing decisions- Market segmentation and positioning- Buyer behavior- Consumer versus organizational buyers- Consumer decision-making process-

UNIT II (12 HOURS)

Production Decisions- Concept of a product- Classifications of products- Major product decisions- Product line and product mix- Branding- Packaging and labeling- Product life-cycle- New product development and consumer adoption process- Pricing Decisions- Factor affecting price determination- Pricing policies and strategies- Discounts and rebates

UNIT III (12 HOURS)

Distribution Channels and Physical Distribution Decisions-Nature and functions of distribution channels- Distribution channel intermediaries- Channel management decisions- Retailing and wholesaling- Logistics of distribution

UNIT IV (12 HOURS)

Promotion Decisions- Communication process- Promotion mix - advertising- personal selling- publicity and public relations- Determining advertising budget-Copy designing and its testing- Media selection- Advertising effectiveness-Marketing Organization and Control- Organizing and controlling marketing operations.

UNIT-V (12 HOURS)

Issue and Developments in Marketing- Social- ethical and legal aspects of marketing- Marketing of service- International marketing- Green marketing- Cyber Marketing- Relationship marketing and other development in marketing

TEXT BOOK:

1. Kotler- Philip, Marketing Management-Analysis, planning, Implementation and Control, Prentice Hall, 2015,New Delhi.

REFERENCE BOOKS:

1. Majumdar, Ramanujam, Product Management in India, Prentice Hall, 2011 New Delhi.
2. Dr. K. Karunakaran, Marketing Management, First Edition, 2007,Himalaya Publishing House, Mumbai

15MCM204

M.Com Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

SECOND SEMESTER

CORE 10 : FINANCIAL MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective :

To enable the students to learn principles and concepts of Financial Management.

UNIT I (12 HOURS)

Financial Management - Meaning, Nature, scope and objectives – Role and functions of Financial Management – Financial decisions – relationship between Risk and Return – Sources of finance – Short-term and Long-term finance.

UNIT II (12 HOURS)

Cost of Capital - Meaning and importance – Cost of Debt, Preference, Equity and Retained Earnings – Weighted Average Cost of capital – Capital budgeting – Techniques – ROI, Payback period and NPV method.

UNIT III (12 HOURS)

Leverages - Financial Leverage – Operating leverage – EBIT and EPS analysis – Theories of Capital Structure – Net income approach – Net operating income Approach. MM Hypothesis – Determinants of capital structure- Capitalisation – Over and Under Capitalisation- Merits and Demerits.

UNIT IV (12 HOURS)

Leasing - Nature and Types- Advantages and Disadvantages-Dividend Theories: Walter's model – Gordon and MM's models – Dividend policy - Forms of Dividend – Determinants of dividend policy.

UNIT V (12 HOURS)

Working Capital Management – Cash Management – Receivables Management – Inventory Management – Determinants and Computation of Working Capital.

Note: Distribution of marks: Theory 40% and Problems 60%.

TEXT BOOKS

1. Khan.M.Y and Jain P.K, Theory and Problems of Financial Management, 3rd Edition, Tata McGraw- Hill Publishing Company Ltd,1992, New Delhi.
2. Pandey I.M, Financial Management, 8th Edition, Vikas Publishing House Pvt Ltd, 2005, New Delhi.

REFERENCE BOOKS

1. Kulkarni P.V and Satya Prasad. B.G, Financial Management, 11th Edition, Himalaya Publishing house, 2002,Mumbai.

18MCME01

M.Com Degree Examination – Syllabus for Candidates admitted from the academic year 2018-19 onwards

SECOND SEMESTER

ELECTIVE I: FOREIGN EXCHANGE MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

On the successful completion of this paper the students should have acquired expert knowledge in foreign exchange management and risks involved.

UNIT I (12 HOURS)

Foreign Exchange – Administration of Foreign Exchange – Foreign Exchange Transactions – Purchases and Sales Transactions – Authorized Dealers – Foreign Currency Accounts – Multinational Banking.

UNIT II (12 HOURS)

Foreign Exchange Market – Functions – Exchange Rates – Exchange Quotations – Spot and Forward Transactions – Merchant Rates – TT Buying and Selling Rate -Forward Exchange Contract - Features of Forward Exchange Contract.

UNIT III (12 HOURS)

Foreign Exchange Risk and Exposure – External Techniques of Exposure Management – Internal Techniques of Exposure Management.

UNIT IV (12 HOURS)
Inter Bank Deals - Cover Deals Trading, Swap Deals – Arbitrage Operations - Managing Foreign Exchange Reserves-Fiscal and Monetary Policies in India

UNIT V (12 HOURS)
Fixed Vs Floating – Exchange Rate Controversy – Managing Foreign Exchange Reserves - Evaluation –Pros and Cons.

TEXT BOOK

1. C. Jeevanadham, Foreign Exchange and Risk Management 5th edition, Sultan Chand and Sons, 2015, New Delhi.

REFERENCE BOOKS

1. Levi Maurice.D, International Finance, 1st Edition , Tata McGraw Hill, 1990,Mumbai
2. V.K.Bhalla , International Finance Management ,6th Edition, Anmol Publication , 2007,Mumbai.

16MCME02

M.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2016-17 onwards

SECOND SEMESTER

ELECTIVE I - INSTITUTIONS FACILITATING INTERNATIONAL TRADE

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective : To enable the students to acquire knowledge on the various institution facilitating International Trade.

UNIT I (12 HOURS)

Export promotion in India-Department of Commerce- Functional divisions- Advisory bodies- Commodity organizations-Export promotion councils (EPCs)- Commodity Boards-Autonomous bodies- Service Institutions and organizations-Government trading organizations-State trading corporations- Major STCs in India- State export –Promotion agencies- Impediments in Export Promotion.

UNIT II (12 HOURS)

Role of RBI in export finance –Role of Commercial Banks-Small Industrial Development Bank of India (SIDBI) - Objectives-Schemes-Export and Import bank of India (EXIM) - Objectives-Functions-Export Credit Guarantee Corporation of India (ECGC) – Functions – Special functions of ECGC.

UNIT III (12 HOURS)

World Trade Organisation – GATT – Objectives-Evolution of WTO-Functions- Principles of WTO- Organisation structure- WTO agreements-GATS-TRIMS-TRIPS-Objectives of IPRS benefits-Limitations-Procedure of Dispute settlement –WTO and Anti Dumping measures-Evaluation of WTO- Drawbacks/Criticisms.

UNIT IV (12 HOURS)
International Monetary Fund (IMF)-Objectives- Organisation and Management- Resources- Financing facilities- Conditions on borrowers- Special drawing rights-World Bank-Purpose- Organisation structure- Guiding principle- Leading programs.

UNIT V (12 HOURS)
International Development Association (IDA)-Objectives-Memberships – Loan assistance- International Financial Corporation (IFC)- Objectives-Main features- Asian Development Bank(ADB)- Objectives-UNCTAD-Functions-Basic principles- International Trade Centre.
TEXT BOOK

1. International Business (Text & cases) : Francis cherunilam PHI Learning Pvt. Ltd, 2009.
REFERENCE BOOK

1. Rakesh Mohan Joshi., International Marketing, Oxford University Press, 2005.

16MCME03

M.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2016-17 onwards

SECOND SEMESTER

ELECTIVE I - EXPORT AND IMPORT PROCEDURES

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To enable the students to learn the procedures of Export and Imports.

UNIT I (12 HOURS)

Exports – Recent measures to boost Country’s Exports – Rules for successful exporting – Preliminaries for starting export business – Deemed Exports and its benefits – Finance for Exports.

UNIT II (12 HOURS)

Different Categories of exporters - Registration of Exports – Appointing Overseas agents – Obtaining an export license – Arranging finance for exports – Packing goods for exports – Marketing Goods for export.

UNIT III (12 HOURS)

Excise procedure – Insuring goods against Marine risks – Preparing Export documents – Institutional support for Exports – Compulsory quality control and Pre-Shipment Inspection – Labeling – Shipping and Customs Clearance of Goods.

UNIT IV (12 HOURS)

Import Trade law in India – Preliminaries for starting Import Business – Registration of Importers – Arranging Finance for Import – Arranging letter of Credit for Imports – Balance of Payments – Liberalization of Imports.

UNIT V (12 HOURS)

Retirement of Import Documents and RBI's directives for making payment for Imports – Customs clearance of Imported Goods and Payments of Customs Duty – Imports under Special Schemes.

TEXT BOOK :

1. Rama Gopal, Export Import Procedures, Documentation and Logistics, New Age International, 2016, New Delhi.

REFERENCE BOOKS:

1. P.K. Khurana, Export management, Galgotia Publishing Co., 2001, New Delhi.
2. T.A.S. Balagobal, Export Management, Himalaya Publishing House, Mumbai, 2002

15MCMID1

M.Com Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

**SECOND SEMESTER
IDC1: BUSINESS RESEARCH METHODS**

**Maximum CIA: 30
Maximum CE: 70
Total Hours: 60**

Objective:

To enable the students to learn principles and concepts of Business Research Methods

UNIT I [12 HOURS]

Business Research – Meaning – Scope and Significance – Utility of Business research – Qualities of good researcher – Types of research – Research process – Identification, Selection and formulation of research problems .

UNIT II [12HOURS]

Sampling – Methods and techniques – Sample size –Fieldwork and data collection. Tools of data collection – Interview schedule - Questionnaire – Observation, interview and mailed questionnaire – pilot study and final collection of data.

UNIT III [12 HOURS]

Measures of Central tendency – Standard deviation – Correlation – simple, partial and multiple correlation – Path analysis – Auto correlation – Regression – Multiple regression.

UNIT IV

[12 HOURS]

Testing of Hypothesis – Type I Error and Type II Error – Standard Error – Small Sample (t-test) – Large sample (Z-test) – Business Forecasting – Exponential Smoothing.

UNIT V

[12HOURS]

Test of significance for Attributes – Chi square test – F test and Analysis of variance - Analysis of variance in One way Classification – Two way Classification.

Note: Distribution of marks: Theory 40% and Problems 60%.

TEXT BOOKS

1. Kothari C.R. Research Methodology, 3rd edition, New Age International [p] Ltd., 2007, New Delhi.
2. Bill Taylor, Gautam Sinha, Taposh Ghoshal, Research Methodology, 3rd Edition, Prentice- Hall of India [p] Ltd, 2008 New Delhi.

REFERENCE BOOK

1. Donald R. Cooper, Business Research Methods, 9th Edition, Tata McGraw- Hill Publishing Company Ltd, 2007, New Delhi.

15MCMAC1

M.Com Degree Examination – Syllabus for Candidates admitted from the academic year 2015-16 onwards

**SECOND SEMESTER
FINANCIAL TREASURY AND FOREX MANAGEMENT**

Maximum CE: 100

UNIT I

Sources of Finance: Equity, non voting preference, debentures and bonds- Company deposits: Term loans from Financial Institutions and banks- International Finance and Syndication of loans- Euro- issues and External Commercial borrowings.

UNIT II

Project planning and control: Project planning and preparation of Project report- Project appraisal under normal inflationary and deflationary conditions- Project appraisal by financial institutions – lending policies and appraisal norms by financial Institutions and banks.

UNIT III

Working capital Management and control: Working capital – Meaning – types – Determinants, assessment of Working capital requirements – Operating cycle Concept and applications of Quantitative techniques- Management of Working capital – cash, receivables, inventories- Financing Working capital- Banking norms and Macro aspects of Working capital Management.

UNIT IV

Treasury Management: Meaning- Objectives – significance- functions and scope of treasury Management- Role and Responsibilities of chief finance executive- Tools of Treasury Management- Liquidity Management Regulation - Supervision and control of Treasury operations.

UNIT V

Forex Management: Nature- Significance and Scope of Forex management – Foreign exchange Market and its Structure- Foreign Exchange Rate and its Determination- Exchange Rate Quotes- Types of Exchange rates- Forex Trading.

TEXT BOOKS:

1. Financial Management –M.Y. Khan & P.K.Jain
2. Financial Management – Prasanna Chandra.

REFERENCE BOOKS:

1. Financial Decision Making- John J. Hampton
2. Principals of Financial Management – Benton E. Gup

M.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-16 onwards

**THIRD SEMESTER
CORE 11 - DIRECT TAXES**

**Maximum CIA – 30
Maximum CE-70
Total Hours: 60**

Objective :

To enable the students to learn principles and concepts of Direct Taxes

UNIT I (10 HOURS)

Income Tax Act – Definition – Income – Agricultural Income – Assessee – Previous year – Assessment year – Residential status – Scope of Total Income – Capital and Revenue – Receipts and Expenditure – Exempted Incomes.

UNIT II (14 HOURS)

Computation of Income from Salaries and Income from House property.

UNIT III (12 HOURS)

Computation of Profits and Gains of Business or Profession – Calculation of Capital Gain- Exemption and Provisions

UNIT IV (12 HOURS)

Computation of Income from other sources – Set-off and Carry Forward of Losses- Normal and Abnormal - Deduction from Gross Total Income – Assessment of Individuals.

UNIT V (12 HOURS)

Income Tax Authorities – Procedure for Assessment – Collection of Tax.

Note: Distribution of marks: Theory 20% and Problems 80%.

TEXT BOOK

1. A. Murthy, Income Tax Law And Practice, 4th Edition Vijay Nicole Imprints Pvt Ltd., Chennai, 2016.

REFERENCE BOOKS

1. Gaur.V.P, Narang.D.B, Puja Gaur, Rajeev Puri, Income Tax Law and Practice 44th Revised Edition, Kalyani Publishers ,New Delhi, 2016.
2. Lal B.B and Vashisht.N, Direct taxes, 29th Edition, Dorling Kindersley India Pvt Ltd, New Delhi, 2015.

M.Com Degree Examination – Syllabus for candidates admitted from the academic year 2018-19 onwards

THIRD SEMESTER

CORE 12 : INVESTMENT MANAGEMENT

Maximum CIA-30

Maximum CE-70

Total Hours: 60

Objective: To explore contemporary knowledge and gain a conceptual understanding of Various Investment options and its management techniques.

Unit-I (12 Hours)

Introduction to Investments - Meaning– Nature- Scope- Objectives - Importance - Elements of investment –Factors influencing investment -Difference between investor and speculator- Financial System in India

Unit-II (12 Hours)

Investment Alternatives - Investment in Shares and Debentures -LIC schemes-Bank deposits-Government securities-Mutual fund schemes-Post office schemes-Provident fund-company deposits-real estate-gold & silver.

UNIT-III (12 Hours)

Securities Markets - Financial Market -Segments –Types -Primary Market – Methods of floating new issues–Role of primary market- Secondary Market- Mutual Funds- Stock exchanges in India –BSE, OTCEI, NSE, and ISE–SEBI.

Unit- IV (12 Hours)

Security Analysis and Risk Management - Security analysis-Fundamental Analysis: Economic, Industry and Company analysis- Technical analysis- Dow theory-Types of Shares -Important share patterns -Risk- kinds-Measures of risk-returns-Valuation of securities - Valuation of bonds

Unit-V (12 Hours)

Portfolio Management - Nature- scope - SEBI guidelines in Portfolio Management-Portfolio investment process-Elements - An optimum selection problem - Markowitz Portfolio Theory – Sharpe – Single Index Model –APT Model

Text Book:

1. Dr Preeti Singh, Investment Management , Himalaya Publishing House, 2016

References:

1. S. Kevin, Securities Analysis and Portfolio Management, PHI Learning, 2012.
2. Bodi, Kane, Markus, Mohanty, Investments, 8thedition, Tata McGraw Hill, 2011.
3. V. A. Avadhani, Securities Analysis and Portfolio Management, Himalaya Publishing House, 2011

M.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2017-18 onwards

**THIRD SEMESTER
CORE 13 : LABOUR LAW AND INDUSTRIAL RELATIONS**

**Maximum CIA-30
Maximum CE-70
Total Hours: 60**

Objective:

To explore contemporary knowledge and gain a conceptual understanding of Industrial Relations.

UNIT I (12 HOURS)

INDUSTRIAL RELATIONS: Concepts – Importance – Industrial Relations problems in the Public Sector – Growth of Trade Unions – Codes of conduct.

UNIT II (12 HOURS)

INDUSTRIAL CONFLICTS : Disputes – Impact – Causes – Strikes – Prevention – Industrial Peace – Government Machinery – Conciliation – Arbitration – Adjudication.

UNIT III (12 HOURS)

LABOUR WELFARE : Concept – Objectives – Scope – Need – Voluntary Welfare Measures – Statutory Welfare Measures – Labour – Welfare Funds – Education and Training Schemes.

UNIT-IV (12 HOURS)

The Factories Act, 1948 - The Trade Unions Act, 1926 - The Payment of Wages Act, 1936 - The Minimum Wages Act, 1948 - The Industrial Disputes Act, 1947 - The Workmen's Compensation Act, 1923 - The Payment of Gratuity Act, 1972 - The Payment of Bonus Act, 1965.

UNIT-V (12 HOURS)

The Employee's Provident Fund & Miscellaneous Act, 1952 - The Employees State Insurance Act, 1948 - The Industrial Employment (Standing Orders) Act, 1946 - The Apprentices Act, 1961 - The Equal Remuneration Act, 1976 - The Maternity Benefit Act, 1961 - Contract Labour Regulations and Abolition Act, 1970 - The Child Labour Prevention and Regulation Act, 1986.

TEXT BOOK:

1. Mamoria C.B. and Sathish Mamoria, Dynamics of Industrial Relations, Himalaya Publishing House, New Delhi, 2007.

REFERENCE BOOKS:

1. Ratna Sen, Industrial Relations in India, Shifting Paradigms, Macmillan India Ltd., New Delhi, 2007
2. P.K. Padhi, Industrial Laws, Prentice Hall of India, 2008.

M.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2016-17 onwards

**THIRD SEMESTER
CORE 14- E-COMMERCE & MIS**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objective: To enable the students to learn the principles and the concepts involved in E-Commerce and concepts in utilization of business information for decision making to suit to the present IT industry.

UNIT I [10 HOURS]

E-Commerce-Classification of Electronic Commerce -Anatomy of E-Commerce Applications-Electronic Data Interchange- Benefits-EDI Legal, Security & privacy issues-EDI software implementation.

UNIT II [10 HOURS]

Consumer Oriented Electronic Commerce: Consumer Oriented Applications-Mercantile Process Models-Mercantile Models From the Consumers & Merchants Perspective-Electronic Payment Systems-Types -Smart Cards & Credit Card Electronic Payment Systems –Risk.

UNIT III [9 HOURS]

Management Information System : Meaning – Features – Requisites of an effective MIS – MIS Model – Components – Role and Importance – Corporate Planning for MIS – Growth of MIS in an Organisation - Limitations of MIS.

UNIT IV [10 HOURS]

Information Systems in Business and Management: System Concept- Characteristics of system-Types-Categories of Information System-System Development Life Cycle-System Enhancement-Transaction Processing System: Information Repeating and Executive Information System.

UNIT V [9 HOURS]

Database& Functional Management Information Systems-Client Server Architectures Networks–Business Process Re–Engineering-Financial-Accounting-Marketing-Production-Human resource-Business Process Outsourcing.

TEXT BOOKS:

1. Jindal Aman, “Management Information System”, Kalyani Publishers, 12th Edition, 2013.
2. Dr.C.S.Rayudu,”E-Commerce & E-Business”,Himalaya Publishing House, 2014.

REFERENCE BOOKS:

1. E-Commerce,Ritendra Goel, New Age International Publishers,2016
2. Dr. S.P. Rajagopalan, “Management Information System”, Margham Publications, 2015.

M.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2018-19 onwards

THIRD SEMESTER

PRACTICAL I: COMPUTER APPLICATION IN BUSINESS

Maximum CIA-40

Maximum CE-60

Total Hours: 60

Objective: To train the students to attain practical skill essential for modern office

MS-WORD, MS-EXCEL, MS – POWERPOINT, MS - ACCESS

1. Drafting a questionnaire for Research Problem
2. Calculate Mean, Median, Mode, Standard Deviation and Correlation
3. Create a presentation for exhibiting the details of a newly launched product
4. Prepare a Report based on Invoice details such as product number, quantity, price etc., for five products

TALLY

5. Introduction of Tally – History of Tally version– Features and configuration— company creation - Tally Short keys.
6. Ledgers, Vouchers, Trial Balance
7. Preparation of final Accounts.
8. Preparation of Stock summary – Creation of Stock group – Creation of stock category - Unit of measurement – Stock item creation.
9. Bill of materials, stock valuation
10. Payroll accounting and compliance
11. Configuring and creating payroll in tally
12. Creation of payroll masters
13. Processing and generating Payroll reports
14. Introduction to GST - Getting Started with GST (Goods) - Accounting entries for goods purchased and sold.
15. Getting Started with GST (Services)

Text Books

1. R.K.Taxali, PC Software, 1 st Edition Tata MC Graw Hill , 2005, (Last Edition).
2. Nitya Tax Associates, Basics of GST, 1 st Edition Taxmann's , 2016

Reference Books

1. Ashok Kisor, Tally 9, 2 nd Edition BPB Publication, 20011,New Delhi.
2. Dinesh Verma, Computer Basics and PC Software, Gullybaba Publishing House, 2012

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**THIRD SEMESTER
ELETIVE II – SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective : To expose the students to the concepts of Investment Risks and Securities and to enable them to understand and utilize the tools available for analysis.

UNIT I (12 HOURS)
Security Analysis and Portfolio Management: Overview -The Investment Process – Investment Environment – Concepts of Return and Risk -Measurement of Return and Risk-Investment Alternatives and their Evaluation - Portfolio Management Process.

UNIT II (12 HOURS)
Methodology of Conducting Security Analysis - Fundamental Analysis - Economic Analysis- Economic Forecasting - Industry Analysis- Company Analysis- Technical Analysis-Tools and Techniques of Technical Analysis - Dow Theory - Eliot Wave Theory - Test of Different Forms of Market Efficiency - Emotional and Social Influences.

UNIT III (12 HOURS)
Valuation and Management of Securities- Bond Valuation - Bond Returns and Risks - Bond Price Changes - Measuring Bond and Price Volatility- Bond Yield-Measuring Yield - Equity Valuation- Equity Returns and Risks - Guidelines for Equity Investment.

UNIT IV (12 HOURS)
Portfolio Theory- Measuring Portfolio Returns and Risk - Efficient Portfolios - Capital Market Theory- Capital Asset Pricing Model (CAPM)-Capital Market Line (CML)- Security Market Line(SML) - Behavioral Models.

UNIT V (12 HOURS)
Portfolio Selection ,Performance Evaluation and Portfolio Revision-Formula Plans – Time Weighted Returns.

TEXT BOOKS:

1. Preeti Singh. Security Analysis And Portfolio Management, Himalaya Publishing House PVT.Ltd. First Edition 2017.
2. Bhalla .V.K. Investment Management, S. Chand & Sons, New Delhi, (Last Edition).

REFERENCE BOOKS:

1. Prasanna Chandra -Investment Analysis and Portfolio Management, 14th Edition, Tata McGraw-Hill Education, 2012, New Delhi.
2. Avadhani V.A., Security Analysis & Portfolio Management, 19th revised edition, Himalaya Publishing House, 2010, New Delhi.

M.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2016-17 onwards

**THIRD SEMESTER
ELECTIVE II – FUNDAMENTAL AND TECHNICAL ANALYSIS**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 60

Objective: To enable the students to learn about the Fundamentals and Technical Analysis of Securities.

UNIT -I (12 HOURS)
Investment - Meaning – Importance – Security Analysis – Risk and Return – Various Approaches to Security Valuation.

UNIT -II (12 HOURS)
Fundamentals Analysis – Meaning – Qualitative factors - Market Analysis – Indices of NSE and BSE.

UNIT- III (12 HOURS)
Industry analysis – Meaning – Methods – Industry Forces – Industry Success Factors - Importance of Industry and Company Analysis – Meaning – Company Analysis and Stock Valuation - Methods.

UNIT- IV (12 HOURS)
Technical Analysis – Meaning – Assumptions of Technical Analysis – Fundamental VS Technical Analysis - Dow Theory – Elliot Wave Theory

UNIT -V (12 HOURS)
Moving Averages – Simple Moving Average – Cumulative Moving Average - Charts

TEXT BOOKS:

1. Reily. Investment Analysis and Portfolio Management: 10th Edition, 2012, South Western Cengage Learning
2. Preeti Singh. Security Analysis And Portfolio Management, Himalaya Publishing House PVT. Ltd. First Edition 2017.

REFERENCE BOOKS:

1. S.K. Baura Portfolio Management, Vikas Publishing House Pvt.Ltd.
2. Elton and Gurbar. Modern Portfolio Theory and Investment Analysis

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**THIRD SEMESTER
ELECTIVE II – FUTURES AND OPTIONS**

Maximum: CIA-30

Maximum: CE- 70

Total Hours: 60

Objective: To enable the Students to learn about the Securities for their Future and its Options.

UNIT I (12 HOURS)

Introduction to Derivatives – Definition of Derivatives Products – Participants in Derivatives Market, Economic foreever of Derivatives Market.

UNIT II (12 HOURS)

Index Derivatives – Index number – Economic Significance of Index Movements – Types of Indices – Desirable Attributes of an Index – Derivatives in Nifty and Sensex.

UNIT III (12 HOURS)

Forward Contracts - Limitations of Forward Markets – Futures – Distinction between Future and Forward Contracts – Futures –Termination-Options – Options Terminitory - Call Options and Put Option.

UNIT IV (12 HOURS)

Pay off for Buyer (Long Futures) of Futures – Pay off for Seller (Short Futures) of Futures – Hedging, Speculation and Arbitrage – Options pay off – Pay off Profit for Buyer of Call Options – Pay off Profit for Writer of Call Options - Hedging and Speculation in Options.

UNIT V (12 HOURS)

Evolution of Commodity Markets – Commodity Markets in India – Newyork Mercantile Exchange- London Metal Exchange, Chicago Board of Trade’s –Tokyo Commodity Exchange, Chicago Mercantile Exchange.

TEXT BOOK:

1. Dr.S.Gurusamy, Financial Services and Markets : Vijay Nicole Imprints (P) Ltd, 2009

REFERENCE BOOKS:

1. Financial Services by M.Y.Khan, MC Graw Hill Publishing Company Limited,2015

2. Shashi K. Gupta & Nisha Aggarwal, Financial Services, Kalayani Publications, 2014

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M.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2016-17 onwards

**THIRD SEMESTER
EDC I - BUSINESS ETHICS**

Maximum CE: 50

Total Hours: 24

Objectives: The objectives of this course are to help students gain an understanding of Business Ethics and its application in managerial decision-making.

UNIT I. (4 HOURS)

The Nature and Purpose of Ethical Reflections: Introduction, Definition of Ethics, Moral Behavior, Characteristics of Moral Standards.

UNIT II (5 HOURS)

Business Ethics: Mediating between Moral Demands and Interest, Relative Autonomy of Business Morality, Studies in Business Ethics, Role of Ethics in Business, Theory of Voluntary Mediation, Participatory Ethics.

UNIT III (5 HOURS)

Moral Responsibility: Introduction; Balanced Concept of Freedom, Individual Responsibility, Implications related to Modern Issues, Public Accountability and Entrepreneurial Responsibility, Moral Corporate Excellence, Corporate Responsibility.

UNIT IV (5 HOURS)

Business Ethics and Individual Interest: Interest based Outlook, Impact of Interest on Moral Goals and Moral Principles, Utilitarian Views on Business Ethics, Enlightened Egoism.

UNIT V (5 HOURS)

Duty ethics in the Business Environment -Theories of Virtue: Productive Practices and Team Motivation, Prospects of Virtues in Business Ethics and Management Theory.

TEXT BOOK:

1.Murthy, Business Ethics, Himalaya Publishing House, 2009 .

REFERENCE BOOKS:

1.Richard T De George, Business Ethics, Pearson Education Indian Ltd., 7th Edition, 2014.

2.Andrew Crane and Dirk Mattern, Business Ethics, Oxford University Press, 2011.

M.Com Degree Examination – Syllabus for Candidates admitted from the Academic Year 2017-18 onwards

**FOURTH SEMESTER
CORE 15 : MANAGEMENT ACCOUNTING**

Maximum CIA-30

Maximum CE-70

Total Hours: 60

Objective:

To explore contemporary knowledge and gain a conceptual understanding of Management Accounting.

UNIT I

(12 HOURS)

Management Accounting-An Introduction: Nature & Scope - Financial Accounting vs. Cost Accounting vs. Management Accounting – Functions – Techniques- Principles – Scope - Utility – Limitations - Management Accountant: Position - Role and Responsibility

UNIT II

(12 HOURS)

Analysis and Interpretation of Financial Statements: Financial Statement Analysis –Types - Comparative Financial Statement - Comparative Balance Sheet - Comparative Income Statement - Common Size Balance Sheet Analysis - Common Size Income Statement Analysis –Interpreting the Financial Statements - Limitation of Financial Statement Analysis

UNIT III

(12 HOURS)

Accounting Ratio- Classification –Liquidity ratios - Profitability ratios - Turnover Ratios - Solvency Ratios – Leverage Ratios - Ratios as Predictors of insolvency – Significance - Limitations - Interpretation of Ratio Analysis.

UNIT IV

(12 HOURS)

Working Capital – Meaning – Kinds of working capital – Need/ Objectives of working capital – Importance of Adequate working capital – Factors determining working capital requirements - Schedule of changes in working capital. Fund flow statement – Definition – Function - Uses of Fund flow statement – Preparation of Fund flow statement. Cash Flow Statement – Definition – Uses – Limitations - Preparation of cash flow statement.

UNIT V

(12 HOURS)

Budget and Budgetary Control : Budget – Definition – Meaning of Budgetary Control – Budget, Budgeting and Budgetary control – Objectives – Advantages – Limitations – Classification of Budgets – Materials Budget - Production Budget – Production Cost Budget – Labour Budget – Capital Expenditure Budget- Selling and Distribution Overhead Budget – Sales Budget – Cash Budget – Master Budget – Fixed Budget – Flexible Budget – Zero Base Budgeting.

Distribution of Marks: Theory – 20% , Problems – 80%

TEXT BOOKS:

1. Shasi K. Gupta, Sharma. R.K, Management Accounting, Kalyani Publishers, New Delhi, 2009

REFERENCE BOOKS:

1. Khan M.Y, Jain P.K, Management Accounting, 3rd Edition, TataMcGrawHill Publishers,New Delhi.

2. Gordan. E, Sundaram.n, Management Accounting, Himalaya Publishing House, Mumbai, 2017.

M.Com Degree Examination – Syllabus for candidates admitted from the academic year 2018-19 onwards

**FOURTH SEMESTER
CORE 16 : STRATEGIC MANAGEMENT**

Maximum CIA-30

Maximum CE-70

Total Hours: 60

Objective: To explore contemporary knowledge and gain a conceptual understanding of Various Strategies of Modern Business.

Unit I [12 Hours]

Introduction to Strategic Management : Strategy - Strategic Management Process. Levels of Strategies - Corporate, Business and Operational level. Types of Strategies - Functional Strategies – Human Resource Strategy - Marketing Strategy - Financial Strategy - Operational Strategy. Benefits and Risks of Strategic Management. Formulation of Strategy. Business Environment: Components of Environment - Environmental Scanning - Analysis of Strategies and Choice of Strategy.

Unit II [12 Hours]

Competitive Advantage: Introduction – Meaning and Definition – Competitive Advantage of Nations and its implication on Indian Business – Michael Porter’s 5 Forces Model – Pest analysis –Building blocks of Competitive Advantage - Avoiding Failures and Sustaining Competitive Advantage. Portfolio Analysis: SWOT Analysis – GAP analysis – TOWS Matrix – Experience Curve analysis – Life Cycle Analysis – BCG growth share Matrix – GE Nine -Cell Matrix.

Unit III [12 Hours]

Corporate Restructuring: Introduction to Corporate Restructuring - Need for corporate restructuring and forms of corporate restructuring. Corporate Level Strategies - Mergers and Acquisitions, Takeovers, Joint Ventures, Diversification, Turnaround, Liquidation.

Unit IV [12 Hours]

Strategy Implementation – Framework - Mc Kinsey’s 7 – S Framework- Approaches – Issues. Strategic Control and Evaluation: Strategic Control system – Meaning – Types – Characteristics & Guidelines for Effective Control system – Strategy Evaluation and Control – Objectives - Process – Techniques- The Control Process-Feedback Model - Designing Control Systems.

Unit V [12 Hours]

Corporate Governance: Meaning – Importance - Structure - Principles and Practices in India. Corporate Social Responsibility (CSR): Meaning – Driving Forces – Dimensions of Corporate Performance – Areas of Social Responsibility - Strategies for growing green economies - Strategies

for Governing Public Private Participation of Business Sector in India. Strategies for Environmental Accounting and Auditing.

Text books:

1. L.M. Prasad, “ Strategic Management”, Sultan Chand & Sons, Sixth Edition 2016

Reference books:

1. Francis Cherunilam, “ Strategic Management”, Himalaya Publishing House, 4th Revised Edition 2016
2. P.K. Ghosh, “Strategic Planning and Management”, Sultan Chand & Sons, 12th Edition 2016.

**M.Com Degree Examination – Syllabus for Candidates admitted from the Academic
Year 2018-19 onwards**

FOURTH SEMESTER

ELECTIVE III : ENTREPRENEURSHIP AND SMALL BUSINESS

MANAGEMENT

Maximum CIA-30

Maximum CE-70

Total Hours: 60

Objective: Highlight the need for entrepreneurship and to manage the small business by learning the various topics to familiarize the growth of entrepreneurship in India.

Unit I (12 Hours)

Entrepreneur- Meaning – Importance – Qualities, Nature Types, Traits, Culture, Similarities and Differences between Entrepreneur and Intrapreneur. Entrepreneurship and Development – Its Importance – Role of Entrepreneurship – Entrepreneurial – Environment.

Unit II (12 Hours)

Evolution of Entrepreneurs – Entrepreneurial Promotion: Training and Developing- Motivation- Factors – Mobility of Entrepreneurs – Entrepreneurial Change – Occupational Mobility – Factors in Mobility – Role of Consultancy Organizations in Promoting Entrepreneurs – Forms of Business for Entrepreneurs.

Unit III (12 Hours)

Project Management - Sources of Business Idea – Project Classifications – Identifications – Formulation and Design – Feasibility Analysis – Preparation of Project Report and Presentation. Financial analysis – Concept and Scope – Project Cost Estimate – Operating Revenue Estimate – Ratio Analysis – Investment Process – BE Analysis-Profit Analysis-Social Cost Benefit Analysis-Project Appraisal Methods-Project Report Preparation.

Unit IV (12 Hours)

Entrepreneurs and Ideas: The Basis of Small Business – Small Business Ethics – Small Business Entrepreneurs – Small Business Ideas- Small Business Paths and Plans-Small Business Entry – Path to Part Time Entrepreneurship – Paths to Full Time Entrepreneurship – Small Business Strategies – Business Plans.

Unit V (12 Hours)

Marketing in the Small Business : Small Business Marketing - Small Business Promotion – Small Business Distribution and Location – Marketing Plans- Cash Accounting and Finance in the Small Business : Small Business Accounting – Small Business Finance – Small Business Protection - Legal Issues – Human Resource Management - Achieving Success in the Small Business

Text Books

1. Vasanth Desai, Dynamics of Entrepreneurial Development and Management Himalaya publishing house, 2011, New Delhi.
2. N.P.Srinivasan & G.P.Gupta, Entrepreneurial Development, Sultanchand & Sons.

Reference Books

1. Katz, Jerome and Richard, Green – Entrepreneurial Small Business, McGraw Hill Education, New Delhi, 2015.
2. Scarborough, M. Norman, Cornwall, R. Jeffrey - Essentials of Entrepreneurship and Small Business Management, Pearson Education, New Delhi, 2016

M.Com Degree Examination – Syllabus for candidates admitted from the academic year 2018-19 onwards

**FOURTH SEMESTER
ELECTIVE III : MICRO FINANCE MANAGEMENT**

**Maximum CIA-30
Maximum CE-70
Total Hours: 60**

Objective:

On the successful completion of the course, the student will acquire the indepth knowledge about Micro Finance.

Unit I (12 Hours)

Microfinance – An Introduction – Demand and Supply of Microfinance – Microfinance: A Development Strategy and an Industry – Role of Grameen Banks in Micro finance – Microfinance Innovative Concepts, Approaches and Financial Inclusion

Unit II (12 Hours)

Analyzing and Managing Financial Performance of MFIs – Analyzing and Managing Financial Statements of MFIs/RRBs – Financial Ratios, Capital Adequacy, IRAC and Provisioning Norms – Revenue Models of Microfinance –Role of Subsidies and Donors in Microfinance – Benchmarking and Rating of MFIs – Operational Evaluation

Unit III (12 Hours)

Market Evaluation of Microfinance– Products and Services - Pricing of Financial Services – Legal and Regulatory Compliance In Microfinance – Social Evaluation of Micro finance – Role of Ethics in Microfinance

Unit IV (12 Hours)

State Intervention in Rural Credit –Bank Linkup and Programme – Governance and the Constitution of the Board of Various Forms of MFIs in India – Intermediaries for Microfinance – Microfinance Delivery Models and Banks Linkages Programme

Unit V (12 Hours)

Emerging Issues in Microfinance – Gender Issues in Microfinance – Role of Technology in Microfinance – Micro Credit as Priority Sector Advance – Impact of Micro finance on Empowerment of Women.

Text Book

1. Principles and Approaches, Dr.V.Rengarajan, 4th edition, Notion Press Publication, 2016

Reference Book

1. The Economic of Micro Finance, B.Armendariz, PHI Publication, 2015
2. Micro Finance- Perspective and Operations, IIBF MacMillan Publication, 2015

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**FOURTH SEMESTER
ELECTIVE III : RETAIL MARKETING MANAGEMENT**

Maximum CIA-30

Maximum CE-70

Total Hours: 60

Objective : To enable the students to learn the basics in retailing, T-tailing and recent trends in retailing.

Unit-I (12 Hours)

Retail Management - Concept - Definition and Meaning- Characteristics– Elements of Retail Marketing Management-Functions- Role of retailing- Trends in Retailing- Types of Retailing - -Economic Significance of Retailing- Retailing Management Decision Process- Product Retailing vs. Service Retailing- Types of Retailers.

Unit-II (12 Hours)

Retail Market segmentation- Need- Criteria- Dimensions of segmentation-Introduction- Retail Marketing Mix- Importance of Marketing Mix- Segmentation in Retail-Targeted Marketing Efforts- Criteria for Effective Segmentation- Dimensions of Segmentation- Limitations of Market Segmentation

UNIT-III (12 Hours)

Merchandise Planning- Understanding Merchandising Management, Activities of a Merchandiser, Retail Merchandising Management Process- -Identifying Customer Needs and Wants- Presenting the Merchandise –Visual Merchandising–Category Management- Product Movement and Stocking Plans- Retail Facilities: Cold Storage- Display- Demo- Warehouse-Customer Convenience.

Unit- IV (12 Hours)

E-Tailing - Introduction- Role of Technology in Satisfying Market Demand- Technology in Retail Marketing Decisions- Structure and Developments in E-tailing- Factors Influences the Growth of E-Tailing- Advantages & Disadvantages of E-Tailing- Future of Electronic Retailing.

Unit-V (12 Hours)

Retail Markets in India and Global - Evolution and Size of retail in India – Drivers of retail change in India – Challenges to retail developments in India- Global retail markets retailing – Challenges facing global retailers –Factors affecting the success of a global retailing strategy.

Text Book:

1. Swapna Pradhan: Retail Management Text and cases, (Tata McGraw-Hill Education) 2015.

Reference Books:

1. Gibson G. Vedamani: Retail Management Functional Principles and Practices, Jaico Publishing House, 2011.
2. Dr. Harjit Singh: Retail Management A Global Perspective, Vikas Publishing house, 2014.
3. Helen Goworek, Peter Mc Goldrick : Retail Marketing Management Principles and Practice, Pearson Education Limited, 2015

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THIRD SEMESTER

ALC: COST AUDIT AND OPERATIONAL AUDIT

Maximum CE-100

Objectives: To make the students to understand the rules, procedures and techniques for preparing Cost audit and Operational audit Report.

UNIT- I

Cost Audit- Basic of Cost Audit- Appointment of Cost Auditor- Nature and Scope of Cost Audit- Provisions under Companies Act relating to Maintenance of Cost Records and Cost Audit.

UNIT- II

Provisions of Cost Audit Report - Rules 2001- Forms of Cost Audit Report- Annexure to the Cost Audit report- Proforma to the Cost Audit Report- Usefulness of Cost Audit.

UNIT- III

Cost Accounting Record Rules- Procedure for Prescription of Cost accounting Record Rules- Cost Accounting Record Rules and its Applicability- Provisions of Cost Accounting Record Rules of Various Industries.

UNIT- IV

Operation Audit- Basics of Operational Audit- Concept of Internal and Operational Audit- Internal Audit- Techniques and Procedures- Internal Audit Report- Operational Audit Techniques and Procedure.

UNIT -V

Various Types of Audit and their Process - Due Diligence Audit- SOX Audit- Energy Audit- Meaning and Methodology- Productivity Audit- VAT Audit.

TEXT BOOK:

1. Saxena & Vashist, Cost Audit and Management Audit , Sulthan Chand & Sons Pvt. Ltd., 2011

REFERENCE BOOKS:

1. A.R. Ramanathan, Cost and Management Audit, Margham Publication (Last Edition)
2. Dhruva Dutta Chowdhury, Cost Audit and Management Audit, New Central Book Agency, 2010

MASTER OF BUSINESS ADMINISTRATION (MBA) SCHEME OF EXAMINATIONS (CBCS PATTERN) For candidates admitted from Academic Year 2018-2019 onwards								
Part	Subject Code	Subject Title	Hours/ Week	Examinations				Credit
				Dur. Hours	CIA	C.E	Total marks	
SEMESTER- I								
III	16MBA101	Core: I - Business Organization and Management	4	3	30	70	100	4
III	16MBA102	Core: II - Organizational Behavior	5	3	30	70	100	4
III	16MBA103	Core: III- Managerial Economics	5	3	30	70	100	4
III	16MBA104	Core:IV - Accounting for Managers	5	3	30	70	100	4
III	16MBA105	Core: V- Executive Communication	4	3	30	70	100	4
III	16MBAID1	IDC 1-Quantitative Methods for Management	5	3	30	70	100	4
III	18MBAP01	Practical: Computer Application for Business	2					
Total			30	-	-	-	600	24
SEMESTER- II								
III	16MBA201	Core: VI- Production and Operations Management	5	3	30	70	100	4
III	16MBA202	Core: VII- Marketing Management	4	3	30	70	100	4
III	16MBA203	Core: VIII- Financial Management	5	3	30	70	100	4
III	16MBA204	Core: IX- Human Resource Management	4	3	30	70	100	4
III	16MBA205	Core: X- Research Methods for Management	5	3	30	70	100	4
III	16MBAID2	IDC 2- Quantitative Techniques	5	3	30	70	100	4
III	18MBAP01	Practical: Computer Application for Business	2	3	60	40	100	4
Total			30	-	-	-	700	28
SEMESTER- III								
III	18MBA301	Core: XI-Business Environment and Ethics	5	3	30	70	100	4
III	16MBA302	Core: XII- Legal Aspects of Business	5	3	30	70	100	4
III	16/18 MBAE--	Core: XIII- Elective (Specialization 1)	5	3	30	70	100	4
III	16/18 MBAE--	Core:XIV- Elective (Specialization 1)	5	3	30	70	100	4
III	16/18 MBAE--	Core: XV- Elective (Specialization 2)	5	3	30	70	100	4
III	16/18 MBAE--	Core: XVI- Elective (Specialization 2)	5	3	30	70	100	4
III	18MBAPR1	Institutional Training &Major Project(viva voce)	-	3	50	50	100	4
Total			30	-	-	-	700	28
SEMESTER- IV								
III	18MBA401	Core: XVII- Entrepreneurship and Project Management	5	3	30	70	100	4
III	18MBA402	Core: XVIII- Strategic Management	5	3	30	70	100	4
III	16/18 MBAE--	Core: XIX- Elective (Specialization 1)	5	3	30	70	100	4
III	16/18 MBAE--	Core: XX- Elective (Specialization 1)	5	3	30	70	100	4
III	16/18 MBAE--	Core:XXI- Elective(Specialization 2)	5	3	30	70	100	4
III	16/18MBAE--	Core:XXII- Elective(Specialization 2)	5	3	30	70	100	4
Total			30	-	-	-	600	24
Total			-	-	-	-	2600	104

Additional Credit Papers

Subject Code	Subject Title	Ins. Hours/Week	Examinations				Credit
			Dur. Hours	CIA	C.E	Total marks	
18MBAAC1	II Semester- Event Management	-	3	-	100	100	2
18MBAAC2	III Semester -Store Location, Design and Visual Merchandising	-	3	-	100	100	2

CIA - Continuous Internal Assessment

Ins. Hours - Instructional Hours

LIST OF ELECTIVES FOR III SEMESTER AND ELECTIVES FOR IV SEMESTER**MARKETING (GROUP A)**

Subject Code	Subject
18MBAEA1	Digital Advertising and Sales Promotion
16MBAEA2	Retail Management
16MBAEA3	Agricultural and Rural Marketing
16MBAEA4	Social Media and Search Engine Marketing

HUMAN RESOURCES (GROUP B)

Subject Code	Subject
16MBAEB1	Workplace Ethics
18MBAEB2	Labour Welfare and Industrial Relations
18MBAEB3	Personal Growth and Interpersonal Effectiveness
18MBAEB4	Human Resource Accounting

FINANCE (GROUP C)

Subject Code	Subject
16MBAEC1	Security Analysis and Portfolio Management
16MBAEC2	Advanced Financial Services

16MBAEC3	Risk Management and Insurance
16MBAEC4	Principles and Practices of Banking

LOGISTICS AND SUPPLY CHAIN MANAGEMENT (GROUP D)

Subject Code	Subject
18MBAED1	Supply Chain and Logistics Management
18MBAED2	Export Trade and Documentation
18MBAED3	Domestic Logistics
18MBAED4	International Logistics Management

PROJECT

The students of Master of Business Administration have to undergo a Major Project Work during the end of Second Semester for a period of 45 days and submit the same to the Department at the end of the Third Semester. During the end of the Second Semester the students will be allotted a Supervisor (Guide) and the same will be treated as Internal Examiner for the final project Viva- Voce.

The students are advised to finalize their topic, before they take up the project and the same has to be approved by the respective Supervisor. The students should report to their respective guide about the progress of their work at least once in a week and carry out the suggestions and corrections made by the guide.

Components of the Major Project Work

a) Project Review

The students are expected to submit their work in progress to a panel of two faculty members, of which one would be their respective guides, for the purpose of review. Three such project reviews should be completed before the submission of the final project report and viva - voce.

First Project Review - Details to be Reviewed

1. Review of Literature and arrival of Research Gap.
2. Finalization of the Objective of the Study.
3. Scope and Need for the Study.
4. Framing of the Hypotheses if any.
5. Details on the Methodology of the Study.
6. Selection of the Statistical Tools.
7. Finalization of method of Data Collection.

(If primary data collection is adopted)

Second Project Review - Details to be Reviewed

1. Adequacy of Data collected.
2. Analysis and Interpretation of the data by using the chosen Statistical tools.

Third Project Review -Details to be Reviewed

1. Finalization of the Analysis and Interpretation.
2. Drawing the Findings, Suggestions, Recommendations and Conclusion.

After the third project review, the students have to prepare a rough draft and submit the same to the respective Guides for approval before preparing the final report and submit the same for the Viva – Voce Examination.

Absentees and Failure

The minimum marks for passing the Major Project Work shall be 50 percentages. The student should obtain a minimum of 25 marks out of 50 in the External component. The student should obtain a minimum of 50 percentage as the aggregate of the Internal and External component for securing a pass in the Major Project Work. The student obtaining less than 25, out of 50 in the External component but securing 50% and above as the aggregate of Internal and External shall be declared to have failed in the Major Project Work. The student to qualify for appearing for the viva voce should be completed all the components of Internals.

REGULATION FOR INSTITUTIONAL TRAINING

- (a) During the second semester vacation the student shall do an institutional training in a business organization under a faculty guide and submit the report in the third semester.
- (b) The report shall be printed and bound with not less than 50 pages.
- (c) The students shall prepare at least 2 copies of the report: a) one copy for submission to the organization b) one copy for the student.
- (d) The work has to be done individually
- (e) The duration for the institutional training is for 2-3 weeks
- (f) A certificate showing the duration of the training shall be obtained from the organization for which the training was done and it shall be included in the training report.

INSITUTIONAL TRAINING WORK:

The students have to do an institutional training during the vacation of second semester. The students are advised to finalize their company with the approval of respective guide. The students should report to their guide, about the progress at least once in a week and carry out the suggestion and corrections made by the guide.

COMPONENTS OF INSTITUTIONAL TRAINING REPORT:

1. Acknowledgment
2. Table of Contents
3. Executive Summary
4. Industry Profile
5. Introduction – Company Profile
 - 5.1 Organization Chart
 - 5.2 Major Departments
6. Specific Assignment (Optional)
7. Conclusion
8. Bibliography/Reference

WORK PLAN:

An internee may develop work plan to pursue while doing training, as given below

WEEK ONE:

- Orientation of overall organization.
- Visiting different sections/units and collecting all relevant materials on the organization.
- Starting work in specific section.
- Getting all relevant written materials on that section.
- Study each aspects of the assigned section.

WEEK TWO:

- Interviewing concern people based on review of material collected so far.
- Taking notes of all interviews.

- Writing a draft chapter on existing situation in the assigned section.
- Collecting and incorporating any missing information.

WEEK THREE:

- Recording all observations with a view to write chapter on analysis.
- Writing the final chapters.

Documents and other details to be submitted to the faculty coordinator: Completion certificate obtained from the organization in which the study was conducted, mentioning the duration of the study and successful completion of the same.

Institutional Training Report: After getting the approval for the final draft from the guide, the students should prepare the report and submitted the same to the department on or before the last date of submission. The report submitted by the student after the notified day (the last date of submission), will be rejected and the same will be treated as “NOT COMPLETED”.

DISTRIBUTION OF MARKS

The total marks allotted for a major project is 100, out of which 50 marks will be as internal and the rest 50 marks is allotted for the external examination (viva-voce). Out of the 50, the external examiner will evaluate the student in the viva-voce for 25 marks and the report for 25 marks.

Internal mark for Project

1. The Internal Mark for Institutional Training & Major Project as follows:

Institutional Training

Component	Max. Marks	Authority
Work Diary	5	Marks to be allotted by the Project Guide
Institutional Training Review	10	
Institutional Training Report	10	
Total	25	

Major Project

Component	Max. Marks	Authority
Major Project Review I	5	Marks to be allotted by the project guide and panel member
Major Project Review II	5	
Major Project Review III	10	
Progress and Report	5	
Total	25	

External mark for Project

Component	Max Marks	Authority
Report(Physical make up and entry of the report)	25	Marks to be allotted by both the examiners jointly
Viva – Voce	25	
Total	50	
Grand total	100	

Regulation for Theory Courses

The following are the distribution of marks for External and Internal for **theory courses of** Master of Business Administration Course.

Total Marks	External		* Internal Max. marks	Overall Passing Minimum for total marks (Internal +External)
	Max. marks	Passing Minimum for external alone		
100	70	35	30	50

*There is no Minimum Mark for Internal.

The following are the Distribution of **Internal Marks** for theory courses of Master of Business Administration Program.

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6=30

Seminar:

S.No	Seminar Split Up	Marks
1	Content	10
2	Flow of the Presentation	10
3	Stage Management and Body Language	10
	Total	30

Question Paper Pattern

For Pre-Model, Model and Comprehensive Examinations

Max. Marks: 70

Time: 3 Hours

Short Answers

Section – A (5x5 = 25 Marks)

Answer all the Questions

(Each Question carries FIVE Mark)

Section – B (3x15 = 45 Marks)

Answer any three out of five Questions

(Each Question Carries FIFTEEN Marks)

(10th question is compulsory to be attended -Case Study)

Question Paper Pattern for Additional Credit Course

Max marks: 100

Time: 3 Hours

Section – A (10x2 = 20 Marks)

Answer all the Questions

Short Answers

Section – B (5x12=60 Marks)

Answer all the Questions

Each Question carries Twelve Marks

(INTERNAL CHOICE only)

Section – C (1x20=20 Marks)

Compulsory Question

Case Study or any application oriented questions may be asked

Master of Business Administration Degree Examination- Syllabus for candidates admitted from the academic year 2018-2019 onwards

FIRST SEMESTER

PART III – CORE I - BUSINESS ORGANISATION AND MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

OBJECTIVE: This subject aims to develop an understanding of the nature, functioning and design of organization as social collectivities. The students will acquire knowledge in the principles and functions of management, scientific decision making process and problem solving techniques.

UNIT I (12 Hours)

Business - Meaning -Business and Profession, Requirements of a Successful Business- Forms of Business Organization-Sole Traders, Partnership, Joint Hindu Family Firm - Joint Stock Companies - Cooperative Organizations - Public Utilities and Public Enterprises- Case Study.

UNIT II (10 Hours)

Management – Concept - Nature and Importance - Art and Science -Management as a Profession - Evolution of Management - Early Contributions - Taylor and Scientific Management. Fayol’s Administrative Management - Hawthorne Experiments and Human Relations - Case Study.

UNIT III (10 Hours)

Planning - Nature- Scope - Objectives and Significance of Planning -Types of Planning - Process of Planning - Barriers of Effective Planning - Decision Making. Organization – Concept - Forms of Organizational Structure –Case Study.

UNIT IV (8 Hours)

Staffing - Concept - Manpower Planning - Recruitment - Selection –Steps in Selection – Directing - Concept- Leadership - The Characteristics of Leadership - Functions of Leaders - Leadership Styles - Case Study.

UNIT V (8 Hours)

Controlling – Concepts -Types of Control, Essential of Effective Control System-Advantages and Disadvantages of Control Process. Pre-Control, Concurrent Control, Post Control - An Integrated Control System –Old and New Control Techniques- Change and Development - Case Study.

TEXT BOOK

1. P C Tripathi , P N Readdy.,Principles of Management.,5 edi / 2013., McGraw Hill Education

REFERENCES BOOKS

1. L.M.Prasad., Principles and Practice of Management. 9th edition, reprint 2016. Sultan Chand Sons.
2. Robbins S.P And Decenzo David A, Fundamentals Of Management Essential Concepts And Applications , 9th Edition,2014., Person Education, New Delhi.
3. Harold Koontz.,HeinzWeihrich., Essentials of Management : International and Leadership Perspective (English) 9th Edition., 2012., Mcgraw Hill Education

JOURNALS

1. Effective Executive ICFAI University.
2. Journal of Management History, Emerald Group Publishing Ltd.

WEBSITES

1. www.safaribooksonline.com/management/9789332501416
2. [www.authorstream.com/tag/principles of management evolution.](http://www.authorstream.com/tag/principles%20of%20management%20evolution)
3. [www.zainbook.com/books/management/ principles of management html/](http://www.zainbook.com/books/management/ principles%20of%20management.html)
4. [www.mindtools.com.](http://www.mindtools.com)

Master of Business Administration Degree Examination- Syllabus for candidates admitted from the academic year 2018-2019 onwards

FIRST SEMESTER

PART III - CORE II - ORGANIZATIONAL BEHAVIOR

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE: On successful completion of this paper students will better understand the concept and various behavioral aspects of the human resource in an organization.

UNIT I (12 Hours)

Nature of OB- Reasons for Organization Existence- Meaning and Definition of OB- Foundations of OB- Importance of OB- Contemporary OB- Determinants of OB- OB Model- Challenges and Opportunities of OB- Contributing Disciplines of OB - Case Study.

UNIT - II (12 Hours)

Intelligence- Kinds- Theories of Intelligence- Measurement of Intelligence- Factors influencing Intelligence. Emotional Intelligence- Types of Emotions- Implications of Emotional Intelligence on Managers and Performance. Personality - Determinants, Structure, Assessment – Personalities theories: Psychoanalytical Social Learning – Jungian Personality Types- Job-fit Theory- Trait Theory- Big Five trait theory - Case Study.

UNIT - III (12 Hours)

Perceptions – Nature & Components - Process- Factors influencing Perception. Attitudes – Sources of Attitude- Work Attitudes –Functions & Formation of Attitudes. Learning- Elements- Principles of Learning- Theories: Classical – Operant and Social Cognitive Approaches- Case Study.

UNIT – IV (12 Hours)

Conflicts- Types-Conflicts Resolution Strategies. Foundations of Group Behavior- Types- Stages. Teams– Types- Stages of Team Development – Team Effectiveness- Influences on Team Effectiveness – Team Decision Making – Techniques- Issues in Managing Teams. Organization Culture –Types of Culture– Ethical Issues in Organizational Culture - Case Study.

UNIT – V (12 Hours)

Organization Change –Forces of Change- Resistance to Change. Organization Politics- Factors- Managing Political Behavior. Stress- Forms- Work Stressors – Stages of Stress- Managing Stress. Motivation- Importance- Theories of Motivation- Maslow’s Need Hierarchy- Herzberg Two Factor- ERG Theory - Case Study.

TEXT BOOK

1. Aswathappa K, Organization Behavior, 10th Edition., 2012, Himalaya Publishing House, New Delhi.

REFERENCES BOOKS

1. C B Gupta., A Textbook of Organizational Behaviour : With Text and Cases (English) 1st Edition., 2013., S.Chand Publication.

2. Bharathi Rathore., Organizational Behaviour: Principle, Theory And Practice (English), 2013., Asian Books.

1. Butler, Michael Rose, Edward; Introduction to Organizational Behaviour (English) 1st Edition., 2011., Jaico Publishing.

JOURNALS

1. Journal of Organization and human behavior, Publishing India Group

2. International Journal of Organizational Behaviour, e-journal

3. Journal of Organizational Behaviour, e-journal

WEBSITES

1. myorganisational.behaviour.com

2. www.open.edu/openlearn

3. <http://knowledge.inseed.edu>

Master of Business Administration Degree Examination- Syllabus for candidates admitted from the academic year 2018-2019 onwards

FIRST SEMESTER

PART III - CORE III- MANAGERIAL ECONOMICS

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE: To orient the students on micro economic techniques and macro economic analysis as a decision making process for business managers.

UNIT I (12 Hours)

Managerial Economics - Meaning, Nature and Scope - Managerial Economics and Business Decision Making - Role of Managerial Economist - Fundamental Concepts of Managerial Economics- Demand Analysis - Meaning, Determinants and Types of Demand - Elasticity of Demand - Case Study.

UNIT II (12 Hours)

Supply- Meaning and Determinants - Production Functions-Types - Isoquants, Expansion Path - Cobb-Douglas Function - Cost Concepts – Types - Cost - Output Relationship - Economies and Diseconomies of Scale- Case Study.

UNIT III (12 Hours)

Market Structure - Characteristics - Pricing and Output Decisions - Methods of Pricing - Differential Pricing - Government Intervention and Pricing - Case Study.

UNIT IV (12Hours)

Profit - Meaning and Nature - Profit Policies - Profit Planning and Forecasting - Cost Volume Profit Analysis - Investment Analysis - Case Study.

UNIT V (12 Hours)

National Income - Business Cycle - Inflation and Deflation - Balance of Payments - Monetary and Fiscal Policies - Case Study.

TEXT BOOK

1. N. Gregory Mankiw., Principles of Economics 6th Edition (English) 6th Edition., 2012.,Cengage Learning

REFERENCES BOOKS

1. Athmanand.R., Managerial Economics, Excel, New Delhi, 2002.
2. P.L.Mehta, Managerial Economics, S.Chand and Sons Company Ltd., New Delhi, 2004.
3. Peterson Lewis, Managerial Economics, Prentice Hall of India, New Delhi, 2002.
4. Rangarajan - Principles of Macro Economics, Tata McGraw Hill.

JOURNALS

1. South Asia Economic Journal , Sage Publication.
2. International Journal of Applied Business and Economic Research, Serials Publication.
3. Reserve Bank of India Bulletin, Monthly Magazine, RBI.

WEBSITES

1. MIT Open Course Ware – <http://ocw.mit.edu>
2. Online Library of Wiley Publications - <http://onlinelibrary.wiley.com>
3. Oxford University Press - <http://www.oup.co.in>

Master of Business Administration Degree Examination- Syllabus for candidates admitted from the academic year 2018-2019 onwards

FIRST SEMESTER

PART III – CORE IV - ACCOUNTING FOR MANAGERS

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE: On successful completion of the paper, students acquire knowledge of the concepts of Financial Accounting and managerial applications of Cost and Management Accounting.

UNIT - I (12 Hours)

Financial Accounting - Basic Accounting Concept – Kinds of Accounts - Financial Accounting Vs. Cost Accounting Vs. Management Accounting - Preparation of Journal and Ledger Accounts - Trial Balance - Case Study.

UNIT - II (12 Hours)

Preparation of Final Accounts (With Simple Adjustment) – Depreciation Methods - Straight Line Method - Written Down Value Method - Sinking Fund Method - Case Study.

UNIT III (12 Hours)

Financial Statement Analysis - Comparative Statement - Common Size Statement- Trend Percentage - Ratio Analysis - Construction of Balance Sheet Using Ratios - Case Study.

UNIT IV (12 Hours)

Cost Accounting –Preparation of Cost Sheet - Marginal Costing –Budget- Budgetary Control - Types of Budgets (Cash Budget, Sales Budget, Flexible Budget) - Case Study.

UNIT V (12 Hours)

Management Accounting - Fund Flow Statement - Preparation of Fund Flow Statement - Cash Flow Statement- Difference between Funds Flow Statement and Cash Flow Statement – Case Study.

Note: 80 % of the questions shall be on problems

20 % of the questions shall be on theory.

TEXT BOOK

1. M.Y.Khan and P.K.Jain, Management Accounting, 6th Edition ,Tata McGraw Hill, 2013, New Delhi.

REFERENCES BOOKS

1. S N Maheshwari, Sharad K Maheshwari & Suneel K Maheshwari., A Textbook of Accounting for Management, 3/e., 2012., Vikas Publishing .
2. Cost Accounting Principles & Practice (English)(Paperback)., A Mahavir Publication., 2015.
3. R.K.Sharma and S.C.Gupta, Management Accounting., 2013., Kalyani Publishers, New Delhi.

JOURNALS

1. Journal of Accounting and Finance, The Research Development Association.
2. Accounting Research and Audit Practices, The ICAI University Press.

WEBSITES

1. <http://www.accountinglearner.com>
2. www.ocwsearch.com
3. www.accountingcoach.com

Master of Business Administration Degree Examination- Syllabus for candidates admitted from the academic year 2018-2019 onwards

FIRST SEMESTER

PART III – CORE V- EXECUTIVE COMMUNICATION

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

OBJECTIVE: To make the student understand the purpose of communication in an organization and also to give orientation in the preparation of business letters and reports.

UNIT - I (8Hours)

Communication- Meaning and Significance for Management – Types of Communication – Media – Barriers – Principles of Effective Communication - Case Study.

UNIT - II (8Hours)

Non – Verbal Communication – Personal Appearance Posture – Body Language – Use of Charts, Diagrams and Tables and Visual Aids for Communication – Dyadic Communication - Case Study.

UNIT: III (12 Hours)

Business letters: Inquiries-Circulars-Quotations-Orders-Acknowledgments-Executions-Complaint - Collection Letters- Bank Correspondence- Negative News & Persuading Letters-Sales Letters- Case Study.

UNIT – IV (12Hours)

Job Application Letters- Bio-Data- Covering Letter-Interview Letter- Letters of References. Negotiation –Group Discussion- Decision Making in Groups – Preparation and Presentation of Speech - Case Study.

UNIT – V (8 Hours)

Conducting Meetings – Preparing Agenda, Minutes and Resolutions – Conducting Seminars and Conferences – Communication through E- Mail - Case Study.

TEXT BOOK

1. Rajendra Pal, J.S.Korlahalli, Essentials of Business Communication, S.Chand, 13th edition.

REFERENCES BOOKS

1. Sengupta, Business and Managerial Communication, PHI Learning Private Limited-New Delhi (2011)
2. P.D.Chaturvedi, Managerial Communication, Pearson Education; First edition (2012).
3. J.David Johnson, Managerial Communication: Evaluating the right dose Business Expert Press (1 January 2013)

JOURNALS

1. Journal of Business Communication, Sage Journals.
2. Journal of Business Communication, University of Washington.

WEBSITES

1. <http://knowledge.inseed.edu>
2. www.open.edu/openlearn
3. www.managementparadise.com

**Master of Business Administration Degree Examination- (IDC) Syllabus for candidates
admitted from the academic year 2018-2019 onwards**

FIRST SEMESTER

PART III - IDC1- QUANTITATIVE METHODS FOR MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To enable students to acquire the knowledge of Mathematics and Statistics and their use in Business Decision Making.

UNIT I (12 Hours)

Simple and Compound Interest (Simple Problem) – Application of Differentiation and Integration – Maxima, Minima – Average Cost – Marginal Revenue – Total Revenue – Case Study.

UNIT II (12 Hours)

Measures of Central Tendency: Mean - Median - Mode -Geometric Mean and Harmonic Mean. Measures of Dispersion: Range – Standard Deviation. – Variance, Coefficient of Variation - Case Study.

UNIT III (12 Hours)

Correlation – Karl Pearson’s Coefficient of Correlation – Rank Correlation –Regression- Regression Equations – Relationship between Correlation & Regression - Case Study.

UNIT IV (12 Hours)

Time Series Analysis – Components of Time Series, Measurement of Trend-Index Numbers – Simple and Weighted Index Numbers – Consumer Price Index Numbers – Whole Sale Price Index Numbers - Case Study.

UNIT V (12 Hours)

Test of Hypothesis- Type I and II error- Test of Significance- Standard Error- Small Sample Test with respect to student t, F and Chi-square Test- Large Sample Tests with respect to Mean - Difference Means – Proportion- One Way ANOVA - Case Study.

Note: 80% of Question shall be on Problem Based.

20% of Question shall be on Theory Based.

TEXT BOOK

1. PA.Navnitham, Business Mathematics and Statistics, Jai Publications 2014, Trichy.

REFERENCES

BOOKS

1. Richard L. Levin & David S. Rubin, Statistics for Management, 7th edition PHI.
2. Amir D. Aczel & Jayavel Soundarapandian, Complete Business Statistics,6th edition, Mc Graw-Hill Publishing Company Ltd.
3. S.P.Gupta, Statistical Methods, 17th revised edition, 2013 print, Sultan Chand & Sons, New Delhi.

JOURNALS / MAGAZINES

1. Sankhya, The Indian Journal of Statistics, Indian Statistical Institute.
2. Journl of the American Statistical Association, American Statistical Association. Biometrics, International Biometric Society

WEBSITES

1. Microsoft excel, companion for business statistics ISBN: 0-32422253-9
2. P.H.Stat 2version 2.5atwww.prenhall.com/ph stat.

**Master of Business Administration Degree Examination- (IDC) Syllabus for candidates
admitted from the academic year 2018-2019 onwards****FIRST SEMESTER****PART III – PRACTICAL 1 – COMPUTER APPLICATION FOR BUSINESS**

Total Hours: 24

OBJECTIVE: To acquaint the students with the basics of computers and to enable them to develop their knowledge in their various applications.

BASIC APPLICATIONS IN WORD

1. Formatting Word Document -Type a paragraph and perform the following, Change font style, font size, font colour, background colour, line spacing and case
2. Appropriate margins using page set up - Appropriate text alignment- Page borders and shading - Insert page numbers, header and footer - Use macros for formatting.
3. Word Basics-Perform Cut / Copy / Paste - Find & Replace a particular text - Insert auto text, symbol, picture, Linked textbox, bookmark, bullets & numbering, word art, strikethrough, superscript, subscript and drop cap
4. Object Linking and Embedding - Equation editor
5. Convert the paragraph into multiple or newspaper column layout
6. Working with Tables -Prepare a name list with address and use sorting and table format - Draw a table and perform split tables, split cells, merge cells, Nested tables- convert a table to text and vice versa.
7. Business Correspondence & Mail Merge-(A) Business letters - Draft various business correspondence letters with formats. (Enquiry letter, banking correspondence, circular & sales letter, shareholders letter, job application letters, etc) Prepare the following: Mail merge - Envelops - Mailing labels
8. Word & Wizard-Prepare by using Wizard, Calendar, Agenda, Resume, Fax, Memo, Web page

BASIC APPLICATIONS IN POWERPOINT

9. Create a slide presentation for attractive Advertisement with animation effects
10. Prepare a slide presentation for a seminar with animation effects and hyperlink among slides

BASIC APPLICATIONS IN ACCESS

11. Simple commands perform sorting on name, place and pin code of students database and address printing using label format.
12. Pay rolls processing and prepare report.

TEXT BOOK

1. Somadas Gupta, Windows 98, MS Office 2000 and Internet, Khanna Book Publishing Company.

REFERENCES BOOKS

1. S.Sudalaimuthu and S.Anthony raj, "Computer Application in Business", 1st edition, 2008, Himalaya Publishing House, Mumbai.
2. MS Office, Nellaikannan.C, 3rd Edition, 2004, Nels Publications.

Master of Business Administration Degree Examination- Syllabus for candidates admitted from the academic year 2018-2019 onwards

SECOND SEMESTER

PART III – CORE VI - PRODUCTION AND OPERATIONS MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE: To focus on key analytical methods and provide a practical insight into Operations Management and Supply Chain Management.

UNIT I (12 Hours)

Production Management – Meaning- Importance – Historical Contributions – System Concept of Production – Types of Production – Functions of Production Management – Functions of Production Manager –Service – Types of Service- Difference between Service and Production- Operations Management – Meaning – Concept- Operations Strategy and Competitiveness- Functions of OM - Case Study.

UNIT II (12 Hours)

Product Design- Introduction –Types- New Product Development – Modules of Product Design and Analysis – Concurrent Engineering and its Tools – Production Process- Process Selection- Process Selection Decisions- Factors influencing Process Selection- Plant Location – Steps in Selection of Plant Location-Plant Layout – Factors and Principles- Types of Layout- Product Process - Cellular – and Hybrid Layout-Assembly Line Balancing- Case Study.

UNIT III (12 Hours)

Materials Management and Inventory Control – Models of Inventory – Purchasing Management- Purchase Systems – Special Purchase Systems- Aggregate Planning –Strategies- Master Production Schedule (MPS) - Material Requirement Planning (MRP) – BOM - Capacity Requirement Planning (CRP) – Techniques - An Introduction to MRP II and ERP - Case Study.

UNIT IV (12 Hours)

Total Quality Management Concept – Quality Control- Control Charts- Control chart for Variable – Control chart for Attributes – Acceptance Sampling – Operating characteristics Curve - Concept of Type I and Type II Error – Six Sigma Concept – Approaches for Six Sigma – Types – Total Productive Maintenance - Case Study.

UNIT V (12 Hours)

JIT –KANBAN- Computer Integrated Manufacturing – ISO 9000 Series- Benefits of ISO – Steps in ISO- Poka Yoke- Kaizen- Business Process Reengineering – Supply Chain Management – Concept –Integrated Business Logistics – Concept – Lean Manufacturing and Agile Manufacturing - Case Study.

Note: 75% of the questions shall be on theory

25% of the questions shall be on problems

Problems in Aggregate Planning strategies, Material requirements planning, Inventory models, Quality Control Charts.

TEXT BOOK

1. Pannerselvam R- Production and Operations Management.,3rd Edition., 2012., Prentice Hall India.

REFERENCES BOOKS

1. KANISHKA BEDI., Production and Operations Management (With CD) (English) 3rd Edition., 2013., Oxford University Press.
2. Everest.E.Adam& Ebert- Production and Operations Management- PHI Publication- 4th Edition New Delhi.
3. Chary S. N- Production and Operations Management- Tata McGraw Hill- 3rd Edition- 2008.

JOURNALS

1. Poms.org/journal.
2. Emeraldinsight.com/ijopm.htm.

WEBSITES

1. www.openj.edu/openlearn
2. MIT Open Course Ware – <http://ocw.mit.edu>
3. Oxford University Press - <http://www.oup.co.in>

Master of Business Administration Degree Examination- Syllabus for candidates admitted from the academic year 2018-2019 onwards

SECOND SEMESTER

PART III- CORE VII - MARKETING MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

OBJECTIVE: The aim of this subject is to develop an understanding of the underlying concepts, strategies and issues involved in marketing management.

UNIT I (8 Hours)

Definition of Marketing Management- Scope, Concepts - Core Marketing Concepts- Marketing Environment: Micro and Macro Environmental Factors. Role of Marketing in Modern Management- Marketing Information System- Customer Value and Loyalty- Value Creation by the Firm - Case Study.

UNIT II (12 Hours)

Buyer Behavior- Determinants of Consumer Buying Behavior. Buying Decision Process- Buying Roles. Market Segmentation- Need and Requirements of Effective Segmentation- Basis for Segmentation. Selecting Target Markets. Positioning the Market Offering- Marketing Mix - Case Study.

UNIT III (8 Hours)

Product- Classification of Product – Levels - Product Mix Decision- Product Line Decisions- Product Life Cycle. New Product Development Process. Pricing– Objectives- Methods- Strategies- Procedure - Case Study.

UNIT IV (12 Hours)

Promotion Mix- Elements of the Promotion Mix- Packaging and Labeling-Advertising-Types of Advertising-Sales Promotion- Objectives -Types of Sales Promotion- Telemarketing- Types – Limitations - Case Study.

UNIT V

(8Hours)

Channels of Distribution – Channel Flows – Channel Levels –Channel Intermediaries – Factors influencing the Choice of Distribution Channels- Terms and Responsibility of Intermediaries- Channel Management Decisions – CRM – Green Marketing – Online Marketing - Case Study

TEXT BOOK

1. Philip Kotler, Kevin Lane Keller, Abraham Koshy, Mithileshwar Jha, “Marketing Management, 14th Edition, 2013, Pearson Education.

REFERENCES BOOKS

1. Rajen Saxena, Marketing Management, 3rd Edition, 2002, TMH, New Delhi, 2002.
2. Joel R Evan and Barry Berman, Marketing, 8e-Marketing in 21st Century, 2nd Edition, 2005, Biztantra- An imprint of Dreamtech press.
3. Michael.R.Czinkota and Masaaki Kotabe, Marketing Management-2e, 2nd Edition, 2008, south western publishing Company, Cengage Learning, New Delhi.

JOURNALS / MAGAZINES

1. Indian Journal of Marketing, New Delhi.
2. Current index of Management – Marketing IIM -A

WEBSITES

1. <http://knowledge.inseed.edu>
2. www.open.edu/openlearn

Master of Business Administration Degree Examination- Syllabus for candidates admitted from the academic year 2018-2019 onwards**SECOND SEMESTER****PART III- CORE VIII - FINANCIAL MANAGEMENT**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE: To facilitate students have an insight into various functions of financial management.

UNIT I (12 Hours)

Meaning & Definition of Financial Management-Objective and Functions of Financial Management - Role of Financial Management in the Organization - Profit Maximization and Wealth Maximization – Risk and Return- Concept of Risk and Concept of Return- Time Value of Money- Concept-objectives- Time preference rate and Required rate of Return - Problems on Case Studies.

UNIT II (12 Hours)

Capital Budgeting – Meaning – Objectives - Capital Budgeting Process – Factors Influencing Capital Budgeting- Importance –Preparation - Non-Discounted Cash Flow Methods- Discounted Cash Flow Methods– Problems - Methods of Ranking Investment Proposals - Problems on Case Studies.

UNIT III (12 Hours)

Cost of Capital – Meaning – Characteristics-Classification of Cost- Factors affecting Cost of Capital- Computation for each Source of Finance – Cost of Equity Capital- Cost of Preference Capital- Cost of Debenture- Cost of Retained Earnings- Cost of Public Deposit- Weighted Average Cost of Capital – Factors affecting Weighted Average Cost of Capital- Advantages and Disadvantages. Leverages- Meaning – Definition- Operating Leverage- Degree- Characteristics- Financial Leverage -Degree- Differences between Financial and Operating Leverage – Problems - Problems on Case Studies.

UNIT IV (12 Hours)

Capital Structure – Meaning and scope- Types- Capital Structure Theory -Net Income Approach – Traditional Approach - Net Operating Income Approach – MM Approach.Dividend Policy – Meaning-Types –Importance of Dividend Policy – Dividend Policy and Share Valuation - Problems on Case Studies.

UNIT V (12 Hours)

Working Capital Management – Meaning- Characteristics- Concepts and Importance –Objectives- Classification-Factors affecting Working Capital Requirements – Advantages and Disadvantages- Problems - Components of Working Capital. Cash Management –Objectives- Importance-Motives of Holding Cash - Receivables Management –Factors affecting the size of Receivables- Objectives- Importance-Inventory Management-Elements of Inventory-Types-Objectives-Importance –Inventory Management Techniques - Problems on Case Studies.

Note: 60% of the questions shall be on theory, 40% of the questions shall be on problems.

TEXT BOOK

1. M.Y.Khan, P.K.Jain, “Financial Management, Text, problems and cases”, 6th Edition, 2008, Tata McGraw -Hill publishing company Limited, New Delhi.

REFERENCES BOOKS

2. I.M.Pandey, “Financial Management”, 9th Edition, 2006, Vikash Publishing House Pvt Ltd., New Delhi.

3. Shashi K.Gupta, R.K.Sharma, “Financial Management Theory and Practice”, 5th revised enlarged Edition, 2006, Kalyani Publishers, New Delhi.

4. Dr.S.N.Maheshwari, “Financial Management Principles and Practice”, 1st Edition, 2005, Sultan Chan & Sons, New Delhi.

5. Prasanna Chandra, “Financial Management–Theory & Practice”, 7th Edition, 2004, Tata McGrawHill, New Delhi.

JOURNALS / MAGAZINES

1. International Economics and Finance Journal, Serials Publications.

2. Chartered Secretary, The Institute of Company Secretaries of India.

WEBSITES

1. <http://ocw.mit.edu/courses/sloan-school-of-management>

2. <http://www.safaribooksonline.com>.

3. <http://www.universalclass.com>

Master of Business Administration Degree Examination- Syllabus for candidates admitted from the academic year 2018-2019 onwards**SECOND SEMESTER****PART III- CORE IX - HUMAN RESOURCE MANAGEMENT**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

OBJECTIVE: To enable students learn the various concepts and functions of HRM and also to understand the concept of Recruitment, Testing, Selection, Training & Development and Evaluation.

UNIT I (8 Hours)

Introduction - Evolution of HRM -- Importance of HRM- Personnel Management vs Human Resource Management- Strategic Human Resource Management – Using HRM to attain Competitive Advantage – Trends in HRM – Line And Staff Functions – Role of HR Managers - Case Study.

UNIT II (12 Hours)

Employment Planning and Forecasting -Job Analysis- – Process of Job Analysis – Job Description- Job Specification. Recruitment-Recruiting on the Internet. Selection- Selection Techniques- Barriers. Employee Testing- Basic Testing Concepts, Types of Test, Work Samples & Simulation - Case Study.

UNIT III (12 Hours)

Interview, Common Interviewing Mistakes, Designing and Conducting the Effective Interview - Placement- Induction/Orientation - Orienting the Employees.The Training- Training Techniques- Methods- Special Purpose Training- Training via the Internet. Career Planning & Succession Planning - Case Study

UNIT IV (8 Hours)

Job Evaluation- Job Evaluation vs Performance Appraisal-.Performance Appraisal- Essential Characteristics of an Effective Appraisal System- Compensation Plan- Objectives- Factors determining Pay Rater- Components of Pay Structure in India. Promotion- Demotion- Transfer- Separation - Case Study.

UNIT V (8 Hours)

Industrial Relations- Trade Unions- Collective Bargaining- Employee Grievances- Methods- Redressal- Methods- HR audit. IHRM- Domestic HRM vs IHRM- E-HRM- E-HRM Activities - Case Study.

TEXT BOOK

1.VSP Rao, Human Resource Management: Text and cases, 3rd edition, 2010, Excel Books, New Delhi.

REFERENCES BOOKS

2.Gary Dessler, Human Resource Management, 10th edition, 2008, Dorling Kindersly, India Pvt Ltd., New Delhi.

David A. DeCenzo & Stephen P.Robbins, Personnel/Human Resource Management, 3rd edition, 2006, PHI/Pearson, Indian reprint.

3.John Bernardin, Human Resource Management: An experiential approach, Special Indian Edition, 2007, Tata McGraw Hill, New Delhi.

JOURNALS / MAGAZINES

1. The Human Factor, Plan man media pvt. ltd.,
2. Indian Journal of Management
3. International Journal of Human Resource Management, Inder science Publisher.

WEBSITES

1. www.authorstream.com/tag/humanresourcemanagementdefinition
2. www.citehr.com
3. [www.my.safaribooksonline.com/book/hr-organiastional management.](http://www.my.safaribooksonline.com/book/hr-organiastional%20management)

Master of Business Administration Degree Examination- Syllabus for candidates admitted from the academic year 2018-2019 onwards

SECOND SEMESTER

PART III- CORE X- RESEARCH METHODS FOR MANAGEMENT

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE: To make students have an understanding of the research methods to enable students complete the project work with ease.

UNIT I (12Hours)

Research - Meaning - Scope and Significance - Types of Research – Research Process - Characteristics of good research - Scientific Method - Problems in Research – Identifying Research problem - Case Study.

UNIT II (12 Hours)

Hypothesis: - Meaning - Sources - Types - Formulation of Research Design - Types - Features of Good Design - Measurement - Meaning - Techniques of Measurement - Scaling Techniques - Meaning - Types of Scales - Scale Construction Techniques - Case Study.

UNIT III (12 Hours)

Sampling Design - Meaning - Concepts - Steps in Sampling - Criteria for a Good Sample Design - Types of Sample Designs - Probability and Non-Probability Samples. Data collection:- Types of data - Sources -Tools for Data Collection- Methods of Data Collection – Constructing Questionnaire - Pilot Study - Case Study - Data Processing:- Coding - Editing - and Tabulation of Data - Data Analysis - Case Study.

UNIT IV (12 Hours)

Test of Significance: - Assumptions about Parametric and Non-Parametric Tests - Parametric Test – T-Test, F-Test and Z-Test - Non Parametric Test - Multivariate Analysis - Factor, Cluster, MDS, Discriminant analysis (No Problems) - SPSS and its Applications - Case Study.

UNIT V (12 Hours)

Interpretation - Meaning - Techniques of Interpretation - Report Writing:- Significance – Steps in Report Writing - Layout of Report - Types of Reports - Oral Presentation - Executive Summary - Mechanics of Writing a Research Report - Precautions for Writing Report - Norms for Using Tables, Charts and Diagrams – Appendix - Norms for Using Index and Bibliography - Case Study.

Note: 80% of Questions shall be allotted to theory

20% of Question shall be allotted to problems

TEXT BOOK

1. Kothari.C.R., Research Methodology, 2nd Edition, 2012,Excel Book.

REFERENCES BOOKS

1. Donald R.Cooper and Pamela S.Schindler, Business Research Methods, 9th Edition, 2007, Tata McGraw Hill, New Delhi.

2. R. Paneerselvam, Research Methodology, Sixth printing, 2008, PHI, New Delhi, April.

1. William.G.Zigmund, Business Research Methods, 7th Edition, 2007, Cengage Learning.

JOURNALS / MAGAZINES

1. International Journal of Management Research and Technology, Serials Publications.

2. International Journal of Applied Business and Economic Research, Serials Publications.

WEBSITES

1. www.open.edu/openlearn

2. www.studymode.com

3. www.managementparadise.com

**Master of Business Administration Degree Examination- (IDC) Syllabus for candidates
admitted from academic year 2018-2019 onwards**

SECOND SEMESTER

PART III - IDC2 QUANTITATIVE TECHNIQUES

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE: To enable students to learn the Techniques of Operations Research and Resources Management and their Application in Business Management.

UNIT I (12 Hours)

Introduction to Operations Research- Scope of Operations Research- General Linear Programming Problem- Mathematical Formulation of Linear Programming Problem- Solution to Linear Programming Problem by Graphical Method- Simplex Method – Case Study

UNIT II (12 Hours)

Transportation Problem- Initial Basic Feasible Solutions- Optimum Solution for non-degeneracy Model- Assignment Problem- Travelling Salesman Problem - Case Study

UNIT III (12 Hours)

Game theory – Concept of Pure and Mixed Strategies- Solving 2×2 Matrix with and without Saddle Point- Graphical Method of $n \times 2$ and $2 \times m$ Games-Dominance Property - Case Study.

UNIT IV (12 Hours)

Inventory Models - Deterministic- EOQ- EOQ with Price Breaks- Probability Inventory Models- Probabilistic EOQ Model - Case Study

UNIT V (12 Hours)

Simulation- Introduction – Simulation Models – Event- Types of Simulation- Generation of Random Numbers- Monte-Carlo Simulation. Queuing Theory – Introduction – Elements of Queuing System – Characteristics of Queuing System – Symbols and Notation – Classifications of Queues – Problems in $(M/M/1) : (\infty/FIFO)$; $(M/M/1) : (N/FIFO)$ - Excluding Derivatives - Problems on Case Studies.

Note: The Proportion of marks between theory and problems shall be 20% and 80%.

TEXT BOOK

1.Kantiswarup, P.K. Gupta and Man Mohan, Operations Research, (16th edition). S.Chand & Sons Education Publications, Reprint 2013, New Delhi.

REFERENCES BOOKS

1. Pro.V. Sundaresan, K.S.Ganapathy Subramanian and K.Ganesan , Resource Management Techniques, A.R.Publications Arpakkam (PO), 8th Edition 2014, TamilNadu.
2. J. K. Sharma, “Operations Research: Theory and Applications”,4th Edition, 2012,Macmillan.

JOURNALS / MAGAZINES

1. Operational Research Society of India, Co-published, Springer.
2. SIAM Journal, Society for Industrial and Applied Mathematics

WEBSITES

1. CISBN: 0-324-02136-4 available through Mc Grawhill.scientist
2. The management version 5.0, ISBN: 0-324-00890-2 available through Thomson publication

Master of Business Administration Degree Examination- Syllabus for candidates admitted from the academic year 2018-2019 onwards

SECOND SEMESTER

PART III – PRACTICAL 2 – COMPUTER APPLICATION FOR BUSINESS

Maximum CIA: 60

Maximum CE: 40

Total Hours: 24

OBJECTIVE: The subject aims to build a strong application oriented understanding of Microsoft Excel and its usage in the Managerial Roles. The student should be able to use Excel effectively to analyze and represent data effectively, as well as to solve problems in the management domain using Microsoft Excel.

MS EXCEL

1. Working with Worksheets- perform various formatting operations, Change column width & row height - Hide & unhide rows, columns and sheets -Number formatting - Rename worksheet.
2. Formatting borders - Naming range of cells - Validation of cell Entering comments- Rotate cell entries - Data Representation using Charts – Various types of charts – line chart, bar chart, column charts, Pie Charts, Area Charts, Stock Charts, 2-D and 3-D charts. Usage of charts.
3. Generate auto numbers, months and days using auto fill handle -Adding graphic images - Password protection to the document- Printing Worksheets: Previewing, Checking the Paging in page layout, Headers & Footers, Solving Page Break Problems.
4. Calculate using formulas-Calculate simple and compound interest- Statistical Functions- mean, median, mode, standard deviation, covariance, correlation and trend.
5. Formulae & Functions- Compute the values for the following formulae Mathematical Functions- sum, max, min factorial, power, product, square root and subtotal.
6. Pivot Table-Prepare table and analyzing using pivot table.

TALLY

1. Introduction and Installation, Required Hardware, Preparation for installation of Tally software, installation.
2. Creation of New company (Opening new company, Safety of Accounts or Password, Characteristics)
3. Creation of groups, ledgers – Voucher types – Preparation of Vouchers(Making Ledger Accounts, Writing voucher, voucher entry, Making different types of vouchers, Correcting sundry debtors and sundry creditors accounts)
4. Report Generation: Account books, List of Accounts.
5. Prepare a report of Trial balance, Profit and Loss Account, Balance sheet.
6. Prepare a report of Cash Flow Statement and Fund Flow Statement, Ratio Analysis.

TEXT BOOKS:

1. Excel 2010 Bible by John Walkenbach, John Wiley & Sons, 2010 Edition.
2. N. Agarwal – Tally 6.3, Dream Tech Press, 2005

REFERENCE BOOKS:

1. Excel 2007 for Dummies by Greg Harvey.
2. Tally ERP 9 (Power of Simplicity): Software for Business and Accounts Paperback – 22 Feb 2014 by Shraddha Singh, Navneet Mehra.

**Master of Business Administration Degree Examination-Syllabus for Candidates
admitted from the academic year 2016-2017 Onwards**

SECOND SEMESTER

ADDITIONAL CREDIT-E-COMMERCE

MAXIMUM CE: 100

OBJECTIVE: On the Successful completion of this paper the students should have acquired knowledge of Techniques in the Application of E-Commerce.

UNIT I

Foundation of electronic Commerce :- Definition and Content of the Field – Driving Force of EC Impact of Ec – Managerial Issues- Benefits and Limitations of EC Retailing in EC :Business Models of E–Marketing – Aiding Comparison Shopping - The Impact of EC on Traditional Retailing System.

UNIT II

Internet Consumers and Market Research: - The Consumer Behavior Model – Personal Characteristics and the Demographics of Internet Surfers - Consumer Purchasing Decision Making - One – to – One Relationship Marketing - Delivering Customer Service in Cyberspace– Marketing Research of EC-Intelligent Agents for Consumers – Organizational Buyer Behavior.

UNIT III

Advertisement in EC: Web Advertising – Advertisement Methods – Advertisement Strategies – Push Technology and Intelligent Agents – Economics and Effectiveness of Advertisement – Online Catalogs. Internet and Extranet: Architecture of Intranet and External: Applications of Intranet and Extranet.

UNIT IV

Business – to – Business Electronic Commerce: Characteristics of B2B EC- Model– Procurement Management Using the Buyer’s Internal Market Place – Supplier and Buyer Oriented Marketplace – Other B2B Models Auctions – and Service – Integration with Back End Information System -The Role of S/W Agents in B2B – Electronic Marketing in B2B.

UNIT V

Public Policy : From Legal Issues to Privacy : Legal, Ethical and Other Public Policy Issues – Protecting Privacy – Free Speech , Internet Indecency Censorship – Taxation and Encryption Policies and Seller Protection in EC-Case study.

TEXT BOOK

1. Ravi Kalakota and Andrew b.Winston, “Frontiers of Electronic Commerce”, 2nd Edition, 2009, Dorling Kindersley Pvt.Ltd, India.

REFERENCE BOOKS

1. Daniel Minoli, Emma Minoli “Web Commerce Technology Handbook”, 4th Edition, 2009, Tata McGraw Hill Company Pvt Ltd, New Delhi.
2. Dr.C.S.Rayudu, ”E-Commerce and E-Business”, 2nd Edition, 2007, Himalaya Publishing House, Mumbai.
3. Bharat Bhasker, “Electronic Commerce”, 3rd Edition, 2006, Tata Mc Graw Hill Company Pvt Ltd, New Delhi.

**Master of Business Administration Degree Examination- Syllabus for candidates
admitted from the academic year 2018-2019 onwards**

THIRD SEMESTER

PART III – PAPER 11 -BUSINESS ENVIRONMENT AND ETHICS

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective:

To create an awareness and understanding about the environment in which they have to work as managers and the importance of taking managerial decision making ethically.

Unit I (12 Hours)

Business Environment - The Concept and Significance - Constituents of Business Environment: Environmental Analysis and Forecasting, Economic Environment - Political and Government Environment – Nature and Technological Environment- Demographic Environment-Case Study.

Unit II (12 Hours)

Business and Society: Societal Environment, Business and Culture, Social Responsibility of Business, Consumer Rights, Consumerism and Business- Corporate Governance- Case Study.

Unit III (12 Hours)

Managing Ethics - Frame work of Organizational Ethics, Ethics across Cultures, Factors influencing Business Ethics, Ethical Decision Making, Ethical Values and Stakeholders, Ethics and Profit- Case Study.

Unit IV (12 Hours)

Industrial Policy- Industrial Licensing - Privatization and Disinvestment - Patents and Trade Marks- Intellectual Property Rights – TRIPS – TRIMS - WTO and GATT- Regional Grouping of Countries and its impact- Case Study.

Unit V (12 Hours)

Planning in India - Industrial Development Strategy - Regulation of Foreign Trade - FEMA -Foreign Trade Act - Foreign Trade Policy – EPZs – EOUs - SEZs. - Role of RBI and SEBI - Case Study.

Text Book:

1. Francis Cherunilam, Business Environment text and cases, 25th revised Edition, 2012, Himalaya Publications, New Delhi.

References Books:

1. Kitson.A and Campbell.R, The Ethical Organization, Palgrave, 2001.
2. Shaikh Saleem, Business Environment, Pearson Education, 2006.
3. Fernando.A.C. ,Business Ethics: An Indian Perspective, First edition,2009,Pearson Education, Newdelhi.

Journals/ Magazines:

1. International Journal of Business Environment. IJBE publishes.
2. Journal of Business Ethics, Springer Netherlands
3. Business Ethics: A European Review, John Wiley & Sons Ltd

Websites:

1. www.hbs.edu/environment
2. <http://www.businessenvironment.org>
3. <http://www.csu.edu.au/>

**Master of Business Administration Degree Examination- Syllabus for candidates
admitted from the academic year 2016-2017 onwards**

THIRD SEMESTER

PART III- PAPER12 - LEGAL ASPECTS OF BUSINESS

Maximum CIA:30

Maximum CE:70

Total Hours: 60

OBJECTIVE:

The course is designed to provide an understanding of legal processes involved in the management of an organization. The main focus is on understanding the basic laws affecting the operation of a Business Enterprise.

UNIT I (12 HOURS)

Law of contract—Indian Contract Act 1872-Essentials of a valid contract-offer, acceptance, competence, consent, consideration, legality of object-performance of Contract — breach of contract and remedies—quasi contract- Case Study.

UNIT II (12 HOURS)

Special contracts—Bailment- Agency-Contract of sale and hire purchase- Sale and transfer of property in goods-delivery-rights of an unpaid seller—auction sale. Acts related to sale through internet-Information Technology Act – Cyber laws- Case Study.

UNIT III (12 HOURS)

Indian Partnership Act 1932—definition—formation-registration-partnership deed, minor in partnership-rights, duties and liabilities of partners—dissolution. Consumer Protection Act 1986—Meaning of consumer- rights of consumer-complaints- grounds, unfair and restrictive trade practices—consumer grievance redressal machinery - district, state, and national level jurisdiction- Case Study.

UNIT IV (12 HOURS)

Indian Companies Act -Nature and types of companies-incorporation, commencement of business-issue and allotment of shares-dematerialization of shares-transfer and transmission of shares-Directors- appointment – removal of directors- meetings and resolutions-prevention of oppression and mismanagement—merger and acquisitions- Case Study.

UNIT V (12 HOURS)

Negotiable Instruments Act—Types and characteristics of negotiable Instruments-Promissory notes, bills of exchange, cheques—parties- holder and holder in due course - negotiation—crossing, endorsement, dishonour and discharge. Right to Information Act 2005—salient features-Scope-Process-information-request-fee-social issues- Case Study.

TEXT BOOK:

1. Business law , N.D.Kapoor, Sultan Chand Publications, latest edition.

REFERENC BOOKS:

1. Company Law, M.C.Shukla, S.Chand Publications, Latest edition.
2. The Negotiable Instrument Act,Universal law publishing company,2011.

JOURNALS/ MAGAZINES

1. Journal of business law-Penn law-university of Pennsylvania
2. International Journal of Business and Law Research-SEAHI publications

WEBSITES:

1. www.jblenet.com
2. www.legalsolutions.thomsonreuters.com

Master of Business Administration Degree Examination- Syllabus for candidates admitted from the academic year 2018-2019 onwards

THIRD SEMESTER

PART III –ELECTIVE- DIGITAL ADVERTISING AND SALES PROMOTION

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective:

The course focuses on planning and creating advertisements and the promotional aspects which help the students to manage promotional programs.

Unit-I (12 Hours)

Advertising Management: Meaning, Objectives, Importance, Classification of Advertisement, Economic and Social effects of Advertising, Organization of Advertising Department, Advertising Agency Management, Campaign Planning, Advertising Budget-Case Study.

Unit-II (12 Hours)

Advertising Media Management: Types- Print, Radio, TV, Cinema Outdoor and other forms- Advantages, Limitations, Availability, Media Rates - Case Study.

Unit-III (12 Hours)

Media Planning and Scheduling- Advertising creativity- Construction of an effective advertisement-Advertising Visualization- Evaluation of Advertising- Case Study.

Unit-IV (12 Hours)

Integrating Online Communication into IMC Process - Online Advertising – Email Marketing - Viral Marketing - Affiliate Marketing - Participatory Communication Networks - Social Media Communities -Interactive Digital Networks - Customer – Led Marketing Campaigns- Legal and Ethical aspects related to Digital Advertising- Case Study.

Unit-V (12 Hours)

Sales Promotion : Objectives, Tools, Planning, Implementation and Control, Evaluation of Sales Promotion- Case Study.

Text Book:

1. Kazmi.S.H.H & Batra.K.Satish, Advertising & Sales Promotion,2011, Excel Books, New Delhi.

References Books:

1. Clow.E.Kenneth, Baack Donald, Integrated Advertising, Promotion & Marketing Communications, 7th Edition, 2014, Pearson Education, Inc.
2. Gupta.S.L, Ratna.V.V, Advertising & Sales Promotion Management, An Indian Perspective, Text &Cases, 2004, Sultan Chand & Sons, New Delhi.
3. O’Guinn, Allen, Semenik, Advertising Management with Integrated Brand Promotion,2011,Cengage Learning.

Journals/ Magazines

1. Digital advertising in Duke University press journal
2. Journal of Digital & Social Media Marketing/Hendry Steward Publication
3. Journal of Direct, Data and Digital Marketing Practices- A Palgrave journal

Websites:

1. www.wsj.com
2. www.tandfonline.com

**Master of Business Administration Degree Examination- Syllabus for candidates
admitted from the academic year 2016-2017 onwards**

THIRD SEMESTER

PART III - ELECTIVE- RETAIL MANAGEMENT

Maximum CIA:30

Maximum CE:70

Total Hours: 60

OBJECTIVE:

On successful completion of the paper the students should have understood the manufacturer's Perspective on retailers, retailers understanding of the retail business and also emerging trends in retailing.

UNIT I

(12 HOURS)

An Introduction to retail: Functions of Retailer - Retail as a Career - The Global Retail Market - Challenges Facing Global Retailers Retail in India – Evolution - The size of Retail - FDI in Retail - Challenges to Development of Retail in India. Case Study

UNIT II

(12 HOURS)

Retail Models and Theories of Retail Development: The Evolution of Retail Formats – Theories – Concept of Life Cycle – Business Models in Retail. Understanding the Retail Consumer: Need for Studying Consumer Behavior – Factors Influencing the Retail Shopper – The Consumer Decision Making Process – Market Research. Case Study

UNIT III

(12 HOURS)

Retail Franchising: Concept – Evolution – Types – Advantages and Disadvantages – Franchising in India. Retail Store Location: Types – Steps Involved In Selecting Retail Location – Trading Area Analysis. Retail Store Design and Visual Merchandising. Case Study

UNIT IV

(12 HOURS)

Retail Merchandising: Concept – Evolution of Merchandising – Factors Affecting Merchandising - Merchandiser Role and Responsibilities - Merchandise Planning Process. Retail Pricing: Elements of Retail Price – Determining the Price – Retail Pricing Policies. Evaluating Merchandise Performance. Case Study

UNIT V

(12 HOURS)

Retail Marketing and Communication: Retail Marketing Mix – STP Approach – Retail Communication Mix – CRM in Retail – Supply Chain Management in Retail - Role of IT in Supply Chain management. Case Study

TEXT BOOK:

1. Swapna Pradhan - Retailing Management Text and Cases, Tata McGraw Hill Co, 4th edition.

REFERENCE BOOKS:

1. Michael Levy and Barton A Weitz - Retailing Management, 8th Edition, Tata McGraw Hill Co, 2012, New Delhi.
2. Rosemary Varley and Mohamed Raffiq - Principles of Retail Management, Palgrave Macmillan, 2014, 2nd edition.

JOURNALS/ MAGAZINES:

1. International Journal of Retail and Distribution Management.
2. International Journal of Retail Management and Research.

WEBSITE:

1. www.researchgate.net

**Master of Business Administration Degree Examination- Syllabus for candidates
admitted from the academic year 2016-2017 onwards**

THIRD SEMESTER

PART III –ELECTIVE-WORKPLACE ETHICS

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

OBJECTIVE:

To make students understand the meaning of good ethics, doing things right and the obstacles to making good ethical decisions and to identify and critically assess the principles and values they personally embrace and use in addressing the ethical issues which arise in their working lives.

UNIT I (12 HOURS)

Workplace Ethics: Introduction, Needs, Principles, Development of Personal Ethics, Workplace Ethics for Employees-Ethical behaviour in workplace- Professionalism, Ethical violations by employees, Employee Attitude and Ethics, Employee Etiquettes. Benefits of ethics in Workplace- Case Study.

UNIT II (12 HOURS)

Conducting Professionalism at Workplace: Unethical Conduct for employees and employers. Factors leading to Unethical Behaviours. Different unethical behaviours- Measures to control unethical behaviours. Rewarding ethical behavior- Case Study.

UNIT III (12 HOURS)

Business Ethics and Corporate Governance: Overview of Business Ethics, Corporate Governance, Ethical issues in human resource management- The principle of ethical hiring, Firing, worker safety, whistle blowing, Equality of opportunity, Discrimination, Ethics and remuneration, Ethics in retrenchment. Ethical Dilemmas at workplace, Ethical issues in global business, corporate responsibility of employers- Case Study.

UNIT IV (12 HOURS)

Teamwork in the Workplace & Ethics: Teams, Elements of team, Stages of team development, team meetings, team rules, and teams work and professional responsibility, rules of professional responsibility, ASME code of ethics- Case Study.

UNIT V (12 HOURS)

Workplace Privacy & Ethics: Watching what you say and what you do in the workplace, Hardware, Software and Spyware, Plagiarism and Computer Crimes, Convenience and Death of Privacy, Defence of employee privacy rights. Managing Change in Workplace through Ethics: the Ethics of Managing Change, the role of ethics and responsibilities in leading innovation and change- Case Study.

TEXT BOOK:

1. Ethical Theory and Business, 8th Edition, Tom L. Beauchamp, Norman E. Bowie and Denis Arnold

REFERENCE BOOKS:

1. Ethics in the Workplace, Dean Bredeson, Keith Goree, Cengage Learning, 2011.
2. Ethics in Workplace: System Perspective, William F Roth, Pearson, 2014

JOURNALS/ MAGAZINES:

1. Journal of business ethics-Springer
2. Behavior Ethics in Organization:a Review –SAGE journal

WEBSITES:

1. www.ijbssnet.com
2. www.iosrjournals.org

**Master of Business Administration Degree Examination- Syllabus for candidates
admitted from the academic year 2018-2019 onwards**

THIRD SEMESTER

PART III – ELECTIVE- LABOUR WELFARE AND INDUSTRIAL RELATIONS

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective:

The paper aims to provide an understanding, application and interpretation of the various labor laws and their implications for industrial relations and labor issues.

Unit I (12 Hours)

Industrial Relations- Impact of Industrial Revolution- - The Management & Government-Factors Affecting IR- Approaches to IR- Causes of Poor Industrial Relations- Remedies. Trade Unions- - Functions of Trade Unions in India, Types - Structure of Trade Unions in India. Case Study.

Unit II (12 Hours)

Industrial Disputes Act 1947-Causes- Handling and Settling Disputes. Strikes-Forms- Effects of Strikes- Lockout- Lay-off- Retrenchment& Closures- Misconduct. Employee Grievances- Redressal- Methods. Collective Bargaining- Principles and Forms of Collective Bargaining- Procedure- Condition for Effective Collective Bargaining- Case Study.

Unit III (12 Hours)

The Factories Act, 1948 - The Payment of Wages Act,1936 - The Minimum Wages Act, 1948 – The Payment of Bonus Act, 1965- Case Study.

Unit IV (12 Hours)

The Maternity Benefit Act, 1961- The Employee's State Insurance Act, 1948 - The Employee's Provident Funds and Miscellaneous Provisions Act, 1952 – The Payment of Gratuity Act, 1972-Case Study.

Unit V (12 Hours)

The Bombay Shops & Establishment Act, 1948: Registration of Establishments- Shops & Commercial Establishments- Residential Hotels, Restaurants and Eating Houses- Theatres or Other Places of Public Amusement or Entertainment. Case Study.

Text Book:

1. Sinha. P.R.N, Industrial Relations, Trade Unions & Labour Legislation., 2nd Edition., Pearson Education., 2013

References Books:

1. N.D. Kapoor , Elements of Mercantile Law, 34th Revised Ed., Sultan chand& Sons, 2014, New Delhi.
2. P.C.Tripathi, Personnel Management & Industrial Relation, 21st Ed.,Sultanchand& Sons, 2013.

Journals/ Magazines:

1. Labour Welfare and Industrial Relation –World Wide Journals.
2. Journal of Workplace and Behavioral Health.
3. IJMRA-Labour Welfare Measures In Cement Industries In India.

Websites:

1. www.ijmra.us.
2. www.ijecbs.com.

**Master of Business Administration Degree Examination- Syllabus for candidates
admitted from the academic year 2016-2017 onwards**

THIRD SEMESTER

**PART III – ELECTIVE- SECURITY ANALYSIS AND PORTFOLIO
MANAGEMENT**

Maximum CIA:30

Maximum CE:70

Total Hours: 60

OBJECTIVE: On successful completion of the paper the students should have acquired the concepts and applications of investment settings.

UNIT I (12 HOURS)

Investment – Financial meaning of investment - Economic meaning of Investment
Characteristics and objectives of Investment- Types of Investment - Investment alternatives
Choice and Evaluation - Risk and return concepts- Case Study.

UNIT II (12 HOURS)

Securities Markets- Financial Market - Types of financial markets Participants in financial
Market- Regulatory Environment Methods of floating new issues- Book building- Role &
Regulation of primary market Stock exchanges in India- Case Study

UNIT III (12 HOURS)

Fundamental Analysis- Fundamental Analysis- Economic Analysis Economic forecasting -
stock Investment Decisions- Forecasting Techniques Industry Analysis- Industry
classification- Industry life cycle- Company Analysis Measuring Earnings- Forecasting
Earnings- Applied Valuation Techniques Graham and Dodds investor ratios- Case Study

UNIT IV (12 HOURS)

Technical Analysis- Fundamental Analysis Vs Technical Analysis Charting methods- Market
Indicators.- Trend , Trend Reversals Patterns- Moving Average & Exponential Moving
Average Oscillators- Market Indicators- Efficient Market Theory- Case Study.

UNIT V (12 HOURS)

Portfolio Management- Portfolio Analysis- Portfolio Selection CAPM - Portfolio Revision-
Portfolio Evaluation- Mutual Funds- Case Study.

Note: 80% of the Questions shall be on Theory , 20% of the Questions shall be on Problems
in Share and Bond Valuation, Fundamental and Technical Analysis

TEXT BOOK:

1. PunithavathyPandian, Security Analysis and Portfolio Management,S.Chand (G/L)
&Company Ltd; Second edition (2012)

REFERENCE BOOKS:

1. Prasanna Chandra, Investment analysis and Portfolio Management, Tata McGraw Hill,
2010.
2. V.A.Avadhan, Securities Analysis and Portfolio Management, Himalaya Publishing
House, 2011.
3. V.K.Bhalla, Investment Management, S.Chand& Company Ltd., 2014.

JOURNALS/ MAGAZINES:

1. Journal of Portfolio Management
2. Applied Security Analysis and Portfolio Management-Jstor

WEBSITES:

1. www.jlem.com

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THIRD SEMESTER

PART III –ELECTIVE- ADVANCED FINANCIAL SERVICES

Maximum CIA:30

Maximum CE:70

Total Hours: 60

OBJECTIVE: On successful completion of the paper the students must have gained knowledge from various financial services provided by NBFCs and the modes of raising capital from domestic and foreign market- mutual funds- venture capital- mergers and acquisitions.

UNIT I (12 HOURS)

Indian Financial System - Merchant Banking in India - Merchant Banking Services –Capital Market-Global Depository Receipt Non-Banking Financial Companies/Institution-Components- Functions Recent Developments and Challenges ahead in NBFC - Regulatory Framework - RBI Guidelines - SERA and SEBI Guidelines-Case Study

UNIT II (12 HOURS)

Hire Purchase -Features- Parties Involved- Tax Implications- Evaluation. Leasing – Features-Elements- Major players- Parties Involved- Leasing process- Types of Leasing- Legal Aspect- Lease Vs. Hire Purchase- Evaluation of Leasing -Case Study

UNIT III (12 HOURS)

Mutual Funds – Characteristics – Difference between Mutual Funds & Investment Companies- Operations of Mutual Funds- Types – Risk Associated with Mutual Funds – Net Asset Value – Importance of Mutual Funds - Regulation of Indian Mutual Funds – RBI Guidelines – SEBI Guidelines – New Regulations-Case Study

UNIT IV (12 HOURS)

Venture Capital – Characteristics- Objectives- Forms- Venture Capital Investment Process-Stages of Venture Capital Financing– Bills Discounting – Types of Bills – Precautions-Factoring- Features-Types-Functions of Factor- Process of Factoring - Forfeiting- Needs.

UNIT V (12 HOURS)

Mergers –Merger in Nature of Acquisition- Types of Mergers- Merger Process- Reasons-Disadvantages- Reasons for Strategic Failures in Acquisition- Acquisition/Takeovers-Types-Steps Involved in Takeovers- Difference between Mergers & Acquisition.

TEXT BOOK:

1. Dr. R.Shanmugam- Financial Services- Wiley India Pvt. Limited – 2009 – Third edition.

REFERENCE BOOKS

1. Dr.S.Gurusamy- Indian financial System – Tata McGraw-Hill – Second edition - 2009
2. M.Y.Khan- Indian Financial systems- Tata McGraw-Hill- 8th Edition- 2013
3. Varshney.P.N. and Mittal D.K, Indian Financial System- Sultan Chand & Sons- 2008.

JOURNALS/MAGAZINES

1. Journal of Financial Services Research – Springer
2. International Journal of Financial Services Management (IJFSM)

WEBSITES

1. <http://www.economist.com/topics/financial-services>
2. <http://www.mckinsey.com/industries/financial-services/our-insights>
3. <http://www.zyen.com/publications/professional-articles/sectors/financial-services-articles.html>

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THIRD SEMESTER

PART III –ELECTIVE- SUPPLY CHAIN AND LOGISTICS MANAGEMENT

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective: On successful completion of the paper the student should understand to manage the interaction of business functions across companies in the supply chain as well as in the Logistics Management.

Unit I (12 Hours)

Introduction to Supply Chain Management (SCM): Concept of SCM –Components – Features – Strategic Issues in SCM, The Supply Chain Revolution-Customer focus in SCM , Demand Planning, Purchase Planning – Make or Buy decision – Indigenous and Global Sourcing, Development and Management of Suppliers – Legal Aspect of Buying – Cost Management- Negotiating for Purchasing and Sub Contracting – Purchase Insurance – Evaluation of Purchase Performance-Case Study

Unit II (12 Hours)

Manufacturing Scheduling: Manufacturing Flow System – Work Flow Automation– Flexibility in Manufacturing to Achieve Dynamic Optimization, Material Handling System Design and Decision, Strategic Warehousing – Warehousing Operations –Warehousing Ownership Arrangements – Warehouse Decisions-Case Study

Unit III (12 Hours)

Logistics: The Logistics of Business – The Logistical Value Proposition – The Work of Logistics – Logistical Operating Arrangements – Flexible Structure –Supply Chain Synchronisation, Transport Functionality, Principles and Participants – Transportation Service – Transportation Economics and Pricing –Transport Administration – Documentation-Case Study

Unit IV (12 Hours)

Information Technology and SCM: Information System Functionality –Comprehensive Information System Integration – Communication Technology –Rationale for ERP Implementation – ERP System Design – Supply Chain Information System Design – Enterprise Facility Network – Warehouse requirements – Total Cost Integration – Formulating Logistical Strategy-Case Study

Unit V (12 Hours)

International Logistics and Supply Chain Management: Meaning and Objectives, Importance in Global Economy, Characteristics of Global Supply Chains - Global Supply Chain Integration – Supply Chain Security – International Sourcing – Role of Government in Controlling International Trade and its Impact on Logistics and Supply Chain-Case Study

Text Book:

1. D.K.Agarwal, Logistics and Supply Chain Management, Macmillan Publishers India Limited, 2009, 8th edition.

Reference Books:

1. Bowersox, Closs, Cooper, Supply Chain Logistics Management, McGraw Hill, 2013
2. Donald J Bowersox, David J Closs, Logistical Management (The integrated Supply Chain Process), TMH, 2013
3. Sunil Chopra, Peter Meindl, Supply Chain Management (Strategy, Planning and Operation), Pearson Education, India, Global Edition, 2015

Journals/Magazines

1. International Journal of Logistics Systems and Management
2. Supply Chain Management: An International Journal : EmeraldInsight
3. International Journal of Logistics Research and Applications

Websites

1. <http://www.inboundlogistics.com/cms/tags/articles/supply-chain-management/>
2. http://www.scmr.com/article/supply_chain_management_in_2015_and_beyond
3. http://www.logisticsmgmt.com/topic/tag/Supply_Chain_Management

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THIRD SEMESTER

PART III –ELECTIVE- EXPORT TRADE AND DOCUMENTATION

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective:

On successful completion of the paper the student will be familiarized with the various methods and procedures of foreign trade financing, foreign exchange rate, costing and pricing for exports and the various institutions involved in export financing.

Unit I (12 Hours)
Generation of Foreign Enquiries, Obtaining Local Quotation & Offering to Overseas Buyers Scrutinizing Export Order, Opening L/C by Buyers - Case Study

Unit II (12 Hours)
Export Finance - Forex - Major Currencies, Exchange Rates, Relations & Impact - Export Costing and Pricing & Inco terms - Case Study

Unit III (12 Hours)
Export Packaging - Preparation of pre Shipment Documentation - Inspection of Export Consignment - Export by Post, Road, Air & Sea - Claiming for Export benefits and Duty Drawbacks - Case Study

Unit IV (12 Hours)
Shipment & Shipping Documents - Complicated Problems in Shipments & Negotiation of Shipping Documentations - Corporate Marketing Strategies - 100% EOU & Free Trade Zone - Deemed Export - Export Marketing -Case Study

Unit V (12 Hours)
Introduction - Exim Policy - Customs Act - Other Acts Relating to Export/Import - Formalities for Commencing - Customs Formalities - Export Documentation - Project Exports - Export of Services - Export of Excisable Goods - Import Documentation - Clearance of Import Goods - 100% Export Oriented Units - Export Processing Zones - Special Economic Zones - Duty Drawback Procedure - Export/Import by Post Customs House Agents - Import of Different Products - Import/Export Incentives - Import Licenses Etc. Case Study

Text Book:

1. Export Management by TAS Balagopal, Himalayan publication, 2014, Delhi

Reference Books:

1. International Trade and Export Management, Francis Cherunilam, Himalaya Publishing House (2013),
2. Export Management, D.C.Kapoor, Vikas Publishing House; First Edition (2002)
3. Export Import Procedures- Documentation and Logistics, Publisher: New Age International, By: Shri C Rama Gopal, Chartered Accountant, NEW AGE (1 December 2006)
4. Export Import Management, Justin Paul & Rajiv Aserkar, Oxford; 2 edition (28 October 2013)

Journals/Magazines:

1. International Journal of Export Marketing (IJExportM)
2. Journal of International Marketing and Exporting (JIME)
3. Exporting Journals

Websites:

1. https://www.taxprofessionalsresource.com/articles/view.php?article_id=6749
2. <http://howtoexportimport.com/Export-procedures-and-documentation-1397.aspx>
3. <http://howtoexportimport.com/Export-procedures-and-documentation-1397.aspx>

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THIRD SEMESTER

**PART III –ADDITIONAL CREDIT PAPER - STORE LOCATION, DESIGN AND
VISUAL MERCHANDISING**

Maximum CE:100

Objective

To develop in-depth understanding for effective utilization of store design and visual merchandising techniques, the effectiveness of visual merchandising, and understand various aspects of stores management.

Unit - I

Store Location – Importance of Store Location – Types of Store Location – Isolated or Freestanding location – Unplanned Shopping Centers – Planned Shopping Centers – Store Location and Retail Strategy – Selecting the Store Location – Market Area Analysis – Effect of demographic, economic, cultural, demand, competition and infrastructural factors.

Unit - II

Trade Area Analysis – Size and shape of trading areas – Objectives of a good store design – Creating a Store image – Creating a buying environment – Store Exteriors – Store Interiors – Store Layout Design – Types Grid – Racetrack – Free Form – Feature areas – Space planning – Location of department – Location of merchandise within departments: Use of Plano grams.

Unit - III

Merchandise facilitators (fixtures, props, graphics and Signs etc) and material, current developments in visual materials, fixtures, retail space management, floor plan blueprints.

Unit - IV

Visual Merchandising – concept – role and influence as a communication tool – Merchandise presentation techniques – idea oriented presentation – Style / item presentation – colour presentation – Price Lining – vertical Merchandising – Tonnage merchandising – Frontage presentation – Store Fixtures/ Furniture. Store Atmospherics – Visual communication – Lighting – Colour, Music and Scent – Displays and POPs.

Unit - V

Store Management, Responsibilities of Store Manager, Store Security and Parking Space Problem at Retail Centers, Store Record and Accounting System, Coding System, Material Handling in Stores, Mall Management, Factor Influencing Mall establishments.

Text Book

Bajaj, Tuli & Srivastava, RETAIL MANAGEMENT, Oxford University Press, New Delhi
Reference Books

Dunne, RETAIL MANAGEMENT, Cengage Learning Pvt. Ltd, New Delhi

Dravind Gilbert, RETAIL MARKETING

Michael Levy and Barton A.Weitz, RETAIL MANAGEMENT, Tata McGraw Hill, New Delhi

Swapna Pradhan, RETAILING MANAGEMENT by, Tata McGraw Hill, New Delhi

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MANAGEMENT**

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective: Highlight the need for entrepreneurship and to familiarize the growth in entrepreneurship in India. Expose the students regarding the assistance from financial Institutions and Government. Understand the framework for evaluating Capital expenditure proposals, their planning and management.

Unit I (12 Hours)

Entrepreneur- Meaning – Importance – Qualities, Nature Types, Traits, Culture, Similarities and Differences between Entrepreneur and Intrapreneur. Entrepreneurship and Development – Importance – Role in Entrepreneurship – Entrepreneurial – Environment-Case Study.

Unit II (12 Hours)

Evolution in Entrepreneurs – Entrepreneurial Promotion: Training and Developing Motivation: Factors – Mobility in Entrepreneurs – Entrepreneurial Change – Occupational Mobility – Factors in Mobility – Role in Consultancy Organizations is Promoting Entrepreneurs – Forms in Business for Entrepreneurs- Case Study.

Unit III (12 Hours)

Project Management: Sources in Business Idea – Project Classifications – Identifications – Formulation and Design – Feasibility Analysis – Preparation in Project Report and Presentation. Financial analysis – Concept and Scope – Project Cost Estimate – Operating Revenue Estimate – Ratio Analysis – Investment Process – BE Analysis- Social Cost Benefit Analysis-Project Appraisal Methods-Project Report Preparation - Case Study.

Unit IV (12 Hours)

Project finance: Sources in Finance-Institutional Finance-Role in developmental bank and Commercial Bank- Appraisal in Bank For Loans. Institutional Aids for Entrepreneurship Development – Role in DICS, SIDCO, NSICS, IRCI, NIDC, SIDBI, SISI, SIPCOT, Entrepreneurial Guidance Bureau – Approaching Institution for Assistance - Case Study.

Unit V (12 Hours)

Setting Small Scale Industries- Location in Enterprise – Step in Setting SSI unit – Problems in Entrepreneurs – Sickness in Small Industries – Reason and Remedies – Incentives and Subsidies- Evaluating Entrepreneurial Performance – Rural Entrepreneurship – Women Entrepreneurship. Case Study.

Text Book:

1. Vasanth Desai., Dynamics in entrepreneurial Development and Management., Himalaya publishing house, 2012, Fifth Edition, New Delhi.

Reference Books:

1. Dr.N.P.Srinivasan , Dr.C.B.Gupta, Entrepreneurial Development, Sultan Chand & Sons; 2015 edition.
2. S.S.Khanka – Entrepreneurial Development, Sultan Chand& Sons; 2015

Journals/Magazines

1. International Journal of Entrepreneurship and Small Business
2. The Journal of Entrepreneurship | SAGE Journals
3. International Journal of Entrepreneurship and Project Management

Websites

- 1.www.entrepreneur.com/topic/project-management
- 2.<https://www.freelancer.com/community/entrepreneurship/project-management>
- 3.<https://innovation-entrepreneurship.springeropen.com/articles>

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FOURTH SEMESTER

PART-III-CORE-XVIII-STRATEGIC MANAGEMENT

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective:

The paper is designed to assist the students in understanding and developing the holistic perspective of enterprise.

Unit-I (12hours)

Introduction to SM- Policy –Strategy- Tactics- Strategic Planning- Strategic Decision Making- Strategic Management Process-Strategic Intent- Vision- Mission- Goals & Objectives – Corporate Governance & Social Responsibility – Case Study.

Unit-II (12hours)

Environmental Analysis- Role- Concept- Nature- Impact- Environmental Factors- Industry Analysis- Competition Analysis- Scenario Development- Organizational Analysis – Strategic Audit-SWOT- Case Study.

Unit-III (12hours)

Corporate Strategies- Business Strategies- Choice of Strategy- ETOP- GAP Analysis-Mc Kinsey's 7 S Frame Work- GE 9 Cell Model- Distinctive Competitiveness- Selection of Matrix- Balance Score Card- Case Study.

Unit-IV (12hours)

Strategy Implementation- Resource Allocation- Designing Organizational Structure- Designing Strategic Control Systems- Matching Structure & Control to Strategy- Implementing Strategic Change- Politics- Power & Conflict- Techniques of Strategic Evaluation & Control- Case Study.

Unit-V (12hours)

Managing Technology & Innovation- Strategic Issues for Non Profit Organizations – New Business Models & Strategies for Internet Economy – Case Study.

Text Book:

1. Prasad.L.M., Strategic Management., Sultan Chand & Sons., 6th Thoroughly Revised Edition., 2014.

Reference Books:

1. Francis Cherunilam., Strategic Management., Himalaya Publishing House., 3rd Edition., 2014.
2. Srinivasan.R., Strategic Management- The Indian Context., 5th Edition., Prentice-Hall of India Pvt. Limited, 2014.

Journals/Magazines:

1. SMJ - SMS | Strategic Management Journal
2. International Journal of Strategic Management
3. Strategic Management Journal - SCImago

Websites:

1. <https://www.linkedin.com/pulse/5-most-popular-strategic-management-articles-nishlan-pillay>
2. <https://hbr.org/2015/03/defining-strategy-implementation-and-execution>
3. <https://channels.theinnovationenterprise.com/articles/the-art-in-strategy-formulation>

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FOURTH SEMESTER

**PART-III-CORE-ELECTIVE- PERSONAL GROWTH AND INTERPERSONAL
EFFECTIVENESS**

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective:

To develop the self and personality of an individual with exercises and experiential learning.

Unit I (12 Hours)

Self Definition and Perception. Self Schemes, Gaining Self Knowledge, Self Knowledge, Self awareness, Self effectiveness, Self presentation motives and Strategies, Self monitoring- Case Study.

Unit II (12 Hours)

Communication and language, models - oral - Qualities and profile of a good speaker, written - clarity, responsibility, simplicity, style, brevity Interpersonal Communication – Barriers - ways of overcoming - Nonverbal Communication - Paralanguage, Eye Contact, Facial expression, Kinesics, Body language, Deception, and Detecting deception- Case Study.

Unit III (12 Hours)

Assertive Training:Nature, importance & relevance to organizational life - Assertion and aggression, Assertive writing, preparing for assertive business writing - tools, tips, pitfalls, persuasion, Being assertive with oneself - cutting, rewriting, editing , enhance individual assertiveness-Case Study.

Unit IV (12 Hours)

Transactional Analysis:Introduction, Ego States, exclusion contamination, strokes, Life positions, Types of Transactions, Time Structures - Withdrawal, Rituals, Pastimes, activities, games - types, Stamps, Rackets and sweat shirts, scripts. Advantages and disadvantages of TA, TA tips for performance interviews, Development Planning with subordinates, TA tips for selection- Case Study.

Unit V (12 Hours)

Counseling - Introduction - other interventions - steps, Elements of Counseling - Counseling in organizations, Training for Counseling. Anxiety and stress, an introduction to NLP- Case Study.

Text Book:

1. Venkatapathy. R and Jackson. P.T., Managing Interpersonal Effectiveness, 1st Edition, 2003, Adhithya Publishers, Coimbatore.

Reference Book:

1. Robert L.Gibson and Marianne H.Mitchell, Introduction to Counseling and Guidance, 6th Edition, 2005, PHI, New Delhi.

Journals / Magazines:

1. Psychology and Behavioral Sciences, Science Publishing Group(an open access publisher)
2. International journal of psychology, [Wiley-Blackwell](http://www.wiley-blackwell.com)

Websites:

1. www.helpself.com

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FOURTH SEMESTER

PART-III-ELECTIVE-HUMAN RESOURCE ACCOUNTING

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective: To understand the values of Human Resources in Organisations and to familiarize with the process and approaches of Human Resources Accounting.

Unit I (12 Hours)

Meaning & Definition of HRA – Importance - Development of the Concept – History of Score Card - HRA for Managers & HR Professionals - Investment in Human Resources – Quality of Work Force and Organizations’ Performance - Efficient use of Human Resources –Enumerating the Assets– Illiquid and Non- Marketable Assets – Human Capital- Case Study

Unit II (12 Hours)

Human Resource Planning – Human Capital Investment – Expenditure Vs Productivity Training – Human Capital & Productivity - Human Resource Accounting – Measurement of Human Value addition into Money Value -Case Study

Unit III (12 Hours)

Investment Approach – Investment in Human Resources - HR Value – Concepts, Methods & Mechanisms - Recruiting and Training Costs – Depreciation –Rates of Return – Organization Behavior Vs Turnover – Non Value Adds in the Management of Human Resources, Measures and Prevention - Organization Climate Approach – Improvement Determination of Changes in Human Resource Variables – Increased Costs, Cost Reduction and Future Performance- Case Study.

Unit IV (12 Hours)

HR Accounting – Design, Preparation & Implementation - Responsibility Accounting and Management Control - Management Control Structure and Process - Design of HR Accounting Process & Procedures for each of the HR Sub-system including Recruitment, induction, Performance Appraisal and Training - Classification of Costs in HR Accounting – Behavioral Aspects of Management Control – Social Control.

Unit V (12 Hours)

HR Auditing and Accounting – HRA Software - HRA Oriented Reporting Processes including P & L Accounts & Balance Sheet - Experiences and Extrapolations on HRA.

Textbook:

1. Eric G. Flamholtz, Human Resource Accounting, Springer., Latest Edition.

Reference Books:

1. Jac Fitz-enz, How To Measure Human Resource Management, McGraw Hill
2. Rakesh Chandra Katiyar, Accounting For Human Resources, Uk Publishing
3. M. Saeed, D.K. Kulshreshtha, Human Resource Accounting, Anmol Publications.

4. D. Prabakara Rao, Human Resource Accounting, Inter India Publications.
Journals/Magazines

1. Journal Of Human Resource Costing & Accounting
2. Journal Of Intellectual Capital
3. Journal Of Human Resource Costing & Accounting

Websites

1. <http://www.ipublishing.co.in/ajmrvol1no1/sped12011/AJMRSP1021.pdf>
2. <http://pdfsdownload.info/wayne-f-cascio-costing-human-resources-the-financial-impact-of-behavior-in-organizations-kent-series-in-human-res-free-ebooks-download.pdf>
3. <https://www.emeraldinsight.com/doi/abs/10.1108/eb029037>

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FOURTH SEMESTER

PART-III-CORE-ELECTIVE-DOMESTIC LOGISTICS

Maximum CIA:30

Maximum CE:70

Total Hours: 60

OBJECTIVE:

On successful completion in the paper the students will have a good knowledge in domestic logistics and equip them with necessary knowledge to be industry ready.

Unit I (12 Hours)

Vehicle Selection-Types in Vehicles – Types in Operations – Load Types and Characteristics – Main Types in Vehicle Body - Implications in Vehicle Selection – Vehicle Acquisition. Case Study

Unit II (12 Hours)

Reasons for Road Freight Transport Vehicle Costing – Main Types in Costing Systems – Vehicle Standing Costs – Vehicle Running Costs – Overhead Costs – Costing the Total Transport Operation – Whole Life Costing – Vehicle Cost Comparisons – Zero-Based Budget-Case Study

Unit III (12 Hours)

Legislation- Operator Licensing – Driver Licensing – Driver’s Hours Regulations – Road Transport Directive – Tachographs - Vehicle Dimensions-Case Study

Unit IV (12 Hours)

Need for Planning – Fleet Management – Main Types in Road Freight Transport – Transport Resource Requirements – Vehicle Routing & Scheduling Issues – Data Requirements – Computer Routing & Scheduling – Information System Applications – GPS – RFID -Case Study

Unit V (12 Hours)

Advices – Planning – FTL – LTL – Documentation – Road Receipts / Truck Receipts / Way Bills (RR / LR) - Consignment Note CMR (EU & Canada) – Booking – Invoicing & Information Flow - Long Haul – Coordination with Terminals – Exceptional Loads (Project Cargo) -Case Study

Text Book:

1. Martin Christopher, Logistics and supply chain management, 4th edition, FT Press; 4th edition (January 6, 2011)

References:

Books:

1. John J. Coyle, Transportation: A Supply Chain Perspective, South-Western College Pub; 7th edition (March 4, 2010)
2. V.V.Sople, Logistics Management, 3rd Edition, Pearson, 2012.

Journal/Magazines:

1. Journal of Transport Geography, ScienceDirect publisher
2. EURO Journal on Transportation and Logistics, Springer publisher
3. Research in Transportation Business & Management (RTBM), ELSEVIER publisher.

Websites:

1. www.researchgate.net
2. www.slideshare.net

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FOURTH SEMESTER

PART-III-ELECTIVE-INTERNATIONAL DOMESTIC LOGISTICS

Maximum CIA:30

Maximum CE: 70

Total Hours: 60

Objective:

To understand the evolution and basic concepts of Logistics Management. To gain understanding towards international Marketing and its relation with logistics. To gain knowledge about the inventory management and containerization with the focus towards international logistics.

Unit I (12 Hours)

Marketing Logistics: Concept, objectives and scope; System elements; Relevance of logistics in international marketing; International supply chain management and logistics; Transportation activity – internal transportation, inter-state goods movement; Factors influencing Distribution Logistics.

Unit II (12 Hours)

Transportation: Containerization; CFS and inland container depots; Dry ports; Road-Multi modal transportation and CONCOR; Role of intermediaries including freight booking, shipping agents, C&F agents.

Unit III (12 Hours)

General Structure of Shipping: Characteristics- Types of shipping- liner and tramp operations; Conference Chartering operation- Freight structure and practices; Chartering principles and practices; UN convention on shipping information- Documents for shipping of goods.

Unit IV (12 Hours)

Air Transport: Air transportation –total cost concept, advantages, freight structure and operations; Carrier consignee liabilities- Cargo handling- Information Support System.

Unit V (12 Hours)

Inventory Control and Warehousing: Inventory management – concepts and application to international marketing; Significance and types of warehousing facilities; Total cost approach to logistics.

Text Book:

1. Asopa, V.N Shipping Management Cases And Concepts, Macmillan, New Delhi. Latest Edition.

Reference Books:

1. Desai, H.P Indian Shipping Perspectives, Anupam Publications, Delhi,
2. Khanna, K.K. Physical Distribution, Himalaya Publishing, Delhi.
3. Lambert, D et al Strategic Logistic Management, Tata McGraw Hill, New Delhi.
4. Shipping Documents And Reports, Unctad

Journals/ Magazines

1. International Journal of Physical Distribution & Logistics Management
2. The asian journal of shipping and logistics
3. International Journal of Logistics Management,

Websites

1. <https://www.tandfonline.com/doi/abs/10.1080/10696679.1996.11501722>
2. <https://www.intercotradingco.com/domestic-international-logistics-services/>

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FOURTH SEMESTER

PART-III-ELECTIVE-AGRICULTURAL AND RURAL MARKETING

Maximum CIA:30

Maximum CE:70

Total Hours: 60

OBJECTIVE:

To enable the students to learn the basic concepts and practices in rural marketing.

UNIT-I (12 HOURS)

Agricultural Marketing- Concepts- Objectives- Importance- History- Growth- Challenges. Farm products- Marketing- Packaging- Material-Types. Transportation- Methods- Case Study.

UNIT -II (12 HOURS)

Storage and Warehousing – Marketing Agencies & Institutions- External Trade in Agricultural products- Financing- Case Study.

UNIT –III (12 HOURS)

Introduction to rural market- Taxonomy in rural market- Evolution- Factors affecting rural market- Rural Consumer- Rural Marketing Mix- Rural vs Urban Marketing-Rural Marketing Environment. Rural Consumer Behaviour- Factors- Bases in Segmentation- Targeting- Positioning- Case Study.

UNIT-IV (12 HOURS)

Product Strategy: Product Classifications- Product Design decisions- Types in Product Strategies. Pricing- Objectives & Strategy- Case Study

UNIT-V (12 HOURS)

Distribution Strategy- Distribution Channels- Rural Logistics- Rural Retailing- Types in Retail Outlets- Role in Retailers. Promotion Strategy: Objectives- Communication Process- Rural Advertising- Future of Rural Marketing - Case Study

TEXT BOOK:

1. Krishnamacharayalu.C.S.G&LalithaRamakrishnan., Rural Marketing Text & Cases, 2nd Edition., Pearson., 2012

REFERENCES:

BOOKS:

1. Pradeep Kashyap with a Foreword by Jagdish.N.Sheth., Rural Marketing, 2nd Edition., Pearson., 2012.
2. T.P.Gopaldasamy., Rural Marketing - Environment, Problems and Strategies.,Vikas Publishing House., 2010.
3. Singh, Awadhesh Kumar., Pandey, Satya Prakash., Rural Marketing: Indian Perspective.,New Age International., 2007.

JOURNALS/MAGAZINES:

1. International Journal of Rural Management | SAGE Journals
2. Rural Marketing Association of India: RMAI
3. International Journal of Agricultural Marketing - Premier Publishers

WEBSITES:

1. http://agritech.tnau.ac.in/agricultural_marketing/agrimark_India.html
2. <http://www.economicdiscussion.net/agriculture/marketing/agricultural-marketing-in-india-defects-and-their-remedial-measures/12854>
3. <https://www.ibef.org/industry/indian-rural-market.aspx>

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FOURTH SEMESTER

PART-III-ELECTIVE-SOCIAL MEDIA AND SEARCH ENGINE MARKETING

Maximum CIA:30

Maximum CE:70

Total Hours: 60

OBJECTIVE:

To introduce and delve into the intricacies of the rare combination of sales and channel management among marketing subjects

Unit I (12 HOURS)

Social Media and Communication Mix – Benefits & Challenges – Social Media and Customer Engagement – ROC – New Role of Customers – The Social Business Eco system – Integrating Social Media with Overall Market efforts – Developing Social Media Marketing plan- Case Study.

Unit II (12 HOURS)

Segmenting B2C Market – B2B Markets – managing the cyber social Campaign – Joining the Conversation – Lurking and Listening – Engagement with Audience – Staying Engaged – Engagement on the Social Web – Social Objects – Social graph – Social Applications – leveraging Search Engine Optimization (SEO) for Social Media – Optimizing Social Media for Search Engines- Case Study.

Unit III (12 HOURS)

Web Analytics for Business-Steps towards a data driven organization- benefits of Analytics Google Analytics- Comparing Metrics from marketing techniques- Creating profiles- Configuring Profiles- Create Tracking URLs – Using dash boards-Navigating in Google analytics –Reports –Limitation of Google Analytics- Case Study.

Unit IV (12 HOURS)

Search Engine Marketing: Overview of SEO Methods-Internal Architecture-Adding Key words Title Tag-Key word Tag-How to select SEO companies-Pay Per Click- Paid Placement vs Unpaid links – Using PPC for three types of search –Benefits of PPC in the purchase phase-Key words-Negative Key words- Case Study.

Unit V (12 HOURS)

Ad Groups- best position for ads-Creating Ad groups- Google Ads- Placement Targeting- Strategy for landing pages for high conversion – geotargeting- Conversion tracking- Errors in conversion tracking Automated Bid Management-Google Biding tools (ABM tools)- Case Study.

TEXT BOOK:

1. Search Engine Marketing ,Andreas Ramos and Stephanie Cota ,(2013) Mc Graw Hill

REFERENCES:

BOOKS :

1. Perry Marshall, Thomas Melloche, “Ultimate Guide to Facebook Advertising”, Tata McGraw Hill, New Delhi, 2011.
2. Matt bailey, “Internet Marketing”, Wiley India pvt. Ltd, New Delhi, 2012.
3. Chris Treadway and Mari Smith, “Facebook Marketing”, Wiley India pvt. Ltd, New Dalhi, 2011.
4. Jan Zimmerman and Doug Sahlin, “Social Media marketing for Dummies”, Wiley India Pvt.Ltd, New Delhi, 2012

JOURNALS/MAGAZINES:

1. Journal of Digital & Social Media Marketing | Henry Stewart Publications
2. Emerald | Journal of Social Marketing information
3. Search Engine Marketing Journal – SEO Theory

WEBSITES:

1. <http://www.socialmediaexaminer.com/31-must-read-social-media-marketing-articles/>
2. <http://www.contentfac.com/9-reasons-social-media-marketing-should-top-your-to-do-list/>
3. http://www.sempo.org/?page=seo_articles

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FOURTH SEMESTER

PART-III-ELECTIVE-RISK MANAGEMENT AND INSURANCE

Maximum CIA:30

Maximum CE:70

Total Hours: 60

OBJECTIVE:

On successful completion in the paper the student should have acquired the functioning in Insurance Industry in India.

UNIT – I (12 HOURS)

Risk – Risk identification evaluation, Property and liability Loss exposures, Life, Health, and Loss of Income exposures and non insurance risk management techniques. Selecting and Implementing Risk management techniques-Case Study.

UNIT – II (12 HOURS)

Property and liability risk Management- Risk Management of commercial property, Business liability and risk management insurance - Workers' compensation and alternative risk managing- Case Study.

UNIT – III (12 HOURS)

Risk Management of Auto owners - Insurance Claims –the need for insurance-personal automobile policy-personal automobile rating- premium and death rates-cost containment advances in driver and auto safety. Risk management of home owners policy coverage-perils covered by the policy-flood Insurance-personal articles floater-personal risk management-Case Study.

UNIT – IV (12 HOURS)

Loss of life –types of life insurance- tax incentives for life insurance- Life insurance contract provisions. Loss of Health- Health insurance providers- mechanics of cost sharing- health expense insurance- disability income insurance - health insurance policy provisions – health care reforms. Annuities- structures of annuities- annuity characteristics- annuity taxation. Employees benefits- health and retirement benefits- Case Study.

UNIT – V (12 HOURS)

Life and General insurance industry in India – IRDA Act- Investment norms – Protection of policy holders Interest .

TEXT BOOK:

1. Dorfman Mark S Introduction to Risk Management and Insurance, 10th Edition Prentice Hill India , New Delhi.

REFERENCE BOOKS:

1. Misra M.N. and Misra S.R Insurance Principles and Practice, Revised Edition, S Chand and Co., 2014, New Delhi.
2. Jave S. Trieschimam, Sandra G. Gustarson, Robert E Houyt, Risk Management and Insurance, 12th Edition, Thomson SOWLA Western, Singapore.

JOURNALS /MAGAZINES (ONLINE):

1. <http://journalofriskandinsurance.smeal.psu.edu/>
2. <http://www.aria.org/journals.html>

WEBSITES:

1. <http://www.riskworld.com/books/topics/riskmana.htm>
2. <http://www.irmi.com/online/default.aspx>

**Master of Business Administration Degree Examination- Syllabus for candidates
admitted from the academic year 2016-2017 onwards**

FOURTH SEMESTER

PART-III-ELECTIVE-PRINCIPLES AND PRACTICES OF BANKING

Maximum CIA:30

MaximumCE:70

Total Hours: 60

OBJECTIVE:

To understand the banking system and structure in India and to know the nature of banker-customer relationship.

UNIT – I (12 HOURS)

Banking system and structure in India- Evolution of Indian Banks-Types of banks –Public Sector, Regional Banks, Performance of Public Sector banks, Private Sector Banks. Commercial banking: Structure, Functions - Primary & secondary function, Role of commercial banks in socio economic development, Services rendered. Credit creation and Deployment of Funds.-Role of Reserve Bank and GOI as regulator of banking system – Provisions of Banking Regulation Act & Reserve Bank of India Act- Case Study.

UNIT – II (12 HOURS)

Banker and customer – Types of relationship between banker and customer – Bankers obligations to customers – Right of lien, setoff, appropriation–Bankers legal duty of disclosure and related matters. Customers' accounts with banks – Opening- operation – KYC norms and operation – Types of accounts and customers – Nomination – Settlement of death claims-Case Study.

UNIT – III (12 HOURS)

Banking Technology- Concept of Universal Banking-Home banking – ATMs- Internet banking – Mobile banking- Core banking solutions – Debit, Credit, and Smart cards – Electronic Payment systems-MICR- Cheque Truncation-ECS- EFT – NEFT-RTGS- Case Study.

UNIT – IV (12 HOURS)

Banker as lender – Types of loans – Overdraft facilities – Discounting of bills – Financing book dates and supply bills- Charging of Security bills- pledge – mortgage – assignment. Asset Liability Management(ALM) in banks: Components of Liabilities and Components of Assets, Significance of Asset Liability management, Purpose and objectives. Prerequisites for ALM, Assets and Liabilities Committee (ALCO)- Activities of ALCO- Case Study.

UNIT – V (12 HOURS)

International banking – International Banking: Exchange rates and Forex Business, Correspondent banking and NRI Accounts, Letters of Credit, Foreign currency Loans, Facilities for Exporters and Importers, Role of ECGC, RBI and EXIM Bank-Case Study.

TEXT BOOK:

1. Natarajan & Gordon: Banking Theory and Practice, 18th revised edition, 2004, Margham Publications, Chennai.

REFERENCE BOOKS:

1. Sundharam and Varshney, Banking theory Law & Practice, Latest Ed, Sultan Chand & Sons, New Delhi.
2. Indian Institute of Banking and Finance, Principles and Practices of Banking, 2nd Edition, 2010, Macmillian, Mumbai.
3. Maheswari S.N, Banking Law & Practice, 2005, Kalayani Publications, New Delhi

JOURNALS / MAGAZINES:

1. The IUP journal of Bank Management, IUP Publications
2. Journal of Accounting and Finance, The Research Development Association Jaipur (INDIA)

WEBSITES:

1. <http://kalyan-city.blogspot.com/2011/02/what-is-bank-introduction-definition.html>
2. en.wikipedia.org/wiki/Bank_account
3. www.allbankingsolutions.com/Banking-Tutor/ALM.shtml

COMPUTER SCIENCE BOARD
Scheme of Examination (CBCS Pattern)
For the Candidates Admitted from the Academic Year 2018-2019 Onwards
Programme : M.Sc Computer Science

Sub Code	Paper	Subject Title	Ins.Hrs/Week	Examination				
				Dur. Hrs.	CIA	CE	Total	Credit
SEMESTER I								
15MSC101	Paper 1	Problem Solving Techniques	5	3	30	70	100	4
15MSC102	Paper 2	Design and Analysis of Algorithms	5	3	30	70	100	4
15MSC103	Paper 3	Object Oriented Analysis and Design Using C++	5	3	30	70	100	4
15MSC104	Paper 4	Principles of Compiler Design	5	3	30	70	100	4
15MSCP01	Practical 1	Algorithm Development in C++	5	3	40	60	100	4
15MSC105	Paper 5	Advanced Software Engineering	5	3	30	70	100	4
Total			30				600	24
SEMESTER II								
15MSC201	Paper 6	Advanced Networks	6	3	30	70	100	4
15MSC202	Paper 7	Advanced Java	6	3	30	70	100	4
15MSC203	Paper 8	Advanced Operating System	5	3	30	70	100	4
15MSCP02	Practical 2	Advanced Java Programming Lab	5	3	40	60	100	4
15MSCE01/ 15MSCE02/ 15MSCE03	Elective I	Mobile Computing/ Grid Computing/ Distributed Computing	5	3	30	70	100	4
15MSCID1	IDC 1	Microprocessor	3	3	30	70	100	4
Total			30				600	24
SEMESTER III								
15MSC301	Paper 9	Digital Image Processing	5	3	30	70	100	4
15MSC302	Paper 10	Information System Security	4	3	30	70	100	4
18MSC303	Paper 11	Green Computing	5	3	30	70	100	4
15MSC304	Paper 12	Web Technology	4	3	30	70	100	4
15MSCP03	Practical 3	Web Technology Lab	5	3	40	60	100	4
15MSCE04/ 15MSCE05/ 15MSCE06	Elective II	Bioinformatics/ Neural Networks & Fuzzy logic/ Wireless Application Protocol	5	3	30	70	100	4
15MSCED2	EDC 1	Management Information System	2	3	-	50	50	2
Total			30				650	26

SEMESTER IV								
15MSCPR1	Project Viva Voce	Project and Viva Voce		3	150	100	250	8
15MSCE07/ 15MSCE08/ 15MSCE09	Elective III	Ethical Hacking/ Artificial Intelligence/ Software Testing	5	3	30	70	100	4
15MSC401	Paper 13	Data Mining & Warehousing	5	3	30	70	100	4
Total			10				450	16
Total							2300	90

Additional Credit Papers

Sem	Code	Subject Title	Max Marks	Credits
II	15MSCAC1	Parallel Processing	100	2
III	15MSCAC2	Multimedia & its Applications	100	2
IV	15MSCAC3	Big Data	100	2

List of Elective Papers

Elective I			
Sem	Code	Subject Title	Credits
II	15MSCE01	Mobile Computing	4
II	15MSCE02	Grid Computing	4
II	15MSCE03	Distributed Computing	4
Elective II			
III	15MSCE04	Bioinformatics	4
III	15MSCE05	Neural Networks & Fuzzy logic	4
III	15MSCE06	Wireless Application Protocol	4
Elective III			
IV	15MSCE07	Ethical Hacking	4
IV	15MSCE08	Artificial Intelligence	4
IV	15MSCE09	Software Testing	4

Summary

Part	No of Papers	Total Credits	Total Marks
Paper ,Elective and Project	20	84	2150
IDC –Inter Disciplinary Course	1	4	100
EDC –Extra Department Course	1	2	50
Total		90	2300

REGULATIONS FOR BOARD OF COMPUTER SCIENCE (FOR PG COURSES ONLY)

(Effective from the academic year 2018-2019 onwards)

1. Project and Viva Voce :

Each student in the PG final year shall compulsorily undergo Project Work in the 4th semester. Projects shall be done individually. Student must do the projects in the companies by undertaking as the training period. Project Reviews shall be conducted thrice in which the progress of project work shall be strictly evaluated by respective Project Guides. Viva-Voce shall be conducted only in the presence of Industrialists or academicians. Out of the Total of 250 marks, 150 marks shall be allocated for CIA and 100 for CE VIVA VOCE.

2. Submission of Record Note Books for practical examinations

Candidates appearing for practical examinations shall submit bonafide Record Work for the concerned Practical Examinations. If not the candidate has to submit a bonafide certificate issued by the concerned subject in-charge duly signed by the Head of the Department in order to be permitted to take up the Practical Examination. The Candidate so permitted will not be eligible for the Record Work mark.

3. Distribution of Marks: The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum (Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	35	30	50
	75	75	38	-	50
	50	50	25	-	25
Practical Paper	100	60	24	40	50
Project	250	100	50	150	125

4. Distribution of Internal Mark for Theory :

(No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6(Months)=30

Breakup for Attendance:

65% - 74 %	- 4 Marks
75% - 80%	- 6 Marks
81% - 90%	- 8 Marks
91% - 100%	- 10 Marks

Seminar Mark Split up:

Content	- 10 Marks
Flow of presentation	- 10 Marks
Stage Management & Body Language	- 10 Marks

5. Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 40		
S No	CIA	Distribution of Marks
1	For Completion of the Practical List	20
2	Test –I	10
3	Test –II	10
Total		40

6. Distribution of Comprehensive Exam Mark for Practical :

MAXIMUM MARKS : 60		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	10
2	Program – I Algorithm Coding Execution	5 10 10 TOTAL (25)
3	Program – II Algorithm Coding Execution	5 10 10 TOTAL (25)
Total		60

7. Distribution of Mark for Project VIVA-VOCE :

S.No	CIA	Distribution of Marks
1	INTERNAL Review –I Review –II Documentation & Final Review	40 40 70 Total (150)
2	EXTERNAL * Presentation Viva	60 40 Total (100)
Total		250

***Marks to be awarded by both External and Internal Examiners.**

8. Question Paper Pattern

Time: 3 Hour

Max Marks: 70

SECTION – A

(10×1=10)

Answer ALL questions
Each Question carries ONE Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B

(5×4=20)

Answer ALL questions
Each Question carries FOUR Marks
(INTERNAL CHOICE)

SECTION – C

(5×8=40)

Answerer ALL questions
Each Question carries EIGHT Marks
(INTERNAL CHOICE)

9. Question Paper Pattern

Time: 3 Hour

Max marks: 75

SECTION – A

(10×1=10)

Answer ALL questions
Each Question carries ONE Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B

(5×5=25)

Answer ALL questions
Each Question carries FIVE Marks
(INTERNAL CHOICE)

SECTION – C

(5×8=40)

Answerer ALL questions
Each Question carries EIGHT Marks
(INTERNAL CHOICE)

10. Question Paper Pattern

Time: 3 Hour

Max Marks: 50

SECTION – A

(10×1=10)

Answer ALL questions
Each Question carries ONE Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B

(5×3=15)

Answer ALL questions
Each Question carries THREE Marks
(INTERNAL CHOICE)

SECTION – C

(5×5=25)

Answerer ALL questions
Each Question carries FIVE Marks
(INTERNAL CHOICE)

11. Question Paper Pattern

Time: 3 Hour

Max marks: 100

SECTION – A

(10×1=10)

Answer ALL questions
Each Question carries ONE Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B

(5×8=40)

Answer ALL questions
Each Question carries EIGHT Marks
(INTERNAL CHOICE)

SECTION – C

(5×10=50)

Answerer ALL questions
Each Question carries TEN Marks
(INTERNAL CHOICE)

NOTE:

1. The questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the unit in the syllabus in all the sections of the question paper.
3. While framing questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

12. Conduct of Practical Examinations:

Practical examinations shall be conducted with one internal examiner and one external examiner and the question paper for practical examination shall be set by both Internal and External examiners.

M.Sc (Computer Science) Degree Examination Syllabus for Candidates admitted from 2015-2016 and onwards

FIRST SEMESTER

PAPER I: PROBLEM SOLVING TECHNIQUES

Maximum CIA: 30

Maximum CE: 70

Total Hours:60

Objective

To impart knowledge about how to solve the problems using any of the techniques.

UNIT – I [12 HOUR]

The Problem Solving Aspect – Top Down Design – Implementation of Algorithms – Program Verification – Efficiency of Algorithms – Analysis of Algorithms – Exchanging the values – Counting – Summation of a set of Numbers – Factorial Computation.

UNIT – II [10 HOUR]

Sine Function Computation – Generation of the Fibonacci Sequence – Reversing the Digits of an Integer – Base Conversion – Character to Number Conversion – Finding the Square Root of a Number – The Smallest Divisor of an Integer – The Greatest Common Divisor of Two Integers.

UNIT – III [12 HOUR]

Generating Prime Numbers – Computing the Prime Factors of an Integer – Generating of Pseudo random Numbers – Raising a Number to a Large Power – Computing the nth Fibonacci Number – Array order Reversal – Array Counting – Finding the Maximum Number in a Set – Removal of Duplicates from an ordered Array – Partitioning an Array – Finding the kth smallest Element.

UNIT – IV [13 HOUR]

The Two way Merge – Sorting by Selection – Sorting by Exchange – Sorting by Insertion – Sorting by Diminishing Increment – Sorting by Partitioning – Binary Search – Hash Searching – Text Line Length Adjustment – Left and Right Justification of Text – Keyword Searching in Text – Text Line Editing – Linear Pattern Search – SubLinear Pattern Search

UNIT – V [13 HOUR]

Stack Operations - Queue Addition and Deletion – Linked List Search – Linked List Insertion and Deletion – Binary Tree Search – Binary Tree Insertion and Deletion – Binary Tree Traversal – Recursive QuickSort – Towers of Hanoi Problem – Sample Generation – Combination Generation – Permutation Generation

Text Book

1. R.G. Dromey, How to Solve it by Computer, Prentice Hall,2009.

Reference Books

1. HarreyM.Deitel and Paul J.Deitel, C How to Program, Prentice Hall, Fourth Edition ,2004.
2. Maureen Sprankle, Problem Solving and Programming Concepts, PearsonEducation, Seventh Edition,, 2007.

M.Sc (Computer Science) Degree Examination-Syllabus- for candidates admitted from 2015 – 2016 and onwards

FIRST SEMESTER

PAPER 2 :DESIGN AND ANALYSIS OF ALGORITHMS

Maximum CIA: 30

Maximum CE: 70

Total Hours:60

Objective

To impart knowledge about how to analyze & design searching and sorting algorithms.

UNIT- I [12 HOUR]

Introduction: What is an Algorithm? – Algorithm Specification – Performance Analysis – Elementary Data Structures: Stacks and Queues , Trees. Analysis of Algorithms: Computational Complexity – Average-Case Analysis – Example: Analysis of Quick Sort.

UNIT- II [12 HOUR]

Divide and Conquer: General Method – Binary Search – Merge Sort – Quick Sort. Greedy Method: General Method – Knapsack Problem – Minimum Cost Spanning Tree – Single Source Shortest Path.

UNIT- III [12 HOUR]

Dynamic Programming: General Method – Multistage Graphs – All Pair Shortest Path – Optimal Binary Search Trees – 0/1 Knapsack - Traveling Salesman Problem – Flow Shop Scheduling.

UNIT- IV [11 HOUR]

Backtracking: General Method – 8-Queens Problem – S um of Subsets – Graph Coloring – Hamiltonian Cycles – Knapsack Problem. Branch and Bound: The Method – 0/1 Knapsack Problem – Traveling Salesperson.

UNIT- V [13 HOUR]

NP-Hard and NP-Complex Problem: Basic Concepts – Traveling Salesperson Decision Problem – Scheduling Identical Processors – Implementing Parallel Assignment Instructions..

Text Book

1. Ellis Horowitz, Sartaj Sahni, Sanguthevar Rajasekaran, “Fundamentals of Computer Algorithms”, Universities Press ,Second Edition, 2008.

Reference Books

1. Robert Sedgewick, Phillipe Flajolet, “An Introduction to the Analysis of Algorithms”, Addison-Wesley Publishing Company, 1996.
2. Alfred V. Aho, John E. Hocrift, Jeffrey D. Ullman, “Data Structures and Algorithms”.
3. Wiley, Goodrich, “Data Structures and Algorithms in Java”, Third Edition.

M.Sc (Computer Science) Degree Examination-Syllabus- for candidates admitted from 2015–2016 and onwards

FIRST SEMESTER

PAPER 3 :OBJECT ORIENTED ANALYSIS AND DESIGN USING C++

Maximum CIA: 30

Maximum CE: 70

Total Hours:60

Objective

To acquire knowledge on C++ programming concepts.

UNIT –I [12HOUR]

The Object Model: The Evolution of the Object Model – Elements of the Object Model – Applying the Object Model - Classes and Objects- The Nature of an Object – Relationships Among Objects – The Nature of a class – Relationships Among Classes – Interplay of Classes and Objects – On Building Quality Classes and Objects.

UNIT-II [12HOUR]

Classification- The Importance of Proper Classification – Identifying Classes and Objects – Key Abstractions and Mechanisms The Notation --Elements of the Notation Class Diagrams – State Transition Diagrams – Object Diagrams – Interaction Diagrams – Module Diagrams – Process Diagrams – Applying the Notation.

UNIT-III [12HOUR]

An overview of C++,Classes and Objects – Arrays, Pointers, References, and the Dynamic Allocation- Operators – Function Overloading, Copy Constructors and Default Arguments – Operator Overloading – Inheritance – Virtual Functions and Polymorphism – Templates.

UNIT-IV [12HOUR]

Exception Handling – The C++ I/O System Basics – C++ File I/O – Namespaces --Conversion Functions – Introducing the Standard Template Library.

UNIT –V [12HOUR]

The Standard C++ I/O Classes – The STL Container Classes – The STL Algorithms – STL Iterators, Allocators and Function Objects – The String Class – The Numeric Classes – Exception Handling and Miscellaneous Classes.

Text Book

1. Herbert Schildt, The Complete Reference C++, Tata McGraw-Hill Edition 2003

Reference Books

1. Grady Booch, Object-Oriented Analysis and Design with Applications, Pearson Edition, 2nd Edition, 1994.
2. Ashok N.Kamthane, Object-Oriented Programming with ANSI & Turbo C++,Pearson Education, 2006

M.Sc (Computer Science) Degree Examination-Syllabus- for candidates admitted from 2015 – 2016 and onwards

FIRST SEMESTER

PAPER 4 :PRINCIPLES OF COMPILER DESIGN

Maximum CIA: 30

Maximum CE: 70

Total Hours:60

Objective

To impart knowledge about design and implementation of lexical analyzer, parser, schemes and optimization of codes.

UNIT- I [12HOUR]

Compilers – Analysis Of The Source Program – Phases Of A Compiler – Cousins Of The Compiler – Grouping Of Phases – Compiler Construction Tools – Lexical Analysis – Role Of Lexical Analyzer – Input Buffering – Specification Of Tokens-Recognition Of Tokens-FiniteStateAutomata.

UNIT-II [12HOUR]

Syntax Analysis- Role Of The Parser –Writing Grammars –Context-Free Grammars – Top Down Parsing – Recursive Descent Parsing – Predictive Parsing – Bottom-Up Parsing – Shift Reduce Parsing – Operator Precedent Parsing – LR Parsers –SLR Parser –CanonicalLRParser–LALRParser.

UNIT- III [12 HOUR]

Intermediate Languages – Declarations – Assignment Statements – Boolean -Expressions – Case Statements – Back Patching – Procedure Calls.Runtime Environments– Storage Organization – Storage Allocation Strategies – AccessTo Non-Local Names – Parameterpassing.

UNIT- IV [12 HOUR]

Issues In The Design Of Code Generator – The Target Machine – Runtime Storage Management – Basic Blocks And Flow Graphs – Next-Use Information – A Simple Code Generator – Register Allocation And Assignment-DAG -Representation Of Basic Blocks – Code Generator And Generators.

UNIT - V [12HOUR]

Principal Sources Of Optimization–Peephole Optimization- Optimization Of Basic Blocks – Loops In Flow Graphs-Introduction To Global Data Flow Analysis.

Text Book

1. Alfred Aho, Ravi Sethi, Jeffrey D Ullman, Compilers Principles, Techniques And Tools, Pearson Education Asia, 2007.

Reference Books

1. Ravendra Singh, Vivek Sharma, Manish Varshney ,Design And Implementation Of Compiler, New Age International, 2009
2. SantanuChattopadhyay, Compiler Design , Prentice Hall Of India, 2008.
3. C. N. Fischer And R. J. Leblanc, Crafting A Compiler With C , Benjamin Cummings, 2003.

M.Sc (Computer Science) Degree Examination-Syllabus- for candidates admitted from 2015 – 2016 and onwards

**FIRST SEMESTER
PRACTICAL I : ALGORITHM DEVELOPMENT IN C++**

Maximum CIA: 40

Maximum CE: 60

Total Hours:60

Objective

To inculcate knowledge on implementation of algorithms using C++.

List of Practicals

1. Designing the following sorting algorithms using C++
 - a. Bubble Sort
 - b. Insertion Sort
 - c. Selection Sort
 - d. Heap Sort
 - e. Quick Sort
2. Designing the following Searching algorithms using C++
 - a. Linear Search
 - b. Binary Search
3. Preparing Matrix Manipulations using C++.
4. Preparing Polynomial Addition & Multiplication using C++
5. Developing the Operations on Stack and Conversion of expressions using C++
6. Developing the Operations on Queue using C++
7. Developing the Operations on Linked List using C++
8. Developing the Operations on Doubly Linked List using C++
9. Developing the Operations on Binary tree and Traversals using C++
10. Developing the Dijkstra's Algorithms to find the Shortest Path using C++
11. Developing 8-Queens Problem using C++.
12. Developing Knapsack Problem using C++.

M.Sc (Computer Science) Degree Examination Syllabus for Candidates admitted from 2015-2016 and onwards

FIRST SEMESTER

PAPER 5 : ADVANCED SOFTWARE ENGINEERING

Maximum CIA: 30

Maximum CE: 70

Total Hours:60

Objective

To enable the students to learn the concepts of software engineering, web engineering, Component based software engineering.

UNIT-1 [12HOUR]

Software and software engineering: Evolving Role Software – Software – Changing Nature of Software – Software Myths - Agility - Agility and the Cost of Change - Agile Process - Extreme Programming (XP)

UNIT-II [12HOUR]

System Engineering : Computer Based Systems – System Engineering Hierarchy – Requirements Engineering: Requirements Engineering Tasks – Eliciting Requirements - Design Engineering Design within the Context of Software Engineering – Design Process and Design Quality – Design Concepts – Design Model

UNIT-III [12HOUR]

Web Engineering: Attributes of Web Based Systems and Applications – WebAPP Engineering Layers – Web Engineering Process – Web Engineering Best Practices Formulation and planning for Web Engineering: Formulating Web-Based Systems – Planning for Web Engineering Projects – Web Engineering Team - Project Management Issues for Web Engineering- Analysis Modeling for Web Applications - Requirements Analytics for Webapps – Content Model – Interaction Model – Functional Model

UNIT- IV [12HOUR]

Advanced Topics in Software Engineering: Formal Methods – Basic Concepts – Mathematical Preliminaries – Mathematical Notations – Formal Specification Languages – Object Constraint Language – Z Specification Language – Ten Commandants of Formal Methods – Cleanroom Software Engineering Cleanroom Approach – Functional Specification – Cleanroom Design – Cleanroom Testing

UNIT-V [12HOUR]

Component Based Software Engineering – Engineering of Component Based Systems – CBSE Process – Domain Engineering – Component Based Development – Classifying and Retrieving Components – Economics of CBSE – Re-Engineering – Business Process Reengineering - Software Reengineering –Reverse Engineering – Restructuring – Forward Engineering – The Economics of Reengineering

Text Book

1. Roger S. Pressman, Software Engineering – A practitioner’s Approach, McGraw Hill International Edition, 6th Edition, 2005

Reference Books

1. Kassem A. Saleh, "Software Engineering", J. Ross Publishing, 2009
2. Jibitesh Mishra, "Software Engineering", Pearson Education, 2012

M.Sc(Computer Science) Degree Examination - Syllabus - for candidates admitted from 2015– 2016 and onwards

**SECOND SEMESTER
PAPER 6: ADVANCED NETWORKS**

Maximum CIA: 30

Maximum CE: 70

Total Hours:72

Objective

To inculcate knowledge on networking concepts and protocols.

UNIT –I [15HOUR]

Introduction and Overview: Network Technologies – Internetworking Concepts and Architectural Model – Internet Addresses – ARP – RARP.

UNIT-II [15HOUR]

Internet Protocol: Connectionless Datagram Delivery – Forwarding IP Datagrams – Error and Control Messages(ICMA) – Protocol Layering -CIDR.

UNIT-III [15HOUR]

UDP, TCP, Routing – Cores, Peers and Algorithms – Exterior Gateway Protocols and Autonomous Systems(3GP) –In an autonomous System(RIP,OSPF,HELLO).

UNIT-IV [15HOUR]

Internet Multicasting – TCP/IP Over ATM Networks – Mobile IP – Private Network Interconnection – Internet Management (SNMP) – Client Server Model of Interaction.

UNIT –V [12HOUR]

DNS – Remote Login – File Transfer and Access – Email – World Wide Web(Http) – Voice and Video over IP(RTP) .

Text Book

1. Douglas E.Comer, Internetworking with TCP/IP, Vol-I - Principles, Protocols and Architecture, , Prentice Hall of India, New Delhi, 5th edition, 2006.

Reference Book

1. Andrew S.Tananbaum, Computer Networks, Pearson Education Publishing as Prentice Hall,USA,5th edition, 2011.

M.Sc (Computer Science) Degree Examination-Syllabus- for candidates admitted from 2015 – 2016 and onwards

**SECOND SEMESTER
PAPER 7: ADVANCED JAVA**

Maximum CIA: 30

Maximum CE: 70

Total Hours:72

Objective

To Utilize The Sun J2EE Architecture For Creating Comprehensive Multi-Tiered Software In Java.

UNIT –I [15 HOUR]

Enterprise Architecture: Architecture Types-Introducing the Java EE platform-Features of Java EE5- Exploring the Java EE5 platform-Architecture of Java EE5-Describing Java EE containers. Web Applications and Java EE5: Introducing web applications-Describing Web containers-Building Web applications. Java Database Programming: Introduction to JDBC-JDBC Drivers-Features of JDBC-Implementing JDBC processes with java.sql package-Implementing JDBC processes with javax.sql package-Working with transactions.

UNIT-II [15 HOUR]

Understanding Servlet Programming: Features of Java Servlet – Servlet API – Servlet Life Cycle- Servlet Configuration-Working with ServletConfig and ServletContext-Creating a simple servlet- Working with HttpServletRequest and HttpServletResponse-Request Delegation and Request Scope- Servlet Collaboration.Handling Sessions in Servlets: Introducing Session Tracking-Session Tracking Mechanism – Session Tracking & Servlet API. Event Handling in Servlets: Types of Servlet Events.

UNIT-III [15 HOUR]

Understanding Java Server Pages: Architecture of JSP page-Understanding JSP Page Lifecycle-JSP Elements-JSP Expression Languages-Debugging with JspDebug-Performance-Using JSP Best Practices.Implementing JSP Tag Extension: Elements of Tag Extension-Tag Extension API-Classic Tag Handlers-Simple Tag Handlers-JSP Fragments-Understanding Tag Files. Implementing Java Server Pages Standard Tag Library: Working with core Tag Library, XML Tag Library, Internationalization Tag Library,SQL Tag Library and Functions Tag Library.

UNIT-IV [15 HOUR]

Understanding EJB 3.0-EJB 3.0 Fundamentals-Classifying EJBs-Understanding Session Bean-Implementing Session Bean-Understanding Message Driven Bean-Implementing Message Driven Bean-Managing Transactions in Java EE Applications-Understanding EJB 3.0 Timer services-Implementing EJB 3.0 Timer Services-Understanding EJB 3.0 Interceptors-Interceptor Class-Lifecycle Callback methods in Interceptor Class.

UNIT –V [12 HOUR]

Implementing Entities and Java Persistence API: Introducing Entities-Life cycle of Entity-Entity Relationship Types-Mapping Collection Based Relationships-Understanding Java Persistence Query Language(JPQL). Implementing Java Persistence Using Hibernate: Introduction to Hibernate-Architecture of Hibernate-Hibernate Query Language-Implementing O/R Mapping with Hibernate.

Text Book

1. Kogent Solutions Inc,Java Server Programming,Java EE 6 Black Book, Dream Tech Press - Platinum Edition

Reference Book

1. Eric Jendrock,IanEvans,DevikaGollapudi,KimHaase,ChinmayeeSrivathsa , The Java EE 6 Tutorial Basic Concepts by Dorling Kindersley , Fourth Edition,India.

**M.Sc(Computer Science) Degree Examination - Syllabus - for candidates admitted from
2015 – 2016 and onwards**

**SECOND SEMESTER
PAPER 8: ADVANCED OPERATING SYSTEM**

Maximum CIA: 30

Maximum CE: 70

Total Hours:60

Objective

To impart knowledge about three different types of advanced Operating System namely, distributed, multiprocessor and database operating systems.

UNIT-I [12 HOUR]

Operating System Overview: Functions of an Operating System – Design Approaches – Types of Advanced Operating System. Synchronization Mechanisms: Concept of a Process-Concurrent Process – The Critical Section Problem - Other Synchronization Problems – Language Mechanisms for Synchronization – Axiomatic Verification of Parallel Programs. Process Deadlocks: Preliminaries–Models of Deadlocks–Resources-System State– Necessary and sufficient conditions for a Deadlock – Systems with Single-Unit Requests-Consumable Resources-Reusable Resources.

UNIT-II [12 HOUR]

Distributed operating System: Issues – Communication Primitives.Theoretical Foundations. Distributed Mutual Exclusion : Non-Token Based Algorithms – Lamport’s Algorithm - Token-Based Algorithms – Suzuki-Kasami’s Broadcast Algorithm. Distributed Deadlock Detection : Issues– Centralized Deadlock-Detection Algorithms - Distributed Deadlock-Detection Algorithms. Agreement Protocols – Classification - Solutions –Applications.

UNIT-III [12 HOUR]

Distributed File systems : Architecture – Mechanisms – Design Issues. Distributed Shared Memory : Architecture – Algorithm – Protocols - Design Issues. Distributed Scheduling : Issues – Components – Algorithms.

UNIT- IV [12 HOUR]

Recovery : Basic Concepts-Classification of Failures – Basic Approaches to Recovery - Recovery in Concurrent System - Synchronous and Asynchronous Checkpointing and Recovery - Check pointing in Distributed Database Systems. Fault Tolerance: Issues – Two phase and Nonblocking Commit Protocols - Voting Protocols - Dynamic Voting Protocols.

UNIT-V [12 HOUR]

Multiprocessor operating systems : Structures – Design Issues – Threads – Process Synchronization – Processor Scheduling –Memory Management – Reliability / Fault Tolerance. Database Operating Systems : Concurrency Control – Distributed Database Systems – Concurrency Control Algorithms.

Text Book

1. MukeshSinghal and N. G. Shivaratri, “Advanced Concepts in Operating Systems”, McGraw Hill,2001.

Reference Books

1. WilliamStallings,”Operating Systems-Internals and Desihn Principles”, Pearson Education, Sixth Edition,2009.
2. Achyut S. Godbole, “Operating Systems” , Tata McGraw Hill,2003.

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SECOND SEMESTER

Practical 2 : ADVANCED JAVA PROGRAMMING LAB

Maximum CIA: 40

Maximum CE: 60

Total Hours:60

Objective

To inculcate knowledge about Advanced Java and helps to specialize in J2EE.

List of Practical's

- 1) Program to get username and password and display it in new page using JSP.
- 2) Program to illustrate usage of at least four JSP tags.
- 3) Program to get user input and validate it with database using JSP.
- 4) Program to upload a image into database using JSP.
- 5) Program to display cookies using JSP.
- 6) Program for servlet config.
- 7) Program to insert and delete data in a database using servlet.
- 8) Program to implement Entity Bean.
- 9) Program to implement Session Bean.
- 10) Program to implement Message Driven Bean.
- 11) Program to insert records into database using Hibernate
- 12) Program to create application using Hibernate and EJB for maintaining employee details.

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**SECOND SEMESTER
ELECTIVE 1: MOBILE COMPUTING**

Maximum CIA: 30

Maximum CE: 70

Total Hours:60

Objective

To make the Students to get Familiarized with the Application Areas of Mobile Computing Environment.

UNIT – I [12 HOUR]

Introduction: Applications – Vehicles, Emergencies, Business, and Replacement of Wired Networks, Infotainment and more, Location dependent services, Mobile and Wireless devices – A short history of wireless communication – A market for mobile communications – Some open research topics – A simplified reference model – Overview. Wireless Transmission: Frequencies for radio transmission – Regulations – Antennas – Signal Propagation – Path loss of radio signals, Additional signal propagation effects, Multi-path propagation – Multiplexing – SDM, FDM, TDM, CDM – Modulation – Amplitude Shift Keying, Frequency Shift Keying, Phase Shift Keying, Advanced Phase Shift Keying, Multi-carrier modulation – Spread Spectrum – DSSS, FHSS – Cellular Systems.

UNIT –II [12 HOUR]

Medium Access Control: Motivation for a specialized MAC – Hidden and exposed terminals, Near and far terminals – SDMA – FDMA – TDMA – Fixed TDM, Classical Aloha, Slotted Aloha, Carrier Sense Multiple Access, PRMA, Reservation TDMA, Multiple access with collision avoidance, Polling, Inhibit Sense Multiple Access – CDMA – Spread Aloha Multiple Access, Comparison of S/T/F/CDMA. Telecommunications Systems: GSM – Mobile Services, System Architecture, Radio Interface, Protocols, Localization and calling, Handover, Security, New Data Services – DECT – System and Protocol Architecture – TETRA – UMTS and IMT-2000 – UMTS releases and standardization, UMTS system architecture, UMTS radio interface, UTRAN, Core Network, Handover.

UNIT – III [12 HOUR]

Satellite Systems: History – Applications – Basics – GEO, LEO, MEO – Routing – Localization – Handover – Examples. Broadcast Systems: Overview – Cyclical repetition of data – Digital audio broadcasting – Multimedia object transfer protocol – Digital Video Broadcasting – DVB data broadcasting, DVB for high – speed internet access – Convergence of broadcasting and mobile communications.

UNIT – IV [12 HOUR]

Wireless LAN: Infraredvs radio transmission – Infrastructure and ad-hoc network – IEEE 802.11 – System Protocol Architecture, Physical Layer, Medium Access Control Layer, MAC Management, 802.11b, 802.11a, Network Developments – HIPERLAN – Historical: HIPERLAN1, WATM, BRAN, HIPERLAN2 – Bluetooth – User Scenario, Architecture, Radio Layer, Baseband Layer, Link Manager Protocol, L2CAP, Security, SDP, Profiles, IEEE 802.15. Mobile Network Layer: Mobile IP – Goals, assumptions and requirements, Entities and Terminology, IP packet Delivery, Agent Discovery, Registration, Tunneling and Encapsulation, Optimizations, Reverse tunneling – Ipv6 – IP micro-mobility support – Dynamic host configuration Protocol – Mobile Ad-hoc Networks – Routing, Destination sequence distance vector, Dynamic source routing, Alternative metrics, Overview ad-hoc routing protocols.

UNIT – V

[12HOUR]

Mobile Transport Layer: Traditional TCP – Congestion Control, Slow start, Fast retransmit/fast recovery, Implications of mobility – Classical TCP improvements – Indirect TCT, Snooping TCP, Mobile TCP, Fast retransmit/fast recovery, Transmission/time-out freezing, Selective retransmission, Transaction-oriented TCP – TCP over 2.5/3G wireless networks – Performance enhancing proxies. Support for Mobility: File Systems – Consistency, Coda, Little Work, Ficus, Mlo NFS, Rover – WWW – HTTP, HTMP, Some approaches that might help wireless access, System Architecture 388 – WAP (version 1.0x) – Architecture, WDP, WTLS, WTP, WSP, Wireless Application Environment – WML – WML Script – Wireless Telephony Application – Push Architecture – Push/Pull Services, Example stacks with WAP 1.x – i-mode – SyncML – WAP2.0.

Text Book

1. Jochen Schiller - Mobile Communications, Pearson Education, II Edition, 2011.

Reference Books

1. Mobile Computing Asoke K TalukderRoopa R Yavagal TMH 2005
2. Jochen Schiller Mobile Communications PHI/Pearson Education 2nd Edition , 2003.
3. V.JeyasriArokiaMary, Mobile Computing, Technical Publications, Pune ,2nd Revised Edition, 2008,
4. SipraDasBit and BipLab K. Sikdar, Mobile Computing, Eastern EconomyEdition, PHI
5. Learning Private Limited, 2009, New Delhi

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**SECOND SEMESTER
ELECTIVE 1: GRID COMPUTING**

Maximum CIA: 30

Maximum CE: 70

Total Hours:60

Objective

To acquire knowledge about how Grid Computing is evolving as an open standard for resource sharing.

UNIT –I [12 HOUR]

Early Grid Activities-Current Grid Activities-An Overview of Grid Business Ares-Grid Applications-Grid Infrastructure.Grid Computing Organization and their Roles.

UNIT- II [12 HOUR]

Grid Computing Anatomy-Grid Computing Road Map- Merging the Grid Services Architecture with the Web Services Architecture.

UNIT- III [12 HOUR]

Open Grid Services Architecture (OGSA)- Some Sample Use Cases that drive the OGSA-OGSA Platform.

UNIT- IV [12 HOUR]

Open Grid Service Infrastructure: Introduction-Grid Services- Technical Details of OGSI Specification-Grid Service: Naming and Change Management.

UNIT –V [12 HOUR]

OGSA Basic Services: Common Management Model-Service Domains-Policy Architecture-Security Architecture. GLOBUS GT3 Toolkit: A Sample Implementation.

Text Book

1. JoshyJoesph, Craig Fellenstein, Grid Computing, IBM Press, USA, 2nd edition, 2005.

Reference Book

- 1 Fran Berman,GeoffreyFox,Anthony J. G. Hey,Grid Computing: Making the Global Infrastructure a Reality ,Wiley India Pvt Ltd.,2010.

M.Sc (Computer Science) Degree Examination Syllabus for Candidates admitted from 2015-2016 and onwards

**SECOND SEMESTER
ELECTIVE 1: DISTRIBUTED COMPUTING**

Maximum CIA: 30

Maximum CE: 70

Total Hours:60

Objective

To inculcate knowledge on Distributed Computing Concepts in real time applications.

UNIT –I [12 HOUR]

Distributed Computing :Introduction-Different Forms Of Computing-Strengths And Weaknesses Of Distributed Computing-Network Bases-Software Engineering Basics. Interprocess Communications: Event Synchronization-Timeouts And Threading-Deadlocks And Timeouts-Data Representations-Data Encoding-Text Based Protocols-Request Response Protocols-Event Diagram And Sequence Diagram. Distributed Computing Paradigma: Paradigms And Abstract-Paradigms For Distributed Applications-Trade Offs.

UNIT- II [12 HOUR]

Model Of A Computation: Introduction-Model Of A Distributed System-Interleaving Model-Happened Before Model-Potential Causality Model-Appropriate Model-Model Based On States. Control Of A Distributed Computation: Introduction-Hardness Of The Control Problem-Mutual Exclusion-Disjunctive Predicates-Relationship Between Observation And Control. Computation Of A Global Function: Introduction-Converge Cast And Broadcast-Global Functions.

UNIT- III [12 HOUR]

The Socket API: The Socket Metaphor In IPC-The Datagram Socket API-The Stream-Mode Socket API-Sockets With Nonblocking I/O Operations. The Client –Server Paradigms: The Client –Server Paradigms Issues-Software Engineering For Network Service=Connection Oriented And Connectionless Service-Iterative Server And Concurrent Server-Stateful Server.

UNIT- IV [12 HOUR]

Group Communication: Unicasting Verses Multicasting-An Archetypal Multicasting API-Connectionless Versus Unreliable Multicasting-The Java Basic Multicast API-Reliable Multicast API. Distributed Objects: Message Passing Versus Distributed Objects-An Archetypal Distributed Object Architecture-Distributed Object System-Remote Procedure Calls-Remote Method Invocation-The Java RMI Architecture-The API For The Java RMI-Steps For Building RMI Application-Testing And Debugging-Comparison Of RMI And Socket Apis.

UNIT- V [12 HOUR]

Advanced RMI: Client Callback- Stub Downloading-RMI Security Manager. CORBA: The Basic Architecture-The CORBA Object Interface-Inter ORB Protocols-Object Servers And Object Clients-CORBA Object References-CORBA Object Services-Trade Offs. Advanced Distributed Computing Paradigms: Message Queue System Paradigm-Mobile Agents-Network Services-Object Spaces.

Text Book

1. M.L.Liu, Distributed Computing Principles and Applications , PEARSON Education, First Edition, 2007.

Reference Book

1. Vijay K.Garg, Elements Of Distributed Computing , A John Wiley & Sons, Inc., Publication.

M.Sc (Computer Science) Degree Examination Syllabus for Candidates admitted from the Academic Year 2015-2016 and onwards.

THIRD SEMESTER

Paper 9: DIGITAL IMAGE PROCESSING

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To provide general understanding of the fundamentals of digital image processing and to introduce the student to analytical tools which are currently used in digital image processing.

UNIT-I

[12 Hours]

Introduction to Digital Image Processing – The Origin of DIP –Examples of Fields that Use DIP – Fundamental Steps in DIP – Components of an Image Processing System. Digital Image Fundamentals – Elements of Visual Perception – Light and the Electromagnetic Spectrum – Image Sensing and Acquisition – Image Sampling and Quantization – Some Basic Relationship between Pixels – Linear and Nonlinear Operations.

UNIT – II

[12 Hours]

Image Enhancement in the Spatial Domain – Background- Basic Gray Level Transformations – Histogram Processing – Enhancement Using Arithmetic\Logic Operations – Basic of Spatial Filtering – Smoothing Spatial Filters – Sharpening Spatial Filters – Combining Spatial Enhancement Method.

UNIT – III

[12 Hours]

Image Restoration – A Model of the Image Degradation / Restoration Process – Noise Models – Restoration in the Presence of Noise Only – Spatial Filtering Periodic Noise Reduction by Frequency Domain Filtering – Linear Position – Invariant Degradation – Estimation the Degradation Function – Inverse Filtering – Minimum Mean Square Error Filtering – Constrained Least Square Filtering – Geometric Mean Filters – Geometric Transformation.

UNIT – IV

[12 Hours]

Image Compression – Fundamentals – Image Compression Models – Elements Of Information Theory – Error Free Compression – Lossy Compression – Image Compression Standards.

UNIT – V

[12 Hours]

Image Segmentation – Deduction and Discontinuities – Edge Linking and Boundary Detection – Thresholding – Region Based Segmentation – Segmentation by Morphological Watersheds – The Use of Motion in Segmentation.

Text Book:

1. Rafael C. Gonzalez, Richard Eugene Woods, Digital Image Processing, Second Edition, Pearson Education India, Reprint 2010.

Reference Books:

1. S.Jayaraman, S.Esakkirajan, T.Veerakumar, Digital Image Processing, Tata McGraw Hill, 2011.
2. Chris Solomon, Toby Breckon, Fundamentals of Digital Image Processing: A Practical Approach with Examples in Matlab, John Wiley & Sons, 2011.

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THIRD SEMESTER

PAPER 10: INFORMATION SYSTEM SECURITY

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objective:

To acquire knowledge about how the system security is provided.

UNIT- I [10 Hours]

Information Systems in Global Context - History of Information System - Importance of Information Systems - Basics of Information Systems - Changing nature of Information System – **Threats to Information System** - Information System Security Threats – Attacks – Classification of Threats and Assessing Damages - Protecting Information System Security.

UNIT-II [10 Hours]

Security Considerations in Mobile and Wireless Computing - Proliferation of Mobile and Wireless Devices - Trends in Mobility - Credit Card Frauds in Mobile and Wireless Computing - Security Challenges Posed by Mobile Devices - Registry Settings for Mobile Devices – **Information Security Management in Organizations** – Security Policy Standards Guidelines Procedures - **Building Blocks of Information Security** – Principles of Information System Security – Security-Related Terms and Definitions – Three Pillars of Information Security – Important Terms in Information Security – Information Classification – Terms for Information Classification – Criteria for Classification of Data and Information.

UNIT-III [10 Hours]

Biometrics Controls for Security – Access Control - User Identification – User Authentication - Biometrics – Nature of Biometrics Identification/Authentication Techniques – Biometrics Techniques – Matching and Enrolment Process in Biometrics – Key success Factors for Biometrics Systems - Benefits of Biometrics over Traditional Authentication Methods - **Biometrics-Based Security: Issues and Challenges** – Criteria for Selection of Biometrics Applications – Classification of Biometrics Applications – Architectural and Design Issues in Biometrics Systems – Interoperability Issues in Biometrics Systems – Standards of Biometrics – Costs of Biometrics – Economic Aspects of Biometrics – Legal Challenges in Biometrics – Biometrics Market – Future of Biometrics.

UNIT-IV [10 Hours]

Network Security in Perspective – Concepts of Network Security – Network Security Dimensions – Establishing Security Parameter for Network Protection – **Cryptography and Encryption** – Cryptography – Genesis and Application of Cryptography – Role of Cryptography in Information Security - Digital Signature – Cryptographic Algorithms.

UNIT-V [08 Hours]

Intrusion Detection for Securing the Networks – Network Attacks-Stages – Need for Intrusion Monitoring and Detection - Intrusion Detection for Information System Security -

Firewalls for Network Protection - Firewalls – Demilitarized Zone (DMZ) - Why Firewalls are Needed - Proxy Servers - Topologies for Different Types of Firewalls.

Text Book:

1. Nina Godbole, Information Systems Security - Security Management, Metrics, Frameworks and Best Practices, First Edition, Wiley India Pvt Ltd, 2009.

Reference Books:

1. William Stallings, Cryptography and Network Security, Fifth Edition, Pearson Publications, 2011.
2. Denis Trcek, Managing Information System Security and Privacy, First Edition 2010.

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**THIRD SEMESTER
PAPER 11: WEB SERVICES**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To understand the concept of XML and to implement Web services using XML based standards.

UNIT -I [12 Hours]

Xml Technology Family:XML – benefits – Advantages of XML over HTML, EDI, Databases – XML based standards – Structuring with schemas - DTD – XML Schemas – XML processing – DOM – SAX – presentation technologies – XSL – XFORMS – XHTML – Transformation – XSLT – XLINK – XPATH – XQuery.

UNIT –II [12 Hours]

Architecting Web Services :Business motivations for web services – B2B – B2C – Technical motivations – limitations of CORBA and DCOM – Service-oriented Architecture (SOA) – Architecting web services – Implementation view – web services technology stack – logical view – composition of web services – deployment view – from application server to peer to peer –processview.

UNIT –III [12 Hours]

Web Services Building Blocks :Transport protocols for web services – messaging with web services - protocols - SOAP - describing web services – WSDL – Anatomy of WSDL – manipulating WSDL – web service policy – Discovering web services – UDDI – Anatomy of UDDI – Web service inspection – Ad-Hoc Discovery - Securing web services.

UNIT- IV [12 Hours]

Implementing Xml In E-Business:B2B – B2C Applications – Different types of B2B interaction – Components of e-business XML systems – ebXML – RosettaNet - Applied XML in vertical industry – web services for mobile devices.

UNIT- V [12 Hours]

Xml Content Management And Security: Semantic Web – Role of Meta data in web content - Resource Description Framework – RDF schema – Architecture of semantic web – content management workflow– XLANG – WSFL – Securing web services.

Text Book:

1. Ron Schmelzer et al, XML and Web Services, Pearson Education, Reprint 2011.

Reference Books:

1. Keith Ballinger, .NET Web Services Architecture and Implementation, Pearson Education, 2013.
2. David Chappell, Understanding .NET A Tutorial and Analysis, Addison Wesley, 2010.

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THIRD SEMESTER

PAPER 12: WEB TECHNOLOGY

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objective:

To impart knowledge in Asp.Net by understanding and implementing various technologies to develop web applications.

UNIT I

[8 Hours]

Asp.Net 4.5 Essentials: Introduction to .Net – Evolution of .Net – Benefits of .Net Framework – Overview of .Net Framework 4.5. **Introduction to Visual Studio 2012 IDE:** Exploring Visual Studio 2012 IDE - ASP.Net Technologies – Asp.Net Life Cycle-Sample Asp.Net 4.5 Website. **Developing a Web Application:** Specifying a Location for a Web Application- File Types – Coding Models – Directives. **Application Structure and State:** Using Global.asax – Using Application state, Session state, and view state – Generic Handlers Application – Postback and Cross-page posting.

UNIT II

[10 Hours]

Standard Controls I: Using CSS in Web Applications – Working with control properties – Label Control – Textbox Control – Button Control – Literal Control – Placeholder Control – HiddenField Controls – FileUpload Controls. **Navigation Controls:** Creating Tree View Control – Generating TreeView from a Database – Creating Static Menus – Creating Dynamic Menus – Creating SiteMapPath.

Validation Controls: BaseValidator Class – RequiredFieldValidator Control – RangeValidator Control – RegularExpressionValidator Control – CompareValidator Control – CustomValidator Control – ValidationSummary Control.

UNIT III

[10 Hours]

Working with Database Controls: The GridView Control – DataList Control – DetailsViewControl – FormView Control – ListView Control – Repeater Control – DatePager Control – Chart Control – QueryExtender Control – SQLDataSource Control – AccessDataSource Control – LinqDataSource Control – ObjectDataSource Control – XmlDataSource Control.

UNIT IV

[10 Hours]

Working with Files and Streams: Working with Drives and Directories – Exploring Directory Class – DirectoryInfo Class – DriveInfo Class – Working with Files – Working with File Properties and ACL – Understanding System.IO.Stream Class – Working with Serial Ports- Retrieving Drive Information – Creating a Directory – Copying a Directory – Creating a Subdirectory – Viewing Subdirectory – Retrieving Files from Directory – Creating File – Opening File – Reading and appending Text to a File - Retrieving File – Renaming File. **Developing Asp.Net Ajax Architecture:** Asp.Net AJAX Architecture – AJAX Server.

UNIT V

[10 Hours]

WCF Services: Architecture of WCF – WCF Clients – WCF Tools – WCF Data Services – Creating WCF – Configuring WCF – Deploying WCF –Building WCF - Creating WCF Data Services.

Asp.Net MVC Frame Work: MVC Architecture – Framework – ASP.Net MVC4 Framework – Creating MVC Application.

Text Book:

1. ASP.NET 4.5, Covers C# and VB Codes, Black Book, Kogent Learning Solutions Inc, 2013.

Reference Books:

1. Jess Chadwick, Todd Snyder, Hrusikesh Panda, Programming ASP.NET MVC 4: Developing Real-World Web Applications with ASP.NET MVC - O'Reilly Media, Inc.2012.
2. Imar Spaanjaars, Beginning ASP.NET 4.5.1: in C# and VB, John Wiley & Sons, 2014.

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**THIRD SEMESTER
PRACTICAL 3: WEB TECHNOLOGY LAB**

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Objective:

To implant knowledge by implementing tools and techniques in Asp.Net.

1. Create a web page to insert student details at the time of Admission enquiry and validate it using Jscript.
2. Develop an application to create, access and rename the directories and files in ASP.Net Environment.
3. Create a web application for Catering department by implementing Master page.
4. Create a web application for IPL Team to maintain their player's information, design the page using AJAX controls.
5. Create a web application for HR Team to receive the details and resume from job seekers. Provide the effects using CSS.
6. Create an application to perform forget password process.
7. Create a web application to perform validation process using ASP.Net validation controls
8. Develop a web application to implement tree view, Grid view and chart control.
9. Create a web application for a login process by implementing MVC pattern.
10. Create an application to perform the bus reservation and cancellation process, these processes to be performed by the registered users Session to be maintained.
11. Create an application to demonstrate the XML accessing process.
12. Develop an application to create, configure and deploy WCF Services.

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**THIRD SEMESTER
ELECTIVE II: BIOINFORMATICS**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To inculcate the knowledge about genomes and gene analysis.

UNIT- I **[12 Hours]**

Introduction: The dawn of sequencing – What is bioinformatics? – The biological sequence/structure deficit – Genome project- Why is bioinformatics important? – Pattern Recognition and Prediction – The folding Problem – The role of chaperones – Sequence analysis – Homology and analogy. **Information Networks:** EMBnet – NCBI – Bioinformatics Programme in India – Virtual Tourism.

UNIT- II **[12 Hours]**

Protein Information Resources: Introduction – Biological databases – Primary Sequence databases – Composite protein sequence databases – Secondary databases – Composite Protein Pattern databases – Structure Classification databases. **Genome Information resources:** Introduction – DNA Sequence databases – Specialised Genomic resources.

UNIT- III **[12 Hours]**

DNA Sequence Analysis: Why analyse DNS? – Gene Structure and DNA Sequences – Features of DNA Sequence analysis – Issues in the interpretation of EST searches – Two approaches to gene hunting – The expression profile of a cell – cDNA libraries and ESTs – Different approaches to EST analysis – Effects of EST data on DNA database – Example. **Pairwise Alignment Techniques:** Database searching – Alphabets and complexity – Algorithms and programs – Comparing two sequences – Sub sequences – Identity and Similarity – The dotplot – Local and Global Similarity – Global Alignment – Local Alignment – Dynamic programming – Pairwise database searching.

UNIT- IV **[12 Hours]**

Multiple Sequence Alignment: The goal of multiple sequence alignment – A Definition – The consensus – Computational Complexity – Manual methods – Simultaneous methods – Progressive methods – Databases of multiple alignments – Searching databases. **Secondary Database Searching:** Why bother with secondary database searches? – What's in a secondary database.

UNIT- V **[12 Hours]**

Building a Sequence Search Protocol: A Practical approach – When to believe a result? – Structural and functional Interpretation. **Analysis Packages:** What's in an analysis package? – Commercial database – Commercial software – Comprehensive Packages – Packages

specializing in DNA analysis – Intranet packages – Internet packages – Laboratory Information Management System (LIMS).

Text Book:

1. T.K. Attwood, D.J. Parry-Smith, Introduction to Bioinformatics, Pearson Education Asia, Reprint 2012.

Reference Books:

1. Dan E. Krane, Michale L. Raymer, Fundamental Concepts of Bioinformatics, Pearson Education Asia, Reprint 2012.
2. Jeremy Ramsden, Bioinformatics: An Introduction, Springer, 2015.

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THIRD SEMESTER

Elective II: NEURAL NETWORKS AND FUZZY LOGIC

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To introduce and develop the skills to gain a basic understanding of neural network theory and fuzzy logic theory.

UNIT 1

[12 Hours]

Fundamentals of Neural Networks: Basic Concepts of Neural Networks – Human Brain – Model of an Artificial Neuron – Neural Network Architectures – Characteristics of Neural Networks – Learning Methods – Taxonomy of Neural Network Architectures – History of Neural Network Research – Early Neural Network Architectures – Some Application Domains.

UNIT 2

[12 Hours]

Backpropagation Networks: Architectures of a Backpropagation Network – Backpropagation Learning – Illustration – Effect of Tuning Parameters of the Backpropagation Neural Network – Selection of Various Parameters in BPN – Variations of Standard Backpropagation Algorithm.

UNIT 3

[12 Hours]

Adaptive Resonance Theory: Introduction – ART1 - ART2 –Applications – Sensitivities of Ordering of Data.

UNIT 4

[12 Hours]

Fuzzy Set Theory: Fuzzy Versus Crisp – Crisp Sets – Fuzzy Sets - Crisp Relations – Fuzzy Relations.

UNIT 5

[12 Hours]

Fuzzy Systems: Crisp Logic – Predicate Logic – Fuzzy Logic – Fuzzy Rule Based System – Defuzzification Methods.

Text Book:

1. G.A.Vijayalakshmi Pai, S.Rajasekaran, Neural Networks, Fuzzy Logic and Genetic Algorithm: Synthesis and Applications Prentice Hall India, Reprint 2012.

Reference Books:

1. Lakhmi C. Jain, N.M. Martin, Fusion of Neural Networks, Fuzzy Systems and Genetic Algorithms: Industrial Applications, CRC Press, Reprint 2010.
2. Rajesh Kumar, Fundamental of Artificial Neural Network and Fuzzy Logic, University Science Press, 2011.

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THIRD SEMESTER

Elective II: WIRELESS APPLICATION PROTOCOL

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To inculcate knowledge on WAP concepts.

UNIT-I **[12Hours]**

The Rise of Mobile Data-Market Convergence-Enabling Convergence-Key Services for the Mobile Internet-Productivity applications-Information and Transactional Services-Life Enhancing Application-Telephony Account and Subscription Management-Business Opportunities-Mobile internet Access provider-Infrastructure Vendor-Overview of wireless Application protocol.

UNIT-II **[12Hours]**

The Wireless Markup Language-Overview-The WML Document Model- WML Authoring-URLs Identity Content-Markup Basics-WML Basics-Basic content-Events, task and bindings-variables-controls-miscellaneous markup-Sending Information-Meta Data element-DTD-Wireless Binary extensible Markup Language.

UNIT-III **[12Hours]**

Enhanced WML: WML Script and WTAI-WMLScript- Overview-Language Basics-WMLScript Standard Libraries-Other WML Script Libraries -User Interface Design: Making Wireless Application Easy to Use.

UNIT-IV **[12Hours]**

Push Messaging-Overview of WAP push-Push Access Protocol-WAP Push Addressing-Push Message-MIME Media Types for push messages-Push Proxy Gateway-Push Over-the-Air Protocol-Push Initiator Authentication and Trusted Content.

UNIT-V **[12Hours]**

Wireless Telephony Application-Overview of the WTA architecture-The WTA client Framework-The WTA server and security-Design Considerations-The Mobile Internet Future.

Text Book:

1. Sandeep singhal, WAP-Wireless Application Protocol, First Impression, Reprint 2012.

Reference Books:

1. Steve Mahn, Scott sbihli, The Wireless Application Protocol: A Wiley Tech Brief, 2013.
2. SCN Education B.V., Mobile Networking with WAP: The Ultimate Guide to the Efficient Use of Wireless Application Protocol, Vieweg Teubner Verlag, 2012.

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THIRD SEMESTER

EDC 1 -MANAGEMENT INFORMATION SYSTEM

Maximum CE: 50

Total Hours: 24

Objective : On Successful Completion of this subject the students will acquire knowledge in Management Roles and responsibilities, Decision support systems etc.

UNIT I: [5 Hours]

Introduction : MIS Concept – MIS Definition – Role of the MIS – Impact of the MIS. MIS and Computers-MIS and Academics- MIS and the User. Role and Importance of Management: Introduction - Approaches to Management – Functions of the Manager – Managers and the Environment- Management as a Control System – Management by Exception- Process of Management: Management Effectiveness-Planning- Organising – Staffing-Coordinating and Directing –Controlling- MIS: A Tool for management process.

UNIT II: [4 Hours]

Organization Structure and Theory – Strategic Management of Business : Basics of Management Information Systems : Decision Making – Information Systems.

UNIT III: [4 Hours]

System Analysis and Design – Development of MIS – Choice of Information Technology – Applications of Management Information System: Applications in Manufacturing Sector– Application in Service sector- Decision Support Systems.

UNIT IV: [4 Hours]

Enterprise Management Systems – Technology of Information Systems – Database Management Systems – Object Oriented Technology (OOT) : Conceptual Presentation – Client Server Architecture.

UNIT V: [4 Hours]

Client Server Architecture-Networks – Business Process Re-Engineering (BPR)

Text Book:

1. W.S.Jawadekar ,Management Information Systems , 2nd edition , Tata McGraw Hill, New Delhi,2012.

Reference Books:

1. Robert .Schultheis, Mary Sumner, Management Information System, 4th edition, Tata McGraw Hill, New Delhi 2011.
2. Kenneth C. Laudon, Jane P. Laudon, Management Information Systems, Pearson Education, Limited, 2012.

M.Sc (Computer Science) Degree Examination Syllabus for Candidates admitted from the Academic Year 2015-2016 and onwards.

**FOURTH SEMESTER
ELECTIVE III: ETHICAL HACKING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective :

To inculcate the knowledge of Ethical Hacking.

UNIT I

[12 Hours]

Ethical Hacking Overview: Introduction to Ethical Hacking- What you can do Legally- What you Cannot do legally- **TCP/IP Concepts Review:** Overview of TCP/IP-IP Addressing- Overview of Numbering Systems- **Network and Computer Attacks:** Malicious Software- Protecting against malware attacks- Intruder attacks on networks and computers- Addressing physical security.

UNIT II

[12 Hours]

Footprinting and Social Engineering: Using web tools for Footprinting- Conducting Competitive Intelligence- Using DNS Zone Transfers-Introduction to Social Engineering- Port Scanning- Introduction to Port Scanning- Types of Port Scans- Using Port Scanning Tools.

UNIT III

[12 Hours]

Microsoft Operating System Vulnerabilities: Tools to identify Vulnerabilities on Microsoft Systems-Microsoft OS Vulnerabilities - Vulnerabilities in Microsoft Services – Best Practices for hardening Microsoft Systems- Linux Operating System Vulnerabilities-Review of Linux Fundamentals- Linux OS Vulnerabilities- Remote Access Attacks on Linux Systems- Countermeasures against Linux Remote Attacks.

UNIT IV

[12 Hours]

Hacking Web Servers: Understanding Web Applications - Understanding Web Application Vulnerabilities –Tools of Web Attackers and Security Testers- **Hacking Wireless Networks:** Understanding Wireless Technology- Understanding Wireless Networks Standards- Understanding Authentication- Understanding Wardriving- Understanding Wireless Hacking.

UNIT V

[12 Hours]

Cryptography- Understanding Cryptography basics - Understanding Symmetric and Asymmetric Algorithms- Understanding Public Key Infrastructure - Understanding Cryptography Attacks-**Protecting Networks with Security Devices:** Understanding Network Security devices-Understanding Firewalls- Understanding IDS- Understanding Honeypots.

Text Book:

1. Michael T.Simpson , Ethical Hacking and Network Defense, Cengage Learning, India Edition, 2010.

Reference Books:

1. Atul Kahate, Cryptography and Network Security, Tata McGraw Hill, 3rd Edition, 2013, India.
2. Elaiya Iswera Lallan, Ethical Hacking and Computer Securities For Beginners, Blue Micro Solutions, 2014.

M.Sc (Computer Science) Degree Examination Syllabus for Candidates admitted from the Academic Year 2015-2016 and onwards.

FOURTH SEMESTER

ELECTIVE III: ARTIFICIAL INTELLIGENCE

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To learn the basics of designing intelligent agents that can solve general purpose problems, represent and process knowledge, plan and act, reason under uncertainty and can learn from experiences.

UNIT I

[12 Hours]

Introduction – Agents - Problem formulation – uninformed search strategies – heuristics – informed search strategies-constraint satisfaction.

UNIT II

[12 Hours]

Logical agents-propositional logic-inferences-first-order-logic-inferences in first-order logic-forward chaining-backward chaining – unification – resolution.

UNIT III

[12 Hours]

Planning with state-space-search – partial-order planning – planning graphs – planning and acting in the real world.

UNIT IV

[12 Hours]

Uncertainty – review of probability – probabilistic Reasoning – Bayesian networks – inferences in Bayesian networks – Temporal models – Hidden Markov modes.

UNIT V

[12 Hours]

Learning from observation – Inductive learning – Decision trees – Explanation based learning – Statistical Learning methods – Reinforcement Learning.

Text Book:

1. Stuart Russell, Peter Norvig, Artificial Intelligence: A Modern Approach, 3rd Edition, Pearson, Reprint2012.

Reference Books:

1. David Poole, Alan Mackworth, Randy Goebel, Computational Intelligence: a logical approach, Oxford University Press, 2014.
2. G. Luger, Artificial Intelligence: Structures and Strategies for complex problem solving, Fourth Edition, Pearson Education, Reprint 2012.

M.Sc (Computer Science) Degree Examination Syllabus for Candidates admitted from the Academic Year 2015-2016 and onwards.

**FOURTH SEMESTER
Elective III: SOFTWARE TESTING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To provide general understanding of testing and its importance.

UNIT I **[12 Hours]**

Psychology and Economics of Program Testing: Psychology of Testing - Economics of Testing - Software Testing Principles. **Program Inspections, Walkthroughs, and Reviews:** Inspections and Walkthroughs - Code Inspections - Error Checklist for Inspections - Walkthroughs - Desk Checking - Peer Ratings.

UNIT II **[12 Hours]**

Test-Case Design: White-Box Testing - Black-Box Testing - Error Guessing - Strategy.

UNIT III **[12 Hours]**

Module Testing: Test Case Design - Incremental Testing - Top-down versus Bottom-up Testing - Performing the Test.

UNIT IV **[12 Hours]**

Higher-Order Testing: Function Testing - System Testing - Acceptance Testing - Installation Testing - Test Planning and Control - Test Completion Criteria - Independent Test Agency.

UNIT V **[12 Hours]**

Testing in the Agile Environment: Agile Development - Agile Testing - Extreme Programming and Testing.

Text Book:

1. Glenford J. Myers, Tom Badgett, Corey Sandler, The Art of Software Testing, Third Edition, John Wiley & Sons, Inc, 2012.

Reference Books:

1. Sandeep Desai, Abhishek Srivastava, Software Testing: A Practical Approach, PHI Learning Private Limited, 2012.
2. Bernard Homes, Fundamentals of Software Testing, John Wiley & Sons, 2013.

M.Sc (Computer Science) Degree Examination Syllabus for Candidates admitted from the Academic Year 2015-2016 and onwards.

FOURTH SEMESTER
PAPER 13: DATA MINING & WAREHOUSING

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To inculcate the knowledge of Data Mining and Warehousing.

UNIT I **[12 Hours]**

Introduction: What is Data Mining- Motivating Challenges- The Origin of Data Mining- Data Mining Tasks. **Data:** Types of Data- Data Quality- Data Preprocessing. **Exploring data:** The Iris Data Set- OLAP and Multidimensional Data Analysis.

UNIT II **[12 Hours]**

Classification: Preliminaries –General Approach to Solve a Classification Problem- Decision Tree Induction. **Classification: Alternative Techniques:** Rule-Based Classifier- Nearest Neighbor classifiers- Bayesian Classifiers.

UNIT III **[12 Hours]**

Association Analysis- Basic Concepts and Algorithms: Problem Definition- Frequent Itemset Generation- Rule Generation- FP-Growth Algorithm. **Association Analysis: Advanced Concepts-** Handling a Concept Hierarchy-Subgraph Pattern.

UNIT IV **[12 Hours]**

Cluster Analysis: Basic Concepts and Algorithms: Overview- K-means-DBSCAN- **Cluster Analysis: Additional Issues and Algorithms:** Prototype Based Clustering –Density Based Clustering. **Anomaly Detection-** Preliminaries- Proximity- Statistical Approaches-Density based Outlier Detection- Clustering based Techniques.

UNIT V **[12 Hours]**

Data Warehousing: An Introduction: Characteristics of Data Warehouse- Data Marts- Other Aspects of Data Mart. Developing a Data Warehouse- Applications of Data Warehousing and Data Mining in Government- **Case Study.**

Text Book:

1. Pang-Ning Tan, Vipin Kumar, Michael Steinbach , Introduction to Data Mining , New International Edition, Pearson Education, 2013.

Reference Books:

1. C.S.R Prabhu, Data Warehousing Concepts, Techniques, Products and Applications, Third Edition , PHI India, 2013.
2. Jiawei Han and Micheline Kamber, Data Mining Concept and Techniques, 2nd Edition, Morgan Kaufmann Publishers, Reprint 2012.

M.Sc (Computer Science) Degree Examination Syllabus for Candidates admitted from the Academic Year 2015-2016 and onwards.

THIRD SEMESTER

ADDITIONAL CREDIT COURSE - MULTIMEDIA AND ITS APPLICATIONS

Maximum CE: 100

Objective:

On successful completion of the paper the students should have acquired knowledge in the concepts of Multimedia, Images, Animation and Desktop Computing.

UNIT I

What Is Multimedia – Introduction To Making Multimedia – Hardware - Macintosh Vs. Windows – Networking Macintosh and Windows Computers - Basic Software Tools?

UNIT II

Multimedia Skills – The Team - Multimedia Authoring tools – Types of Authoring Tools – Authoring Tools – card and Page Based – Icon and Object Based – Time Based - Text – Sound.

UNIT III

Images – Making Still Images – Color – Image File Format – Animation – Video – Analog Display Standard – Digital Display Standard – Digital Video – Video Recording and Tape Formats – Shooting and Editing Video.

UNIT IV

The Internet and How It Works – Tools for World Wide Web – Designing for the World Wide Web- Working on the Web – Text – Images – Sound – Animation.

UNIT V

High Definition Television and Desktop Computing – Knowledge Based Multimedia Systems.

Text Book:

1. Tay Vaughan, Multimedia making it works, 7thEdition, Tata McGraw Hill, Reprint 2011, New Delhi (Unit I – IV).
2. John F. Koegel Bufford, Multimedia Systems, 4th Edition, Pearson Education, 2013, Asia (Unit V).

Reference Books:

1. Prabhat K. Andleigh, Kiran Thakrar, Multimedia System Design, 3rd Edition, Pearson Education, 2010, New Delhi.
2. Vic Costello, Multimedia Foundations, Taylor & Francis, 2012.

M.Sc (Computer Science) Degree Examination Syllabus for Candidates admitted from the Academic Year 2015-2016 and onwards.

FOURTH SEMESTER

ADDITIONAL CREDIT COURSE: BIG DATA

Maximum CE: 100

Objective:

To inculcate knowledge on concepts related to Big Data Analytics, Mining Data Streams, Clustering, and Visualization.

Unit –I

Big Data - The Arrival of Analytics - Value - More to Big Data Than Meets the Eye - Dealing with the Nuances of Big Data - An Open Source Brings Forth Tools. **Big Data Matters** - Big Data Reaches Deep - Obstacles Remain - Data Continue to Evolve -Data and Data Analysis Are Getting More Complex.

Unit –II

Big Data and the Business Case : Realizing Value - The Case for Big Data-The Rise of Big Data Options - Beyond Hadoop - With Choice Come Decisions. **Building the Big Data Team** : The Data Scientist - The Team Challenge-Different Teams, Different Goals -Don't Forget the Data - Challenges Remain - Teams versus Culture -Gauging Success.

Unit –III

Big Data Sources : Hunting for Data -Setting the Goal -Big Data Sources Growing -Diving Deeper into Big Data Sources - A Wealth of Public Information - Getting Started with Big Data Acquisition - Ongoing Growth, No End in Sight . **The Nuts and Bolts of Big Data** : The Storage Dilemma -Building a Platform - Bringing Structure to Unstructured Data - Processing Power - Choosing among In-house, Outsourced, or Hybrid Approaches.

Unit –IV

Security, Compliance, Auditing, and Protection : Pragmatic Steps to Securing Big Data - Classifying Data - Protecting Big Data Analytics - Big Data and Compliance - The Intellectual Property Challenge . **The Evolution of Big Data** : The Modern Era - Today, Tomorrow, and the Next Day Changing Algorithms.

Unit –V

Best Practices for Big Data Analytics : Start Small with Big Data - Thinking Big - Avoiding Worst Practices - Baby Steps 98- The Value of Anomalies - Expediency versus Accuracy - In-Memory Processing. **Bringing It All Together** : The Path to Big Data- The Realities of Thinking Big Data- Hands-on Big Data- The Big Data Pipeline in Depth -Big Data Visualization- Big Data Privacy.

Text Book:

1. **Frank J. Ohlhorst**, Big Data Analytics: Turning Big Data into Big Money , John Wiley & Sons, Inc, November 2012.

Reference Books:

1. Bill Franks, Taming the Big Data Tidal Wave: Finding Opportunities in Huge Data Streams with Advanced Analytics, John Wiley & sons, 2012.
2. Anand Rajaraman and Jeffrey David Ullman, Mining of Massive Datasets, Cambridge University Press, 2013.

BOARD: M. Sc (SS)
MASTER OF SOFTWARE SYSTEMS (M.Sc (SS)) DEGREE COURSE
SCHEME OF EXAMINATIONS-(CBCS PATTERN)
For Candidates admitted from the Academic Year 2015-2016 Onwards

Part	Subject Code	Subject Title	Ins.Hr/week	Examinations				Credits
				Duration (Hours)	CIA	CE	Total	
SEMESTER I								
II	16ENG001	English I	5	3	30	70	100	4
III	15MSS101	Paper 1: Fundamentals of Office Automation	4	3	30	70	100	4
III	15MSS102	Paper 2: Cobol Programming	5	3	30	70	100	4
III	15MSSP01	Practical 1: Office Automation	5	3	40	60	100	4
III	15MSSP02	Practical 2: Cobol Programming	5	3	40	60	100	4
III	15MSSID1	IDC 1: Computer Oriented Numerical Methods	4	3	30	70	100	3
IV	18UFCA01	Foundation Course 1: EVS #	2	2	-	50	50	2
		TOTAL	30				650	25
SEMESTER II								
II	16ENG002	English II	5	3	30	70	100	3
III	15MSS201	Paper 3: Programming in C	4	3	30	70	100	4
III	15MSS202	Paper 4: Data Structures	5	3	30	70	100	3
III	15MSSP03	Practical 3: C	5	3	40	60	100	4
III	15MSSP04	Practical 4: Data Structures	5	3	40	60	100	4
III	15MSSID2	IDC 2: Discrete Structure	4	3	30	70	100	3
IV	18UFCA02	Foundation Course 2: Value Education #	2	2	-	50	50	2
		TOTAL	30				650	23
SEMESTER III								
III	15MSS301	Paper 5: Object Oriented Programming with C++	5	3	30	70	100	4
III	15MSS302	Paper 6: Database Management Systems	6	3	30	70	100	4
III	15MSSP05	Practical 5: C++ Programming	5	3	40	60	100	4
III	15MSSP06	Practical 6: Relational Database Management Systems	5	3	40	60	100	4
III	15MSSID3	IDC 3: Principles of Accountancy	4	3	30	70	100	3
IV	15MSSAO1 / AO2	AOC 1: Applied Physics / Digital Electronics and Computer Organization	3	3	-	75	75	3
IV	15EDC002	EDC 1: Communicative English #	2	2	-	50	50	2
		TOTAL	30				625	24

SEMESTER IV								
III	15MSS401	Paper 7: Software Engineering	5	3	30	70	100	4
III	15MSS402	Paper 8: Analysis And Design of Information System	5	3	30	70	100	4
III	15MSS403	Paper 9: Java Programming	5	3	30	70	100	4
III	15MSSP07	Practical 7: Java Programming	6	3	40	60	100	4
III	15MSSID4	IDC 4: Operations Research	4	3	30	70	100	3
IV	15MSSAO3 /AO4	AOC 2: Computer System Architecture / Assembly Language Programming Lab	3	3	-	75	75	3
IV	16MSSD1	EDC 1: Basics of Cooking	2	2	-	50	50	2
V	15NCC001/ 15NSS001/ 15SPT001/ 15EXT001	NCC/NSS/Sports/ Extension Activities	-	-	-	-	50	2
TOTAL			30				675	26
SEMESTER V								
III	15MSS501	Paper 10: Computer Graphics	4	3	30	70	100	4
III	20MSS502	Paper 11: Web Technology	4	3	30	70	100	4
III	20MSS503	Paper 12: Data Communication And Networking	4	3	30	70	100	4
III	15MSSP08	Practical 8: Computer Graphics	5	3	40	60	100	4
III	20MSSP09	Practical 9: Web Technology	5	3	40	60	100	4
III	15MSSE01 /02/03	Elective –I : Principles of Compiler Design / J2EE & J2ME / Web Services	4	3	30	70	100	4
III	15MSSID5	IDC 5: Microprocessor and Assembly Language Programming	4	3	30	70	100	3
TOTAL			30				700	27
SEMESTER VI								
III	15MSS601	Paper 13: Client Server Computing	4	3	30	70	100	4
III	20MSS602	Paper 14: Python Programming	4	3	30	70	100	4
III	20MSS603	Paper 15: .NET Framework	4	3	30	70	100	4
III	20MSS604	Paper 16: Operating System	4	3	30	70	100	4
III	20MSSP10	Practical 10: Python Programming	5	3	40	60	100	4
III	20MSSP11	Practical 11: .NET Programming	5	3	40	60	100	4
III	15MSSE04 / 05/ 06	Elective –II : Information System Security / Distributed Computing / Management Information System	4	3	30	70	100	4
TOTAL			30				700	28
SEMESTER VII								

III	15MSSPR1	Project I: Project and Viva-Voce	-	-	100	100	200	8
TOTAL							200	08
SEMESTER VIII								
III	15MSS801	Paper 17: Middleware Technologies	4	3	30	70	100	4
III	20MSS802	Paper 18: Angular JS	4	3	30	70	100	4
III	15MSS803	Paper 19: Object Oriented Analysis and Design using UML	4	3	30	70	100	4
III	15MSS804	Paper 20: WAP and XML	4	3	30	70	100	4
III	15MSSP12	Practical 12: Middleware Technologies	5	3	40	60	100	4
III	20MSSP13	Practical 13: Angular JS Programming	5	3	40	60	100	4
III	15MSSE07/08/09	Elective –III : - Data Mining and Data Warehousing / Grid Computing / Artificial Intelligence and Expert Systems	4	3	30	70	100	4
TOTAL			30				700	28
SEMESTER IX								
III	15MSS901	Paper 21: Software Testing	4	3	30	70	100	4
III	20MSS902	Paper 22: Software Quality Assurance	4	3	30	70	100	4
III	15MSS903	Paper 23: PHP Programming	4	3	30	70	100	4
III	20MSS904	Paper 24: Big Data and Analytics	4	3	30	70	100	4
III	15MSSP14	Practical 14: Software Testing Tools	5	3	40	60	100	4
III	15MSSP15	Practical 15: PHP Programming	5	3	40	60	100	4
III	20MSSE10/ 15MSSE11 / 15MSSE12	Elective –IV :Security in Computing / Cloud computing Neural Networks and Fuzzy Logic	4	3	30	70	100	4
TOTAL			30				700	28
SEMESTER X								
III	15MSSPR2	Project II: Project and Viva-Voce	-	-	100	100	200	08
TOTAL							200	08
TOTAL							5800	225

No Continuous Internal Assessment (CIA) , only Comprehensive Examination (CE)
IDC- Inter Disciplinary Course , **EDC** – Extra Disciplinary Course **AOC** – Application Oriented Course

ADDITIONAL CREDIT COURSES(ACC)					
S.NO	SEMESTER	SUBJECT CODE	SUBJECT TITLE	CREDITS	MAX MARKS
1	III	15MSSAC1	Linux OS	2	100
2	IV	15MSSAC2	Animation Techniques	2	100
3	V	15MSSAC3	Basics of Android	2	100
4	VI	20MSSAC4	R-Programming	2	100

LIST OF AOC/IDC/EDC					
S.NO	SEMESTER	SUBJECT CODE	SUBJECT TITLE	CREDITS	MAX MARKS
1	III	15MSSAO1/ AO2	AOC 1: Applied Physics / Digital Electronics and Computer Organization	3	100
2	IV	15MSSAO3/ AO4	AOC 2: Computer System Architecture / Assembly Language Programming Lab	3	100
3	III	15MSSID3	IDC 3:Principles of Accountancy	3	100
4	IV	15MSSID4	IDC 4: Operations Research	3	100
5	V	15MSSID5	IDC 5: Microprocessor and Assembly Language Programming	3	100
5	III	15EDC002	EDC 1: Communicative English	2	50
6	IV	16MSSED1	EDC 2:Basics of Cooking	2	50

LIST OF ELECTIVES					
S.NO	SEMESTER	SUBJECT CODE	SUBJECT TITLE	CREDITS	MAX MARKS
1	V	15MSSE01/ 02/03	Elective – I: Principles of Compiler Design/J2EE&J2ME/Web Services	4	100
2	VI	15MSSE04/ 05/06	Elective – II: Information System Security/Distributed Computing/Management Information System	4	100
3	VIII	15MSSE07/ 08/09	Elective III: Data Mining and Data Warehousing/Grid Computing/ Artificial Intelligence and Expert Systems	4	100
4	IX	20MSSE10 / 15MSSE11 / 15MSSE12	Elective IV: Security in Computing/Cloud Computing/Neural Networks and Fuzzy Logic	4	100

SUMMARY

Part	No of Papers	Total Credits	Total Marks
II	2	7	200
III –Core	24	95	2400
III-Practicals	15	60	1500
III – IDC	5	15	500
III – Elective	4	16	400
III -Project	2	16	400
IV –Foundation Course	2	4	100
IV – EDC	2	4	100
IV – Application Oriented Course	2	6	150
V – Extension Activities	-	2	50
TOTAL	58	225	5800

REGULATIONS

1. PRACTICALS

- a) Submission of Record Work for Practical Examinations, Candidates appearing for Practical Examinations shall submit Bonafide Record work for the concerned Practical Examination. If not the Candidates has to submit a Bonafide Certificate issued by the concerned subject in-charge duly signed by the head of the department in order to be permitted to take up the Practical Examination. The Candidate so permitted will not be eligible for the Record work mark.
- b) **Distribution of Marks:** The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum (Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	35	30	50
	75	75	38	-	50
	50	50	25	-	25
Practical Paper	100	60	24	40	50

- c) **Distribution of Internal Mark for Theory :**
(No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6(Months)=30

Breakup for Attendance:

65% - 74%	4 Marks
75% - 80%	6 Marks
81% - 90%	8 Marks
91% - 100%	10 Marks

Seminar Mark Split up:

Content	10 Marks
Flow of presentation	10 Marks
Stage Management & Body Language	10 Marks

d) Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 40		
S No	CIA	Distribution of Marks
1	For Completion of the Practical List	20
2	Test –I	10
3	Test –II	10
Total		40

e) Distribution of Comprehensive Exam Mark for Practical :

MAXIMUM MARKS : 60		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	10
2	Program – I	5 10 10 TOTAL (25)
	Algorithm	
	Coding	
3	Program – II	5 10 10 TOTAL (25)
	Algorithm	
	Coding	
Total		60

2. PROJECT**a) Project and Viva Voce**

Each Student in the M. Sc(SS) Pre Final and Final Year must compulsorily undergo Project Work in the 7th and 10th Semesters. Projects shall be done on individually. The Project Coordinator will allocate the project title and the Guide for each student. The Project Work may be done either Inside the College or Outside of the College, including Project Record Preparation. Project Reviews will be conducted twice in which the Progress of Project work will be strictly evaluated by Respective Project Guide and Project Coordinator. Viva Voce will be conducted only in the presence of Industrialists or Academicians.

In the total of 100 Marks, 40% of marks are allocated for CIA and 60% for CE Viva Voce .In the total of 200 Marks, 100% of marks are allocated for CIA and 100% for CE.

The following are the distribution of **Internal marks** for M.Sc. (SS) Minor project I.

FOR MINOR PROJECT		
1	I Review	25
2	II Review	25
3	Project Plan Diary & Implementation	50
TOTAL MARKS		100

*EXTERNAL MARK: 50 (10-Viva+ 40-Evaluation)

The following are the distribution of **Internal marks** for M.Sc. (SS) Major Project II.

FOR MAJOR PROJECT		
1	I Review	20
2	II Review	20
3	Project Plan Diary(15) , Dissertation (15) and Evaluation(30)	60
TOTAL MARKS		100

* Distribution of External Mark: 100 (20-Viva+ 80-Evaluation) Evaluated by Internal & External Examiners.

3. Question Paper Pattern

Time : 3 Hour

Max marks: 70

SECTION – A (5×2=10)

Answer ALL questions
Each Question carries Two Marks

SECTION – B (5×4=20)

Answer ALL questions
Each question carries 4 Marks
(INTERNAL CHOICE)

SECTION – C (5×6=30)

Answerer ALL questions
Each question carries Six Marks
(INTERNAL CHOICE)

SECTION – D (1×10=10)

Compulsory Question

Time: 3 Hour

Max marks: 75

SECTION – A (10×1=10)

Answer ALL questions
Each Question carries One Mark
(NO CHOICE)

Multiple Choice Questions

SECTION – B (5×5=25)

Answer ALL questions
Each question carries FIVE Marks
(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answerer ALL questions

Each question carries EIGHT Marks
(INTERNAL CHOICE)

Time: 3 Hour

Max marks: 50

SECTION – A (10×1=10)

Answer ALL questions
Each Question carries One Mark

(NO CHOICE)

Multiple Choice Questions

SECTION – B (5×3=15)

Answer ALL questions
Each question carries Three Marks

(INTERNAL CHOICE)

SECTION – C (5×5=25)

Answerer ALL questions
Each question carries Five Marks

(INTERNAL CHOICE)

4. QUESTION PAPER PATTERN FOR ADDITIONAL CREDIT COURSE

Time: 3 Hour

Max marks: 100

SECTION – A (10×1=10)

Answer ALL questions
Each Question carries One Mark

Multiple Choice Questions

SECTION – B (5×8=40)

Answer ALL questions
Each question carries Eight Marks

(INTERNAL CHOICE)

SECTION – C (5×10=50)

Answerer ALL questions
Each question carries Ten Marks

(INTERNAL CHOICE)

NOTE:

1. The questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the Unit in the syllabus in all the sections of the question paper.
3. While framing questions with internal choice the questions must be identified as (a) or (b). (e.g 11. a or b). Further, the internal choice must be from the same Unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

M.Sc (Software Systems) Degree Examination – Syllabus for Candidates admitted from the academic year 2015-2016 onwards

FIRST SEMESTER

PAPER 1: FUNDAMENTALS OF OFFICE AUTOMATION

Maximum Marks: 70

Total Hours: 48

Objective:

On the successful completion of the course, the students should have understood the concept of system.

UNIT I

[10 HOUR]

Data and Information: Types of data –simple model of a computer – Desktop computer. Acquisition of Numbers and Textual Data: Introduction – Input Units – Internal representation of Numeric Data, Representation of Characters in Computers – Error detecting codes.

UNIT II

[10 HOUR]

Acquiring Graphical Data: Introduction – Acquisition of Textual Data– Pictures – Storage Format for Pictures – Image Compression Fundamentals – Image acquisition with digital camera.

UNIT III

[08 HOUR]

Data Storage: Introduction – Memory cell – RAM– ROM– Floppy Disk Drive– CD ROM– Archival Memory – Central Processing Unit - Output Devices.

UNIT IV

[10 HOUR]

Computer Software – Computer Networks – Data Organization.

UNIT V

[10 HOUR]

Some Internet Applications – Email–WWW–Information Browsing Service –Information Retrieved from World Wide Web–Audio on Internet – Business Information System: Introduction – Types of information needed by organization – Why should we use computer in business – Design of operational information system.

REFERENCE BOOKS

1. V. Rajaraman, Introduction to Information Technology, Prentice Hall of India, 2003.
2. Ajay Kumar Ray & Tinku Acharya, Information Technology – Principles and Applications, Prentice Hall of India, 2004.
3. Research and Development Wing, IITL Education, IT Tools and Applications, Macmillan India Ltd., 2004.
4. S.K. Sarkar & A.K. Gupta, Elements of Computer Science, S. Chand & Co., 2002.

M.Sc (Software Systems) Degree Examination – Syllabus for Candidates admitted from the academic year 2015 - 2016 onwards

**FIRST SEMESTER
PAPER 2: COBOL PROGRAMMING**

Maximum Marks: 70

Total Hours: 60

Objective:

On the successful completion of the course, the students should have understood the key features of COBOL, learnt the programming development for business application.

UNIT I

[12 HOUR]

Introduction to COBOL: History - Format of COBOL Programs - Structure - Character set - Cobol words - Data names and identifiers, Literals, Figurative constants - Identification Division – Environment Division-Level structures – Data Description Entries - File section - Working storage section - Editing.

UNIT II

[12 HOUR]

Structure of Procedure Division – Data Movement Verb-Arithmetic verbs - add, subtract, multiply, Divide Sequence Control Verbs- GoTo –STOP- Input and Output Verbs- Conditional verbs – Categories of COBOL Statements –More About Data Division- More About Data movement and Arithmetic Verbs.

UNIT III

[12 HOUR]

Conditional and Sequence Control Verbs- Table Handling – OCCURS Clause and Subscripting- Assigning values to Table Elements-Multidimensional Tables- Perform Verb-Indexed tables and Indexing - Set verb - Search verb - Sorting a table .

UNIT IV

[12 HOUR]

Sequential files - File characteristics - File control entries for sequential files - File description - Fixed length, Variable length records - Statement for sequential files - Examples of sequential file processing .

UNIT V

[12 HOUR]

Sort and Merge of Files-Direct access files - Relative files - Indexed sequential files - COBOL Subroutine - Structure of a subroutine - Calling of a subroutine .Programs for Payslip - Mark list processing .

REFERENCE BOOK

1. M K Roy, D. Ghosh Dastidar, “COBOL Programming”, Dastidar Tata McGraw Hill, 1989.
2. Stern Nancy, Stern Robert.A, “COBOL Programming”, John Wiley & sons, 2008

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**FIRST SEMESTER
PRACTICAL 1 : OFFICE AUTOMATION**

**Maximum Marks: 60
Total Hours: 60**

Objective:

Enabling the students to acquire practical knowledge to be successful in Ms Office

PROGRAM LIST

MS WORD

1. Preparing a bio data using table
2. Preparing a paragraph and do necessary formatting.
3. Preparing an invitation for the college function using Text boxes and clip parts.
4. Performing mail merges.
5. Preparing a document in newspaper column layout
6. Preparing a pivot table for a sales report.

MS EXCEL

7. Preparing a Mark list for students.
8. Calculating Employee Details.

MS ACCESS

9. Preparing a Mark list for students.
10. Creating Mailing labels.

MS POWERPOINT

11. Preparing an organization chart.
12. Implementing all the animations into a slide.

REFERENCE BOOKS

1. V. Rajaraman, Introduction to Information Technology, Prentice Hall of India, 2003.
2. Ajay Kumar Ray & Tinku Acharya, Information Technology – Principles and Applications, Prentice Hall of India, 2004.
3. Research and Development Wing, ITL Education, IT Tools and Applications, Macmillan India Ltd., 2004.
4. S.K. Sarkar & A.K. Gupta, Elements of Computer Science, S. Chand & Co., 2002.

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**FIRST SEMESTER
PRACTICAL 2 : COBOL PROGRAMMING**

**Maximum Marks: 60
Total Hours: 60**

Objective:

On the successful completion of this paper, the students should have acquired knowledge on COBOL programming

PROGRAM LIST

1. Developing a COBOL Program to find the sum of individual digits of a 10-digit number until a single digit is produced.
2. Developing a COBOL Program to find whether the number is Palindrome or Not.
3. Developing a COBOL Program to find whether the number is Prime or Not.
4. Developing a COBOL Program to generate Fibonacci series.
5. Write a COBOL Program to accept the inputs Student Name, Marks for 5 subjects and declare the result as PASS, if the student gets minimum of 10 marks in each subject, otherwise declare as FAIL.
6. Write a COBOL Program to display the given three digit number into words using OCCURS Clause.
7. Write a COBOL program to find the sum of individual digits of a given N digit number.
8. Write a COBOL Program to create a student data file along with the following two files, which List of male students who are studying third year and FILE-2.DAT: List of female students who are studying second year.
9. Write a COBOL Program to sort the student data file STUDENT.DAT based on their reg.no.
10. Write a COBOL Program to create an Indexed Sequential File EMPLOYEE.DAT for the Employees of an Organization using the fields: ROLL-NO, NAME, DOB, SEX, BASIC-PAY and DESIGNATION.
11. Write a COBOL Program to update the BASIC-PAY of each employee in the employee data file EMPLOYEE.DAT and find the number of female employees whose BASIC-PAY < 6000 and number of male employees whose BASIC-PAY >5000 using the employee data file EMPLOYEE.DAT
12. Write a COBOL Program to create an Inventory data file INVENT.DAT

REFERENCE BOOKS

1. M K Roy, D. Ghosh Dastidar, “COBOL Programming”, Dastidar Tata McGraw Hill, 1989.
2. Stern Nancy, Stern Robert.A, “COBOL Programming”, John Wiley & sons, 2008

M.Sc (Software Systems) Degree Examination – Syllabus for Candidates admitted from the academic year 2015-2016 onwards

**SECOND SEMESTER
PAPER 3: PROGRAMMING IN C**

**Maximum Marks: 70
Total Hours: 48**

Objective:

On the successful completion of this subject, the students should have expand their knowledge in C Programming

UNIT I [10 HOUR]

Introduction to C – The C Declarations –The C Character Set – Delimiters – Keywords – Identifiers – Constants – Variables – Rules – Data Types – Declaring – Initializing Variables – Type Conversion– Operators and Expressions – Priority of Operators – Conditional – Arithmetic – Relational – Logical – Bitwise Operators – Input and Output in C – Formatted – Unformatted – Library Functions - Decision Statements – If – If-else – Nested – Break – Continue – Goto – Switch Case.

UNIT II [09 HOUR]

Loop Control Statements – For – Nested For – While Loops – Do-While – Arrays – Initialization – Definition – Characteristics – One -Dimensional – Two-Dimensional – Multi-Dimensional arrays

UNIT III [10 HOUR]

Working with Strings & Standard Functions – Declaration and Initialization of String – Strings with Different Formats – Standard Functions – Applications – Pointers – Features – Declaration – Arithmetic Operations – Pointer and Arrays – Pointers and Two – Dimensional Arrays – Array of Pointers – Pointers to Pointers – Pointers and Strings – Void Pointers.

UNIT IV [10 HOUR]

Functions – Definition – Declaration and Function Prototypes – Return Statement – Types – Call by Value and Reference – Function Returning More Values – Function as an Argument – Function with Operators – Function and Decision Statements – Function and Loop Statements – Function with Arrays and Pointers – Recursion – Pointer to Function – Storage Class – Automatic – External – Static – Register Variables.

UNIT V [09 HOUR]

Structure and Union – Features – Declaration and Initialization – Structure within Structure – Arrays of Structures – Pointer to Structures – Structure and Functions – Typedef –Enumerated Data Type – Union – Union of Structures – Files – Streams and File Types – Steps for File Operations – File I/O – Read and Write – Other file Function – Errors in Reading/Writing Files – Command Line Argument .

REFERENCE BOOKS

1. Ashok N. Kamthane, Programming with ANSI and TURBO C, Pearson Education, 3rd edition, 2003, Asia.
2. E Balagurusamy, Programming in ANSI C, 4th Edition, Tata McGraw Hill publication,2004,Newdelhi.
3. C Byron C Gotfried, Programming with C, Schuams outlines series, 2nd edition, Tata McGraw Hill, 2006.

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**SECOND SEMESTER
PAPER 4 : DATA STRUCTURES**

**Maximum Marks: 70
Total Hours: 60**

Objective

To learn about fundamental design, analysis, and implementation of basic data structures and algorithms.

UNIT I [12 HOUR]

Arrays Single Dimensional - Multi Dimensional-Naming Arrays-Declaring Arrays-Arrays Vs Pointers - Application Of Arrays Sparse Arrays-Algebra Of Matrices. Lists- Implementation Of Lists- Storage Of Sparse Matrices Using Linked Lists.

UNIT II [12 HOUR]

STACKS Array Implementation - Linked List Implementation - Application of Tacks. QUEUES Implementation of Queues - Deque-Priority Queue.

UNIT III [12 HOUR]

GRAPHS Basic Terminology - Uses Of Graphs-Graph Operations-Graph Representation-Graph Traversal-Shortest Path Problem - TREE Binary Trees-Representation Of Binary Tees-Binary Search - Traversing A Binary Search Tree - Steps Of Deletion- Binary Expression Tree - Conversion Of General Trees To Binary Trees- Balanced Binary Tree - M-Way Search Trees

UNIT IV [12 HOUR]

Threaded Binary Trees File System File Organizations - Sorting - Bubble Sort - Selection Sort - Quick Sort

UNIT V [12 HOUR]

Binary Search - Linear Search - Hashing – Collision

REFERENCE BOOK

1. Ajay Kumar, Data Structure for C Programming, Second Edition, Firewall Media, 2005.
2. Jean Paul Tremblay & Paul G. Sorenson, An Introduction to Data Structures With Applications, Tata McGraw Hill, Second Edition,1998.
3. Seymour Lipchitz, Data Structures, McGraw- Hill Companies, 2006.

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SECOND SEMESTER

PRACTICAL 3 : C

Maximum Marks: 60

Total Hours : 60

Objective:

On successful completion of this paper the students should have acquired the professional skills in developing C programs.

PROGRAM LIST

1. Developing C Program using various Operators.
2. Developing C Program using Mathematical Functions and Switch case Statements.
3. Developing C Program using Decision Making Statements.
4. Developing C Program using Looping Statements.
5. Developing C Program using one and Two Dimensional Array.
6. Developing C Program using Strings.
7. Developing C Program using Functions.
8. Developing C Program using Recursion.
9. Developing C Program using Pointers.
10. Developing C Program using Structures and Union.
11. Developing C Program using File.
12. Developing C Program using Command Line Arguments.

REFERENCE BOOKS

1. Ashok N.Kamthane, Programming with ANSI and Turbo C, 3rd Edition, Pearson Education Private Limited, 2003, Asia.
2. Balagurusamy.E, Programming in ANSI C, 4th Edition, Tata McGraw Hill Publication, 2004, New Delhi.
3. Yeswanth Kanetkar, Pointers in C, 1st Edition, Tata McGraw Hill Publication, 2002, New Delhi.

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**FIRST SEMESTER
PRACTICAL 4 : DATA STRUCTURES**

Maximum Marks: 60

Total Hours: 60

Objective:

On successful completion of this paper the students should have acquired Professional skills in Data Structures.

PROGRAM LIST

1. Programming Using Array Creation and Operations.
2. Programming Using a) Stack Operations and its Application b) Tower of Hanoi.
3. Programming Using Queue Operations.
4. Programming Using Factorial Calculation.
5. Programming Using Polynomial Addition using Singly Linked List.
6. Programming Using Binary Tree Traversals.
7. Programming Using Linear Search.
8. Programming Using Binary Search.
9. Programming Using Bubble Sort.
10. Programming Using Insertion Sort.
11. Programming Using Quick Sort.
12. Programming Using Heap Sort.

REFERENCE BOOK

1. Ajay Kumar, Data Structure for C Programming, Second Edition, Firewall Media, 2005.
2. Jean Paul Tremblay & Paul G. Sorenson, An Introduction to Data Structures With Applications, Tata McGraw Hill, Second Edition, 1998.
3. Seymour Lipschutz, Data Structures, McGraw- Hill Companies, 2006.

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THIRD SEMESTER

PART – III - PAPER 5: OBJECT ORIENTED PROGRAMMING WITH C++

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

On successful completion of this paper the students should have acquired expert knowledge of Basic Concepts, Inheritance, Abstraction, Encapsulation and Polymorphism in Object Oriented Programming Language.

UNIT I

(12 Hours)

Introduction to C++ - Key Concepts of Object-Oriented Programming –Advantages– Object Oriented Languages – I/O in C++ - C++ Declarations- Control Structures - Decision Making and Statements - If - Else-Jump- Goto- Break- Continue- Switch Case Statements -Loops in C++- For-While- Do - Functions in C++ - Inline Functions –Function Overloading.

UNIT II

(12 Hours)

Classes and Objects- Declaring Objects – Defining Member Functions – Static Member Variables and Functions – Array of Objects – Friend Functions– Overloading Member Functions – Bit Fields and Classes – Constructor and Destructor with Static Members

UNIT III

(12 Hours)

Operator Overloading- Overloading Unary- Binary Operators – Overloading Friend Functions –Type Conversion – Inheritance- Types of Inheritance – Single- Multilevel- Multiple-Hierarchical- Hybrid-Multi Path Inheritance – Virtual Base Classes – Abstract Classes.

UNIT IV

(12 Hours)

Pointers – Declaration – Pointer to Class - Object – This pointer – Pointers to Derived Classes and Base Classes – Arrays – Characteristics – Array of Classes – Memory Models – New and Delete operators – Dynamic Object – Binding - Polymorphism and Virtual Functions.

UNIT V

(12 Hours)

Files – File Stream Classes – File Modes – Sequential Read / Write Operations – Binary and ASCII Files – Random Access Operation – Templates – Exception Handling - String -Declaring and Initializing String Objects – String Attributes – Miscellaneous Functions.

TEXT BOOK

1. Ashok N. Kamthane, Programming in C++, 2nd Indian Print, Pearson Education, 2013, New Delhi.

REFERENCE BOOKS

1. Balagurusamy, Object Oriented Programming with C++, 6th Edition, TMCH, 2013, New Delhi.
2. Samanta, Object Oriented Programming with C++ and Java, PHI, 2000, New Delhi.
3. Debasingh Jana, C++ and Object Oriented Programming Paradigm, PHI, 2003, New Delhi.
4. M.P. Bhavé and S.A. Patekar, Object Oriented Programming with C++, 2004, Pearson Education, 2003, Asia.

Ebook: www.avlib.in/ebook/title/ashok-n-kamthane-programming-in-c.html

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THIRD SEMESTER

PART – III - PAPER 6: DATABASE MANAGEMENT SYSTEMS

Maximum CIA: 30

Maximum CE: 70

Total Hours: 72

Objective:

On successful completion of this paper the students should have acquired expert knowledge of the basic principles of database management systems, parallel & distributed databases.

UNIT I

(14 Hours)

Overview of Database Systems- Managing Data- File Systems versus a DBMS - Advantages of a DBMS- Describing and Storing Data in a DBMS - Queries in a DBMS - **Transaction Management** – Structure of a DBMS- Database Design and ER Diagrams – Entities- Attributes and Entity Sets – Relationships and Relationship Sets - ER model and its design issues.

UNIT II

(14 Hours)

Relational Model-Integrity Constraints Over Relations – Enforcing Integrity Constraints – Querying Relational Data –Relational Algebra Operations-Introduction to Views – Destroying / Altering Tables and Views.

UNIT III

(14 Hours)

SQL : The Form of a Basic SQL Query – UNION- INTERSECT and EXCEPT – Nested Queries – Aggregate Operators – Null Values –Complex Integrity Constraints in SQL - Triggers and **Transaction Management Overview**-The ACID Properties - Transactions and Schedules – Lock-Based Concurrency Control – Performance of Locking.

UNIT IV

(15 Hours)

Functional Dependencies–Normal Forms–Properties of Decompositions–Normalization, **Object Database System**-Structured data types-Operations on Structured Data-Database Design for an ORDBMS-OODBMS-Comparing RDBMS, OODBMS and ORDBMS.

UNIT V

(15 Hours)

Parallel and Distributed Databases-Architecture for Parallel Databases – Parallel Query Evaluation – Parallelizing Individual Operations –Parallel Query Optimization – Introduction to Distributed Databases – Distributed DBMS Architecture -Storing Data in a Distributed DBMS-Distributed Query Processing.

TEXT BOOKS

1. Raghu Ramakrishnan, Johannes Gehrke , Database Management Systems, 3rd Edition, Tata McGraw-Hill Higher Education,2014,New Delhi.
2. Silberschatry, Korth, Sundarshan, Database system Concepts, 4th Edition, Tata Mc Graw-Hill Higher Education, 2005, New Delhi.

REFERENCE BOOKS

1. C.J.Dates, A.Kannan,S.Swamynathan, —An Introduction to Database systemsll , 8th Edition, Pearson Education,2000.
2. Nilesh Shah, Database Systems using Oracle, 2nd Edition, Prentice Hall of India,2002,Asia.
- 3.Elmasri, Navathe, —Fundamentals of Database Systemsll, 3rd Edition, Pearson Education,2000, Asia.

EBook:<http://www.amazon.com/Database-Management-Systems-Third-Ramakrishnan-ebook/dp/B002K8Q9PA>

**THIRD SEMESTER
PART – III - PRACTICAL 5: C++ PROGRAMMING****Maximum CIA: 40****Maximum CE: 60****Total Hours: 60****Objective:**

On the successful study of this paper, the students should have acquired the professional skill in developing C++ programs.

PROGRAM LIST

1. Developing C++ Program using Inline Functions.
2. Developing C++ Program using Operator overloading.
3. Developing C++ Program using Friend Functions.
3. Developing C++ Program using Constructors.
4. Developing C++ Program using Function overloading.
5. Developing C++ Program using Type Conversion.
6. Developing C++ Program using multiple Inheritances.
7. Developing C++ Program using Multilevel Inheritance.
8. Developing C++ Program using Polymorphism.
9. Developing C++ Program using Files.
10. Developing C++ Program using virtual functions.
11. Developing C++ Program using Templates.
12. Developing C++ Program using String Manipulation Functions.
13. Developing C++ Program using Exception Handling.

TEXT BOOK

1. Ashok N. Kamthane, Programming in C++, 2nd Indian Print, Pearson Education, 2013, New Delhi.

REFERENCE BOOKS

1. Balagurusamy, Object Oriented Programming with C++, 4th Edition, TMCH, 2008, NewDelhi.
2. M.P. Bhave and S.A. Patekar, Object Oriented Programming with C++, 2004, PearsonEducation, 2003, Asia.

Ebook: www.avlib.in/ebook/title/ashok-n-kamthane-programming-in-c.html

THIRD SEMESTER

PART – III - PRACTICAL 6: RELATIONAL DATABASE MANAGEMENT SYSTEMS

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Objective:

On successful study of this subject the students should have acquired the professional skill in developing Commands, Queries Forms (Developer 2000), Reports and SQL programs.

PROGRAM LIST

Study features of commercial RDBMS packages such as Oracle and Developer 2000.

1. Create a Table and Perform DDL Operations.
2. Create a Table and Perform DML Operations.
3. Create a Table and Using Joins Operations.
4. Programming Using Procedures (PL/SQL).
5. Programming Using Functions (PL/SQL).
6. Programming Using Triggers (PL/SQL).
7. Programming Using Online reservation system.
8. Programming Using Banking System with Various Schemes.
9. Programming Using Personal Information.
10. Programming Using Student Mark Processing System (Internal and External marks).
11. Programming Using Hotel Management.
12. Programming Using Stock Maintenance.

TEXT BOOKS

1. Raghu Ramakrishnan, Johannes Gehrke , Database Management Systems, 3rd Edition, Tata McGraw-Hill Higher Education,2014,New Delhi.
2. Silberschatry, Korth, Sundarshan, Database system Concepts, 4th Edition, Tata Mc Graw-Hill Higher Education, 2005, New Delhi

REFERENCE BOOKS

1. Elmasri, Navathe, Fundamentals of Database Systems, 3rd Edition, Pearson Education, 2000, Asia.
2. **EBook:**<http://www.amazon.com/Database-Management-Systems-Third-Ramakrishnan-ebook/dp/B002K8Q9PA>

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THIRD SEMESTER

PART – III - IDC 3 - PRINCIPLES OF ACCOUNTANCY

Maximum CIA: 30

Maximum CE: 70

Total Hour: 48

Objective:

To enable the students to learn principles and concepts of Accountancy

UNIT I (10 Hours)

Accounting Definition-Functions- Single Entry and Double Entry system of Accounting – Accounting standards.

UNIT II (10 Hours)

Accounting Concepts – Conventions – Phases of Accounting Journal, Ledger, Trial Balance.

UNIT III (10 Hours)

Preparation of Final Statement of Accounts (Simple Adjustments only)

UNIT IV (9 Hours)

Depreciation - Meaning- Features- Methods- Straight Line Method– WDV Method - Annuity Method.

UNIT V (9 Hours)

Cost Accounting – Meaning – Definition- Preparation of Cost Sheet- Stock Levels – EOQ.

TEXT BOOK

1. T.S .Reddy A.Murthy , Financial Accounting ,6th Revised Edition, Reprint 2014, Margham Publications, Chennai.

REFERENCE BOOKS

- 1.Shashi K. Gupta, R.K. Sharma, Neeti Gupta, Management Accounting, Second Revised Edition, Kalyani Publishers , New Delhi 2009.
2. S.P. Jain and KL. Narang , Cost Accounting, Kalyani Publishers, New Delhi ,2010.

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**THIRD SEMESTER
PART IV – AOC 1 - APPLIED PHYSICS**

Maximum CE: 75

Total Hours : 36

Objective:

Enable the students to learn the basic properties of various materials.

UNIT I

(8 Hours)

LASERS AND FIBER OPTICS: Construction and working of He-ne laser – CO₂ Laser Ruby laser - Semi conductor laser - Application. Types of optical fibre - single and bundled fibers – Fiber material - Attenuation - Dispersion - Fibre optic light sources - Detectors - Fiber optic communication - Principles of optical recording.

UNIT II

(8 Hours)

SUPER CONDUCTOR: Qualitative study of the phenomenon - Critical temperature and critical field. Meissner effect - Josephson effect - Type I and type 2 superconductors. BCS theory of superconductivity (Qualitative) - high temperature superconductors. - Application: Cryotron. Magnetic levitation - Superconducting magnets.

UNIT III

(7 Hours)

ELECTRICAL PROPERTIES: Free electron theory of Drude and Lorentz - Weidmann-Franz law - Distinction between conductors, Semiconductors and insulators on the basis of band theory - Factors affecting the resistivity of a conductor: Temperature, Alloying, Pressure, Strain, Magnetic field and environment.

UNIT IV

(7 Hours)

SEMI CONDUCTING MATERIALS: Intrinsic, Extrinsic semiconductors - Material preparation: Czochralski method - Zone refining. Hall Effect in semiconductor - applications. Physics of PN junction diode - Junction transistor. Dielectrics : Permittivity - Dielectric constant - Dielectric polarization - Types of polarization – Break down mechanisms.

UNIT V

(6 Hours)

MAGNETIC PROPERTIES: Ferromagnetism: Domain theory - Hysteresis - Hard and soft magnetic materials - Curie - Weiss law - Magnetostriiction. Ferrites: Preparation, Properties, Applications - Magnetic bubble memory.

TEXT BOOKS:

1. Brijal and Subramanian, Optics, Chand and co 1995.
2. V. Raghvan, Material science and engineering, a first course, prentice hall of India 1991.
3. M.R. Srinivasan, Physics for engineers, New age international pvt ltd publications, 1996.
4. Seth and Gupta, Course in electrical engineering materials, Dhanpat Rai and Sons, 1990.
5. M. Arumugam, Material science, new age international pvt ltd publications, 1996.

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THIRD SEMESTER

PART IV – AOC 1 - DIGITAL ELECTRONICS AND COMPUTER ORGANIZATION

Maximum CE : 75

Total Hours: 36

UNIT I (14 Hours)

NUMBER SYSTEMS AND LOGIC GATES: Introduction-Binary Number systems-Decimal, binary, octal and hexadecimal conversions – Floating point representation-Binary addition-subtraction,multiplication -1's and 2's compliment –BCD-weighted codes and non weighted codes-Excess three code-Gray code –Error detection codes-Hamming codes-ASCII codes-EBCDIC codes-parity advantages.

UNIT II (12 Hours)

BOOLEAN ALGEBRA AND LOGIC GATES: Boolean logic operations – Boolean functions – Truth table-Basic laws-DeMorgan's Theorem - simplification of Boolean expressions : POS,SOP - karnaugh map – Logic gates : OR,AND,NOT,NAND,NOR,EX-OR,EX-NOR gates.

UNIT III (12 Hours)

COMBINATIONAL AND SEQUENTIAL LOGIC CIRCUITS: Introduction –Half adder-Full adder-Half subtractor-Full subtractor-Multiplexer- Demultiplexer-Decoder-Encoder.**SEQUENTIAL CIRCUITS:** Introduction –Flip flops, RS, clocked RS, JK, D and T flip flops-Shift register –Ring counter-Ripple counter-up-down counter.

UNIT IV (12 Hours)

MODERN COMPUTER ORGANIZATION:Introduction-layers in modern computer –Computer organization Main memory-CPU organization-Computer types-system performance and measurement-High performance techniques-Booting sequence-Computer design process-Computer structure-Computer function-Architecture and organization.

UNIT V (12 Hours)

PROCESSOR AND MEMORY DESIGN: Introduction - Processor role - Processor design goals-Processor design process-Data path organization-Main memory interface-Local storage register file-Data path simple instruction. **MEMORY DESIGN:** Introduction –Memory parameters-Classification of memory-Memory technology-Memory hierarchy- Concept of Cache memory and virtual memory.

TEXT BOOKS

1. Digital Fundamentals – Thomas L Floyd. 11 th Edition, Pearson.
2. Govindarajalu.B, Computer Architecture and Organization Design Principles and Applications, 3 rd Edition, Tata McGraw-Hill

REFERENCE BOOKS

1. Albert P. Malvino & Donald P. Leech, Digital Principles and Applications, Tata McGraw Hill Pub.Co. Ltd.
2. S. Salivahanan & S. Arivazhagan, Digital Circuits and Design, Vikas Pub. House Pvt. Ltd. 4 th Edition.
3. V. Vijayendran, Digital fundamentals, S. Viswanathan (Printers & Publishers), 3 rd Edition.

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**FOURTH SEMESTER
PART – III - PAPER 7-SOFTWARE ENGINEERING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

On successful completion of the course the students should have acquired expert knowledge of software engineering, design processes and concepts, software engineering for real time systems and software testing.

UNIT I

(12 Hours)

Introduction to Software Engineering- The Evolving Role of Software – Software – The Changing Nature of Software – Software Engineering – A Layered Technology-A Process Framework – CMMI- Process Models - Prescriptive Models – The waterfall Model –Increment Process Models- Evolutionary Process Models.

UNIT II

(12 Hours)

System Engineering- Computer Based Systems-The System Engineering Hierarchy-System Modeling- System Simulation-Business Process Engineering –An Overview- Product Engineering – An Overview - Requirement Engineering-Requirement Engineering Tasks-Inception-Elicitation-Elaboration-Negotiation-Specification-Validation Requirements Management- Building the analysis Model- Requirements Analysis- Data Modeling Concepts-Object Oriented Analysis-Flow Oriented Modeling.

UNIT III

(12 Hours)

Design Process and Quality-Design Concepts - Software Architecture-Data Design- Architectural Design-Mapping Data Flow into Software Architecture – Transform Flow-Transaction Flow – Transform Mapping – Transaction Mapping.

UNIT IV

(12 Hours)

Performing User Interface Design – The Golden Rules – User Interface – Analysis and Design – Interface Analysis – Interface Design Steps – Design Evaluation.

UNIT V

(12 Hours)

Software Testing Strategies – A Strategic Approach and Issues - Unit Testing – Integration Testing – Validation Testing-System Testing-The Art of Debugging-Software testing Fundamentals- White Box Testing-Basis Path Testing-Control Structure Testing-Black Box Testing-Object Oriented Testing Methods.

TEXT BOOK

1. Roger S.Pressman,Software Engineering- A Practitioner’s Approach, 6th Edition Tata McGraw-Hill International Edition, 2014, New Delhi.

REFERENCE BOOKS

1. Richard Fairley, Software Engineering Concepts, 3rd Edition, TMH, 1997, New Delhi.
2. Srinivasan Desikan & Gopalswamy Ramesh, Software Testing Principles and Practices,2nd Edition, Pearson Education, 2006, Asia.
3. William E.Perry, Effective Methods of Software Testing, 3rd Edition, Wiley India, 2000, India.
4. Ebook: www.slideshare.net/rhspcte/software-engineering-ebook-roger-s-pressman

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FOURTH SEMESTER

PART – III - PAPER 8: ANALYSIS AND DESIGN OF INFORMATION SYSTEM

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

To encourage knowledge on system and process specifications and various data input methods.

UNIT I

(12 Hours)

Information and Management: Types of information – Why do we need a Computer based information system – Management structure – Management and information requirements – qualities of information – Examples of information systems.

UNIT II

(12 Hours)

Information Systems Analysis Overview: Overview of Design of an Information system – the Role and Task of a System Analyst – Attributes of a Systems Analyst – Tools used by Systems Analyst- Information Gathering : Strategy to gather information – Information Sources – Methods of Searching for Information – Interviewing Techniques – Questionnaires – other methods of information search – Case study.

UNIT III

(12 Hours)

System Requirement Specification: Data Dictionary– Steps in systems Analysis – Modularizing requirements specification – Feasibility Analysis: Deciding on project goals – Examining alternative solutions – Evaluating proposed system – Cost-benefit analysis – Payback period – Feasibility report- system proposal – Data Flow Diagram: symbols used in DFDs – Describing a system with a DFD – Good conventions in developing DFDs – Logical and Physical DFDs.

UNIT IV

(12 Hours)

Process Specification: Process specification methods – structured English – Decision Tables: Decision table Terminology and Development- Extended Entry Decision table - Establishing the logical correctness of decision tables – Use of Karnaugh maps to Detect Logical errors in Decision table – Eliminating redundant specifications.

UNIT V

(12 Hours)

Data Input Methods: Data input – Coding Techniques – Detection of Error in Codes – Validating Input data – Interactive Data input – Designing Outputs: Output Devices – Objectives of Output Design – Design of Output Reports – Design of Screens – Use of Business Graphics.

TEXT BOOK

1. V. Rajaraman , —Analysis and Design of Information System|| – 3rd Edition – Prentice-Hall of India, 2011.

REFERENCE BOOKS

1. James A Senn, — Analysis & Design of Information Systems||, Second Edition, MCH International Edition .
2. **EBook** : www.avlib.in/ebook/title/fundamentals-of-computers.html.

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**FOURTH SEMESTER
PART – III - PAPER 9: JAVA PROGRAMMING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective:

On successful completion of this paper the students should have acquired expert knowledge in basics of Java programming, multithreading, package and interface, string manipulation, Applet and Swing, Networking, Database Connectivity, RMI and Servlets.

UNIT I (12 Hours)

The Java Language - History and Evolution - Features of the Java Environment - The Java Architecture – Java Development Kit(JDK) - Types of Java Programs - **Variable Declaration and Arrays** – Date Types – Java Tokens – Variable Declaration – Type Casting and Conversion – Arrays - **Operators** – Operator Precedence - Control Statements – Selection – Iteration – Jump - **Introduction to classes** – class – Instance and class variables – Instance Methods – Constructors – Class Methods – Declaring Objects – Garbage Collections.

UNIT II (12 Hours)

Classes and Methods - Method Overloading – Constructor Overloading – This reference – Using Objects in Methods – Recursion – Access Modifiers – Inner Classes – Command Line Arguments – **Inheritance** – Basics of inheritance – Super Class Variable and Subclass Object – The super Reference – Constructor Chaining – Method Overriding – The final Keyword -**Abstract Classes and Interfaces** – The abstract Classes and Methods – Defining Interface - Implementing Interface – Extending Interface – Interface Reference - **Packages and Access Modifiers** - The Package Declaration – The import Statement – Access Protection - **Handling Strings** – String Class and Methods – String Buffer class and Methods.

UNIT III (12 Hours)

Applets – Applet - Graphics class – Color class – Font class – **AWT- Components** – Label - Button - TextField – Text Area – CheckBox – CheckboxGroup - Choice – List – Scrollbar – Menus – **Containers** - Panel – Applet – Window – Frame – Dialog – **Layout Managers** - Flow – Grid – Border – Card – GridBag – **Event Handling** – **Event and Listeners** – Action – Item – Adjustment – Window – key – Mouse – Adapter Classes- **Swing – Components** – JLabel – JScrollBar – JButton – JCheckBox – JRadioButton – JTextField – JTextArea - JMenuBar – JTabbedPane - JComboBox – JSlider – JTree - **Containers** - JPanel – JApplet – JFrame – JDialog - **New Layout Managers** – Box, Overlay.

UNIT IV (12 Hours)

Exception Handling – Types of Exceptions – Exception Class – Uncaught Exception – Handling Exception – User Defined Exceptions - **Multithread Programming** – The Runnable Interface – The Thread Class – Thread Creation – Thread’s Life Cycle – Thread Scheduling – Synchronization and Deadlock – Inter-Thread Communication – using Join(), Suspend(), Resume(), Stop(). **Input and Output classes** – Byte Streams – Character Streams – Random Access File.

UNIT V (12 Hours)

Networking – Creating simple server and client using TCP/IP and Datagram - **JDBC** – Reading , Inserting and Updating the Database - **Remote Method Invocation (RMI)** – Implementing and Executing RMI Services with an example – **Servlets** – The Basic Servlet Architecture – A Servlet to Handle the Request.

TEXT BOOK

1. Instructional Software Research and Development(ISRD) Group, Introduction to Object Oriented Programming through JAVA , Tata McGraw Hill Publishing Company Limited, 2007, New Delhi.

REFERENCE BOOKS

1. C.Muthu, Programming with Java, 3rd Edition, Vijay Nicole Imprints Private Limited, Chennai, 2004, India.
2. Steven Holzer et al, Java2 Programming- Black Book, DreamTech Press, 2007, New Delhi.
3. D.Norton and H. Schildt, Java 2 -The complete Reference, 5th Edition, Tata McGraw Hill Publishing Company Limited, 2002 (Re print 2009), New Delhi.
4. M. P. Bhave, S. A. Patekar, Programming with JAVA, 1st Edition, Pearson Education, New Delhi, 2009, India.
5. E.Balagurusamy, Programming with Java, 3rd Edition, Tata McGraw Hill Publishing Company Limited, 2002, New Delhi.
6. **EBook:**<http://www.e-booksdirectory.com>

Master of Science (Software Systems) Degree Examination-Syllabus for Candidates admitted from the Academic Year 2015-2016 Onwards

**FOURTH SEMESTER
PART – III - PRACTICAL 7: JAVA PROGRAMMING**

Maximum CIA: 40

Maximum CE: 60

Total Hours: 72

Objective:

On the successful completion of this paper, the students should have acquired Professional skills in developing Java programs.

PROGRAM LIST

1. Developing a Java program using Control Statements.
2. Developing a Java program using Classes and Objects.
3. Developing a Java program using Inheritance.
4. Developing a Java program using Interfaces.
5. Developing a Java program using Packages.
6. Developing a Java program using String Manipulations.
7. Developing a Java program using Exception Handling.
8. Developing a Java program using simple Applet and application
9. Developing a Java program using windows and message layout manager.
10. Developing a Java program using Multithreading concepts.
11. Developing a java program for counting the number of characters, words, lines in the file.
12. Developing a Java program using Networking concepts(client and server).

TEXT BOOK

1. Instructional Software Research and Development(ISRD) Group, Introduction to Object Oriented Programming through JAVA , Tata McGraw Hill Publishing Company Limited, 2007, New Delhi.

REFERENCE BOOKS

1. C.Muthu, Programming with Java, 3rd Edition, Vijay Nicole Imprints Private Limited, Chennai, 2004, India.
2. D.Norton and H. Schildt, Java 2 -The complete Reference, 5th Edition, Tata McGraw Hill Publishing Company Limited, 2002 (Re print 2009), New Delhi.
3. E.Balagurusamy, Programming with Java, 3rd Edition, Tata McGraw Hill Publishing Company Limited, 2002, New Delhi.

Master of Science (Software Systems) Degree Examination-Syllabus for Candidates admitted from the Academic Year 2015-2016 Onwards

**FOURTH SEMESTER
PART III IDC 4 – OPERATIONS RESEARCH**

**Maximum CIA: 30
Maximum CE: 70
Total Hours: 48**

Objective: To enable students gain Fundamental Knowledge about the application of the managerial concepts and decision making and optimization technique.

UNIT I (10 Hours)
Linear Programming- Formulation of LPP- Graphical Solutions to LPP- Simplex Method- Big M Method – Duality in Linear Programming – Primal and Dual Problems.

UNIT II (12 Hours)
The Transportation problem- Mathematical Formulation – Finding Initial Basic Feasible Solutions- Moving towards Optimality- Unbalanced Transportations problems- Degeneracy. Assignment problem- Mathematical Formulation- Hungarian Method – Maximization in Assignment Problem – Unbalanced Assignment Problem- Impossible Assignment.

UNIT III (8 Hours)
Game theory – Concept of Pure and Mixed Strategies- Solving 2×2 matrix with and without saddle point- Graphical method of $n \times 2$ and $2 \times m$ games-Dominance Property.

UNIT IV (8 Hours)
Queuing Theory- Characteristics of queuing system- problems of single server with finite/infinite population model- Problems.

UNIT V (10 Hours)
Replacement Model- Replacement of items the deteriorates gradually- value of money does not change with time- value of money changes with time- Replacement of items that fails suddenly- Individual replacement – Group replacement.
PERT & CPM –Construction of Network- CPM calculations – PERT Calculations.

Note: The proportion of marks between theory and problems shall be 20% and 80% respectively.

TEXT BOOK:

1. Kantiswarup, P. K. Gupta, Man Mohan, Operations Research, 16th edition , Reprint 2013, S. Chand & Sons Education Publications, New Delhi.

REFERENCE BOOK:

1. Hamdy Taha, Operations Research, 8th Edition, Reprint 2013, Pearson Education.

Master of Science (Software Systems) Degree Examination-Syllabus for Candidates admitted from the Academic Year 2015-2016 Onwards

FOURTH SEMESTER

PART- IV- AOC 2 - COMPUTER SYSTEM ARCHITECTURE

Maximum CE: 75

Total Hours: 36

Objectives: Enable the students to acquire the knowledge in modern computer architectures and peripherals.

UNIT I (8 Hours)

MODERN COMPUTER ORGANIZATION: Introduction – Layers In Modern Computer - Computer Organization – Main Memory – CPU Operation –Computer Types – System Performance And Measurement – High Performance Techniques – Booting Sequence –Computer Design Process – Computer Structure – Computer Function – Architecture And Organization.

UNIT II (4 Hours)

PROCESSOR DESIGN AND DATA PATH: Introduction – Processor Role – Processor Design Goals – Processor Design Process – Data Path Organization– Main Memory Interface – Local Storage Register File – Data Path Simple Instructions.

UNIT III (8 Hours)

MEMORY DESIGN AND MANAGEMENT: Introduction – Memory Parameters – Classification Of Memory – Memory Technology – Main Memory Allocation – Static RAM IC – Dynamic RAM – ROM Logic – Multiple Memory Decoding – Memory Hierarchy –Cache Memory – Principle of Cache – Virtual Memory Concept – Advantage of Virtual Memory.

UNIT IV (8 Hours)

COMPUTER PERIPHERALS: Introduction – Keyboard – CRT Display Monitor – Printer – Magnetic Storage Devices – Floppy Disk Drive –Hard Disk Drive – Special Types Of Disk Drives – Mouse And Track Ball – Modem – CD-ROM Drive – Scanner –Digital Camera – DVD.

UNIT V (8 Hours)

ADVANCED SYSTEM ARCHITECTURE: Introduction – High Performance Computer Architecture – RISC Systems – Superscalar Architecture – VLIW Architecture – EPIC Architecture –Multiprocessor Systems.

TEXT BOOK

1. Govindarajalu.B, Computer Architecture and Organization Design Principles and Applications, Tata McGraw-Hill, 2006.

Master of Science (Software Systems) Degree Examination-Syllabus for Candidates admitted from the Academic Year 2015-2016 Onwards

**FOURTH SEMESTER
PART- IV- AOC 2 – ASSEMBLY LANGUAGE PROGRAMMING LAB**

Maximum CE:75

Total Hours : 3

Objective:

Imparting Programming skills in 8085 Microprocessor.

(ANY 12 EXPERIMENTS)

1. Develop an ALP program for addition and subtraction of 8 bit data.
2. Develop an ALP program for multiplication and division of 8 bit data.
3. Develop an ALP program for Multiprecision addition and subtraction.
4. Develop an ALP program for block data transfer.
5. Develop an ALP program for smallest / largest of N numbers.
6. Develop an ALP program to arrange in ascending / descending order.
7. Develop an ALP program for 1's and 2's complement of an array (8 bit).
8. Develop an ALP program for real time Digital clock.
9. Develop an ALP program for BCD to binary conversion.
10. Develop an ALP program to BCD to ASCII and vice versa.
11. Develop an ALP program to data transfer using 8255.
12. Develop an ALP program for up down counter using 7-segment display.
13. Develop an ALP program for logical operations.
14. Develop an ALP program for sum of N 8-bit numbers.
15. Develop an ALP program for Rolling of a message.

M.Sc. (Software Science) Degree Examination- Syllabus- For Candidates admitted from 2015-2016 and onwards

**FOURTH SEMESTER
PART – IV- EDC – 2 BASICS OF COOKING**

Maximum CE MARKS: 50

Total Hours: 24

Objective:

Enabling students to acquire theoretical knowledge in basic cookery, Kitchen organization, Terms used food preparation, methods of mixing food, and methods of cooking food.

UNIT-I

(5 Hours)

Introduction to Cookery

Aims and objective of cooking food. Importance of Personal hygiene. Indian Regional Cuisine and Popular International Cuisine (An Introduction). Attitudes and behavior in the kitchen. Uniforms and protective clothing.

UNIT –II

(5 Hours).

Raw materials used in kitchen. Importance of spices used in food preparation. Cooking fuels - Uses and advantages of different cooking fuels. Different equipments used in food production (Capital and Operational-Names only.)

UNIT-III

(5Hours)

Preparation of Ingredients: Washing, Peeling and scraping, pairing, cutting (terms used in vegetable cutting, Julienne, Brunoise, Macedoine, Jardinière, Paysanne), grating, grinding, mashing, sieving, milling, steeping, centrifuging, emulsification, evaporation, homogenization. Methods of mixing food: Beating, Blending, Cutting, Creaming, Folding, Kneading, marinating, Sealing, Stirring, Whipping, and Whisking. Textures – Definition, Commonly found textures.

UNIT-IV

(5 Hours)

Methods of cooking food: Boiling, Poaching, Stewing, Braising, Steaming, Baking, Roasting, Grilling, Broiling, Frying, Pot Roasting – Principles of each of the above with appropriate examples.

UNIT-V

(4 Hours)

Classification of raw materials and their uses. Selection of meat, Fish, Poultry and Eggs. Factors to be considered while planning a menu.

TEXT BOOKS:

1. Krishna Arora “Theory of cookery” 6th Edition” Frank brothers & Company.
2. Parvinder S. Bali “Food Production operation” 2009 Edition – Oxford University Press.

REFERENCE BOOKS:

1. Philip E. Thangam” Modern Cookery” (Vol-I) 5th Edition, Orient Longman, 2009.
2. Kinton & Ceserani, Foskett “Theory of Catering” 10th Edition, Book Power, 2006.
3. Kinton & Ceserani, Foskett “Practical Cookery” 10th Edition, Book Power, 2006

Master of Science (Software Systems) Degree Examination-Syllabus for Candidates admitted from the Academic Year 2015-2016 Onwards**THIRD SEMESTER
LINUX OS****Maximum CE: 100****Objective:** To impart knowledge about Linux Os.**UNIT – I**

Introduction to Linux Operating System- Kernel – Distinguished Applications-Command Interpreter- Difference between DOS and Unix- Linux and Open Source Movement – Why Linux is popular? – Salient features. Introduction to Linux File Systems- File and Directory Naming – Linux Directory Tree Man Pages – The First Command “cat”.

UNIT – II

Shells – Basic Commands- Using Directory Commands – Intermediate Commands – Changing Your password and Shell – Dot Files- Environment and Shell Variables – command path – Special characters – Command Line Editing – Text Editors – Processes – file modes and permissions.

UNIT-III

Devices, Disk, File Systems and Kernel: Directory Hierarchy- Kernel – Devices – File Systems - Swap and Virtual Memory.

UNIT-IV

Introduction to Shell Scripts: Shell Script basics- Quoting – Special variables – Exit codes – Conditionals – Loop – Command Substitution – Temporary file Management- Here Documents.

UNIT –V

Shell Utilities and Development Tools: Shell Script Utilities- Sub Shells – Including other files in scripts – Reading User Input – The C Compiler – Multiple Source files – Header Files and Directories – Linking with Libraries – Make- Debuggers – LEX and Yacc Compiler – Scripting Languages – PERL – PYTHON – Other Scripting Languages.

Text Book:

- 1) N.B . Venkateswarlu, “Introduction to Linux Installation and Programming”- B.S. Publications, 2011.

Master of Science (Software Systems) Degree Examination-Syllabus for Candidates admitted from the Academic Year 2015-2016 Onwards

**FOURTH SEMESTER
ANIMATION TECHNIQUES**

Maximum CE : 100

Objective: On the successful completion of the course, the students should have understood the key features of Animation technique, learnt the Animation development for future development of application.

UNIT I

Introduction to Flash CS4-New Features in Flash CS4-Creating a New Flash File-Exploring Flash CS4 Interfaces-Working With Workspace-Setting the Stage-Saving the Flash File- Closing the Flash File-Opening an Existing Flash File.

Getting Started with Drawing Tools-Exploring Drawing Modes in Flash-Working with Drawing Tools in Flash-Using Colors in Flash.

UNIT II

Selecting Object in Flash-Moving-Copying-Deleting & Editing an Object-Transforming Object-Working with Text in Flash-Editing Text Field-Working with TIMELINE-Frames & Keyframes-Layer & Layer Folder.

UNIT III

Using Symbols, Instance and the Library – Creating –Modifying Symbols-Instance- about Library-Working With Sound and Video.

UNIT IV

Creating Animation –Creating Motion Tweens -Editing the Motion Path-Motion Present in Flash-Frame by Frame Animation –Shape Tweening in Flash.

UNIT V

Working with Advanced Animation-Understanding Bones-Animating an Armature-Exploring 3D Animation – Working with Action Script-ACTION Panel Overview-Resizing the Action Toolbox or script pane

TEXT BOOK

1. Kogent, “Flash CS4 in Simple Steps”, Dreamtech Press,2009.

M.Sc (Software Systems) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

**FIFTH SEMESTER
PART-III - PAPER 10 -COMPUTER GRAPHICS**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objective:

On the successful completion of the course, the students should have learn the algorithms in 2D, 3D and gain knowledge in animation

UNIT I (10 HOUR)

Overview of Graphics System – Video Display Devices –Raster Scan Systems-Hard Copy Devices-Line Drawing Algorithms:-DDA, Bresenham's, Parallel Line algorithms. Attributes of Output Primitives:- Line Attributes, Character Attributes.

UNIT II (10 HOUR)

Two Dimensional Transformations-Basic Transformations-Translation-Scaling-Rotation-Other Tranformations.Two Dimensional Viewing-Clipping Operations-Point Clipping-Line Clipping-Polygon Clipping-Curve Clipping-Text Clipping.

UNIT III (10 HOUR)

3D Concepts-Display Methods-Polygon Surfaces-Quadric Surfaces-Super Quadrics-Blobby Objects-Spline Representations. Three Dimensional Viewing - Viewing Pipeline - Viewing Co-Ordinates – Projections - Clipping.

UNIT IV (8 HOUR)

Visible Surface Detection Methods-Back Face Detection-Depth Buffer Method-A-Buffer Method-Scan Line Method-Depth Sorting Methods-BSP Tree Methods-Area Subdivision Methods-Ray Casting Methods-Octree Methods.

UNIT V (10 HOUR)

Color Model and Applications:-XYZ, CIE Chromaticity Diagram, RGB, YIQ, CMY, HSV, HLS Color Models-Color Selection and Applications. Computer Animation -Design of animation Sequences-Raster animations-Key Frame Systems-Motion Specification.

Mathematics for Computer Graphics: Polar Co-ordinates, Points and Vectors, Matrices – Scalar Multiplication and Matrix Addition.

TEXT BOOKS

1. Hearn D and Baker M.P, Computer Graphics – C Version, 2nd Edition, Pearson Education, 2014.
2. William M. Newman, Robert F.Sproull, Principle of Interactive Computer Graphics, Mcgraw Hill International Book Company, 1989.

REFERENCE BOOKS

1. F.S . Hill, Computer Graphics, Maxwell Macmillan International Editions, 1990.
2. James Alan Farrel, From Pixels To Animation: An Introduction To Graphics Programming, AP Professional, 1994.

M.Sc (Software Systems) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

**FIFTH SEMESTER
PART- III- PAPER –11–WEB TECHNOLOGY**

Maximum CIA : 30

Maximum CE : 70

Total Hours : 48

Objective: On successful completion of this paper, students should be able to design web pages using HTML, DHTML, XML and Java Script.

Unit I (10 Hours)

HTML: Introduction –Getting started –Creating and saving an HTML document –Document Layout of HTML Page –HTML elements –Some other formatting Styles – Hypertext Links - URLs –Images –HTML tables –Forms –Special Characters – Meta tag.

Unit II (10 Hours)

Dynamic HTML-Event Model- Event Onclick- Event Onload- Error Handling with onerror- Tracking the Mouse with Event Onmousemove- Onmouseover - Onmouseout- Form processing with Onfocus and Onblur- More Form Processing with Onsubmit and Onreset- Event Bubbling - Dynamic HTML-Filters and Transitions- Flip Filters: Flipv and Fliph- Chroma Filter- Image and Text Filters- Mask - Invert- Gray – Xray – Light - Shadows - Alpha- Glow – Blur- Wave - Dropshadow - Transition- Blendtrans - Revealtrans.

Unit III (09 Hours)

XML:XML basics –Introduction –Need for XML –Advantages –Working with an XML Document –Structure of an XML Document –DTD-XML Schema.

Unit IV (10 Hours)

JavaScript – Memory Concepts and Operators- Control Statements – Functions – Arrays – Objects– Math, String, Date, Boolean, Number, document, window Objects – Using Cookies- Extensible Markup Language(XML) – Structuring Data – Document Type Definition(DTDs) and Schemas – Extensible Stylesheet Language(XSL).

Unit V (09 Hours)

Web Servers (IIS and Apache) – Microsoft Internet Information Services(IIS) – Apache Web Server – Requesting Documents-Database- SQL, MySQL, DBI and ADO.NET – Structured Query Language(SQL) – MySQL.

Text Books

1. “Internet and Web Design”, ITL Education, Macmillan India Ltd., 2009.
2. “HTML and XML an Introduction”, NIIT, Prentice Hall of India Pvt. Ltd.
3. H. M. Deitel, P. J. Deitel, A. B. Goldberg, “Internet and World Wide Web-How to program”, 3rdEdition, Pearson Education, Asia, 2013.

Reference Books

1. Thomas A. Powell, The Complete Reference HTML and XHTML, 4thEdition, Tata McGraw Hill Publication, 2000, New Delhi.
2. H. M. Deitel, P.J. Dietel, T. R. Nieto, T. M. Lin, P. Sadhu, XML How to Program, Pearson Education, 2001, Asia..
3. C. Xavier, World Wide Web with HTML, Tata McGraw Hill Publication, 2000, New Delhi

M.Sc (Software Systems) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

FIFTH SEMESTER

PART- III- PAPER –12 - DATA COMMUNICATION AND NETWORKING

Maximum CIA : 30

Maximum CE : 70

Total Hours : 48

Objective: To understand the concepts of data communications and make the students to get familiarized with different protocols and network components.

Unit I (10 Hours)

NETWORKS INTRODUCTION: OSI, TCP/IP and other networks models, Examples of Networks: Novell Networks, Arpanet, Internet, Network Topologies WAN, LAN, MAN. Physical Layer: Transmission media copper, twisted pair wireless, switching and encoding asynchronous communications; Narrow band, broad band ISDN and ATM - Intellectual Property Rights.

Unit II (10 Hours)

Data Link Layer Error Detection And Correction-Elementary Data Link Protocols- Sliding Window Protocols. Medium-Access Control Sub Layer Multiple Access Protocols-Ethernet-Wirelesses Lans-Broadband Wireless-Bluetooth.

Unit III (10 Hours)

Network Layer: Routing algorithm -shortest path routing, Flooding, Hierarchical routing, Broad cast, Multi cast, distance vector routing– Broadcast routing- Congestion, Control Algorithms – General Principles – of Congestion prevention policies. Internetworking: The Network layer in the internet.

Unit IV (8 Hours)

Transport Layer: Transport Protocols, Connection management, TCP and UDP protocols; congestion Control – Internet Transport Protocols UDP&TCP – CAN Protocol.

Unit V (10 Hours)

Application Layer – Domain name system - Electronic Mail -Network Security –Cryptography- Public Key Algorithm-Digital signatures-Communication security.

Text Books

1. Andrew S Tanenbaum – “Computer Networks”, 4th Edition. Pearson Education/PHI, 2016.
2. Behrouz A. Forouzan - “Data Communications and Networking”, Fourth Edition, 2013, TMH.

Reference Books

1. S.Keshav - An Engineering Approach to Computer Networks-, 2nd Edition, Pearson Education.
2. W.A. Shay, Thomson -Understanding communications and Networks, 3rd Edition,.
3. William Stallings, Data and Computer Communication, 6th Edition, Pearson Education, 2000.

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**FIFTH SEMESTER
PART- III- PRACTICAL – 8 -COMPUTER GRAPHICS**

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Objective:

On the successful completion of this paper, the students should have acquired knowledge on graphics programming

PROGRAM LIST

Create graphics program to implement the following concepts using C/C++

1. Implementation of Simple Transformations.
2. Implementation of DDA Line drawing algorithms.
3. Implementation of Bresenham's Line drawing algorithms.
4. Windowing and Line Clipping.
5. Polygon Clipping.
6. Curve Clipping.
7. Implementation of an Analog Clock.
8. Polygon filling Algorithm.
9. Implement using Matrices.
10. Simulate the Bouncing of a ball within four walls.
11. Merging of a Circle and Square.
12. Simple Animation.
13. Fractal Drawing.

TEXT BOOKS

1. Hearn D & Baker M.P., Computer Graphics – C Version, 2nd Edition, Pearson Education, 2004.
2. William M. Newman, Robert F.Sproull, Principle of Interactive Computer Graphics, McGraw Hill International Book Company, 1989.

REFERENCE BOOK

1. F.S. Hill, JR., Computer Graphics, Maximum well Macmillan International Editions, 1990.

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**FIFTH SEMESTER
PART- III- PRACTICAL 9- WEB TECHNOLOGY**

Maximum CIA : 40

Maximum CE : 60

Total Hours : 60

Objectives: On successful completion of the paper the students must have acquired professional skills in the basics of HTML programming, develop the skills in DHTML, XML and JavaScript.

Program List:

1. Designing the following basic program in HTML
 - a. BASIC TAGS IN HTML
 - b. LISTS
 - c. LINKS
 - d. TABLES
2. Designing the following basic program in HTML
 - a. FRAMES
 - b. FORMS
3. Develop a webpage for Timetable using HTML.
4. Develop a webpage for Employee Details.
5. Developing the Programs to implement Event model in DHTML.
6. Developing the Programs to implement Filter in DHTML.
7. Developing the Programs to implement Transition in DHTML.
8. Develop an XML application for Student Details.
9. Develop a Java Script program using Control Statements.
10. Develop a Java Script program using Logical Operators.
11. Developing the Validation Control program in JavaScript.
12. Develop a webpage for your organization using HTML and Java Script.

Text Books

1. “Internet and Web Design”, IITL Education, Macmillan India Ltd., 2009.
2. “HTML and XML an Introduction”, NIIT, Prentice Hall of India Pvt. Ltd.
3. H. M. Deitel, P. J. Deitel, A. B. Goldberg, “Internet and World Wide Web-How to program”, 3rdEdition, Pearson Education, Asia, 2013.

Reference Books

1. Thomas A. Powell, The Complete Reference HTML and XHTML, 4thEdition, Tata McGraw Hill Publication, 2000, New Delhi.
2. H. M. Deitel, P.J. Dietel, T. R. Nieto, T. M. Lin, P. Sadhu, XML How to Program, Pearson Education, 2001, Asia..
3. C. Xavier, World Wide Web with HTML, Tata McGraw Hill Publication, 2000, New Delhi

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**SIXTH SEMESTER
PART- III- PAPER - 13 CLIENT SERVER COMPUTING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objective: On successful completion of the course the students should have acquired knowledge on the concepts of client server architecture.

UNIT I (10 HOUR)

Basic Concepts of Client /Server- Characteristics- File Servers –Data Base Servers - Transaction Servers – Groupware Servers – Object Servers – Web Servers – Fat Servers Or Fat Clients – 2-Tier – Client/Server Building Blocks -Operating System Services- Base Services –Extended Services – Server Scalability- Client Anatomy.

UNIT II (10 HOUR)

NOS Middleware - Peer-To-Peer Communication –Remote Procedure Calls–MOM Middleware – SQL Database Servers- Server Architecture – Stored Procedures – Triggers – Rules.

UNIT III (10 HOUR)

Online Transaction Processing – Decision Support Systems – OLTP Vs DSS – Data Warehouses- Elements – Hierarchies – Replication Vs Direct Access –Replication Mechanism — Client/Server Transaction Processing- Transaction Models – TP Monitors.

UNIT IV (09 HOUR)

Groupware- Components – Distributed Objects- Components and Distributed Objects- CORBA- Components - Object Management Architecture (IORB) –Services – Business Objects.

UNIT V (09 HOUR)

Client/Server Distributed System Management-Components – Management Application – Network Management – OSI Management Framework – The Desktop Management Interface - X/OPEN Management Standards –Client/Server Application Development Tools - Client /Server Application Design.

TEXT BOOK

1. Robert Orafli, Dan Harkey and Jeri Edwards, Client/Server Survival guide, 3rd Edition Wiley India, 2010, India.

REFERENCE BOOKS

1. Dawna Travis Dewire, Client /Server Computing, Tata Mc Graw Hill ,2003,New Delhi.
2. Robert Orafli, Dan Harkey and John Wiley, The Essential client/server Survival guide, 2ndEdition 2006, India.

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**SIXTH SEMESTER
PART-III - PAPER 14–PYTHON PROGRAMMING**

Maximum CIA : 30

Maximum CE : 70

Total Hours : 48

Objective: On successful of this course, students should have understood how to write programs in Python language.

Unit I (10 Hours)

The Python Programming Language – The first program – Variables, expressions and statements: Values and types – Variables – Variables names and Keywords – Operators and operands – Expressions and statements – Interactive mode and Script mode – Order of Operations – String operations. Functions: Math functions – Composition – Adding new functions – Definition and uses – Parameters and arguments – Fruitful and void functions.

Unit II (8 Hours)

Conditionals and recursion: Modulus operator – Boolean expression – Logical operators – Conditional & Alternative execution – Chained & Nested conditionals – Keyboard input. Fruitful functions: Return values – Incremental development – Composition – Boolean functions – More recursion – Sets – Input and output.

Unit III (10 Hours)

Iteration: Multiple assignment – Updating variables – while statement – break – for statements – range function. Strings: len – Traversal with a for loop – String slices – Looping and counting – String methods – The in operator – String comparison. Lists: Lists are mutable – Traversing a list – List operations, slices and methods – Map, filter and reduce – Deleting elements – Lists and strings – Objects and values – Aliasing – List arguments.

Unit IV (10 Hours)

Dictionaries: Dictionary as a set of counters – Looping and dictionaries – Reverse lookup – Dictionaries and lists – Global variables – Long integers. Tuples: Tuples are immutable – Tuple assignment – Tuples as return values – Variable length argument tuples – Lists and tuples – Dictionaries and tuples – Comparing tuples. Files: Reading and writing – Format operator – File names and paths – Catching exceptions – Databases.

Unit V (10 Hours)

Classes: Python scopes and Namespaces – Examples – A first look at classes – Class definition – Class objects – Instance objects – Method objects – Class and instance variables – Inheritance – Multiple Inheritance – Private variables.

Text Books

1. Allen Downey, Think Python, Green Tea Press, 2012.
2. Guido Van Rossum and the Python development team, Python Tutorial Release 3.7.0, Python Software Foundation, 2018.

Reference Books

1. Eric Matthes, Python Crash Course, No Starch Press, 2016.
2. Paul Barry, Head-First Python, 2nd Edition, O'Reilly Publication, 2016.

M.Sc (Software Systems) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

**SIXTH SEMESTER
PART-III - PAPER 15 - .NET FRAMEWORK**

Maximum CIA : 30

Maximum CE : 70

Total Hours : 48

Objective: To provide basic programming knowledge in .Net Framework using C# , VB and ASP.

Unit-I (9 Hours)

Philosophy of .NET-Previous state-.NET solution-Building blocks of .NET-Overview of .NET Assemblies-Understanding CTS,CLS,CLR-Assembly/namespace/Type Distinction-Exploring an Assembly-Platform Independent nature of .NET-C# Programming Constructs: Anatomy of simple C# Program-Variations on Main Method-Processing Command line arguments.

Unit -II (9 Hours)

System.Console Class-Basic I/P and O/P with console class-Formatting Console O/P and Numeric Data. System Data Types-Variable Declaration & Initialization-Data Type Class Hierarchy-C# Iteration Constructs-For loop – for each loop –while/do while-if/else statement-switch statement. Array in C#-Initialization-Defining Array objects – MultiDimensional array.

Unit -III (10 Hours)

C# Class - New Keyword – Class Constructs - Default constructors - this keyword - static keyword - static constructors. Pillars of OOP- Access Modifiers - Details of Inheritance-C# Polymorphic support-Abstract classes-Building polymorphic interface-Understanding Structured Exception handling-Exception Base class-Throwing an Exception-System Level Exception-Application Level Exception-Custom Level Exception. ADO.NET - Understanding Role of DataSet - Data Columns – Data Rows - Data Tables - Data Adapters.

Unit -IV (10 Hours)

VB.NET – Operators-Conditionals and Loops-Procedures-Scope and Exception handling- Windows Forms-Text Box-Rich text Box-labels-Buttons –List Box-Object Oriented Programming.

Unit -V (10 Hours)

Building Web Applications with ASP.NET: Building ASP.NET Web Pages- ASP.NET Web Controls, Master Pages and Themes. ASP.NET State Management Techniques: The Issue of State - ASP.NET State Management Techniques – Understanding the role of ASP.NET View State - Maintaining Session Data – Understanding Cookies.

Text Books

1. Pro C# 5.0 and the .NET 4.5 Framework – 6th Edition, Andrew Troelsen, Apress, 2012 (UNIT –I, II, III, V).
2. Visual Basic 2015 in 24 Hours, Sams Teach Yourself 1st Edition, James Foxall, Sams Publishing, 2015 (UNIT-IV).

Reference Books

1. Pro C# 2008 and .NET 3.5 Platform-4th Edition, Andrew Troelsen- Apress-First Indian Reprint 2008.
2. Ebook:<http://www.clicktocontinue.com/books/ProCSharp5AndTheNET4.5Framework.pdf> (UNIT-I, II, III, V).

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**SIXTH SEMESTER
PART-III - PAPER 16 - OPERATING SYSTEMS**

Maximum CIA : 30
Maximum CE : 70
Total Hours : 48

Objective: On successful completion of this paper students should have acquired knowledge about the functions of the Operating System.

Unit I (9 Hours)
Computer System Overview: Basic Elements – Processor Registers – Instruction Execution – Interrupts – The Memory Hierarchy - Operating System Overview: Operating Systems Objectives and Functions – The Evolution of Operating Systems.

Unit II (9 Hours)
Process Description and Control: Process States – Process Description. Concurrency: Mutual Exclusion and Synchronization: Principles of concurrency – Mutual Exclusion – Software Approaches – Semaphores – Mutual Exclusion – The Producer Consumer Problem.

Unit III (10 Hours)
Concurrency: Deadlock and Starvation: Principles of Deadlock – Deadlock Prevention – Deadlock Detection – Deadlock Avoidance – Dining Philosophers Problem. Memory Management: Memory Management Requirements – Loading Programs into Main Memory.

Unit IV (10 Hours)
Uniprocessor Scheduling: Types of Scheduling – Scheduling Algorithms: Short Term Scheduling Criteria – The Use of Priorities – Alternative Scheduling Policies – First Come First Served – Round Robin – Shortest Process Next – Shortest Remaining Time – Highest Response Ratio Next – Feedback – Performance Comparison.

Unit V (10 Hours)
I/O Management and Disk Scheduling: I/O Devices – Organization of the I/O Function – Operating System Design Issues – I/O Buffering. File Management: Overview – File Organization and Access – File Directories – File Sharing – Record Blocking – Secondary Storage Management.

Text Book

1. William Stallings, Operating Systems Internals and Design Principles, Prentice Hall of India, Sixth Edition, 2009.

Reference Books

1. Achyut Godbole, Operating Systems, Tata McGraw Hill, 2nd Edition, 2005.
2. Abraham Silberchatz, Peter B. Galvin, Greg Gagne, Wiley Publication, 6th Edition, 2001.

M.Sc (Software Systems) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

**SIXTH SEMESTER
PART-III – PRACTICAL 10–PYTHON PROGRAMMING**

Maximum CIA : 40

Maximum CE : 60

Total Hours : 60

Objective: On successful of this course, students should have acquired professional skill to write programs in Python language.

Program List

1. Write a Python program to compute the GCD of two numbers.
2. Write a Python program to find the sum of digits of a number.
3. Write a Python program to find the greatest of 3 numbers.
4. Write a Python program to find the maximum of a list of numbers.
5. Write a Python program to perform Linear search and Binary search.
6. Write a Python program to perform Selection sort and Insertion sort.
7. Write a Python program to perform Merge sort.
8. Write a Python program to generate first n prime numbers.
9. Write a Python program to print the Fibonacci series.
10. Write a Python program using function.
11. Write a Python program to manipulate strings.
12. Write a Python program using Dictionary.

Text Books

1. Allen Downey, Think Python, Green Tea Press, 2012.
2. Guido Van Rossum and the Python development team, Python Tutorial Release 3.7.0, Python Software Foundation, 2018.

Reference Books

1. Eric Matthes, Python Crash Course, No Starch Press, 2016.
2. Paul Barry, Head-First Python, 2nd Edition, O'Reilly Publication, 2016.

M.Sc (Software Systems) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

**SIXTH SEMESTER
PART-III – PRACTICAL 11-.NET PROGRAMMING**

Maximum CIA : 40

Maximum CE : 60

Total Hours : 60

Objective: Improving professional skills in .Net Framework using C# ,VB and ASP.

Program List

1. Develop a C# program using Arrays.
2. Develop a C# program using Control Statements.
3. Develop a C# program for Exceptional Handling.
4. Write a C# program to Implement Inheritance.
5. Design form to create calculator application using VB.
6. Design a Logon form and validate it using VB.
7. Design a form to create digital clock using VB.
8. Design form to select image from list and display it in the picture box using VB.
9. Design an application for dynamically populating a checkbox list using ASP.
10. Design an application for selecting a single day in the calendar control using ASP.
11. Design an application with simple bulleted list control using ASP.
12. Design an application for uploading files using the new file upload control using ASP.

Text Books

1. Pro C# 5.0 and the .NET 4.5 Framework – 6th Edition, Andrew Troelsen, Apress, 2012.
2. Visual Basic 2015 in 24 Hours, Sams Teach Yourself 1st Edition, James Foxall, Sams Publishing, 2015.

Reference Books

1. Pro C# 2008 and .NET 3.5 Platform-4th Edition, Andrew Troelsen- Apress-First Indian Reprint 2008.
2. Ebook:<http://www.clicktocontinue.com/books/ProCSharp5AndTheNET4.5Framework.pdf>.
3. <http://becapatla.ac.in:8080/mca/Manuals/DOTNET%20LAB.pdf>

M.Sc (Software Systems) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

FIFTH SEMESTER

PART- III - ELECTIVE I – PRINCIPLES OF COMPILER DESIGN

Maximum CIA : 30

Maximum CE: 70

Total Hours: 48

Objective: To impart knowledge about design and implementation of lexical analyzer, parser, schemes and optimization of codes.

UNIT I (10 HOUR)

Compilers – Analysis Of The Source Program – Phases Of A Compiler – Cousins Of The Compiler – Grouping Of Phases – Compiler Construction Tools – Lexical Analysis – Role Of Lexical Analyzer – Input Buffering – Specification Of Tokens-Recognition of Tokens-Finite State Automata.

UNIT II (10 HOUR)

Syntax Analysis- Role Of The Parser –Writing Grammars –Context-Free Grammars – Top Down Parsing – Recursive Descent Parsing – Predictive Parsing – Bottom-Up Parsing – Shift Reduce Parsing – Operator Precedent Parsing – LR Parsers – SLR Parser Canonical LRParser – LAL R Parser.

UNIT III (10 HOUR)

Intermediate Languages – Declarations – Assignment Statements – Boolean -Expressions – Case Statements – Back Patching – Procedure Calls. Runtime Environments– Storage Organization – Storage Allocation Strategies – Access To Non-Local Names – Parameter passing.

UNIT IV (09 HOUR)

Issues In The Design Of Code Generator – The Target Machine – Runtime Storage Management – Basic Blocks And Flow Graphs – Next-Use Information – A Simple Code Generator – Register Allocation And Assignment-DAG -Representation Of Basic Blocks – Code Generator And Generators.

UNIT V (09 HOUR)

Principal Sources Of Optimization–Peephole Optimization- Optimization Of Basic Blocks – Loops In Flow Graphs-Introduction To Global Data Flow Analysis.

TEXT BOOK

1. Alfred Aho, Ravi Sethi, Jeffrey D Ullman, Compilers Principles, Techniques And Tools, Pearson Education Asia, 2007.

REFERENCE BOOKS

1. Ravendra Singh, Vivek Sharma, Manish Varshney ,Design And Implementation Of Compiler, New Age International, 2009.
2. Santanu Chattopadhyay, Compiler Design , Prentice Hall Of India, 2008.
3. C. N. Fischer And R. J. Leblanc, Crafting A Compiler With C , Benjamin Cummings, 2003.

M.Sc (Software Systems) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

**FIFTH SEMESTER
PART - III- ELECTIVE-I- J2EE and J2ME**

Maximum CIA : 30

Maximum CE: 70

Total Hours: 48

Objective: On successful completion of this paper the students should have acquired expert knowledge in basics of J2EE and J2ME.

UNIT I (10 HOUR)

Understanding Java and the J2EE Platform - Introduction – Examining the Origin of J2EE-Working with the Model-View-Controller. Application Server – Implementing Application servers-Understanding the Features of an Application Server. Understanding remote Method Invocation –Providing an Overview of RMI-Developing Applications with RMI – Pushing Data from the RMI Server – RMI over Inter –ORB Protocol (IIOP).

UNIT II (10 HOUR)

Servlet Programming-Creating a Magazine Publisher Application Using Servlets-Using the Servlet Context-Performing URL Redirection.JSP Basics – Introducing JSP-Examining MVC and JSP – JSP Scripting Elements and Directives – Working with Variable Scopes – Using JavaBeans.Java Mail-Protocols for Java Mail– Java Mail Components – Java Mail API.

UNIT III (10 HOUR)

Java Transactions – Transactional Objects and Participants - Local and Distributed Transactions – Consistency – Isolation – Role of Durability – Transaction Models –Transaction Standards - Java Transaction API.EJB Architecture and Design: – Component Model – the Enterprise Java Bean – EJB Container Functionality – Integrating With CORBA.Entity Beans.

UNIT IV (09 HOUR)

J2ME Overview – Java2 Micro Edition and the World of Java – Inside J2ME - J2ME and Wireless Devices – Other Java Platforms For Small Computing Devices – Wireless Technology – Radio Data Networks – Mobile Radio Networks – Messaging –Personal Digital Assistants- Mobile Power -Smart Cards - J2ME Architecture and Development Environment - J2ME Architecture – Small Computing Device Requirements – Run-Time Environment.

UNIT V (09 HOUR)

Commands, Items and Event Processing - J2ME User Interfaces – Display Class – the Palm OS Emulator – Command Class – Item Class – Exception Handling - High Level Display- Screens – Screen Class – Alert Class – Form Class – Item Class – List Class – Text Box Class – Ticker Class – Low-Level Display- Canvas – the Canvas – User Interactions - Graphics – Clipping Regions – Animation.

TEXT BOOKS

1. James McGovern et al., Rahim Adatia, Yakov Fain, J2EE1.4Bible,Wiley ,dreamtech India Pvt. Ltd., 2012, India. (UNIT I-III)
2. James Keogh, J2ME: the Complete Reference, TMCH, 2012, New Delhi.(UNIT IV&V)

REFERENCE BOOKS

1. Jim Keogh, the Complete Reference – J2EE, Tata McGraw-Hill Publication,3rd Edition, 2002,New Delhi.
2. Herbert Schildt, the Complete Reference – JAVA 2, 4th Edition, 2001, New Delhi.
3. Deitel H.M. & Deitel P.J, Java How to Program, Prentice-Hall of India, 5th Edition, 2003,India.
4. Stephen Asbury, Scott R. Weiner Enterprise JavaBeans –Developing Component Based Distributed Applications, Pearson Education, 1999, India.

M.Sc (Software Systems) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

**FIFTH SEMESTER
PART - III- ELECTIVE I - WEB SERVICES**

Maximum CIA : 30

Maximum CE: 70

Total Hours:

48

Objectives :To understand the concept of XML and to implement Web services using XML based standards.

UNIT I (09 HOUR)

Xml Technology Family: XML – benefits – Advantages of XML over HTML, EDI, Databases – XML based standards – Structuring with schemas - DTD – XML Schemas – XML processing – DOM – SAX – presentation technologies – XSL – XFORMS – XHTML – Transformation – XSLT – XLINK – XPATH – XQuery.

UNIT II (10 HOUR)

Architecting Web Services :Business motivations for web services–B2B–B2C –Technical motivations – limitations of CORBA and DCOM – Service-oriented Architecture (SOA) – Architecting web services – Implementation view – web services technology stack – logical view – composition of web services – deployment view – from application server to peer to peer – process view – life in the runtime.

UNIT III (09 HOUR)

Web Services Building Blocks :Transport protocols for web services – messaging with web services - protocols - SOAP - describing web services – WSDL – Anatomy of WSDL – manipulating WSDL – web service policy – Discovering web services – UDDI – Anatomy of UDDI – Web service inspection – Ad-Hoc Discovery-Securing web services.

UNIT IV (10 HOUR)

Implementing Xml In E-Business:B2B – B2C Applications – Different types of B2B interaction – Components of e-business XML systems – ebXML – RosettaNet - Applied XML in vertical industry – web services for mobile devices.

UNIT V (10 HOUR)

Xml Content Management And Security: Semantic Web – Role of Meta data in web content - Resource Description Framework – RDF schema – Architecture of semantic web – content management workflow–XLANG–WSFL – Securing web services.

TEXT BOOK

1. Ron Schmeltzer et al. XML and Web Services, Pearson Education, 2014.
2. Complete Reference – XML.

REFERENCE BOOKS

1. Keith Ballinger, .NET Web Services Architecture and Implementation, Pearson Education, 2003.
2. David Chappell, Understanding .NET A Tutorial and Analysis, Addison Wesley, 2002.
3. Kennard Scibner and Mark C.Stiver, Understanding SOAP, SAMS publishing.
4. Alexander Nakhimovsky and Tom Myers, XML Programming: Web Applications and Web Services with JSP and ASP, Apress, 2002.

M.Sc (Software Systems) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards**SIXTH SEMESTER****PART – III - ELECTIVE II – INFORMATION SYSTEM SECURITY**

Maximum CIA : 30

Maximum CE: 70

Total Hours: 48

Objective : To acquire knowledge about how the system security is provided.

UNIT I (10 HOUR)

Information Systems in Global Content - History of Information System - Basics of Information Systems - Importance of Information Systems - Basics of Information Systems - Changing nature of Information System - Threats to Information System - Information System Security threats – Attacks – Classification of Threats and Assessing Damages - Protecting Information System Security.

UNIT II (10 HOUR)

Security Considerations in Mobile and Wireless Computing - Proliferation of Mobile and Wireless Devices - Trends in Mobility - Credit Card Frauds in Mobile and Wireless Computing - Security Challenges Posed by Mobile Devices - Registry Settings for Mobile Devices - Authentication Service Security - Building Blocks of Information Security.

UNIT III (10 HOUR)

Network Security and Logical Access Control - Network Security in Perspective - Cryptography and Encryption – Intrusion Detection for System Security.

UNIT IV (09 HOUR)

Firewalls for Network Protection - What are Firewalls - Why Firewalls are Needed - Proxy Servers - Topologies for Different Types of Firewalls - Design and Implementation Issues in Firewalls - Security of Wireless Networks – Overview – Attacks on Wireless networks - Security of Electronic Mail System.

UNIT V (09 HOUR)

Privacy - Technical Impacts - Privacy Issues in Smart Card Applications – Ethical Issues and Intellectual Property Concerns for InfoSec Professional - Information System - Threats Within - Characteristics of Insider Attacks - Nature of Ethical Issues in Networked Enterprise – Cryptography - Cryptographic Tools and Ethical Issues - Understanding Ethical Hacking.

TEXT BOOK

1. Nina Godbole, Information Systems Security - Security Management, Metrics, Frameworks And Best Practices, First Edition, 2009, Wiley India Pvt Ltd.

REFERENCE BOOK

1. Denis Track, Managing Information System Security and Privacy, First Edition 2006.
2. William Stallings, Cryptography and Network Security, fifth Edition, 2011, Pearson Publications.

M.Sc (Software Systems) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards

SIXTH SEMESTER

PART – III - ELECTIVE-II -DISTRIBUTED COMPUTING

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objective: To inculcate knowledge on Distributed Computing Concepts in real time applications.

UNIT I (10 HOUR)

Distributed Computing: Introduction-Different Forms Of Computing-Strengths and Weaknesses of Distributed Computing-Network Bases-Software Engineering Basics. Interprocess Communications: Event Synchronization-Timeouts And Threading-Deadlocks And Timeouts-Data Representations-Data Encoding-Text Based Protocols-Request Response Protocols-Event Diagram And Sequence Diagram. Distributed Computing Paradigma: Paradigms And Abstract-Paradigms For Distributed Applications-Trade Offs.

UNIT II (10 HOUR)

Model of A Computation: Introduction-Model Of A Distributed System-Interleaving Model-Happened Before Model-Potential Causality Model-Appropriate Model-Model Based On States. Control of a Distributed Computation: Introduction-Hardness Of The Control Problem-Mutual Exclusion-Disjunctive Predicates-Relationship Between Observation And Control. Computation of A Global Function: Introduction-Converge Cast And Broadcast-Global Functions.

UNIT III (10 HOUR)

The Socket API: The Socket Metaphor In IPC-The Datagram Socket API-The Stream-Mode Socket API-Sockets With Nonblocking I/O Operations. The Client –Server Paradigms: The Client –Server Paradigms Issues-Software Engineering for Network Service-Connection Oriented and Connectionless Service-Iterative Server and Concurrent Server-Stateful Server.

UNIT IV (09 HOUR)

Group Communication: Unicasting Verses Multicasting-An Archetypal Multicasting API-Connectionless Versus Unreliable Multicasting-The Java Basic Multicast API-Reliable Multicast API. Distributed Objects: Message Passing Versus Distributed Objects-An Archetypal Distributed Object Architecture-Distributed Object System-Remote Procedure Calls-Remote Method Invocation-The Java RMI Architecture-The API For The Java RMI-Steps For Building RMI Application-Testing And Debugging-Comparison Of RMI And Socket APIs.

UNIT V (09 HOUR)

Advanced RMI: Client Callback- Stub Downloading-RMI Security Manager. CORBA: The Basic Architecture-The CORBA Object Interface-Inter ORB Protocols-Object Servers And Object Clients-CORBA Object References-CORBA Object Services-Trade Offs. Advanced Distributed Computing Paradigms: Message Queue System Paradigm-Mobile Agents-Network Services-Object Spaces.

TEXT BOOK

1. M.L.Liu, Distributed Computing Principles and Applications, 1st Edition, PEARSON Education, 2008.

REFERENCE BOOK

1. Vijay K.Garg, Elements of Distributed Computing, A John Wiley & Sons, Inc., Publication.

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SIXTH SEMESTER

PART – III ELECTIVE II -MANAGEMENT INFORMATION SYSTEM

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objective: To inculcate knowledge on managing different information systems.

UNIT I (10 HOUR)

Introduction to MIS: MIS concept – Definition – Role of MIS – Impact of MIS – MIS and the User – Management as a Control system – MIS: a support to Management – Management Effectiveness and MIS – Organization as a system – MIS: organization effectiveness. E-business enterprise: Introduction – Organization of Business in an E-enterprise – E-business – E-commerce – E-communication – E-collaboration

UNIT II (10 HOUR)

Strategic Management of Business Performance: The concept of corporate planning – Essentiality of Strategic Planning – Development of Business Strategies – Types of Strategies – Short – Range Planning – Tools of Planning – Strategic Analysis of Business. Information Security Challenges in E-Enterprises: Introduction – Security Threats and Vulnerability – Controlling Security Threat and Vulnerability – Management Security Threats and Vulnerability – Disaster Management – MIS and Security Challenges

UNIT III (10 HOUR)

Decision Making: Decision-making concepts – Decision-making process – Decision Analysis by Analytical Modeling – Behavioral Concepts in Decision-making – Organizational Decision-making – MIS and Decision-making. Information and Knowledge: Information Concepts – Information: a quality product – Classification of Information – Methods of data and Information Collection – Value of Information – General Model of a Human as an Information Processor.

UNIT IV (09 HOUR)

Applications in Manufacturing Sector: Personnel, Financial, Production, Raw Material and Marketing Managements. Applications in Service Sector: Service management System – MIS Application in Service Industry – MIS: Service Industry.

UNIT V (09 HOUR)

Enterprise Management Systems: Enterprise Management Systems – ERP system – ERP Model and Modules – Benefits of ERP – ERP Product Evaluation – ERP Implementation. Technology of Information Systems: Introduction – Data Processing – Transaction Processing – Application Processing – Information System processing.

TEXT BOOK

1. Waman S Jawadekar, Management Information Systems Text and Cases –3rd edition, 2010.

REFERENCE BOOKS

1. Kenneth C.Laudon & Jane P. Laudon, Management Information Systems managing the Digital Firm 9th edition, PHI.
2. Haag, Cummings,McCubrey, Management Information Systems for the Information Age 4th edition, TMH.

M.Sc (Software Systems) Degree Examination-Syllabus- for candidates admitted from 2015 – 2016 onwards

FIFTH SEMESTER

IDC 5: MICROPROCESSOR AND ASSEMBLY LANGUAGE PROGRAMMING

Maximum CIA: 30

Maximum CE: 70

Total Hours:

48

Objective: To enable the students to acquire the knowledge in basics of Microprocessor based system design and to develop the programming skills in 8085.

UNIT I (10 HOUR)

8085 MICROPROCESSOR: Introduction to Microcomputers –Microprocessors: Introduction to 8085 – Operations and bus Organization – Registers – Memory Organization - Mapping and types – Input Output Addressing – Interfacing devices.

UNIT II (10 HOUR)

8085 ARCHITECTURE AND TIMING: 8085 Based Microcomputer 8085 Architecture - Functional Block Diagram Of 8085 – 8085 Pin diagram. Memory and Instruction Fetch – 8085 Micro Processing Unit – Bus Timing-Demultiplexing the Bus AD₇ – AD₀ – Generating Control Signals – Decoding and Execution of an Instruction – Timing of the Memory Write Cycle and Read Cycle – Opcode Fetch Cycle Timing.

UNIT III (10 HOUR)

INSTRUCTION SET AND PROGRAMMING OF 8085: Instruction Classification – Instruction Format – Addressing Modes. Looping, Counting and Indexing –16 bit arithmetic instructions.

UNIT IV (9 HOUR)

LOOP AND JUMP INSTRUCTIONS: Memory related arithmetic instructions – Rotate- Compare instructions – Counters and time delay- Stack and Subroutines- Interrupts –Simple illustrative Programs.

UNIT V (9 HOUR)

PERIPHERAL DEVICES: 8255A PPI: Block Diagram of 8255A - 8259 Programmable Interrupt Controller – Interrupt Controller - Block Diagram of 8253 – DMA and 8257 DMA Controller – 8279 Keyboard Interfacing.

TEXT BOOK:

1. Ramesh S Goanker, “Microprocessor Architecture Programming and Application with 8085/8080A”, 6th Edition, New Age International (P) Ltd, 2013.

REFERENCE BOOKS:

1. Aditya. P. Mathur, “Introduction to Microprocessors”, 3rd Edition., Mc Graw hill, 2004.
2. S.Malarvizhi, “Microprocessor and Its Application”, 2nd Edition, Anuradha Agencies Publications, 2006.

M.Sc (Software Systems) Degree Examination – Syllabus for Candidates admitted from the Academic Year 2015-2016 onwards**SIXTH SEMESTER
ADDITIONAL CREDIT COURSE –BASICS OF ANDROID**

Maximum Marks: 100

Objective: On successful completion of this paper the students should have acquired expert knowledge in basics of Android Applications.

UNIT I

What is Android-History of Embedded device programming-Open handset alliance and android-Introduction to android-Downloading and installing eclipse-Downloading and installing the android SDK.

UNIT II

Exploring the android SDK-What is the android SDK-Application life cycle-Application: hello world – Creating your first android Projects in Eclipse-Examine the Android-created files.

UNIT III

Using the command-Line tools and the Android Emulator: Creating a Shell activity using the windows CLI-Creating the hello world!,Activity in the windows CLI. Using intents and the phone dialer: What are intents-Using the Dialer-Placing a call from your activity.

UNIT IV

Lists, Menus, and Other Views: Building the Activities-Using the menu, using the cell phone's GPS Functionality: using the android Location-Based API-Reading the GPS with the Android Location-Based API.

UNIT V

Application: Find a Friend: Creating a SQLite Database-Creating a Custom Content Provider-Creating the FindA Friend Activity-Running FindA Friend Activity, Android SDK Tool Reference-Emulator commands-Debug Bridge Commands.

TEXT BOOKS

J.F.DiMarzio, Android A Programmer's Guide, Tata McGraw-Hill Publication, 2010, New Delhi

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**SIXTH SEMESTER
ADDITIONAL CREDIT COURSE -E-COMMERCE**

Maximum Marks: 100

Objective

On successful completion of the course the students should have acquired expert knowledge of E-Commerce framework and types of electronic payments systems

UNIT I

Electronic Commerce Framework – Electronic Commerce of Media Convergence- the Anatomy of E-Commerce Applications – Electronic Commerce Applications – Electronic Commerce Organization Applications – Market Forces Influencing the I-Way – Components of the I-Way – Network Access Equipment – the Last Mile- Local Roads and Access Ramps – Global Information Distribution Networks – Public Policy Issues Shaping the I-Way

UNIT II

Architectural Framework For Electronic Commerce – World Wide Web (WWW) As the Architecture – Web Background- Hypertext Publishing – Technology Behind the Web – Security and the Web – Consumer-Oriented Applications – Mercantile Models From the Consumer’s Perspective – Mercantile Models From the Merchant’s Perspective

UNIT III

Types of Electronic Payment Systems – Digital Token-Based Electronic Payment Systems – Smart Cards and Electronic Payment Systems – Credit Card Based Electronic Payment Systems – Risk and Electronic Payment Systems – Designing Electronic Payment Systems -Electronic Data Interchange – EDI Applications In Business – EDI- Legal- Security- and Privacy Issues – EDI and Electronic Commerce.

UNIT IV

Internal Information Systems – Macro Forces and Internal Commerce – Work Flow Automation and Coordination Customization and Internal Commerce – Supply Chain Commerce Systems – Making A Business Case For A Document Library – Types of Digital Documents – Issues Behind Document Infrastructure – Corporate Data Warehouses.

UNIT V

The New Age of Information-Based Marketing – Advertising On the Internet- Charting the Online Marketing Process – Market Research – Search and Resource Discovery Paradigms – Information Search and Retrieval – Electronic Commerce Catalogs Or Directories – Information Filtering – Consumer – Data Interface Emerging Tools.

TEXT BOOK

1. Ravi Kalakota, Andrew B. Whinston, *Frontiers of Electronic Commerce*, 2nd Edition, Pearson Education, 2013, Asia.

REFERENCE BOOKS

1. Jeffery F. Rayport, Bernard J. Jaworski, *E- Commerce TMCH*, 2002, New Delhi.
2. P.T. Joseph, *E- Commerce – A Managerial Perspective*, 3rd Edition, PHI, Asia.

M.Sc (Software Systems) Degree Examination – Syllabus for Candidates admitted from the academic year 2015-2016 onwards**EIGHTH SEMESTER
PAPER 17 – MIDDLEWARE TECHNOLOGIES**

MAXIMUM CIA : 30
MAXIMUM CE : 70
TOTAL HOURS : 48

Objective : To Utilize The Sun J2EE Architecture For Creating Comprehensive Multi-Tiered Software In Java.

UNIT I [09 HOUR]

Java 2 Enterprise Edition Overview: J2EE and J2SE – Birth of J2EE – Databases – Why J2EE – J2EE Multi Tier Architecture: The Tier – Clients, Resources, and Components – Accessing Services – J2EE Multi-Tier Architecture – Client Tier Implementation – Web Tier Implementation – Enterprise JavaBeans Tier Implementation – Enterprise Information Systems Tier Implementation. Clients: Client Presentation – Client Input Validation – Client Control – Duplicate Client Request.

UNIT II [10 HOUR]

Java Servlets: Java Servlets And Common Gateway Interface Programming – Benefits Of Using A Java Servlet – A Simple Java Servlet – Anatomy Of A Java Servlet – Deployment Descriptor – Reading Data From A Client – Reading HTTP Request Headers – Sending Data To A Client And Writing The HTTP Response Header. Java Server Pages: JSP Tags – Variables And Objects – Methods – Control Statements – Loops – Tomcat – Request String – User Sessions – Cookies – Session Objects.

UNIT III [10 HOUR]

Enterprise Java Bean: EJB container – EJB Classes – EJB Interfaces. Deployment Descriptors: The Anatomy of a Deployment Descriptor – Environment Elements – Referencing EJB – Reference Other Resource - Sharing Resource - Security Elements – Query Element – Relationship Elements – Assembly Element – Session Java Bean – Entity Java Bean – Message Driven Bean – JAR File.

UNIT IV [10 HOUR]

Architecting Web Services: What Are Web Services? – Business Motivations For Web Services – Technical Motivations For Web Services: Limitations of CORBA and DCOM – Problems With Business Modeling – Reuse And Integration Goals – The Service Oriented Architecture (SOA) – Implementation Architectural View – Logical – Deployment – Process. Web Services Building Blocks (SOAP): Introduction To SOAP – Basic SOAP Syntax – Sending SOAP Messages – SOAP Implementations – The Future Of SOAP.

UNIT V

[09 HOUR]

The Struts Framework: Introduction To Struts – Building A Simple Struts Application – The Model Layer – The View Layer – The Control Layer – Securing Struts Applications.

TEXT BOOKS

1. Jim Keogh, The Complete Reference J2EE, Tata McGraw-Hill Edition 2002.

REFERENCE BOOK

1. Ron Schmelzer, Travis VanderSypen, Jason Bloomberg, Madhu Sidalingaiah, Sam Hunting, Michael D. Qualls, David Houlding, Chad Darby, Diane Kennedy, XML And Web Services, by Pearson Education, 2002, India.
2. James Holmes, Herbert Schildt, The Complete Reference Struts, Tata McGraw – Hill Edition 2004, Noida.
3. Elink-<https://smtebooks.com> › Programming & IT
4. Elink- <https://www.crcpress.com/The-Complete-Book-of-Middleware/.../9780849312724>

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**EIGHTH SEMESTER
PART-III - PAPER 18 – ANGULAR JS**

Maximum CIA : 30

Maximum CE : 70

Total Hours : 48

Objective: On successful completion of this paper, student should have gained knowledge in JavaScript.

Unit I (09 Hours)

JavaScript You Need to Know-The Basics of Angular JS.

Unit II (10 Hours)

Introduction to MVC-Filters and Modules.

Unit III (10 Hours)

Directives-Working with Forms.

Unit IV (10 Hours)

Services and Server Communication-Organizing Views.

Unit V (09 Hours)

Angular JS Animation -Deployment Considerations.

Text Book

1. Andrew Grant, Beginning Angular JS, Apress, 2015, ISBN-13 (pbk): 978-1-4842-0161-9
ISBN-13 (electronic): 978-1-4842-0160-2.

Reference Books

1. Web link- <http://1.droppdf.com/files/hw9uC/beginning-angularjs.pdf>.
2. ANGULARJS: Programming, For Beginners, Learn Coding Fast! Angular JS Language Crash Course, A Quick Start Guide, Tutorial Book with Hands-On Projects, In Easy Steps! An Ultimate Beginner's Guide! By Ray Yao.

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**EIGHTH SEMESTER
PAPER 19– OBJECT ORIENTED ANALYSIS AND DESIGN USING UML**

MAXIMUM CIA : 30
MAXIMUM CE : 70
TOTAL HOURS : 60

Objective:

On successful completion of this paper the students should have acquired expert knowledge of Basic Concepts, Object Oriented Analysis and Design, Unified Modeling Language.

UNIT I [12 HOUR]

The Object Model- The Evolution of the Object Model – Elements of the Object Model – Applying the Object Model- Classes and Objects- The Nature of an Object –Relationships among Objects – The Nature of a Class – Relationships among Classes –The Interplay of Classes and Objects – Building Quality Classes and Objects.

UNIT II [12 HOUR]

Classification- The importance of Proper Classification – Identifying Classes and Objects – Key Abstractions and Mechanisms- The Notation- Elements of the Notation- Class Diagrams – State Transition Diagrams.

UNIT III [12 HOUR]

Object Diagrams – Interaction Diagrams – Module Diagrams – Process Diagrams –Applying the Notation- The Process- Principles – Micro Development Process – Macro Development Process.

UNIT IV [12 HOUR]

Design Patterns- Creational – Structural – Behavioural Patterns. Pragmatics- Management and Planning – Staffing – Release Management – Reuse – Quality Assurance and Metrics – Documentation – Tools – The benefits and Risks of Object – Oriented Development.

UNIT V [12 HOUR]

Object Oriented Programming Languages - Case Studies: Weather Monitoring Station -Inventory Tracking – Traffic Management.

TEXT BOOKS

1. Object Oriented Analysis and Design with UML 1st Edition (English, Paperback, Daminni Grover)Edition: 1stEdition, 2012
2. Grady Booch ,Object Oriented Analysis and Design,2nd Edition, Pearson Education, 2003,Asia (Chapters:2,3,4,5,6,7,8,10,12)

3. Mahesh P. Matha, "Object – Oriented Analysis and design using UML An introduction to Unified Process and Design Patterns, Prentice-Hall of India Pvt.Ltd, 2002, Asia . (Chapters: 8,9,10)

REFERENCE BOOKS

1. Martin Fowler, UML Distilled A Brief Guide to the Standard Object Modeling Language
2. 3rd Edition, Pearson Education, 2003, Asia.
3. James Rumbaugh et al, Object Oriented Modeling and Design, Pearson Education ,2003, Asia.
4. Ebook : <http://www.amazon.in/Object-Oriented-Analysis-Design-Applications-Grady-ebook/dp/B004X1D1Q2>
5. Ebook : www.kopykitab.com/ebooks/2016/03/6183/sample/sample_6183.pdf
6. Ebook : <https://www.amazon.in/Object-Oriented-Analysis-Design-Using-ebook/>
7. Ebook : <https://www.amazon.com/Advanced-Object-Oriented-Analysis...ebook/dp/B001E95SVC>

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EIGHTH SEMESTER

PAPER 20 - WAP and XML

MAXIMUM CIA : 30
MAXIMUM CE : 70
TOTAL HOURS : 60

Objective:

On successful completion of this paper the students should have acquired expert knowledge of the principles of WAP & XML.

UNIT I [12 HOUR]

The Rise of Mobile Data-Market Convergence Enabling Convergence – Key Services for the Mobile Internet-Overview of the Wireless Application Protocol- The Origins of WAP- Overview of the WAP Architecture – Components of the WAP Standard – Network Infrastructure Services Supporting WAP Clients – WAP Architecture Design Principles – Relationship to Other Standards.

UNIT II [12 HOUR]

The Wireless Markup Language-Overview – The WML Document Model – WML Authoring – URLs Identify Content – Markup Basics – WML – Basics – Basic Content – Events- Tasks and Bindings. WML : Libraries. XML: Structure of an XML : DTD-Schema-Working with XML Schema-XML style sheet.

UNIT III [12 HOUR]

Variables – Other Content– Controls – Miscellaneous Markup –Sending Information – Application Security – Other Data-The Meta Element – Document Type Declarations – Errors and Browser Limitations – Content Generation – WML Version Negotiation.

UNIT IV [12 HOUR]

User Interface Design- Making Wireless Applications-Easy to Use- Web Site Design- Computer Terminals Vs Mobile Terminals – Designing a Usable WAP Site – Structured Usability Methods – User Interface Design Guidelines – Design Guidelines for Selected WML Elements.

UNIT V [12 HOUR]

Wireless Telephony Applications-Overview of the WTA Architecture – WTA Client Framework – WTA Server & Security – Design Considerations – Application Creation Toolbox – Future WTA Enhancements. The Mobile Internet Future-Better Content, Easier Access – Beyond Browsing – Beyond Cellular – Mobile Data Unleashed.

TEXT BOOK

1. Kris Jamsa, " WML & WMLScript: A Beginner's Guide"- Osborne/McGraw-Hill, 2001

2. Sandeep Singhal, Thomas Bridgman, Lalitha Suryanarayana, Daniel Mauney, Jari Alvinen, David Bevis, Jim Chan, Stefan Hild, The Wireless Application Protocol, Pearson Education, 2003, Asia.

REFERENCE BOOK

1. Book:<https://books.google.co.in/books/isbn=813170128X>
2. Web design with XML BY Manfred Knobloch, Matthias Kopp
3. XML Developer's Guide .<https://books.google.co.in/books?isbn=0072126485>

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**EIGHTH SEMESTER
PRACTICAL 12 –MIDDLEWARE TECHNOLOGIES**

MAXIMUM CIA : 40
MAXIMUM CE : 60
TOTAL HOURS : 60

Objective:

To inculcate knowledge about Advanced Java and helps to specialize in J2EE.

PROGRAM LIST

- 1) Program to get username and password and display it in new page using jsp.
- 2) Program to illustrate usage of atleast four jsp tags.
- 3) Program to develop an application for college website.
- 4) Program to get user input and validate it with database using jsp.
- 5) Program to develop client - server communication using servlet
- 6) Program for servlet config.
- 7) Program to insert and delete data in a database using servlet.
- 8) Program to implement Session Bean.
- 9) Program to implement Entity Bean.
- 10) Program to implement Message Driven Bean.
- 11) Program to validate an input from database using struts.
- 12) Program to Client-side JavaScript Validation using struts.

TEXT BOOKS

1. Jim Keogh, The Complete Reference J2EE, Tata McGraw-Hill Edition 2002.

REFERENCE BOOKS

1. Ron Schmelzer, Travis VanderSypen, Jason Bloomberg, Madhu Sidalgaiah, Sam Hunting, Michael D. Qualls, David Houlding, Chad Darby, Diane Kennedy, XML And Web Services, by Pearson Education, 2002, India

2. James Holmes, Herbert Schildt, The Complete Reference Struts, Tata McGraw – Hill Edition 2004, Noida.

M.Sc (Software Systems) Degree Examination – Syllabus for Candidates admitted from the academic year 2015-2016 onwards

**EIGHTH SEMESTER
ELECTIVE III- DATA MINING AND WAREHOUSING**

MAXIMUM CIA : 30

MAXIMUM CE : 70

TOTAL HOURS : 60

Objective:

On successful completion of the paper students should have acquired expert knowledge of Data Mining and Data warehousing Techniques.

UNIT I [12 HOUR]

Data Mining-Definition-Basic Data Mining Tasks – Data Mining versus Knowledge Discovery in Databases – Data Mining Issues – Data Mining Metrics – Social Implications of Data Mining – Data Mining from a Database Perspective-Data Mining Techniques- A Statistical Perspective on Data Mining –Similarity Measures – Decision Trees – Neural Networks – Genetic Algorithms.

UNIT II [12 HOUR]

Classification– Statistical Based Algorithms - Distance Based Algorithms – Decision Tree Based Algorithms - Neural Network Based Algorithms – Rule Based Algorithms –Combining Techniques.

UNIT III [12 HOUR]

Clustering– Similarity and Distance Measures – Outliers – Hierarchical Algorithms - Partitional Algorithms-Association Rules - Large Item Sets - Basic Algorithms –Comparing Approaches-Incremental Rules – Advanced Association Rules Techniques – Measuring the Quality of Rules.

UNIT IV [12 HOUR]

Data Warehousing-Characteristics of a Data Warehouse – Data Marts –Other Aspects of Data Mart-Online Analytical Processing - OLTP & OLAP Systems – Data Modeling- Star Schema for Multidimensional View – Multifact Star Schema or Snow Flake Schema – OLAP TOOLS – State of the Market – OLAP TOOLS and the Internet.

UNIT V [12 HOUR]

Developing a Data Warehouse- Why and How to Build a Data Warehouse –Data Warehouse Architectural Strategies and Organization Issues - Design Consideration – Data Content – Metadata Distribution of Data – Tools for Data Warehousing – Performance Considerations – Crucial Decisions in Designing a Data Warehouse- Applications of Data Warehousing and Data Mining in Government – National Data Warehouses – Other Areas for Data Warehousing and Data Mining-Bio medical applications in data mining.

TEXT BOOKS

1. Margaret H. Dunham, Data Mining Introductory and Advanced Topics, Pearson Education, 2015, Asia. [UNIT – I, II, III]
2. C.S.R. Prabhu, Data Warehousing Concepts, Techniques, Products and Applications, 3rd Edition, PHI Private Limited, NewDelhi.[UNIT – IV , V]

REFERENCE BOOKS

1. Arun K.Pujari, Techniques,2nd Edition ,Universities Press Private Limited, 2007, India. Alex Berson, Stephen J. Smith, Data warehousing, Data mining, and OLAP, TMCH,2003, NewDelhi.
2. Jiawei Han & Micheline Kamber, Data mining Concepts & Techniques, 2nd Edition, Academic press,2001,India.
3. Books: www.amazon.in/Data-Mining-Introductory-Advanced-Topics/.../013088... Margaret H. Dunham (Author) EMC Education.

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**EIGHTH SEMESTER
ELECTIVE III - GRID COMPUTING**

MAXIMUM CIA : 30
MAXIMUM CE : 70
TOTAL HOURS : 60

Objective : To acquire knowledge about how Grid Computing is evolving as an open standard for resource sharing.

UNIT I [12 HOUR]

Early Grid Activities-Current Grid Activities-An Overview of Grid Business Ares-Grid Applications-Grid Infrastructure. Grid Computing Organization and their Roles.

UNIT II [12 HOUR]

Grid Computing Anatomy-Grid Computing Road Map- Merging the Grid Services Architecture with the Web Services Architecture.

UNIT III [12 HOUR]

Open Grid Services Architecture (OGSA)- Some Sample Use Cases that drive the OGSA-OGSA Platform.

UNIT IV [12 HOUR]

Open Grid Service Infrastructure: Introduction-Grid Services- Technical Details of OGSISpecification-Grid Service: Naming and Change Management.

UNIT V [12 HOUR]

OGSA Basic Services: Common Management Model-Service Domains-Policy Architecture-Security Architecture.GLOBUS GT3 Toolkit: A Sample Implementation.

TEXT BOOK

1.Joshy Joesph, Craig Fellenstein, Grid Computing, 2nd edition, IBM Press, 2005,USA.

REFERENCE BOOK

1.Fran Berman, Geoffrey Fox, Anthony J. G. Hey, Grid Computing: Making the Global Infrastructure a Reality , Wiley India Pvt Ltd.,2010.

2.ELINK: www.d.umn.edu/~joshi031/files/grid-computing.pdf

3.ELINK: <https://www.redbooks.ibm.com/redbooks/pdfs/sg246778.pdf>

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**EIGHTH SEMESTER
ELECTIVE III - ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS**

MAXIMUM CIA : 30
MAXIMUM CE : 70
TOTAL HOURS : 60

Objective:

On successful completion of this paper the students should have acquired expert knowledge in the basics of AI, Heuristic Search, Knowledge Representation and Expert Systems.

UNIT I [12 HOUR]

Overview- AI Problems – AI Techniques –The Level of the Model- Criteria for Success-Problems- Problem Spaces and Search- State Space Search – Production Systems – Problem Characteristics – Production System Characteristics-Issues in Design of Search.

UNIT II [12 HOUR]

Heuristic Search Techniques- Generate and Test – Hill Climbing – Best First Search- Problem Reduction- Constraint Satisfaction- Means-Ends Analysis.

UNIT III [12 HOUR]

Knowledge Representation Issues- Representations and Mappings – Approaches to Knowledge Representations – Issues in Knowledge Representations – Frame Problem.

UNIT IV [12 HOUR]

Using Predicate Logic-Representing Simple Facts in Logic – Representing Instance and Isa Relationships – Computable Functions and Predicates – Resolution- Representing Knowledge Using Rules- Procedural Vs Declarative knowledge – Logic Programming – Forward Vs Backward Reasoning.

UNIT V [12 HOUR]

Expert Systems- Representing and Using Domain Knowledge-Expert System Shells-Explanation-Knowledge Acquisition-Real Time Search-Perception-Action.

TEXT BOOK

1. Elaine Rich and Kelvin Knight, Artificial Intelligence, 3rd Edition, Tata McGraw Hill, 2001, New Delhi.

REFERENCE BOOKS

1. Donald A. Waterman, A Guide to Expert Systems, Techknowledge series in Knowledge Engineering, 2nd Edition, 2003, India.
2. N.J. Nilson, Principles of Artificial Intelligence, 2nd Edition, Tiega Press, Polo Alto, 2001, India.
3. Stuart Russell & Peter Norvig, Artificial Intelligence a modern Approach, 2nd Edition, Pearson Education, Asia.

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**EIGHTH SEMESTER
PART-III - PRACTICAL 13 –ANGULAR JS PROGRAMMING**

Maximum CIA : 40

Maximum CE : 60

Total Hours : 60

Objective: To inculcate knowledge about Advanced Java and helps to specialize in J2EE.

Program List

1. Create a program using Statement Execution.
2. Create a program to Declaring Multiple Variables at Once.
3. Create a program for Accessing and Changing Object Values.
4. Create a program using A Function with Arguments and a Return Value.
5. Develop a program using Converting Types and Then Comparing.
6. Develop a program using Conditional Statements.
7. Develop a program using Loop Statements.
8. Create a program using Arrays.
9. Develop a program using Pre- vs. Post-Increment Behavior.
10. Create a program using Angular Filters.
11. Develop a program using HTML Code for a User Registration Form.
12. Develop a program using A Basic Transform.

Text Book

1. Beginning of Angular JS by Andrew Grant - ISBN-13 (pbk): 978-1-4842-0161-9 ISBN-13 (electronic): 978-1-4842-0160-2.

Reference Books

1. Web link- <http://1.droppdf.com/files/hw9uC/beginning-angularjs.pdf>.
2. ANGULARJS: Programming, For Beginners, Learn Coding Fast! Angular JS Language Crash Course, A Quick Start Guide, Tutorial Book with Hands-On Projects, In Easy Steps! An Ultimate Beginner's Guide! By Ray Yao.

M.Sc (Software Systems) Degree Examination – Syllabus for candidates admitted from the academic year 2015-2016 onwards**NINTH SEMESTER
PAPER 21: SOFTWARE TESTING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objective: On successful completion of this paper the students should have acquired expert knowledge of basics of software testing.

Unit I (10 Hours)
Software Testing Fundamentals-Overview--Software Testing Perspective-Effective Software Testing-Types of Testing-Principles of Software Testing-Testing and Debugging.

Unit II (10 Hours)
Software Testability- Testability Artifacts-Testability Facilitators-Levels of Testability-Testability Estimation-Testability Analysis-Incorporating Testability-Testability and Object-Oriented Software Quality- Static Testing- Principles of Static Testing-Static Testing Perspective-Automated Techniques-Static versus Dynamic Testing.

Unit III (10 Hours)
Black Box Testing -Techniques –Equivalence partitioning-Boundary Value Analysis-Robustness Testing-Syntax Testing-Finite State Testing- White box Testing - Techniques-Modeling-Basis Path Testing-Control Structure Testing-Mutation Testing-Gray Box Testing.

Unit IV (09 Hours)
Software Testing Strategies -Strategic Issues-Strategic Premises-Generic Testing Strategy-Completion of Testing-Software Component Testing-Testing Real Time Systems-Models for Software Testing -Planning for software Testing -Test Plan Specification-Leveled Test Plan-Development of Test Plan-Master Test Plan-Phase Wise Test Plan - Unit Testing.

Unit V (09 Hours)
Software Fault Tolerances-Need for Software Fault Tolerance-Software Failure-Principles-Techniques-Fault Based Testing Methods-Object Oriented Testing -Object Oriented Paradigm-Impacts of Object Orientation-Pertinent Issues-Testing Model-Software Test Strategy-Requirement Testing-Design Testing- Integration Testing-System Testing – Performance Testing – Functional Testing – Usability Testing – Acceptance Testing – Selenium testing.

Text Book

1. K. Mustafa and R.A. Khan, Software Testing Concepts and Practices, Paper Back Edition, 2000, India.

Reference Books

1. Myers and Glenford .J, The Art of Software Testing, John-Wiley & Sons, 1979, New Delhi.
2. Roger .S. Pressman, Software Engineering – A Practitioner’s Approach, Mc-Graw Hill, 5th Edition, 2001,New Delhi.
3. Marnie.L. Hutcheson, Software Testing Fundamentals, 2nd Edition Wiley publications, 2007, India.
4. Boris Beizer, Software Testing Techniques, 2nd Edition, Dreamtech Press, 2003, USA.

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**NINTH SEMESTER
PART-III - PAPER 22: SOFTWARE QUALITY ASSURANCE**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 48

Objective: On successful completion of this paper the students should have understood the factors to be considered for quality software.

Unit I (10 Hours)
Introduction - Quality and the quality system - Standards and procedures – Technical activities. Software Tasks - Management responsibility - Quality system - Contract Review - Design control - Document control - Purchasing - Product identification and trace ability.

Unit II (10 Hours)
Process control - and checking - Identification of Testing Tolls - Control of non-informing product - Corrective action, Development and Quality Plan.

Unit III (09 Hours)
Handling, Storage, Packaging and delivery - Quality records - Internal Quality Audits - Training - Servicing - Statistical Techniques.

Unit IV (10 Hours)
QA and New technologies - QA and Human - Computer Interface - Process Modeling - Standards and procedures.

Unit V (09 Hours)
ISO 9001 - Elements of ISO 9001 - Improving Quality system –DAST-Vera code-SONAR.

Text Book

1. Darrel Ince —An introduction to S/W Quality Assurance its Implementation, McGraw Hill Book Company Ltd, 1994.

Reference Books

1. Darrel Ince, ISO 9001 and S/W Quality Assurance, McGraw- Hill Book Company Ltd, 1994.
2. Daniel Galin, Software Quality Assurance – From theory to implementation, Pearson Education Limited, 2004.

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**NINTH SEMESTER
PAPER 23 - PHP PROGRAMMING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objective: To learn and understand various concepts of PHP programming and develop the web applications.

Unit I (10 Hours)

The Building Blocks of PHP Variables - Data Types - Operators and Expressions - Constants – Flow Control Functions in PHP Switching Flow - Loops - Code Blocks and Browser Output - Working with Functions What Is a Function? - Calling Functions - Defining a Function - Returning Values from User-Defined Functions - Variable Scope - Saving State between Function Calls with the static Statement - More about Arguments - Testing for the Existence of a Function

Unit II (10 Hours)

Working with Arrays What Are Arrays? - Creating Arrays - Some Array-Related Functions - Working with Objects Creating an Object - Object Inheritance - Working with Strings, Dates, and Time Formatting Strings with PHP - Investigating Strings in PHP - Manipulating Strings with PHP - Using Date and Time Functions in PHP - Other String, Date, and Time Functions - Working with Forms Creating a Simple Input Form - Accessing Form Input with User-Defined Arrays - Combining HTML and PHP Code on a Single Page - Using Hidden Fields to Save State - Redirecting the User - Sending Mail on Form Submission - Working with File Uploads

Unit III (10 Hours)

Working with Cookies and User Sessions Introducing Cookies - Setting a Cookie with PHP - Deleting a Cookie with PHP - Session Function Overview - Starting a Session - Working with Session - Passing Session IDs in the Query String - Destroying Sessions and Unsetting Variables - Using Sessions in an Environment with Registered Users - Working with Files and Directories Including Files with include() - Validating Files - Creating and Deleting Files - Opening a File for Writing, Reading, or Appending - Reading from Files - Writing or Appending to a File - Working with Directories - Opening Pipes to and from Processes Using popen() - Running Commands with exec() - Running Commands with system() or passthru().

Unit IV (09 Hours)

Working with Images Understanding the Image-Creation Process - Necessary Modifications to PHP - Drawing a New Image - Getting Fancy with Pie Charts - Modifying Existing Images - Image Creation from User Input - Using Images Created by Scripts – Understanding the Database Design Process - The Importance of Good Database Design - Types of Table Relationships - Understanding Normalization - Following the Design Process

Unit V (09 Hours)

Basic SQL Commands - MySQL Data Types - Table Creation Syntax - Using the INSERT Command -Using the SELECT Command - Using WHERE in Your Queries - Selecting from Multiple Tables - Using the UPDATE Command to Modify Records - Using the REPLACE Command - Using the DELETE Command -Frequently Used String Functions in MySQL -

Using Date and Time Functions in MySQL -Using Transactions and Stored Procedures in MySQL What Are Transactions? - What Are Stored Procedures? Interacting with MySQL Using PHP MySQL versus MySQLi Functions - Connecting to MySQL with PHP - Working with MySQL Data.

Text Books

1. Julie C. Meloni, PHP MYSQL and APACHE, Pearson Education, India, 2009.
2. Luke Welling, Laura Thomson, PHP and MYSQL, Pearson Education, India, 2010.

Reference Books

1. Larry Ullam, "PHP for the Web: Visual Quick Start Guide", 5th Edition, Peachpit Press Publication, 2016.
2. <http://www.w3schools.com/php/default.asp>.
3. www.tutorialspoint.com/php/php_tutorial.pdf

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**NINTH SEMESTER
PART-III - PAPER 24 - BIG DATA AND ANALYTICS**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objective: To know the importance of big data and to understand the technologies involved in big data analysis.

Unit-1 (10 Hours)

Grasping the fundamentals of big data: The evolution of data management - Understanding the waves of managing data- Defining big data- Building a Successful Big Data Management Architecture- Examining Big Data Types – Big Data usage in Business like Medical and Research.

Unit -II (10 Hours)

Old Meets New: Distributed Computing. Technology Foundations for Big Data.

Unit -III (10 Hours)

Virtualization and How It Supports Distributed Computing- Examining the Cloud and Big Data.

Unit -IV (09 Hours)

Big Data Management: Operational Databases- Map Reduce Fundamentals- Exploring the World of Hadoop- The Hadoop Foundation and Ecosystem.

Unit -V (09 Hours)

Analytics and Big Data. The Part of Tens-Ten Big Data Best Practices- Ten Great Big Data Resources- Ten Big Data Do's and Don'ts.

Text Books

1. Judith S. Hurwitz, Alan Nugent, Fern Halper, Marcia Kaufman, “Big Data for Dummies”, John Wiley & Sons, Inc, 2013.
2. Alan Anderson, “Statistics for Big Data for Dummies”, John Wiley & Sons, Inc, 2015.

Reference Books

1. Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data, EMC Education Services, 2015.
2. Bernard Marr, “Big Data in Practice: How 45 Successful Companies Used Big Data Analytics to Deliver Extraordinary Results”, Wiley Publication, 2016.
3. E book link :
<https://eecs.wsu.edu/~yinghui/mat/courses/fall%202015/resources/Big%20data%20for%20dummies.pdf>

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**NINTH SEMESTER
PRACTICAL 14: SOFTWARE TESTING TOOLS**

Maximum CIA: 40
Maximum CE: 60
Total Hours: 60

Objective: On the successful study of this paper, the students should have acquired the professional skill in developing software testing programs.

Program List

Software Testing Can Be performed To the Methods Given below using any of the Testing Tools Selenium/ load runner / QTP/SILK TEST Testing Tools.

1. Developing a program using GUI Check point for Object or Window.
2. Developing a program using GUI Check point for Multiple Object.
3. Developing a program using Loop Testing.
4. Developing a program using Functional Testing.
5. Developing a program using Boundary Testing.
6. Developing a program using Stress Testing.
7. Developing a program using White Box Testing.
8. Developing a program using Regression Testing.
9. Developing a program using Performance Testing.
10. Developing a program using Unit Testing.
11. Developing a program using Integration Testing.
12. Developing a program using System Testing.

Text Book

1. K. Mustafa and R.A. Khan, Software Testing Concepts and Practices, Paper Back Edition, 2000, India.

Reference Book

1. Boris Beizer, Software Testing Techniques, 2nd Edition, Dreamtech Press, 2003, USA.

NINTH SEMESTER

PRACTICAL 15: PHP PROGRAMMING

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Objective: On the successful study of this paper, the students should have acquired the professional skill in developing PHP programs.

Program List

1. Program to change background color based on day of the week using if else and else if statements.
2. Program to pass Session ID and destroying sessions using query strings.
3. Developing a Program to send mail on form submission.
4. Developing a Program for displaying last updated date and time of the file.
5. Developing a Program for form validation.
6. Developing a Program for setting and retrieving cookies.
7. Developing a Program for file creation and displaying the contents of the file.
8. Write a PHP program to store page views count in SESSION, to increment the count on each refresh, and to show the count on web page
9. Send e-mail using PHP.
10. Develop a website about yourselves using PHP.
11. Developing a Program for creating a MySQL table using a PHP script.
12. Developing a Program for adding and deleting users from MySQL.

Text Books

1. Julie C. Meloni, PHP MYSQL and APACHE, Pearson Education, India, 2009.
2. 1. Luke Welling, Laura Thomson, PHP and MYSQL, Pearson Education, India, 2010.

Reference Books

1. <https://www.madinpoly.com/pdf/labmanual/5/WT%20MANUAL.pdf>
2. <http://www.informit.com/articles/article.aspx?p=26146&seqNum=5>
3. https://www.w3schools.com/php/php_form_validation.asp
4. <https://www.cloudways.com/blog/php-string-functions-with-examples/>
5. <https://davidwalsh.name/basic-php-file-handling-create-open-read-write-append-close-delete>

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NINTH SEMESTER

PART– III - ELECTIVE IV - SECURITY IN COMPUTING

Maximum CIA	: 30
Maximum CE	: 70
Total Hours	: 48

Objective: On the successful completion of the course, the students should have learnt the way of establishing security in computing.

Unit I (10 Hours)
 Characteristics of Computer Instruction – Attacks – The Meaning of Computer Security – Computer Criminals – Methods of Defense – Terminology – Substitution Ciphers – Transpositions-DES- AES Encryption Algorithm –Public Key Encryption-Uses of Encryption.

Unit II (10 Hours)
 Program Security- Protection in General Purpose Operating Systems- Memory and Address Production – File Production – User Authentication – Web security - Secure password – Privacy – Safe Computing – Online Scam – Mobile protection.

Unit III (10 Hours)
 Designing Trusted Operating Systems – Models Of Security- Trusted Operating System Design- Assurance and Implementation.

Unit IV (09 Hours)
 Database Security – Introduction to Databases- Requirements – Reliability and Integrity – Multilevel Database.

Unit V (09 Hours)
 Security in Networks – Network Concepts –Threats – Network Security Controls – Firewalls - Secure E-Mail – Risk Analysis – Organizational and Physical Security.

Text Book

1. Charles P. Pfleeger. Security in Computing, 3rd Edition, Prentice Hall Pvt. Ltd, 2003.

Reference Books

1. Atul Kahate, Cryptography and Network Security, Tata McGraw Hill Publications, 2003, India.
2. William Stallings, Cryptography and Network Security Principles and Practices, 3rd Edition, Pearson Education, 2003, India.
3. Ebook : [www.amazon.in/Security-Computing-4th-Charles...ebook/..](http://www.amazon.in/Security-Computing-4th-Charles...ebook/)

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**NINTH SEMESTER
ELECTIVE IV- CLOUD COMPUTING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objective: To inculcate knowledge about Cloud Computing. This course focuses on learning emerging issues related to Cloud computing technology.

Unit I (10 Hours)

Cloud computing basics: cloud computing overview-applications-intranets and the cloud-your organization and cloud computing: benefits-security concerns.

Unit II (10 Hours)

Cloud computing with the titans: google-emc-microsoft-amazon-ibm-partnerships. The business case for going to the cloud: cloud computing services- how those applications help business

Unit III (09 Hours)

Cloud computing technology: hardware and infrastructure: clients-security-network-services-accessing the cloud: platforms-web applications-web apis-web browsers.

Unit IV (09 Hours)

Cloud storage: overview-cloud storage providers-standards: application-client-infrastructure-service

Unit V (10 Hours)

Software plus Service-Developing Applications.

Text Books

1. Anthony T.Velte, Toby J.Velte, Robert Elsenpeter. 2010. Cloud Computing Practical Approach, 1st Edition, Tata McGraw Hill, New Delhi.
2. Dr Kumar Saurabh, 2012 , Cloud Computing, 2nd Edition, Wiley India.

Reference Books

1. Barrie Sosinsky .2010. Cloud Computing Bible, Wiley- India.
2. Rajkumar Buyya, James Broberg, Andrzej M Goscinski. 2011. Tata Mc-Graw Hill, New Delhi.
3. Ronald L. Krutz, Russell Dean Vines. 2010. Cloud Security: A Comprehensive Guide to Secure Cloud Computing, Wiley –India.
4. Michael Miller, Cloud Computing, Pearson Education, New Delhi, 2009.
5. en.wikipedia.org/wiki/Cloud_computing
6. www.ibm.com/cloud-computing/in/en/
7. www.oracle.com/CloudComputing
8. www.microsoft.com/en-us/cloud/default.aspx

**NINTH SEMESTER
ELECTIVE IV– NEURAL NETWORKS AND FUZZY LOGIC**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 48

Objective: On successful completion of this paper the students should have acquired expert knowledge of basics of Neural Networks and Fuzzy Logic to.

Unit I (10 Hours)

Fundamentals of Neural Networks-Basic concepts of Neural Networks - Human Brain - Model of an Artificial Neuron - Neural Network Architectures- Characteristics of Neural Networks - Learning Methods - Taxonomy of Neural Network Architectures-History of Neural Network Research-Early Neural Network Architectures .

Unit II (10 Hours)

Back propagation Networks- Architecture of a Back propagation Network - Back propagation Learning - Applications– Selection of Various Parameters in BPN- Variations of Standard Back Propagation Algorithm.

Unit III (10 Hours)

Adaptive Resonance Theory – Overview - ART1 - ART2 - Applications.

Unit IV (9 Hours)

Fuzzy Set Theory-Fuzzy versus Crisp - Crisp sets - Fuzzy sets - Crisp Relations - Fuzzy Relations.

Unit V (9 Hours)

Fuzzy Systems- Crisp Logic - Predicate Logic - Fuzzy Logic - Fuzzy Rule Based System - Defuzzification Methods.

Text Book

1. S.Rajasekaran, G.A.Vijayalakshmi Pai, Neural Networks, Fuzzy logic, Genetic Algorithms Synthesis and Applications, 2nd Edition, PHI, 2003, Asia.

Reference Books

1. James A. Freema, David M.Skapura, Neural Networks – Algorithms, Applications and Programming Techniques, Pearson Education, 2003, Asia.
2. Fredric M.Ham, Ivica Kostanic, Principles of Neuro Computing for Science of Engineering, 2nd Edition, TMCH, 2003, New Delhi.

BOARD: MCA
MASTER OF COMPUTER APPLICATIONS (MCA) DEGREE COURSE
SCHEME OF EXAMINATIONS-(CBCS PATTERN)
For Candidates admitted from the Academic Year 2018-2019 Onwards

Subject Codes	Paper	Subject Title	Ins.Hr / week	Examinations				Credits
				Duration (Hour)	CIA	CE	Total	
SEMESTER I								
15MCA101	Paper 1	Digital Electronics and Computer Organization	5	3	30	70	100	4
15MCA102	Paper 2	Programming Language I - C	5	3	30	70	100	4
15MCA103	Paper 3	Data Structures	6	3	30	70	100	4
15MCAP01	Practical 1	C	5	3	40	60	100	4
15MCAP02	Practical 2	Data Structures	5	3	40	60	100	4
15MCAID1	IDC 1	Numerical and Statistical Methods#	4	3	-	50	50	2
		TOTAL	30				550	22
SEMESTER II								
15MCA201	Paper 4	Programming Language II - C++	4	3	30	70	100	4
15MCA202	Paper 5	Web Programming	4	3	30	70	100	4
15MCA203	Paper 6	Operating System	4	3	30	70	100	4
15MCA204	Paper 7	Computer Networks	4	3	30	70	100	4
15MCAP03	Practical 3	C++	5	3	30	70	100	4
15MCAP04	Practical 4	Web Programming	5	3	40	60	100	4
15MCAID2	IDC 2	Operations Research#	4	3	-	50	50	2
		TOTAL	30				650	26
SEMESTER III								
18MCA301	Paper 8	Advanced Computer Security	4	3	30	70	100	4
15MCA302	Paper 9	Mobile Computing	3	3	30	70	100	4
18MCA303	Paper 10	Oracle 10g Administration	4	3	30	70	100	4
15MCA304	Paper 11	Software Testing	4	3	30	70	100	3
18MCAP05	Practical 5	Oracle 10g Administration	5	3	40	60	100	4
15MCAP06	Practical 6	Software Testing Tools	5	3	40	60	100	4
18MCAE01/ 15MCAE02/ 18MCAE03/	Elective-I	Object Oriented Software Engineering/ MultiMedia and its Applications / Principles of Programming Language	5	3	30	70	100	4
		TOTAL	30				700	27

SEMESTER IV								
15MCA401	Paper 12	Middleware Technologies	4	3	30	70	100	4
15MCA402	Paper 13	PHP Programming	4	3	30	70	100	4
18MCA403	Paper 14	Internet of Things	4	3	30	70	100	3
15MCAP07	Practical 7	Middleware Technologies	5	3	40	60	100	4
15MCAP08	Practical 8	PHP Programming	5	3	40	60	100	4
15MCAE04/ 15MCAE05/ 18MCAE06	Elective-II	E-Commerce / Cloud Computing / Information System Security	5	3	30	70	100	4
15MCAID3	IDC 3	Principles of Accountancy #	3	3	-	50	50	2
		TOTAL	30				650	25
SEMESTER V								
15MCA501	Paper 15	.Net Framework	4	3	30	70	100	4
18MCA502	Paper 16	Internetworking with TCP/IP	4	3	30	70	100	3
15MCA503	Paper 17	Data Mining and Warehousing	5	3	30	70	100	3
15MCAP09	Practical 9	.Net Programming	5	3	40	60	100	4
18MCAP10	Practical 10	Router Configuration	5	3	40	60	100	4
18MCAE07/ 15MCAE08/ 18MCAE09	Elective-III	Soft Computing / WAP / Software Project Management	5	3	30	70	100	4
15MCAED1/ 15MCAED2	EDC 1	Marketing Management / Human Resource Management #	2	3	-	50	50	2
15MCAPR1	Project 1	Minor Project and Viva-Voce	-	-	50	50	100	4
		TOTAL	30				750	28
SEMESTER VI								
15MCA601	Paper 18	Digital Image Processing	5	3	30	70	100	4
18MCAP11	Practical 11	Digital Image Processing using Matlab Tools	5	3	40	60	100	4
18MCAE10/ E11/E12	Elective-IV	Big data & Analytics / Green Computing / Machine Learning	5	3	30	70	100	4
15MCAPR2	Project 2	Major Project and Viva-Voce	-	-	100	100	200	8
		TOTAL	15				500	20
		TOTAL					3800	148

No Continuous Internal Assessment (CIA) , only Comprehensive Examination (CE)
IDC- Inter Disciplinary Course, **EDC** – Extra Disciplinary Course

ADDITIONAL CREDIT COURSES(ACC)					
S.NO	SEMESTER	SUBJECT CODE	SUBJECT TITLE	CREDITS	MAX MARKS
1	III	15MCAAC1	Animation Techniques	2	100
2	IV	15MCAAC2	Basics of Android	2	100
3	V	15MCAAC3	Software Quality Assurance	2	100

LIST OF ELECTIVES					
S.NO	SEMESTER	SUBJECT CODE	SUBJECT TITLE	CREDITS	MAX MARKS
1.	III	18MCAE01 / 15MCAE02 / 18MCAE03	Object Oriented Software Engineering / MultiMedia and its Applications / Principles of Programming Language	4	100
2.	IV	15MCAE04 / 15MCAE05 / 18MCAE06	E-Commerce / Cloud Computing / Information System Security	4	100
3.	V	18MCAE07 / 15MCAE08 / 18MCAE09	Soft Computing / WAP / Software Project Management	4	100
4.	VI	18MCAE10 / 18MCAE11 / 18MCAE12	Big data & Analytics / Green Computing / Machine Learning	4	100

LIST OF IDC / EDC					
S.NO	SEMESTER	SUBJECT CODE	SUBJECT TITLE	CREDITS	MAX MARKS
1	I	15MCAID1	Numerical and Statistical Methods #	2	50
2	II	15MCAID2	Operations Research #	2	50
3	IV	15MCAID3	Principles of Accountancy #	2	50
4	V	15MCAED1 / 15MCAED2	Marketing Management / Human Resource Management #	2	50

SUMMARY

Part	No of Papers	Total Credits	Total Marks
Core	18	68	1800
Practical	11	44	1100
Project	02	12	300
Elective	04	16	400
IDC -Allied	03	06	150
EDC	01	2	50
TOTAL	39	148	3800

REGULATIONS

1. PRACTICALS

- a) Submission of Record Work for Practical Examinations, Candidates appearing for Practical Examinations shall submit Bonafide Record work for the concerned Practical Examination. If not the Candidates has to submit a Bonafide Certificate issued by the concerned subject incharge duly signed by the head of the department in order to be permitted to take up the Practical Examination. The Candidate so permitted will not be eligible for the Record work mark.
- b) Distribution of Internal Marks for Practical's.

The following are the distribution of marks for external and internal for **practical papers** of MCA courses.

TOTAL MARKS	EXTERNAL		* INTERNAL Max. marks	Overall Passing Minimum for total marks (Internal + External)
	Max. marks	Passing Minimum for external alone		
100	60	30	40	50

*There is no Minimum Mark for Internal.

The following are the distribution of **Internal marks** for MCA practical papers.

FOR PRACTICAL		
1.	Minimum 10 experiments to be conducted/practical Paper/semester.	20
2.	TEST 1	8
3.	TEST 2	8
4.	Observation Note	4
TOTAL MARKS		40

*50% of Experiments should be completed or else the candidates are not allowed to attend the University Practical Exam.

* Distribution of External Practical Marks

Viva	05
Record	05
Program1	25
Program2	25

	60

2. PROJECT

a) Project and Viva Voce

Each Student in the MCA Final Year must compulsorily undergo Project Work in the 5th and 6th Semester. Projects shall be done on Individual Basis. The Project Coordinator will allocate the project title and the Guide for each student. The Project Work may be done either Inside the College or Outside of the College, including Project Record Preparation. Project Reviews will be conducted twice in which the Progress of Project work will be strictly evaluated by Respective Project Guide and Project Coordinator. Viva Voce will be conducted only in the presence of Industrialists or Academicians.

In the total of 100 Marks, 40% of marks are allocated for CIA and 60% for CE Viva Voce .In the total of 200 Marks, 100% of marks are allocated for CIA and 100% for CE.

The following are the distribution of internal **marks** for MCA Minor project.

FOR MINOR PROJECT		
1.	I Review	20
2.	II Review	20
3.	Maintenance & Implementation	10
TOTAL MARKS		50

*EXTERNAL MARK: 50 (10 –Viva + 40-Evaluation)

The following are the distribution of **Internal marks** for MCA Major Project.

FOR MAJOR PROJECT		
1.	I Review	25
2.	II Review	25
3.	Project Plan Diary(10) , Dissertation (10) and Evaluation(30)	50
TOTAL MARKS		100

* Distribution of External Mark: 100 (20-Viva+ 80-Evaluation) Evaluated by Internal & External Examiners.

3. THEORY

The following are the distribution of marks for external and internal for **theory papers** of MCA course.

TOTAL MARKS	EXTERNAL		* INTERNAL Max. marks	Overall Passing Minimum for total marks (Internal +External)
	Max. Marks	Passing Minimum for External alone		
100	70	35	30	50

*There is no Minimum Mark for Internal.

The following are the Distribution of **Internal marks** for theory papers of MCA Course.

S.No	CIA	Distribution of Marks
1.	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6=30

Seminar:

S.NO	Seminar Split Up	Marks
1.	Content	10
2.	Flow of the presentation	10
3.	Stage management and Body language	10
Total		30

Breakup for Attendance:

Upto 74 %	- 4 Marks
75% - 84%	- 6 Marks
85% - 94%	- 8 Marks
95% - 100%	- 10 Marks

QUESTION PAPER PATTERN

Time: 3 Hour

Max marks: 70

SECTION – A (5×2=10)

Answer ALL questions
Each Question carries Two Marks

SECTION – B (5×4=20)

Answer ALL questions
Each question carries 4 Marks
(INTERNAL CHOICE)

SECTION – C (5×6=30)

Answerer ALL questions
Each question carries Six Marks
(INTERNAL CHOICE)

SECTION – D (1×10=10)

Compulsory Question

Time: 3 Hour

Max marks: 50

SECTION – A (10×1=10)

Answer ALL questions
Each Question carries One Mark
Multiple Choice Questions

SECTION – B (5×3=15)

Answer ALL questions
Each question carries Three Marks
(INTERNAL CHOICE)

SECTION – C (5×5=25)

Answerer ALL questions
Each question carries Five Marks
(INTERNAL CHOICE)

4. QUESTION PAPER PATTERN FOR ADDITIONAL CREDIT COURSE

Time: 3 Hour

Max marks: 100

SECTION – A (10×1=10)

Answer ALL questions
Each Question carries One Mark
Multiple Choice Questions

SECTION – B (5×8=40)

Answer ALL questions
Each question carries Eight Marks
(INTERNAL CHOICE)

SECTION – C (5×10=50)

Answerer ALL questions
Each question carries Ten Marks
(INTERNAL CHOICE)

NOTE:

1. The questions should be numbered continuously running through the Sections A, B , C and D.
2. Questions should be evenly distributed among the unit in the syllabus in all the sections of the question paper.
3. While framing questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

FIRST SEMESTER**PAPER 1 - DIGITAL ELECTRONICS AND COMPUTER ORGANIZATION****Maximum Marks: 70****Total Hours: 60****Objective:**

On successful completion of this paper the students should have acquired expert knowledge of Computer Organization, Number Systems, I/O, Registers and Memory.

UNIT I**[10 HOUR]**

Number Systems-Binary-Decimal-Octal-Hexadecimal – Conversion from one to other – Complements - Binary Codes-Basic Logic Gates –Boolean Algebra – NAND- NOR Implementation – Sum of Products – Product of Sums – Karnaugh Map –Don't Care Conditions.

UNIT II**[10 HOUR]**

Combinational Logic Circuit Design- Integrated Circuits-Multiplexers – Decoders –Encoders – Half Adder – Full Adder – Subtractor – Parallel Binary Adders-Flip Flops-SR- D-JK-T Flip-Flops

UNIT III**[10 HOUR]**

Register Transfer and Micro Operations- Register Transfer-Bus and Memory Transfers-Arithmetic Micro Operations – Logic Micro Operations – Shift Micro Operations –General Register Organization-Stack Organization – Instruction Formats – Addressing Modes – Data Transfer and Manipulation - Program Control Instructions.

UNIT IV**[09 HOUR]**

Input /Output organization- Peripheral Devices – Input/ Output Interface –Asynchronous Data Transfer (Strobe and Handshaking Method) – Modes of Transfer – Priority Interrupt – DMA.

UNIT V**[09 HOUR]**

Memory Organization- Memory Hierarchy – Main Memory – Auxiliary Memory –Associative Memory – Cache Memory – Virtual Memory.

REFERENCE BOOKS

1. Morris Mano.M , Computer System Architecture, 3rd Edition, PHI/ Pearson Education, 2005, Asia.
2. Morris Mano.M , Digital Logic and Computer Design, 1st Edition, PHI, 2005, Asia.
3. Albert Paul Malvino, Donald P. Leach, Digital Principles and Applications, Tata Mc-Graw Hill Publication Private Company Limited, 2004, New Delhi.
4. J.P.Hayes, Computer Architecture and Organization, 3rd Edition, Tata Mc Graw Hill Publication Private Company Limited, 2003, New Delhi.

M.C.A Degree Examination-Syllabus-For Candidates admitted from 2015-2016 onwards**FIRST SEMESTER
PAPER 2 - PROGRAMMING LANGUAGE I - C****Maximum Marks: 70****Total Hours: 60****Objective:**

On successful completion of this paper the students should have acquired expert knowledge of C Programming Language.

UNIT I**[10 HOUR]**

Overview to C-History of C- ANSI Standards – Overview of Compilers and Interpreters-Structure of C Program-Programming Rules- Sample Programs-Executing the Program-**C Declarations**- The C Character Set – Keywords-Identifiers-Constants-Variables-Declaring and Initializing Variables-Rules for Defining Variables-Data Types- Type Conversion- Constant and Volatile Variables- **Operators and Expressions**- Introduction – Priority of Operators and their Clubbing- Arithmetic Operators- Relational Operators-Logical Operators-Comma and Conditional Operator-Bitwise Operators.

UNIT II**[10 HOUR]**

Input and Output in C- Formatted Functions-Unformatted Functions-Commonly Used Library Functions- **Decision Making Statements**-IF- IF-Else - Nested IF-Else Statements- Break-Continue-Go To-Switch-Nested Switch () Case –Switch () Case and Nested IFs- **Looping Control Statements** –For Loop- While Loop- Do-While –Do-while statement with While Loop.

UNIT III**[10 HOUR]**

Arrays- Array Initialization-Definition of Array- Characteristic of Array – One Dimensional Array- Predefined Streams- Two Dimensional Array-Three or Multi Dimensional Array- The scanf () and printf () Functions-**Working with Strings and Standard Functions**- Declaration and Initialization of String- Display of Strings with Different Formats-String Standard Functions- Applications of Strings.

UNIT IV**[09 HOUR]**

Functions- Declaration- Prototypes of Function-Return Statement-Types of Functions-Call by Value and Reference-Function Returning More Values- Function as an Argument-Function With Arrays and Pointers-Recursion-Pointer to Function- **Pointers**– Features of Pointers- Declaration-Pointers and Arrays – Pointers and Strings – Pointers and Two-Dimensional Arrays – Pointers to Pointers – Array of Pointers- Void Pointers.

UNIT V**[09 HOUR]**

Storage Class - Automatic Variables- External Variables- Static variables- Register Variables. Preprocessor Directives – Structure and Union - Files - Command Line Arguments- Application of Command Line Arguments.

REFERENCE BOOKS

1. Ashok N.Kamthane, Programming with ANSI and Turbo C, 3rd Edition, Pearson Education Private Limited, 2003, Asia.
2. Balagurusamy.E, Programming in ANSI C, 4th Edition, Tata McGraw Hill Publication, 2004, New Delhi.
3. Yeswanth P. Kanetkar Let us C, 5th Edition, BPB Publications, 2001, New Delhi.
4. Yeswanth Kanetkar, Pointers in C, 1st Edition, Tata McGraw Hill Publication, 2002, New Delhi.

M.C.A Degree Examination-Syllabus-For Candidates admitted from 2015-2016 onwards

FIRST SEMESTER
PAPER 3 - DATA STRUCTURES

Maximum Marks: 70

Total Hours: 72

Objective:

On successful completion of this paper the students should have acquired expert knowledge of the various Data Structures, Algorithms, Sorting and Searching.

UNIT I **[10 HOUR]**

Data Structures-Concepts of Data Structures-Overview of Data Structures-Implementation of Data Structures-**Arrays**-Terminology-One Dimensional Arrays-Two Dimensional Arrays-Sparse Matrices- Three Dimensional and N-Dimensional Arrays.

UNIT II **[10 HOUR]**

Stacks - Representation of Stack-Array and Linked List Representations-Operations on Stacks-Applications of Stacks-Tower of Hanoi-Factorial Calculation-**Queues**-Array and Linked List Representation of Queues-Circular Queue-Deque-Application of Queues-Round Robin Algorithm.

UNIT III **[10 HOUR]**

Linked Lists - Singly Linked List -Operations-Insertion-Deletion- Doubly Linked List-Operations-Insertion-Deletion-Application of Linked Lists- Polynomial Representation-Dynamic Storage Management-Memory Representation-Fixed Block Storage-Variable Block Storage.

UNIT IV **[09 HOUR]**

Trees- Basic Terminologies and concepts-Representation of Binary Tree-Linear and Linked Representation of a Binary Tree- Binary Tree Traversals- Binary Search Trees-Insertion-Searching-Trees and Forests.

UNIT V **[09 HOUR]**

Searching- Linear and Binary Search-**Internal Sorting**- Insertion Sort-Quick Sort-Heap Sort-**External Sorting**-External Storage Devices -Sorting with Tapes-Sorting with Disks.

REFERENCE BOOKS

1. Samantha.D, Classic Data structures, 3rd Edition, Prentice -Hall of India Private Limited, 2006, New Delhi. (**UNIT – I, II, III, IV**)
2. G.A.V. Pai, Data Structures and Algorithms, 5th Edition, Tata McGraw Hill Publication, 2010, New Delhi. (**UNIT – V**)
3. Ellis Horowitz, Sartaj Shani, Fundamentals of Data Structures, 3rd Edition, Galgotia Publication, 2003, New Delhi.

4. Mark Allen Weiss, Data Structures and Algorithm Analysis in C, 2nd Edition, Pearson Education, 2002, Asia
5. Robert Kruse, C.L.Jondo, Bruce Leung, Data Structures and Program Design in C, 2nd Edition, PHI/Pearson Education, 2003, Asia.

M.C.A Degree Examination-Syllabus-For Candidates admitted from 2015-2016 onwards

**FIRST SEMESTER
PRACTICAL 1 - C**

Maximum Marks: 60

Total Hours : 60

Objective:

On successful completion of this paper the students should have acquired the professional skills in developing C programs.

PROGRAM LIST

1. Developing C Program using various Operators.
2. Developing C Program using Mathematical Functions and Switch case Statements.
3. Developing C Program using Decision Making Statements.
4. Developing C Program using Looping Statements.
5. Developing C Program using one and Two Dimensional Array.
6. Developing C Program using Strings.
7. Developing C Program using Functions.
8. Developing C Program using Recursion.
9. Developing C Program using Pointers.
10. Developing C Program using Structures and Union.
11. Developing C Program using File.
12. Developing C Program using Command Line Arguments.

REFERENCE BOOKS

1. Ashok N.Kamthane, Programming with ANSI and Turbo C, 3rd Edition, Pearson Education Private Limited, 2003, Asia.
2. Balagurusamy.E, Programming in ANSI C, 4th Edition, Tata McGraw Hill Publication, 2004, New Delhi.
3. Yeswanth Kanetkar, Pointers in C, 1st Edition, Tata McGraw Hill Publication, 2002, New Delhi.

M.C.A Degree Examination-Syllabus-For Candidates admitted from 2015-2016 onwards

**FIRST SEMESTER
PRACTICAL 2 - DATA STRUCTURES**

Maximum Marks: 60

Total Hours: 60

Objective:

On successful completion of this paper the students should have acquired Professional skills in Data Structures.

PROGRAM LIST

1. Programming Using Array Creation and Operations.
2. Programming Using a) Stack Operations and its Application b) Tower of Hanoi.
3. Programming Using Queue Operations.
4. Programming Using Factorial Calculation.
5. Programming Using Polynomial Addition using Singly Linked List.
6. Programming Using Binary Tree Traversals.
7. Programming Using Linear Search.
8. Programming Using Binary Search.
9. Programming Using Bubble Sort.
10. Programming Using Insertion Sort.
11. Programming Using Quick Sort.
12. Programming Using Heap Sort.

REFERENCE BOOKS

1. Samantha.D, Classic Data structures, 3rd Edition, Prentice -Hall of India Private Limited, 2006, New Delhi
2. G.A.V. Pai, Data Structures and Algorithms, 5th Edition, Tata McGraw Hill Publication, 2010, New Delhi.
3. Ellis Horowitz, Sartaj Shani, Fundamentals of Data Structures, 3rd Edition, Galgotia Publication, 2003, New Delhi.
4. Mark Allen Weiss, Data Structures and Algorithm Analysis in C, 2nd Edition, Pearson Education, 2002, Asia.
5. Introduction to Data Structures in C, Ashok N.Kamthane, Pearson Education, Asia.

SECOND SEMESTER**PAPER 4 – PROGRAMMING LANGUAGE II - C++****Maximum Marks: 70****Total Hours: 48****Objective:**

On successful completion of this paper the students should have acquired expert knowledge of Basic Concepts, Inheritance, Abstraction, Encapsulation and Polymorphism in Object Oriented Programming Language.

UNIT I**[10 HOUR]**

Introduction to C++ - Key Concepts of Object-Oriented Programming –Advantages– Object Oriented Languages – I/O in C++ - C++ Declarations- Control Structures - Decision Making and Statements - If - Else-Jump- Goto- Break- Continue- Switch Case Statements -Loops in C++- For-While- Do - Functions in C++ - Inline Functions –Function Overloading.

UNIT II**[10 HOUR]**

Classes and Objects- Declaring Objects – Defining Member Functions – Static Member Variables and Functions – Array of Objects – Friend Functions— Overloading Member Functions – Bit Fields and Classes – Constructor and Destructor with Static Members

UNIT III**[10 HOUR]**

Operator Overloading- Overloading Unary- Binary Operators – Overloading Friend Functions –Type Conversion – Inheritance- Types of Inheritance – Single- Multilevel- Multiple-Hierarchical- Hybrid- Multi Path Inheritance – Virtual Base Classes – Abstract Classes.

UNIT IV**[09 HOUR]**

Pointers – Declaration – Pointer to Class - Object – This pointer – Pointers to Derived Classes and Base Classes – Arrays – Characteristics – Array of Classes – Memory Models – New and Delete operators – Dynamic Object – Binding - Polymorphism and Virtual Functions.

UNIT V**[09 HOUR]**

Files – File Stream Classes – File Modes – Sequential Read / Write Operations – Binary and ASCII Files – Random Access Operation – Templates – Exception Handling - String -Declaring and Initializing String Objects – String Attributes – Miscellaneous Functions.

REFERENCE BOOKS

1. Ashok N. Kamthane, Object Oriented Programming with ANSI & Turbo C++, 1st Indian Print, Pearson Education, 2008, New Delhi.
2. Balagurusamy, Object Oriented Programming with C++, 4th Edition, TMCH, 2008, New Delhi.
3. Samanta, Object Oriented Programming with C++ and Java, PHI, 2000, New Delhi.
4. Debasingh Jana, C++ and Object Oriented Programming Paradigm, PHI, 2003, New Delhi.
5. M.P. Bhave and S.A. Patekar, Object Oriented Programming with C++, 2004, Pearson Education, 2003, Asia.

M.C.A Degree Examination-Syllabus-For Candidates admitted from 2015-2016 onwards**SECOND SEMESTER
PAPER 5 - WEB PROGRAMMING****Maximum Marks: 70****Total Hours: 48****Objectives :**

On successful completion of the paper students should have acquired expert knowledge in the fundamentals of Internet, the fundamentals of Web design , know to program using HTML, CSS, DHTML , JavaScript , XML and PHP.

UNIT I**[10 HOUR]**

Introduction to Computers and the Internet - What is Computer? - History of Internet - History of World wide web - World Wide Web Consortium(W3C) – Hardware Trends-
Introduction to XHTML – Editing XHTML – Headers – Linking – Images – Special Characters and More Line Breaks – Unordered Lists – Nested and Ordered Lists.

UNIT II**[10 HOUR]**

Intermediate XHTML - Tables – Intermediate Tables – Forms – Complex Forms – Internal Linking – Creating and Using Image Maps – meta Element – frameset Element – Nested framesets - **Cascading Style Sheets(CSS)** - Inline Styles – Embedded Style Sheets - Conflicting Styles - Linking External Style Sheets - Positioning Elements – Backgrounds - Element dimension - Text Flow and the Box Model - User Style Sheets.

UNIT III**[10 HOUR]**

Dynamic HTML-Event Model- Event Onclick- Event Onload- Error Handling with onerror- Tracking the Mouse with Event Onmousemove- Onmouseover - Onmouseout- Form processing with Onfocus and Onblur- More Form Processing with Onsubmit and Onreset- Event Bubbling - **Dynamic HTML-Filters and Transitions**- Flip Filters: Flipv and Fliph- Chroma Filter- Image and Text Filters- Mask - Invert- Gray – Xray – Light - Shadows - Alpha- Glow- Blur- Wave - Dropshadow - Transition- Blendtrans - Revealtrans.

UNIT IV**[09 HOUR]**

JavaScript – Memory Concepts and Operators - **Control Statements** – **Functions** – **Arrays** – **Objects** – Math, String, Date, Boolean, Number, document, window Objects – Using Cookies- **Extensible Markup Language(XML)** – Structuring Data – Document Type Definition(DTDs) and Schemas – Extensible Stylesheet Language(XSL).

UNIT V**[09 HOUR]**

Web Servers(IIS and Apache) – Microsoft Internet Information Services(IIS) – Apache Web Server – Requesting Documents-**Database- SQL, MySQL, DBI and ADO.NET** – Structured Query Language(SQL) – MySQL – Introduction to DBI – PHP dbx module – ADO.NET Object Model-**PHP** – PHP Data types – Operators - String Processing and Regular Expression – Viewing

Client/Server Environment Variables – Form Processing and Business Logic – Verifying a Username and Password – Connecting to a Database – Cookies – Dynamic Content in PHP.

REFERENCE BOOKS

1. H. M. Deitel, P. J. Deitel, A. B. Goldberg, Internet and World Wide Web-How to Program, 3rd Edition, Pearson Education, 2003, Asia.
2. Thomas A. Powell, The Complete Reference HTML and XHTML, 4th Edition, Tata MC-Graw Hill Publication, 2000, New Delhi.
3. H. M. Deitel, P.J. Dietel, T. R. Nieto, T. M. Lin, P. Sadhu, XML How to Program, Pearson Education, 2001, Asia.
4. Julie C. Meloni, PHP, MySQL and Apache – All in One, 4th Edition, Pearson Education, 2009, India.

M.C.A Degree Examination-Syllabus-For Candidates admitted from 2015-2016 onwards

SECOND SEMESTER
PAPER 6 – OPERATING SYSTEM

Maximum Marks: 70

Total Hours: 48

Objective:

On successful completion of the paper students should have acquired expert knowledge of System Software and Operating System concepts.

UNIT I

[10 HOUR]

Language Processors – Language Processing Activities - Fundamentals of Language Processing- Fundamentals of Language Specification- **Assemblers**- Elements of Assembly Language Programming – Simple Assembly Scheme - Pass Structure of Assemblers -Design of a Two Pass Assembler – **Macros and Macro Processors** - Macro Definition and Call-Macro Expansion - Nested Macro Calls .

UNIT II

[10 HOUR]

Compilers - Aspects of Compilation - Static and Dynamic Memory Allocation - Overview of the Compilation Process - Compilation of Control Structures - Code Optimization- **Interpreters**- Overview of interpretation- **Loaders and Linkage Editors**- Loading- Linking and Relocation – Relocatability – Linkage Editing.

UNIT III

[10 HOUR]

Operating System (OS) – OS Objectives and Functions – The Evolution of Operating Systems – **Process**- Process States – **Concurrency**- Principles of Concurrency – Semaphores.

UNIT IV

[09 HOUR]

Deadlock – Principles of Deadlock – Prevention – Avoidance - Detection – **Memory Management** –Memory Partitioning- Fixed Partition – Dynamic Partition – Simple Paging – Simple Segmentation – **Virtual memory** –Hardware and Control Structures- Operating System Software.

UNIT V

[09 HOUR]

Uniprocessor Scheduling- Types of Scheduling – Scheduling Algorithms – **File management**- File Organization and Access –File Directories – File Sharing – Record Blocking- Secondary Storage Management.

REFERENCE BOOKS

1. D.M. Dhamdhare, Systems Programming and Operating Systems, 1st and 2nd Revised Edition, Tata McGraw-Hill Publishing Company Limited, 2008, New Delhi.(**UNIT –I , II**)
2. William Stallings, Operating Systems (Internals and Design Principles), 6th Edition, PHI, 2009, New Delhi. (**UNIT –III , IV , V**)

3. Pramod Chandra P. Bhatt, An Introduction to Operating Systems, 2nd Edition, Prentice Hall of India, 2003, New Delhi.
4. Andrew S. Tanenbaum, Modern Operating System, 2nd Edition, Prentice Hall of India, 2001, New Delhi.

M.C.A Degree Examination-Syllabus-For Candidates admitted from 2015-2016 onwards**SECOND SEMESTER
PAPER 7 - COMPUTER NETWORKS****Maximum Marks: 70****Total Hours: 48****Objective:**

On successful completion of the course the students should have acquired expert knowledge of data communication, data networking, the internet, signal encoding techniques, the use of computer networks, and layers of OSI model.

UNIT I [10 HOUR]

Use of Computer Networks-Business-Home-Mobile –Social Issues – Network Hardware – LAN-MAN-WAN –Wireless Network -Network Software –Protocol Hierarchies–Design Issues For Layers –Connection-Oriented and Connectionless Services –Service Primitives -Reference Models.

UNIT II [10 HOUR]

The Physical Layer- The theoretical Basis for Data Communication – Guided Transmission Media – Wireless Transmission – Communication Satellites – The Public Switched Telephone Network – Mobile Telephone System.

UNIT III [10 HOUR]

Data Link Layer- Data Link Layer Design Issues – Error Detection and Correction –Elementary Data Link Protocols – Protocol Verification –Multiple Access Protocol-Blue Tooth.

UNIT IV [09 HOUR]

Network Layer-Network Layer Design Issues – Routing Algorithms — Internetworking – Network Layer In the Internet- **Transport Layer-** the Transport Service – Elements of Transport Protocol – The Internet Transport Protocols- UDP – The Internet Transport Protocols- TCP.

UNIT V [09 HOUR]

Session Layer- Design Issues - Synchronization - Presentation Layer- Design Issues- Cryptography – **Application Layer-**File Transfer- E-Mail.

REFERENCE BOOK

1. Andrew S. Tanenbaum, Computer Networks, 4th Edition, PHI/Pearson Education, 2005, Delhi.
2. P. Green – Computer Network Architectures and Protocols, Plenum Press, 1982, Asia.

M.C.A Degree Examination-Syllabus-For Candidates admitted from 2015-2016 onwards

**SECOND SEMESTER
PRACTICAL 3 - C++**

Maximum Marks: 60

Total Hours: 60

Objective:

On successful study of this subject the students should have acquired the professional skill in developing C++ programs.

PROGRAM LIST

1. Developing C++ Program using Control Statements.
2. Developing C++ Program using Inline Functions and Function Overloading.
3. Developing C++ Program using Friend Functions.
4. Developing C++ Program using Constructors.
5. Developing C++ Program using Operator Overloading.
6. Developing C++ Program using Type Conversion.
7. Developing C++ Program using Inheritance a) Single b) Multilevel c) Multiple
8. Developing C++ Program using Pointers.
9. Developing C++ Program using Virtual Function.
10. Developing C++ Program using Files.
11. Developing C++ Program using Templates.
12. Developing C++ Program using String Manipulation Functions.

REFERENCE BOOKS

1. Ashok N. Kamthane, Object Oriented Programming with ANSI & Turbo C++, 1st Indian Print, Pearson Education, 2008, New Delhi.
2. Balagurusamy, Object Oriented Programming with C++, 4th Edition, TMCH, 2008, New Delhi.
3. Debasingh Jana, C++ and Object Oriented Programming Paradigm, PHI, 2003, New Delhi.

M.C.A Degree Examination-Syllabus-For Candidates admitted from 2015-2016 onwards**SECOND SEMESTER****PRACTICAL 4 -WEB PROGRAMMING****Maximum Marks: 60****Total Hours: 60****Objectives:**

On successful completion of the paper the students must have acquired professional skills in the basics of HTML programming, develop the skills in CSS, DHTML, JavaScript, XML and PHP.

PROGRAM LIST

1. Designing the following basic program in HTML.
 - a. BASIC TAGS IN HTML
 - b. LISTS
 - c. LINKS
 - d. TABLES
2. Designing the following basic program in HTML.
 - a. FRAMES
 - b. FORMS
 - c. IMAGE MAP
3. Designing the Program to implement various Cascading Style Sheet.
4. Designing the Websites using HTML, CSS AND DHTML.
5. Developing the Programs using Java Script.
6. Developing the Programs to implement Event model in DHTML.
7. Developing the Programs to implement Filter in DHTML.
8. Developing the Programs to implement Transition in DHTML.
9. Developing the Validation Control program in JavaScript.
10. Developing the Programs using XML.
11. Developing the Programs using XML Style Sheet.
12. Developing a PHP Program to verify username and password.

REFERENCE BOOKS

1. H. M. Deitel, P. J. Deitel, A. B. Goldberg, Internet and World Wide Web- How to Program, 3rd Edition, Pearson Education, 2003, Asia.
2. Thomas A. Powell, The Complete Reference HTML and XHTML, 4th Edition, Tata McGraw Hill Publication, 2000, New Delhi.

3. H. M. Deitel, P.J. Dietel, T. R. Nieto, T. M. Lin, P. Sadhu, XML How to Program, Pearson Education, 2001, Asia..
4. Julie C. Meloni, PHP, MySQL and Apache – All in One, 4th Edition, Pearson Education, 2009, India.
5. C. Xavier, World Wide Web with HTML, Tata MCGraw Hill Publication, 2000, New Delhi.

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2018-2019 Onwards

**THIRD SEMESTER
PAPER 8 – ADVANCED COMPUTER SECURITY**

MAXIMUM CIA : 30

MAXIMUM CE : 70

TOTAL HOURS : 48

Objective: To make the students to understand Computer security's importance in our increasingly computer-driven world.

UNIT-I [9 HOUR]

Introduction: What Is Computer Security? - Threats – Harm- Vulnerabilities-Controls Toolbox: Authentication, Access Control and Cryptography.

UNIT-II [9 HOUR]

Programs and Programming: Unintentional Programming – Malicious code – Countermeasures. The Web: Browser Attacks – Web Attacks Targeting Users – Obtaining User or Website Data – Email Attacks.

UNIT-III [9 HOUR]

Operating System Security: Security in Operating Systems – Security in the Design of Operating Systems- Rootkit. Database Security: Introduction to Databases – Security Requirements of Databases – Reliability and Integrity – Database Disclosure – Data Mining and Big Data.

UNIT-IV [10 HOUR]

Network Security Attacks : Network Concepts – Threats to Network Communications – Wireless Network Security – Denial of Service – Distributed Denial-of-Service. Security Countermeasures : Cryptography in Network Security - Firewalls – Intrusion Detection and Prevention Systems – Network Management – Cryptology –Symmetric Encryption Algorithms- Asymmetric Encryption with RSA-Message Digests - Digital Signatures

UNIT-V [11 HOUR]

Ethical and Legal Issues in Computer Security: Protecting Programs and data – Information and the Law – Rights of Employees and Employers – Redress for Software Failures – Computer Crime – Ethical Issues in Computer Security – Incident Analysis With Ethics. Case Study: The Electronic Voting – Cyber Warfare.

TEXT BOOK

1. Charles P. Pfleeger, Shari Lawrence Pfleeger, Jonathan Margulies, “Security in Computing”, Prentice Hall, 5th edition. 2015.

REFERENCES BOOKS

1. Dileep Kumar G., Manoj Kumar Singh , and M.K. Jayanthi , “ Network Security Attacks and Countermeasures” , IGI Global , 1st edition, 2016
2. <https://ahsanghazi.files.wordpress.com/2017/03/263973122-security-in-computing-5-e-charles-p-pfleeger-pdf1.pdf>

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2018-2019 Onwards

**THIRD SEMESTER
PAPER 9 - MOBILE COMPUTING**

MAXIMUM CIA: 30

MAXIMUM CE: 70

TOTAL HOURS: 36

Objective: To make the Students to get Familiarized with the Application Areas of Mobile Computing Environment.

UNIT I [07 HOUR]

Mobile Computing Architecture: History of Computers and Internet – Architecture for Mobile Computing – Three-Tier Architecture – Design Considerations for Mobile Computing – Mobile Computing Through Internet – Making Existing Applications Mobile Enabled
Mobile Computing Through Telephony: Evaluation of Telephony – Multiple Access Procedures – Mobile Computing Through Telephone.

UNIT II [07 HOUR]

EMERGING TECHNOLOGIES: Blue Tooth – RFID – WiMAX – Java Card. GSM : Global System for Mobile Communications – GSM Architecture – GSM Entities – Call Routing in GSM – PLMN Interfaces – GSM Addresses and Identifiers – Network Aspects in GSM.

UNIT III [07 HOUR]

SMS-DECT- UMTS and IMT-2000-Broadcast System

UNIT IV [07 HOUR]

GPRS – GPRS and Packet Data Network – GPRS Network Architecture – GPRS Network Operations – Data Services in GPRS – Application for GPRS Limitations. WAP - GPRS Applications

UNIT V [08 HOUR]

CDMA and 3G: Spread Spectrum Technology – Is 95 – CDMA Vs GSM –Wireless Data – Third Generation Networks – Applications on 3G WIRELESS LAN: Wireless LAN Advantages – IEEE 802.11 Standards Architecture – Mobile in Wireless LAN – Deploying Wireless LAN – Mobile Adhoc Networks and Sensor.

TEXT BOOK

1. Asoke K Talukder, Roopa R Yavagal , “Mobile Computing”, TMH, 2005.

REFERENCES BOOKS

1. Jochen Schiller, “Mobile Communications”, PHI/Pearson Education, 2nd Edition, 2003.
2. V.Jeyasri ArokiaMary, “Mobile Computing”, 2nd Revised Edition, Technical Publications, 2008, Pune.

3. Sipra DasBit and BipLab K. Sikdar, “Mobile Computing”, Eastern Economy Edition, PHI Learning Private Limited, 2009, New Delhi.
4. https://books.google.co.in/books?id=Q0b11aj_YAYC&printsec=copyright&redir_esc=y#v=onepage&q&f=false
5. <https://www.slideshare.net/rmpatel/ch1-13878057>

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2018-2019 Onwards**THIRD SEMESTER
PAPER 10 – ORACLE 10g ADMINISTRATION**

MAXIMUM CIA: 30
 MAXIMUM CE: 70
 TOTAL HOURS: 48

Objective:

On successful completion of this paper the students should have acquired expert knowledge of the basic operations and usage of Oracle 10g. And also students understand the role of the DBA.

UNIT I [10 HOUR]
 Oracle DBA'S: Oracle DBA's role - DBA job classification - types of databases. Oracle database 10g architecture: database structures - processes - memory structures - database transaction. Creating an oracle databases: Creating the database - creating the parameter file-creating a new database - using a server parameter file.

UNIT II [10 HOUR]
 Schema management: Creating and managing table spaces – indexes - materialized views. Oracle transaction management: oracle transactions - transaction properties - transaction concurrency control - isolation levels - implementing oracle's concurrency control - using undo data to provide read consistency - transaction query - discrete transactions - autonomous transactions - resumable space allocation.

UNIT III [10 HOUR]
 Loading and transforming data: Overview of extraction transformation and loading - using external tables to load data - transforming data .Using data pump export and import: introduction - performing exports and imports -monitoring - transportable table spaces. Managing and monitoring operational databases: Types of oracle performance statistics -server generated alerts - automatic workload repository - active session history - undo and MTTR advisors.

UNIT IV [09 HOUR]
 User management and database security: Managing users - the database resource manager - controlling access to data - auditing database usage - authenticating users -enterprise user security - database security do's and dont's. Backing up databases: backing up oracle databases - the recovery manager - backing up control file - oracle back up tool – user managed backups - database corruption detection - enhanced data protection for disaster recovery. Database recovery: Types of database failures - oracle recovery processes - performing recovery with RMAN - media recovery scenarios.

UNIT V [09 HOUR]
 Improving database performance: SQL query optimization - approach to oracle performance tuning - optimizing oracle query processing - oracle optimization and oracle cost based optimizer - writing efficient SQL - DBA's role to improve SQL processing - SQL performance

tuning tools - explain plan - SQL tuning advisor - simple approach to tuning SQL statement.
Performance tuning: Tuning the instance - introduction to instance tuning - automatic performance tuning vs dynamic performance views - tuning oracle memory - evaluating system performance - measuring IO performance - measuring instance performance - simple approach to instance tuning.

TEXT BOOKS

1. Sam, R. Alapati (2009), “Expert Oracle Database 11g Administration”, 1st edition, Paperback, Apress Publication.
2. Sam, R. Alapati & John Watson (2007), “Expert Oracle Database 10g Administration” 1st edition , New Delhi, Springer (India) Pvt Ltd.

REFERENCES BOOKS

1. Sam, R. Alapati (2009), “Expert Oracle Database 11g Administration”, 1st edition, Paperback, Apress Publication.
2. Sam, R. Alapati (2009), “Expert Oracle Database 11g Administration” 1st edition, Paperback, Dreamtech Press Publication.
3. April Wells (2006), “Oracle DB Administration”, 1st edition, New Delhi, Dream Tech Press
4. Ivan Bayross (2006), “Oracle 10g DB with HTMLDB”, 1st edition, New Delhi, BPB Publications.
5. Jay Bayross (2006),” Oracle 10g Developer Suite” 1st edition, New Delhi, BPB Publications.
6. https://www.e-reading.club/bookreader.php/135500/expert_oracle_database_11g_administration.pdf
7. https://docs.oracle.com/cd/E11882_01/server.112/e25494.pdf
8. <http://classes.ischool.syr.edu/ist469/Content/wk03/basic-oracle-database-administration.pptx>

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2018-2019 Onwards

**THIRD SEMESTER
PAPER 11 - SOFTWARE TESTING**

MAXIMUM CIA: 30
MAXIMUM CE: 70
TOTAL HOURS: 48

Objective:

On successful completion of this paper the students should have acquired expert knowledge of basics of software testing.

UNIT I [10 HOUR]
Software Testing Fundamentals-Overview--Software Testing Perspective-Effective Software Testing-Types of Testing-Principles of Software Testing-Testing and Debugging.

UNIT II [10 HOUR]
Software Testability- Testability Artifacts-Testability Facilitators-Levels of Testability-Testability Estimation-Testability Analysis-Incorporating Testability-Testability and Object-Oriented Software Quality- Static Testing- Principles of Static Testing-Static Testing Perspective-Automated Techniques-Static versus Dynamic Testing.

UNIT III [10 HOUR]
Black box Testing -Techniques –Equivalence partitioning-Boundary Value Analysis-Robustness Testing-Syntax Testing-Finite State Testing- White box Testing - Techniques-Modeling-Basis Path Testing-Control Structure Testing-Mutation Testing-Gray Box Testing.

UNIT IV [09 HOUR]
Software Testing Strategies -Strategic Issues-Strategic Premises-Generic Testing Strategy-Completion of Testing-Software Component Testing-Testing Real Time Systems-Models for Software Testing -Planning for software Testing -Test Plan Specification-Leveled Test Plan-Development of Test Plan-Master Test Plan-Phase Wise Test Plan.

UNIT V [09 HOUR]
Software Fault Tolerances-Need for Software Fault Tolerance-Software Failure-Principles-Techniques-Fault Based Testing Methods-Object Oriented Testing -Object Oriented Paradigm-Impacts of Object Orientation-Pertinent Issues-Testing Model-Software Test Strategy-Requirement Testing-Design Testing-Unit Testing-Integration Testing-System Testing.

TEXT BOOK

1. K.Mustafa and R.A.Khan, “Software Testing Concepts and Practices”, Paper Back Edition, 2000 ,India.

REFERENCE BOOKS

1. Marnie. L. Hutcheson, “Software Testing Fundamentals”, 2nd Edition Wiley publications, 2007, India.
2. Boris Beizer, “Software Testing Techniques”, 2nd Edition, Dreamtech Press, 2003, USA.
3. <http://www2.sas.com/proceedings/sugi30/141-30.pdf>
4. https://en.wikipedia.org/wiki/Software_fault_tolerance

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2018-2019 Onwards

**THIRD SEMESTER
PRACTICAL 5 - ORACLE 10g ADMINISTRATION**

MAXIMUM CIA: 40
MAXIMUM CE: 60
TOTAL HOURS: 60

Objective:

On successful completion of this practical the students should have acquired the knowledge in Creating Databases and performing different operations in Oracle 10g and also acquired some basic skills related to DBA

PROGRAM LIST

Study features of Oracle 10g and Basic DBA operations:

1. Demo for globalization support.
2. Create database and do the manipulation.
3. Create users and grant the privileges.
4. Create table space.
5. Create different types of tables.
6. Create index and managing index tables.
7. Demo for flashback database and tables.
8. Export and import the tables.
9. Create back up for tables.
10. Re-sequence the rows using CTAS.
11. Change the initializing parameters.

TEXT BOOK

1. Sam, R. Alapati (2009) ,” Expert Oracle Database 11g Administration”, 1st edition, Paperback Apress Publication.

REFERENCE BOOKS

1. Sam, R. Alapati (2009) ,” Expert Oracle Database 11g Administration”, 1st edition, Paperback Apress Publication.

2. https://www.e-reading.club/bookreader.php/135500/expert_oracle_database_11g_administration.pdf
3. http://cws.cengage.co.uk/rcc_databases/students/oracle10glabguide.pdf
4. <https://docs.oracle.com/database/121/ADMQS/toc.htm>

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2018-2019 Onwards

**THIRD SEMESTER
PRACTICAL 6 - SOFTWARE TESTING TOOLS**

MAXIMUM CIA: 40
MAXIMUM CE : 60
TOTAL HOURS : 60

Objective:

On the successful study of this paper, the students should have acquired the professional skill in developing software testing programs.

PROGRAM LIST

Software Testing can be performed using Win Runner, Apache Jmeter and Selenium Testing Tools.

Using Win Runner Testing Tool:

1. Developing a program using GUI Check point for Object or Window.
2. Developing a program using GUI Check point for Multiple Object.
3. Developing a program using Loop Testing.
4. Developing a program using Boundary Testing.
5. Developing a program using Stress Testing.

Using Jmeter Testing Tools:

1. Performance Test of Web Application.
2. Load Testing.
3. Using Your Functional Tests for Regression Testing.
4. Analyzing Your Website Traffic.

Using Selenium Testing Tools:

1. Write a test suite containing minimum 4 test cases.
2. Conduct a test suite for any two web sites.

TEXT BOOK

1. K.Mustafa and R.A.Khan, "Software Testing Concepts and Practices", Paper Back Edition, 2000 ,India.

REFERENCE BOOKS

1. Myers and Glenford.J.,”The Art of Software Testing”, John-Wiley & Sons, 1979, New Delhi.
2. <https://www.tutorialspoint.com/jmeter/>
3. <https://vmokshagroup.com/blog/performance-test-of-web-application-using-apache-jmeter/>
4. <http://dte.kar.nic.in/STDNTS/CS%20IS/software%20testing%20lab%20manual.pdf>

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2018-2019 Onwards

THIRD SEMESTER

ELECTIVE I - OBJECT ORIENTED SOFTWARE ENGINEERING

MAXIMUM CIA : 30

MAXIMUM CE : 70

TOTAL HOURS : 60

Objective: To enable the students to learn the concepts of software engineering, web engineering, Component based software engineering.

UNIT I [12HOUR]

Software and software engineering: Evolving Role Software – Software – Changing Nature of Software – Software Myths - Process: A generic view: Process Framework – Process Technology – Prescriptive Process Models

UNIT II [12 HOUR]

System Engineering : Computer Based Systems – System Engineering Hierarchy – Requirements Engineering: Requirements Engineering Tasks – Eliciting Requirements - Design Engineering Design within the Context of Software Engineering – Design Process and Design Quality – Design Concepts – Design Model

UNIT III [12 HOUR]

Web Engineering: Attributes of Web Based Systems and Applications – WebAPP Engineering Layers – Web Engineering Process – Web Engineering Best Practices Formulation and planning for Web Engineering: Formulating Web-Based Systems – Planning for Web Engineering Projects – Web Engineering Team - Project Management Issues for Web Engineering - Analysis Modeling for Web Applications - Requirements Analytics for Webapps – Content Model – Interaction Model – Functional Model

UNIT IV [12 HOUR]

Advanced Topics in Software Engineering: Formal Methods – Basic Concepts – Mathematical Preliminaries – Mathematical Notations – Formal Specification Languages – Object Constraint Language – Z Specification Language – Ten Commandants of Formal Methods – Cleanroom Software Engineering Cleanroom Approach – Functional Specification – Cleanroom Design – Cleanroom Testing

UNIT V [12 HOUR]

Component Based Software Engineering – Engineering of Component Based Systems – CBSE Process – Domain Engineering – Component Based Development – Classifying and Retrieving Components – Economics of CBSE – Re-Engineering – Business Process Reengineering - Software Reengineering – Reverse Engineering – Restructuring – Forward Engineering – The Economics of Reengineering

TEXT BOOK

1. Roger S. Pressman, Software Engineering – A practitioner’s Approach, 6th Edition, McGraw Hill International Edition, 2005

REFERENCE BOOKS

1. Richard Fairley, Software Engineering Concepts, 3rd Edition, TMH, 1997, New Delhi.
2. Srinivasan Desikan & Gopalswamy Ramesh, Software Testing Principles and Practices, 2nd Edition, Pearson Education, 2006, Asia.
3. https://www.tutorialspoint.com/object_oriented_analysis_design/ooad_object_oriented_system.htm

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**THIRD SEMESTER
ELECTIVE I - MULTIMEDIA AND ITS APPLICATIONS**

MAXIMUM CIA : 30

MAXIMUM CE : 70

TOTAL HOURS : 60

Objective:

On successful completion of the paper the students should have acquired knowledge in the concepts of Multimedia, Images, Animation and Desktop Computing

UNIT I [12 HOUR]

What Is Multimedia – Introduction To Making Multimedia – Hardware - Macintosh Vs. Windows – Networking Macintosh and Windows Computers - Basic Software Tools.

UNIT II [12 HOUR]

Multimedia Skills – The Team - Multimedia Authoring tools – Types of Authoring Tools – Authoring Tools – card and Page Based – Icon and Object Based – Time Based - Text – Sound.

UNIT III [12 HOUR]

Images – Making Still Images – Color – Image File Format – Animation – Video – Analog Display Standard – Digital Display Standard – Digital Video – Video Recording and Tape Formats – Shooting and Editing Video.

UNIT IV [12 HOUR]

The Internet and How It Works – Tools for World Wide Web – Designing for the World Wide Web- Working on the Web – Text – Images – Sound – Animation.

UNIT V [12 HOUR]

High Definition Television and Desktop Computing – Knowledge Based Multimedia Systems.

TEXT BOOKS

1. Tay Vaughan, Multimedia making it works, 7thEdition, Tata McGraw Hill, 2009, New Delhi (Unit I – IV).
2. John F. Koegel Bufford, Multimedia Systems, 2ndEdition, Pearson Education, 2000, Asia (Unit V).

REFERENCE BOOKS

1. Prabhat K. Andleigh, Kiran Thakrar, Multimedia System Design, 2nd Edition, Pearson Education, 2008, New Delhi.
2. Rolf Steinmetz and Klara Mahrstedt, Multimedia:Computing, Communiation and Applications, Pearson Education, 2005, New Delhi.
3. <http://www.tutorialspoint.com/listtutorials/multimedia/1>
4. <http://cis.k.hosei.ac.jp/~jianhua/course/mm/Lesson01.pdf>

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2018-2019 Onwards

**THIRD SEMESTER
ELECTIVE I – PRINCIPLES OF PROGRAMMING LANGUAGE**

MAXIMUM CIA : 30

MAXIMUM CE : 70

TOTAL HOURS : 60

Objective : To understand the main principles of imperative, functional, object oriented and logic oriented programming languages.

UNIT I [12 HOUR]

Introduction : Reasons for Studying Concepts of Programming Languages - Programming Domains - Language Evaluation Criteria - Influences on Language Design - Language Categories – Implementation Methods – Programming Environments.

Evolution of the Major Programming Languages : Pseudo codes - Functional programming: LISP – ALGOL 60 – Programming Based on Logic : Prolog - Object-Oriented Programming: Smalltalk – An Imperative-Based Object-Oriented Language: Java The Flagship .NET Languages’# - Scripting Languages – Markup Programming Hybrid Languages.

UNIT II [12 HOUR]

Syntax and Semantics - Lexical and Syntax Analysis – Names, Bindings and Scopes – Data types.

UNIT III [12 HOUR]

Expressions and Assignment Statements – Statement-Level Control Structures – Subprograms – Implementing Subprograms.

UNIT IV [12 HOUR]

Abstract Data Types and Encapsulation Constructs – Support for Object-Oriented Programming – Concurrency – Exception Handling and Event Handling.

UNIT V [12 HOUR]

Functional Programming Languages – Logic Programming Languages.

TEXT BOOK

1. Robert W. Sebesta, "Concepts of Programming Languages" Pearson, 11th Edition, 2016.

REFERENCE BOOKS

1. RaviSethi,"Programming Languages-concepts and constructs",AddisonWesley, 2nd Edition, 1996.
2. MichaelL.Scott,"Programming Language Pragmatics– Elsevier, 1999
3. Thomson Learning, Kenneth.C.Louden, "Programming Languages: Principles and Practices", Brooks/cole Publishing Company, 2ndEd, 2002.
4. <https://cs444pnu1.files.wordpress.com/2014/02/concepts-of-programming-languages-10th-sebesta.pdf>

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2018-2019 Onwards

**FOURTH SEMESTER
PAPER 12 – MIDDLEWARE TECHNOLOGIES**

MAXIMUM CIA : 30

MAXIMUM CE : 70

TOTAL HOURS : 48

Objective : To Utilize The Sun J2EE Architecture For Creating Comprehensive Multi-Tiered Software In Java.

UNIT I [09 HOUR]

Java 2 Enterprise Edition Overview: J2EE and J2SE – Birth of J2EE – Databases – Why J2EE – J2EE Multi Tier Architecture: The Tier – Clients, Resources, and Components – Accessing Services – J2EE Multi-Tier Architecture – Client Tier Implementation – Web Tier Implementation – Enterprise JavaBeans Tier Implementation – Enterprise Information Systems Tier Implementation. Clients: Client Presentation – Client Input Validation – Client Control – Duplicate Client Request.

UNIT II [10 HOUR]

Java Servlets: Java Servlets And Common Gateway Interface Programming – Benefits Of Using A Java Servlet – A Simple Java Servlet – Anatomy Of A Java Servlet – Deployment Descriptor – Reading Data From A Client – Reading HTTP Request Headers – Sending Data To A Client And Writing The HTTP Response Header. Java Server Pages: JSP Tags – Variables And Objects – Methods – Control Statements – Loops – Tomcat – Request String – User Sessions – Cookies – Session Objects.

UNIT III [10 HOUR]

Enterprise Java Bean: EJB container – EJB Classes – EJB Interfaces. Deployment Descriptors: The Anatomy of a Deployment Descriptor – Environment Elements – Referencing EJB – Reference Other Resource - Sharing Resource - Security Elements – Query Element – Relationship Elements – Assembly Element – Session Java Bean – Entity Java Bean – Message Driven Bean – JAR File.

UNIT IV [10 HOUR]

Architecting Web Services: What Are Web Services? – Business Motivations For Web Services – Technical Motivations For Web Services: Limitations of CORBA and DCOM – Problems With Business Modeling – Reuse And Integration Goals – The Service Oriented Architecture (SOA) – Implementation Architectural View – Logical – Deployment – Process. Web Services Building Blocks (SOAP): Introduction To SOAP – Basic SOAP Syntax – Sending SOAP Messages – SOAP Implementations – The Future Of SOAP.

UNIT V [09 HOUR]

The Struts Framework: Introduction To Struts – Building A Simple Struts Application – The Model Layer – The View Layer – The Control Layer – Securing Struts Applications.

TEXT BOOKS

1. Jim Keogh, “The Complete Reference J2EE”, Tata McGraw-Hill Edition 2002.

2. Ron Schmelzer, Travis VanderSypen, Jason Bloomberg, Madhu Sidalingaiah, Sam Hunting, Michael D. Qualls, David Houlding, Chad Darby, Diane Kennedy, "XML And Web Services", Pearson Education, 2002, India.

REFERENCE BOOKS

1. James Holmes, Herbert Schildt, "The Complete Reference Struts", Tata McGraw – Hill Edition 2004, Noida.
2. <https://netbeans.org/kb/docs/web/quickstart-webapps-struts.html>

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**FOURTH SEMESTER
PAPER 13 - PHP PROGRAMMING**

MAXIMUM CIA : 30

MAXIMUM CE : 70

TOTAL HOURS : 48

Objective:

To learn and understand various concepts of PHP programming.

UNIT I [10 HOUR]
The Building Blocks of PHP Variables - Data Types - Operators and Expressions - Constants – Flow Control Functions in PHP Switching Flow - Loops - Code Blocks and Browser Output - Working with Functions What Is a Function? - Calling Functions - Defining a Function - Returning Values from User-Defined Functions - Variable Scope - Saving State between Function Calls with the static Statement - More about Arguments - Testing for the Existence of a Function

UNIT II [10 HOUR]
Working with Arrays What Are Arrays? - Creating Arrays - Some Array-Related Functions - Working with Objects Creating an Object - Object Inheritance - Working with Strings, Dates, and Time Formatting Strings with PHP - Investigating Strings in PHP - Manipulating Strings with PHP - Using Date and Time Functions in PHP - Other String, Date and Time Functions.
Working with Forms Creating a Simple Input Form - Accessing Form Input with User-Defined Arrays - Combining HTML and PHP Code on a Single Page - Using Hidden Fields to Save State - Redirecting the User - Sending Mail on Form Submission - Working with File Uploads

UNIT III [10 HOUR]
Working with Cookies and User Sessions: Introducing Cookies - Setting a Cookie with PHP - Deleting a Cookie with PHP - Session Function Overview - Starting a Session - Working with Session - Passing Session IDs in the Query String - Destroying Sessions and Unsetting Variables - Using Sessions in an Environment with Registered User.
Working with Files and Directories Including Files with include() - Validating Files - Creating and Deleting Files - Opening a File for Writing, Reading, or Appending - Reading from Files - Writing or Appending to a File - Working with Directories - Opening Pipes to and from Processes Using popen() - Running Commands with exec() - Running Commands with system() or passthru()

UNIT IV [09 HOUR]
Working with Images Understanding the Image-Creation Process - Necessary Modifications to PHP - Drawing a New Image - Getting Fancy with Pie Charts - Modifying Existing Images - Image Creation from User Input - Using Images Created by Scripts.

Understanding the Database Design Process - The Importance of Good Database Design - Types of Table Relationships - Understanding Normalization - Following the Design Process

UNIT V

[09 HOUR]

Basic SQL Commands - MySQL Data Types - Table Creation Syntax - Using the INSERT Command - Using the SELECT Command - Using WHERE in Your Queries - Selecting from Multiple Tables - Using the UPDATE Command to Modify Records - Using the REPLACE Command - Using the DELETE Command - Frequently Used String Functions in MySQL - Using Date and Time Functions in MySQL.

Using Transactions and Stored Procedures in MySQL What Are Transactions? - What Are Stored Procedures? Interacting with MySQL Using PHP MySQL versus MySQLi Functions - Connecting to MySQL with PHP - Working with MySQL Data.

TEXT BOOKS

1. Julie C. Meloni, “PHP MYSQL and APACHE”, Pearson Education, India, 2009.
2. Luke Welling, Laura Thomson, “PHP and MYSQL”, Pearson Education, India, 2010.

REFERENCE BOOKS

1. Larry Ullam, “PHP for the Web”: Visual QuickStart Guide “, 5th Edition , Peachpit Press Publication, 2016.
2. <https://www.w3schools.com/php/default.asp>
3. www.tutorialspoint.com/php/php_tutorial.pdf
4. https://www.w3schools.com/sql/sql_syntax.asp
5. https://en.wikipedia.org/wiki/Database_design
6. EBook:https://doc.lagout.org/programmation/Learning%20PHP%2C%20MySQL%20%26%20JavaScript_%20with%20jQuery%2C%20CSS%20%26%20HTML5%20%284th%20ed.%29%20%5BNixon%202014-12-14%5D.pdf
7. EBook:http://minitorn.tlu.ee/~jaagup/kool/java/kursused/14/webpr/beginning_php_and_mysql_from_novice_to_professional_4th_edition.pdf

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2018-2019 Onwards

**FOURTH SEMESTER
PAPER 14 – INTERNET OF THINGS**

MAXIMUM CIA : 30
MAXIMUM CE : 70
TOTAL HOURS : 48

Objective:

To gain the basic knowledge about IoT and understanding of IoT applications areas and technologies involved.

UNIT I [09 HOUR]

Introduction to Internet of Things: Introduction - Definition - Characteristics of IoT - Physical Design of IoT - Logical Design of IoT - IoT Enabling Technologies - IoT Levels & Deployment Templates. Domain Specific IoTs: Home Automation - Cities - Environment - Energy - Retail - Logistics - Agriculture – Industry - Health & Lifestyle.

UNIT II [09 HOUR]

IoT and M2M: Introduction - M2M - Difference between IoT and M2M - SDN and NFV for IoT. IoT System Management with NETCONF-YANG: Need for IoT Systems Management - Simple Network Management Protocol (SNMP) - Network Operator Requirements - NETCONF - YANG - IoT Systems Management with NETCONF-YANG.

UNIT III [10 HOUR]

IoT Platforms Design Methodology: Introduction - IoT Design Methodology - Case Study on IoT System for Weather Monitoring - IoT Physical Devices & Endpoints: What is an IoT Device - Exemplary Device: Raspberry Pi - About the Board - Raspberry Pi Interfaces - Other IoT Devices.

UNIT IV [10 HOUR]

IoT Physical Servers & Cloud Offerings: Introduction to Cloud Storage Models & Communication APIs - WAMP - AutoBahn for IoT - Xively Cloud for IoT - Python Web Application Framework – Django - Designing a RESTful Web API - Amazon Web Services for IoT. Data Analytics for IoT: Introduction - Apache Hadoop - Using Hadoop MapReduce for Batch Data Analysis - Apache Oozie - Apache Spark - Apache Storm - Using Apache Storm for Real-time Data Analysis - Structural Health Monitoring Case Study

UNIT V [10 HOUR]

Tools for IoT: Introduction - Chef - Chef Case Studies - Puppet - Puppet Case Study - Multi-tier Deployment - NETCONF-YANG Case Studies - IoT Code Generator.

TEXT BOOK

1. Vijay Madiseti and ArshdeepBahga, “Internet of Things (A Hands-on-Approach)”, 1st Edition, VPT, 2014.

REFERENCE BOOKS

1. Jan Holler, Vlasios Tsiatsis, Catherine Mulligan, Stefan Avesand, Stamatis Karnouskos, David Boyle, “From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence”, 1st Edition, Academic Press, 2014.
2. Francis daCosta, “Rethinking the Internet of Things: A Scalable Approach to Connecting Everything”, 1st Edition, Apress Publications, 2013.
3. Peter Waher, “Learning Internet of Things”, PACKT publishing, BIRMINGHAM – MUMBAI.
4. http://www.cse.wustl.edu/~jain/cse570-15/ftp/iot_prot/index.html.

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2018-2019 Onwards

**FOURTH SEMESTER
PRACTICAL 7 –MIDDLEWARE TECHNOLOGIES**

MAXIMUM CIA : 40

MAXIMUM CE : 60

TOTAL HOURS : 60

Objective:

To inculcate knowledge about Advanced Java and helps to specialize in J2EE.

PROGRAM LIST

- 1) Program to get username and password and display it in new page using jsp.
- 2) Program to illustrate usage of atleast four jsp tags.
- 3) Program to develop an application for college website.
- 4) Program to get user input and validate it with database using jsp.
- 5) Program to develop client - server communication using servlet
- 6) Program for servlet config.
- 7) Program to insert and delete data in a database using servlet.
- 8) Program to implement Session Bean.
- 9) Program to implement Entity Bean.
- 10) Program to implement Message Driven Bean.
- 11) Program to validate an input from database using struts.
- 12) Program to Client-side JavaScript Validation using struts.

TEXT BOOK

1. Jim Keogh, The Complete Reference J2EE, Tata McGraw-Hill Edition 2002.

REFERENCE BOOKS

1. Ron Schmelzer, Travis VanderSypen, Jason Bloomberg, Madhu Sidalingaiah, Sam Hunting, Michael D. Qualls, David Houlding, Chad Darby, Diane Kennedy, XML And Web Services, by Pearson Education, 2002, India
2. James Holmes, Herbert Schlidt, The Complete Reference Struts, Tata McGraw – Hill Edition 2004, Noida.
3. <https://docs.oracle.com/javaee/6/tutorial/doc/bnbpk.html>

4. http://www.tutorials4u.net/struts-tutorial/struts_client_side_java_script_validation_example.html
5. <http://www.javatechcodes.com/servlet/insert-update-delete-data-servletjsp/>

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2018-2019 Onwards**FOURTH SEMESTER
PRACTICAL 8 - PHP PROGRAMMING**

MAXIMUM CIA : 40
MAXIMUM CE : 60
TOTAL HOURS : 60

Objective:

On the successful study of this paper, the students should have acquired the professional skill in developing PHP programs.

PROGRAM LIST

1. Program to change background color based on day of the week using if else and else if statements.
2. Developing a Program to create random text link advertising using predefined arrays.
3. Developing a Program for String manipulations and searching.
4. Developing a Program for displaying last updated date and time of the file.
5. Developing a Program for form validation.
6. Developing a Program for setting and retrieving cookies.
7. Developing a Program for file creation and displaying the contents of the file.
8. Write a PHP program to store page views count in SESSION, to increment the count on each refresh, and to show the count on web page
9. Send e-mail using PHP.
10. Develop a website about yourselves using PHP.
11. Developing a Program for creating a MySQL table using a PHP script.
12. Developing a Program for adding and deleting users from MySQL.

TEXT BOOKS

1. Julie C. Meloni, PHP MYSQL and APACHE, Pearson Education, India, 2009
2. Luke Welling, Laura Thomson, PHP and MYSQL, Pearson Education, India, 2010

REFERENCE BOOKS

1. <https://www.madinpoly.com/pdf/labmanual/5/WT%20MANUAL.pdf>
2. <http://www.informit.com/articles/article.aspx?p=26146&seqNum=5>
3. https://www.w3schools.com/php/php_form_validation.asp
4. <https://www.cloudways.com/blog/php-string-functions-with-examples/>
5. <https://davidwalsh.name/basic-php-file-handling-create-open-read-write-append-close-delete>

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2018-2019 Onwards

**FOURTH SEMESTER
ELECTIVE II - E-COMMERCE**

MAXIMUM CIA : 30

MAXIMUM CE : 70

TOTAL HOURS : 60

Objectives:

On successful completion of the course the students should have acquired expert knowledge of E-Commerce framework and types of electronic payments systems

UNIT I [12 HOUR]

Electronic Commerce Framework – Electronic Commerce of Media Convergence- the Anatomy of E-Commerce Applications – Electronic Commerce Applications – Electronic Commerce Organization Applications – Market Forces Influencing the I-Way – Components of the I-Way – Network Access Equipment – the Last Mile- Local Roads and Access Ramps – Global Information Distribution Networks – Public Policy Issues Shaping the I-Way

UNIT II [12 HOUR]

Architectural Framework For Electronic Commerce – World Wide Web (WWW) As the Architecture – Web Background- Hypertext Publishing – Technology Behind the Web – Security and the Web – Consumer-Oriented Applications – Mercantile Models From the Consumer’s Perspective – Mercantile Models From the Merchant’s Perspective

UNIT III [12 HOUR]

Types of Electronic Payment Systems – Digital Token-Based Electronic Payment Systems – Smart Cards and Electronic Payment Systems – Credit Card Based Electronic Payment Systems – Risk and Electronic Payment Systems – Designing Electronic Payment Systems -Electronic Data Interchange – EDI Applications In Business – EDI- Legal- Security- and Privacy Issues – EDI and Electronic Commerce.

UNIT IV [12 HOUR]

Internal Information Systems – Macro Forces and Internal Commerce – Work Flow Automation and Coordination Customization and Internal Commerce – Supply Chain Commerce Systems – Making A Business Case For A Document Library – Types of Digital Documents – Issues Behind Document Infrastructure – Corporate Data Warehouses.

UNIT V [12 HOUR]

The New Age of Information-Based Marketing – Advertising On the Internet- Charting the Online Marketing Process – Market Research – Search and Resource Discovery Paradigms – Information Search and Retrieval – Electronic Commerce Catalogs Or Directories – Information Filtering – Consumer – Data Interface Emerging Tools.

TEXT BOOKS

1. Ravi Kalakota, Andrew B. Whinston, "Frontiers of Electronic Commerce", 2nd Edition, Pearson Education, 2003, Asia.
2. Jeffery F. Rayport, Bernard J. Jaworski, "E- Commerce TMCH", 2002, New Delhi.

REFERENCE BOOKS

1. P.T. Joseph, "E- Commerce – A Managerial Perspective", 3rd Edition, PHI, Asia.
2. <http://www.ddegjust.ac.in/studymaterial/mcom/mc-201.pdf>
3. EBook: <https://books.google.co.in/books?id=hfqUCgAAQBAJ&printsec=frontcover&dq=inauthor:%22P.+T.+Joseph%22&hl=en&sa=X&ved=0ahUKEwjHvdbQ4OjZAhUHTI8KHe3VDUQQ6AEIJjAA#v=onepage&q&f=false>
4. http://www.cmscbe.com/EDC_All/ec.pdf
5. <https://services.amazon.in/resources/seller-blog/different-types-of-e-commerce-payment-systems.html>
6. <https://aimeos.org/tips/ecommerce-framework/>

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**FOURTH SEMESTER
ELECTIVE II - CLOUD COMPUTING**

MAXIMUM CIA : 30

MAXIMUM CE : 70

TOTAL HOURS : 60

Objective : To inculcate knowledge about Cloud Computing.

UNIT I [12 HOUR]

Cloud Computing Basics: Cloud Computing Overview-Applications-Intranets and the Cloud - Your Organization and Cloud Computing: Benefits-Security Concerns. Cloud Computing with the Titans: Google-EMC-Microsoft. Cloud Computing Services : How those Applications Help Business.

UNIT II [12 HOUR]

Cloud Computing Technology: Hardware and Infrastructure: Clients – Security – Network – Services - Accessing the Cloud: Platforms-Web Applications-Web APIs - Web Browsers. Cloud Storage: Overview - Cloud Storage Providers - Standards: Application- Client-Infrastructure -Service.

UNIT III [12 HOUR]

Cloud offerings: Introduction-Information storage, retrieval, archive and protection-Cloud analysis-Testing under cloud-Information security-Virtual desktop infrastructure-Storage cloud. Cloud management: Governance-High availability and disaster recovery-Charging models, usage reporting, billing and metering.

UNIT IV [12 HOUR]

Cloud virtualization technology: Introduction-Virtualization defined- Virtualization benefits-Server Virtualization- Virtualization for x86 architecture-Hypervisor management software-Virtual infrastructure requirements. Cloud infrastructure: Introduction-storage Virtualization-storage area networks- Network-Attached storage-Cloud server Virtualization-networking essential to cloud.

UNIT V [12 HOUR]

Cloud and SOA: Introduction-SOA journey to infrastructure-SOA and cloud-SOA defined-SOA and IAAS- SOA-based cloud infrastructure steps. Cloud mobility: Introduction-the business problem-Mobile enterprise application platform-Mobile application platforms – Mobile application architecture overview.

TEXT BOOKS

1. Anthony T.Velte, Toby J.Velte, Robert Elsenpeter. 2010. Cloud Computing Practical Approach, 1st Edition, Tata McGraw Hill, New Delhi.
2. Dr Kumar Saurabh, 2012 , Cloud Computing, 2nd Edition, Wiley India.

REFERENCE BOOKS

1. Barrie Sosinsky .2010. Cloud Computing Bible, Wiley- India
2. Rajkumar Buyya, James Broberg, Andrzej M Goscinski. 2011. Tata Mc-Graw Hill, New Delhi.
3. Ronald L. Krutz, Russell Dean Vines. 2010. Cloud Security: A Comprehensive Guide to Secure Cloud Computing, Wiley –India
4. Michael Miller, Cloud Computing, Pearson Education, New Delhi, 2009
5. en.wikipedia.org/wiki/Cloud_computing
6. www.ibm.com/cloud-computing/in/en/
7. www.oracle.com/CloudComputing
8. www.microsoft.com/en-us/cloud/default.aspx

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2018-2019 Onwards

**FOURTH SEMESTER
ELECTIVE II - INFORMATION SYSTEM SECURITY**

MAXIMUM CIA : 30
MAXIMUM CE : 70
TOTAL HOURS : 60

Objective : To acquire knowledge about how the system security is provided.

UNIT I [12 HOUR]
Information Systems in Global Content - History of Information System - Basics of Information Systems - Importance of Information Systems - Basics of Information Systems -Changing nature of Information System - Threats to Information System - Information System Security threats – Attacks – Classification of Threats and Assessing Damages - Protecting Information System Security.

UNIT II [12 HOUR]
Security Considerations in Mobile and Wireless Computing - Proliferation of Mobile and Wireless Devices - Trends in Mobility - Credit Card Frauds in Mobile and Wireless Computing -Security Challenges Posed by Mobile Devices - Registry Settings for Mobile Devices - Authentication Service Security - Building Blocks of Information Security.

UNIT III [12 HOUR]
Network Security and Logical Access Control - Network Security in Perspective - Cryptography and Encryption – Intrusion Detection for System Security.

UNIT IV [12 HOUR]
Firewalls for Network Protection - What are Firewalls - Why Firewalls are Needed -Proxy Servers - Topologies for Different Types of Firewalls - Design and Implementation Issues in Firewalls - Security of Wireless Networks – Overview – Attacks on Wireless networks - Security of Electronic Mail System.

UNIT V [12 HOUR]
Privacy - Technical Impacts - Privacy Issues in Smart Card Applications – Ethical Issues and Intellectual Property Concerns for InfoSec Professional - Information System - Threats Within - Characteristics of Insider Attacks - Nature of Ethical Issues in Networked Enterprise – Cryptography - Cryptographic Tools and Ethical Issues -

TEXT BOOK

1. “Information Systems Security - Security Management, Metrics, Frameworks And Best Practices”, Nina Godbole, First Edition,2009,Wiley India Pvt Ltd.

REFERENCE BOOKS

1. “Managing Information System Security And Privacy”, Denis Trcek, First Edition 2006.
2. “Cryptography and Network Security”, William Stallings, fifth Edition, 2011, Pearson Publications.
3. http://www.vssut.ac.in/lecture_notes/lecture1423183198.pdf
4. <https://www.itproportal.com/2015/07/29/understanding-ethical-hacking-it-security/>

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2015-2016 Onwards

**FIFTH SEMESTER
PART – III - PAPER 15: .NET FRAMEWORK**

Maximum CIA : 30

Maximum CE : 70

Total Hours : 48

Objective : To provide basic programming knowledge in .Net Framework using VB and C#.

UNIT I (10 Hours)

Philosophy of .NET-Previous state-.NET solution-Building blocks of .NET-Overview of .NET Assemblies-Understanding CTS,CLS,CLR-Assembly/namespace/Type Distinction-Exploring an Assembly-Platform Independent nature of .NET. Building C# Application using csc.exe-Specifying I/P and O/P targets.

UNIT II (10 Hours)

C# Programming Constructs : Anatomy of simple C# Program-Variations on Main Method-Processing Command line arguments-System.Console Class-Basic I/P and O/P with console class-Formatting Console O/P and Numeric Data. System Data Types-Variable Declaration & Initialization-Data Type Class Hierarchy-C# Iteration Constructs-For loop – for each loop –while/do while-if/else statement-switch statement. Array in C#-Initialization-Defining Array objects-MultiDimensional array.

UNIT III (10 Hours)

C# Class-New Keyword – Class Constructs-Default constructors-this keyword-static keyword-static constructors. Pillars of OOP-Access Modifiers-Details of Inheritance-C# Polymorphic support-Abstract classes-Building polymorphic interface-Understanding Structured Exception handling-Exception Base class-Throwing an Exception-System Level Exception-Application Level Exception-Custom Level Exception. ADO.NET-Understanding Role of DataSet-Data Columns –Data Rows-Data Tables-Data Rows-Data Adapters.

UNIT IV (09 Hours)

VB.Net – Operators-Conditionals and Loops-Procedures-Scope and Exception handling- Windows Forms-Text Box-Rich text Box-labels-Buttons –List Box-Object Oriented Programming.

UNIT V (09 Hours)

Data Access with ADO.NET -Web Services – Introduction to Web Services-SOAP-WSDL-UDDI-Creating WS-Using WS Class-Creating WS –Using Output caching-Using Data Caching.

TEXT BOOKS

1. Pro C# 5.0 and the .NET 4.5 Framework – 6th Edition ,Andrew Troelsen,Apress,2012 (UNIT –I,II,III).
2. Visual Basic 2015 in 24 Hourss, Sams Teach Yourself 1st Edition , James Foxall ,Sams Publishing,2015(UNIT-IV).

REFERENCE BOOKS

1. Pro C# 2008 and .NET 3.5 Platform-4th Edition, Andrew Troelsen- Apress-First Indian Reprint 2008.
2. VB.Net Programming – Black Book-Steven Holzner-ParaGlyph Press, Reprint Edition-2009, New Delhi.

3. Ebook:<http://www.clicktocontinue.com/books/ProCSharp5AndTheNET4.5Framework.pdf>(**UNIT-I,II,III**).
4. **Ebook:**VB.NET Programming , MKAATR-2010, [http://mkasoft.com/downloads / VB.NET %20programming.pdf](http://mkasoft.com/downloads/VB.NET%20programming.pdf) (**Unit-IV**)

Master of Computer Application Degree Examination-Syllabus for candidates admitted from the academic year 2018-2019 onwards**FIFTH SEMESTER
PAPER 16 – INTERNETWORKING WITH TCP/IP**

Maximum
CIA: 30
Maximum CE: 70
Total Hours: 48

Objective: On successful completion of this paper the students should have acquired expert knowledge of basics of Internetworking with TCP/IP.

Unit I (10 Hours)
Introduction And Overview - Review of Underlying Network Technologies - Internetworking Concept and Architectural Model – Difference between TCP & IP - Classful Internet Addresses.

Unit II (10 Hours)
Mapping Internet Addresses to Physical Addresses – Determining an internet address at startup- Internet Protocol: Connectionless Datagram Delivery – Routing IP datagrams – ICMP - Classless and subnet address extensions.

Unit III (10 Hours)
Protocol Layering – UDP – TCP - Routing: Cores, Peers and Algorithms – Exterior Gateway Protocols and Autonomous systems – In An Autonomous System (RIP, EIGRP, OSPF, HELLO) - Internet multicasting.

Unit IV (09 Hours)
TCP/IP Over ATM Networks - Mobile IP – Private Network Interconnection (NAT, VPN) – Client-server model of interaction – the socket interface – Bootstrap and auto configuration (BOOTP, DHCP) – DNS.

Unit V (09 Hours)
Applications: Remote Login – File Transfer and access – Electronic mail – World Wide Web – RTP - SNMP - The Future of TCP/IP (IPv6).

Text Book

1. Douglas E. Comer, “Internetworking with TCP/IP Principles, Protocols and Architectures”, Volume I, Prentice Hall, 5th Edition, 2006.

Reference Books

1. Douglas E.Comer, “Internetworking with TCP/IP Principles, Protocols and Architectures”, Volume I, Prentice Hall, 4th Edition, 1995.
2. Mahbub Hasan & Raj Jain, ” High performance TCP/IP Networking”, PHI -2005.
3. Behrouz A Forouzan, “TCP/IP Protocol Suite”, TMH, 3rd Edition.
4. EBook:[http://index-of.es/Networking/Internetworking%20with%20TCP-IP%20\(Principles,%20protocols%20and%20architecture\)%20vol1%204ed%20-%20Comer.pdf](http://index-of.es/Networking/Internetworking%20with%20TCP-IP%20(Principles,%20protocols%20and%20architecture)%20vol1%204ed%20-%20Comer.pdf).

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2015-2016 Onwards

**FIFTH SEMESTER
PART – III - PAPER 17 - DATA MINING AND WAREHOUSING**

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objective:

On successful completion of the paper students should have acquired expert knowledge of Data Mining and Data warehousing Techniques.

UNIT I (12 Hours)

Data Mining-Definition-Basic Data Mining Tasks – Data Mining versus Knowledge Discovery in Databases – Data Mining Issues – Data Mining Metrics – Social Implications of Data Mining – Data Mining from a Database Perspective-**Data Mining Techniques**- A Statistical Perspective on Data Mining –Similarity Measures – Decision Trees – Neural Networks – Genetic Algorithms.

UNIT II (12 Hours)

Classification– Statistical Based Algorithms - Distance Based Algorithms – Decision Tree Based Algorithms - Neural Network Based Algorithms – Rule Based Algorithms –Combining Techniques.

UNIT III (12 Hours)

Clustering– Similarity and Distance Measures – Outliers – Hierarchical Algorithms - Partitional Algorithms-**Association Rules** - Large Item Sets - Basic Algorithms –Comparing Approaches- Incremental Rules – Advanced Association Rules Techniques – Measuring the Quality of Rules.

UNIT IV (12 Hours)

Data Warehousing-Characteristics of a Data Warehouse – Data Marts –Other Aspects of Data Mart-**Online Analytical Processing** - OLTP & OLAP Systems – **Data Modeling**- Star Schema for Multidimensional View – Multifact Star Schema or Snow Flake Schema – OLAP TOOLS – State of the Market – OLAP TOOLS and the Internet.

UNIT V (12 Hours)

Developing a Data Warehouse- Why and How to Build a Data Warehouse –Data Warehouse Architectural Strategies and Organization Issues - Design Consideration – Data Content – Metadata Distribution of Data – Tools for Data Warehousing – Performance Considerations – Crucial Decisions in Designing a Data Warehouse- Applications of Data Warehousing and Data Mining in Government – National Data Warehouses – Other Areas for Data Warehousing and Data Mining.

TEXT BOOKS

1. Margaret H. Dunham, Data Mining Introductory and Advanced Topics, Pearson Education, 2015, Asia. (UNIT – I, II, III)
2. C.S.R. Prabhu, Data Warehousing Concepts, Techniques, Products and Applications, 3rd Edition, PHI Private Limited, NewDelhi.(UNIT – IV , V)

REFERENCE BOOKS

1. Arun K.Pujari, Techniques,2nd Edition ,Universities Press Private Limited, 2007, India.
Alex Berson, Stephen J. Smith, Data warehousing, Data mining, and OLAP,
TMCH,2003, NewDelhi.
2. Jiawei Han & Micheline Kamber, Data mining Concepts & Techniques, 2nd Edition,
Academic press,2001,India.
3. **Books:** www.amazon.in/Data-Mining-Introductory-Advanced-Topics/.../013088...
Margaret H. Dunham (Author) EMC Education.

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2015-2016 Onwards

**FIFTH SEMESTER
PART – III - PRACTICAL 9: .NET PROGRAMMING**

Maximum CIA : 40

Maximum CE : 60

Total Hours : 60

Objective:

Improving professional skills in .Net Framework using VB and C#

PROGRAM LIST

1. Develop a program using Arrays (declaration of Single & Multi- dimensional array).
2. Develop a program using Control Statements.
3. Develop a Program for Exceptional Handling
4. Design and Implement a Calculator Application
5. Write a Program to Implement Inheritance and Polymorphism
6. Design and Implement Digital Clock
7. Design and Implement a Menu Based Application
8. Write a Program to Access Data from MSACCESS Database using ODBC
9. Write a Program to Access Data from MSACCESS Database using OLE DB
10. Write a Program to Access Data from MSACCESS Database and Generate Report
11. Write a Program using Data grid to Manipulate a Database
12. Write a Calculator Program using Web Service and access it with a client program.

TEXT BOOK

1. Pro C# 5.0 and the .NET 4.5 Framework – 6th Edition ,Andrew Troelsen,Apress,2012

REFERENCE BOOK

1. VB.Net Programming – Black Book-Steven Holzner-ParaGlyph Press, Reprint Edition-2009, New Delhi

Master of Computer Application Degree Examination-Syllabus for candidates admitted from the academic year 2018-2019 onwards**FIFTH SEMESTER
PRACTICAL 10: ROUTER CONFIGURATION**

Maximum
CIA: 40
Maximum CE: 60
Total Hours: 60

Objective: To provide basic programming knowledge in router configurations and routing concepts and common problems associated with IP addressing.

Program List

1. Simple router configuration.
2. Access and utilize the router to set basic parameters.
3. Connect, configure, and verify operation status of a device interface.
4. Implement static and dynamic addressing services for hosts in a LAN environment.
5. Identify and correct common problems associated with IP addressing and host configurations.
6. Describe basic routing concepts (including: packet forwarding, router lookup process).
7. Configure, verify, and troubleshoot RIPv2.
8. Perform and verify routing configuration tasks for a static or default route given.
9. Configure, verify and troubleshoot DHCP and DNS operation on a router.
10. Configure and verify a PPP connection between routers.

Text Book

1. Douglas E. Comer, "Internetworking with TCP/IP Principles, Protocols and Architectures", Volume I, Prentice Hall 5th Edition, 2006.

Reference Books

1. Douglas E. Comer, "Internetworking with TCP/IP Principles, Protocols and Architectures", Volume I, Prentice Hall 4th Edition, 1995.
2. EBook:[http://index-of.es/Networking/Internetworking%20with%20TCP-IP%20\(Principles, %20 protocols%20and%20architecture\)%20vol1%204ed%20-%20Comer.pdf](http://index-of.es/Networking/Internetworking%20with%20TCP-IP%20(Principles,%20protocols%20and%20architecture)%20vol1%204ed%20-%20Comer.pdf)
3. https://courses.cs.ut.ee/MTAT.08.033/2016_fall/uploads/Main/6_1
4. <https://www.cisco.com/c/en/us/td/docs/routers/access/800M/software/800MSCG/routconf.html>
5. <https://www.examcollection.com/certification-training/ccnp-configure-verify-and-troubleshoot-ripv2.html>
6. <https://websistent.com/how-to-configure-ppp-in-cisco-routers/>

Master of Computer Application Degree Examination-Syllabus for candidates admitted from the academic year 2018-2019 onwards

**FIFTH SEMESTER
ELECTIVE III – SOFT COMPUTING**

Maximum CIA: 30
Maximum CE: 70
Total Hours: 60

Objective: To enable the students to learn the concepts of software engineering, web engineering, Component based software engineering.

Unit I (12 Hours)
Introduction to Neuro – Fuzzy and Soft Computing – Fuzzy Sets – Basic Definition and Terminology – Settheoretic Operations – Member Function Formulation and Parameterization – Fuzzy Rules and Fuzzy Reasoning – Extension Principle and Fuzzy Relations – Fuzzy If-Then Rules – Fuzzy Reasoning – Fuzzy Inference Systems – Mamdani Fuzzy Models – Sugeno Fuzzy Models – Tsukamoto Fuzzy Models – Input Space Partitioning and Fuzzy Modeling.

Unit II (12 Hours)
Derivative-based Optimization – Descent Methods – The Method of Steepest Descent – Classical Newton’s Method – Step Size Determination – Derivative-free Optimization – Genetic Algorithms – Simulated Annealing – Random Search – Downhill Simplex Search.

Unit III (12 Hours)
Supervised Learning Neural Networks – Perceptrons - Adaline – Back propagation Multilayer Perceptrons – Radial Basis Function Networks – Unsupervised Learning Neural Networks – Competitive Learning Networks – Kohonen Self-Organizing Networks – Learning Vector Quantization – Hebbian Learning.

Unit IV (12 Hours)
Adaptive Neuro-Fuzzy Inference Systems – Architecture – Hybrid Learning Algorithm – Learning Methods that Cross-fertilize ANFIS and RBFN – Coactive Neuro Fuzzy Modeling – Framework Neuron Functions for Adaptive Networks – Neuro Fuzzy Spectrum.

Unit V (12 Hours)
Printed Character Recognition – Inverse Kinematics Problems – Automobile Fuel Efficiency Prediction – Soft Computing for Color Recipe Prediction.

Text Book

1. J.S.R.Jang, C.T.Sun and E.Mizutani, “Neuro-Fuzzy and Soft Computing”, PHI, 2004, Pearson Education, 2004.

Reference Books

1. Timothy J.Ross, "Fuzzy Logic with Engineering Applications", McGraw-Hill, 1997.
2. Davis E.Goldberg, "Genetic Algorithms: Search, Optimization and Machine Learning", Addison Wesley, N.Y., 1989.
3. S. Rajasekaran and G.A.V.Pai, "Neural Networks, Fuzzy Logic and Genetic Algorithms", PHI, 2003.
4. R.Eberhart, P.Simpson and R.Dobbins, "Computational Intelligence - PC Tools", AP Professional, Boston, 1996.

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2015-2016 Onwards

FIFTH SEMESTER

PART – III - ELECTIVE III – OBJECT ORIENTED ANALYSIS AND DESIGN USING UML

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objective:

On successful completion of this paper the students should have acquired expert knowledge of Basic Concepts, Object Oriented Analysis and Design, Unified Modeling Language.

UNIT I

(12 Hours)

The Object Model- The Evolution of the Object Model – Elements of the Object Model – Applying the Object Model- Classes and Objects- The Nature of an Object –Relationships among Objects – The Nature of a Class – Relationships among Classes –The Interplay of Classes and Objects – Building Quality Classes and Objects.

UNIT II

(12 Hours)

Classification- The importance of Proper Classification – Identifying Classes and Objects – Key Abstractions and Mechanisms- The Notation- Elements of the Notation- Class Diagrams – State Transition Diagrams.

UNIT III

(12 Hours)

Object Diagrams – Interaction Diagrams – Module Diagrams – Process Diagrams –Applying the Notation- The Process- Principles – Micro Development Process – Macro Development Process.

UNIT IV

(12 Hours)

Design Patterns- Creational – Structural – Behavioural Patterns. Pragmatics- Management and Planning – Staffing – Release Management – Reuse – Quality Assurance and Metrics – Documentation – Tools – The benefits and Risks of Object – Oriented Development.

UNIT V

(12 Hours)

Object Oriented Programming Languages - Case Studies: Weather Monitoring Station - Inventory Tracking – Traffic Management.

TEXT BOOKS

1. Grady Booch ,Object Oriented Analysis and Design,2nd Edition, Pearson Education, 2003,Asia (Chapters:2,3,4,5,6,7,8,10,12)
2. Mahesh P. Matha,“Object – Oriented Analysis and design using UML An introduction to Unified Process and Design Patterns, Prentice-Hall of India Pvt.Ltd, 2002, Asia . (Chapters: 8,9,10)

REFERENCE BOOKS

1. Martin Fowler,UML Distilled A Brief Guide to the Standard Object Modeling Lanaguage
2. 3rd Edition, Pearson Education, 2003,Asia.
3. James Rumbaugh et al, Object Oriented Modeling and Design, Pearson Education ,2003, Asia.

4. **Ebook** : <http://www.amazon.in/Object-Oriented-Analysis-Design-Applications-Grady-ebook/dp/B004X1D1Q2>
5. **Ebook** : www.kopykitab.com/ebooks/2016/03/6183/sample/sample_6183.pdf

Master of Computer Application Degree Examination-Syllabus for candidates admitted from the academic year 2018-2019 onwards**FIFTH SEMESTER
ELECTIVE III – SOFTWARE PROJECT MANAGEMENT**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: On successful completion of this paper the students should have acquired expert knowledge in Project Life Cycle Model, Software configuration management and quality assurance, Software Requirements gathering, Estimation, Testing and Maintenance.

Unit I (12 Hours)

Product Life Cycle – Idea Generation - Prototype Development Phase – Alpha Phase – Beta Phase - Protection Phase - Maintenance and Obsolescence Phase - Project Life Cycle Models - The Waterfall Model - The Prototype Model - The Rapid Application Development Model – The Spiral Model and its Variants - Metrics - The Metrics Roadmap - A Typical Metrics Strategy – Common Pitfalls.

Unit II (12 Hours)

Software Configuration Management (SCM) - Basic definitions and terminology -The Process and Activities of SCM – Configuration Status Accounting - Configuration Audit – SCM in geographically distributed teams – Metrics - Risk Management - Risk Management cycle- Risk Identification – Risk Quantification – Risk Monitoring - Risk Mitigation - Risks and Mitigation in the context of global project Teams – Some practical techniques – Matrices.

Unit III (12 Hours)

Software Requirements gathering - Inputs and start criteria for requirements gathering - Dimensions of requirements gathering - steps to be followed during requirements gathering - outputs and quality records from the requirements phase - skills sets - challenges – metrics - Estimation – The Three Phases of Estimation - Estimation Methodology - Formal models for Size Estimation – Translation Effort Estimated into Schedule Estimates – Common Challenges – Metrics.

Unit IV (12 Hours)

Design and development phases - Salient features of design - Evolving an architecture /Blueprint – Design for reusability - Technology choices constraints – Design to standards –Design for portability - User interface issues - Design for testability - Design for diagnosability - Design for maintainability - Design for Installability - Inter Operability design - Challenges - Skill sets – Metrics .- Project management in the testing phase - What is Testing – Testing Activities - Test Scheduling and Types of Tests - People issues in Testing Management Structures for testing in global teams – Metrics.

Unit V

(12 Hours)

Project management in the maintenance phase - Activities - Management Issues - Configuration Management – Skill Sets - Estimating Size - Effort and People Resources - Advantages of using Geographically Distributed Teams for the Maintenance Phase - Metrics - Globalization issues in project management - Evolution of Globalization - Challenges - Execution of some Effective Management Techniques.

Text Book

1. Gobalswamy Ramesh, Managing Global Software Projects, Tata McGraw Hill, Publishing Company, 2003, New Delhi.

Reference Books

1. S.A. Kelkar, Software Project Management –A concise study, PHI, 2003, Asia.
2. Derrel Ince, H. Sharp and M. Woodman,p Introduction to software project management and quality assurance, Tata McGraw Hill, 1995, New Delhi.
3. Ebook: <https://books.google.co.in/books?isbn=0070598975>, Ramesh – 2005.
4. Ebook:<https://books.google.co.in/books?isbn=1259007111>,Gopalswamy Ramesh -2005

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2015-2016 Onwards

**FIFTH SEMESTER
PART – IV - EDC 1- MARKETING MANAGEMENT**

MAXIMUM CE: 50

Total Hours: 24

Objective: The aim of this subject is to develop an understanding of the underlying concepts, strategies and issues involved in marketing management.

- UNIT I (4 Hours)**
Definition of Marketing Management- Scope, Concepts - Core Marketing Concepts- Marketing Environment: Micro and Macro Environmental Factors. Role of Marketing in Modern Management.
- UNIT II (5 Hours)**
Buyer Behavior- Determinants of Consumer Buying Behavior. Buying Decision Process- Market Segmentation- Need and Requirements of Effective Segmentation- Selecting Target Markets. Positioning the Market Offering- Marketing Mix .
- UNIT III (5 Hours)**
Product- Classification of Product – Levels - Product Mix Decision-Product Life Cycle. New Product Development Process. Pricing– Objectives- Methods.
- UNIT IV (5 Hours)**
Promotion Mix- Elements of the Promotion Mix- Packaging and Labeling-Advertising-Types of Advertising-Sales Promotion - Telemarketing- Types – Limitations.
- UNIT V (5 Hours)**
Channels of Distribution – Channel Flows – Channel Levels –Channel Intermediaries – Factors influencing the Choice of Distribution Channels- Channel Management – E- Marketing- Agile Marketing-Guerilla Marketing-Green Marketing.

TEXT BOOK

1. Philip Kotler, Kevin Lane Keller, Abraham Koshy, Mithileshwar Jha, “Marketing Management, 14th Edition, 2013, Pearson Education.

REFERENCE BOOKS

1. Rajen Saxena, Marketing Management, 3rd Edition, 2002, TMH, New Delhi, 2002.
2. Joel R Evan and Barry Berman, Marketing, 8e-Marketing in 21st Century, 2nd Edition, 2005, Biztantra- An imprint of Dream tech press.
3. Michael.R.Czinkota and Masaaki Kotabe, Marketing Management-2e, 2nd Edition, 2008, South Western Publishing Company, Cengage Learning, New Delhi.

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2015-2016 Onwards

**FIFTH SEMESTER
PART – IV - EDC1 - HUMAN RESOURCE MANAGEMENT**

**Maximum CE: 50
Total Hours: 24**

Objective: To enable students learn the various concepts and functions of HRM and also to understand the concept of Recruitment, Testing, Selection, Training & Development and Evaluation.

UNIT I (5 Hours)

Introduction - Evolution of HRM -- Importance of HRM- Personnel Management vs Human Resource Management- Strategic Human Resource Management – Using HRM to Attain Competitive.

UNIT II (5 Hours)

Employment Planning and Forecasting -Job Analysis – Process of Job Analysis – Job Description- Job Specification. Recruitment and Selection

UNIT III (4 Hours)

Interview, Common Interviewing Mistakes, Designing and Conducting the Effective Interview, Small Business Application, Computer Aided Interview - Placement- Induction/Orientation- Orienting the Employees. Training-Career Planning & Succession Planning .

UNIT IV (5 Hours)

Job Evaluation- Job Evaluation vs Performance Appraisal-.Performance Appraisal - Compensation Plan- Objectives- Promotion- Demotion- Transfer- Separation.

UNIT V (5 Hours)

Industrial Relations- Trade Unions- Collective Bargaining- Employee Grievances- Redressal- HR Audit. IHRM- Domestic HRM vs IHRM- E-HRM- E-HRM Activities.

TEXT BOOK

1. VSP Rao, Human Resource Management: Text and cases, 3rd edition, 2010, Excel Books, New Delhi..

REFERENCE BOOKS

1. Gary Dessler, Human Resource Management, 10th edition, 2008, Dorling Kindersly, India Pvt Ltd., New Delhi.
2. David A. DeCenzo & Stephen P.Robbins, Personnel/Human Resource Management, 3rd edition, 2006, PHI/Pearson, Indian reprint.
3. Jhon Bernardinl, Human Resource Management: An experiential approach, Special Indian Edition, 2007, Tata McGraw Hill, New Delhi.

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2015-2016 Onwards

**SIXTH SEMESTER
PART- III - PAPER 18 - DIGITAL IMAGE PROCESSING**

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objective:

On successful completion of this paper the students should have acquired expert knowledge of Digital Image Processing.

UNIT – I (12 Hours)

Introduction: What is Digital image processing – the origin of DIP – Examples of fields that use DIP – Fundamentals steps in DIP – Components of an image processing system. Digital Image Fundamentals: Elements of Visual perception – Light and the electromagnetic spectrum – Image sensing and acquisition – Image sampling and Quantization – Some Basic relationship between Pixels – Linear & Nonlinear operations.

UNIT – II (12 Hours)

Image Enhancement in the Spatial Domain: Background – some basic Gray level Transformations – Histogram Processing – Enhancement using Arithmetic / Logic operations – Basics of spatial filtering – Smoothing spatial filters – Sharpening spatial filters – Combining spatial enhancement methods.

UNIT – III (12 Hours)

Image Restoration: A model of the Image Degradation / Restoration Process – Noise models – Restoration is the process of noise only – Spatial Filtering – Periodic Noise reduction by frequency domain filtering – Linear, Portion – Invariant Degradations – Estimating the degradation function – Inverse filtering – Minimum mean square Error Filtering – Constrained least squares filtering – Geometric mean filter – Geometric Transformations.

UNIT – IV (12 Hours)

Image Compression: Fundamentals – Image compression models – Elements of Information Theory – Error Free compression – Lossy compression – Image compression standards.

UNIT – V (12 Hours)

Image Segmentation: Detection and Discontinuities – Edge Linking and Boundary deduction – Thresholding – Region-Based segmentation – Segmentation by Morphological watersheds – The use of motion in segmentation.

TEXT BOOK

1. Rafael C. Gonzalez, Richard E. Woods, “Digital Image Processing”, Second Edition, PHI/Pearson Education

REFERENCE BOOKS

1. B. Chanda, D. Dutta Majumder, “Digital Image Processing and Analysis”, PHI, 2003.
2. Nick Efford, “Digital Image Processing a practical introducing using Java”, Pearson
2. **Ebook:** <http://www.e-booksdirectory.com/listing.php>, Digital Image Processing by Stefan G. Stanciu - InTech , 2012

Master of Computer Application Degree Examination-Syllabus for candidates admitted from the academic year 2018-2019 onwards

**SIXTH SEMESTER
PRACTICAL 11: DIGITAL IMAGE PROCESSING USING MATLAB TOOLS**

Maximum CIA: 40
Maximum CE: 60
Total Hours: 60

Objective: On successful completion of this paper the students should have acquired expert programming knowledge in MATLAB for image processing techniques.

Program list:

1. Illustrate the conversion of RGB Image into gray scale image and extracting the color spaces.
2. Write a program to apply linear and power log transformation functions on an image.
3. Demonstrate Histogram Equalization.
4. Demonstrate Image Enhancement using Arithmetic operations.
5. Demonstrate image enhancement technique using combination of spatial filters.
6. Illustrate the effect of square averaging of different masks on an image.
7. Write a program to observe the effect of median filtered on an image corrupted by salt and pepper method.
8. Illustrate Compression Technique using Lossy compression.
9. Demonstrate Edge detection.
10. Illustrate Image segmentation using region-based segmentation.

Text Book

1. Rafael C. Gonzalez, Richard E. Woods, "Digital Image Processing", Second Edition, PHI/Pearson Education

Reference Books

1. B. Chanda, D. Dutta Majumder, "Digital Image Processing and Analysis", PHI, 2003.
2. Nick Efford, "Digital Image Processing a practical introducing using Java", Pearson.
3. Ebook: <http://www.e-booksdirectory.com/listing.php>, Digital Image Processing by Stefan G. Stanciu - InTech , 2012
4. http://www.academia.edu/12435334/Digital_Image_Processing_Lab_Practical_File

Master of Computer Application Degree Examination-Syllabus for candidates admitted from the academic year 2018-2019 onwards**SIXTH SEMESTER
ELECTIVE IV – BIG DATA AND ANALYTICS**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To know the importance of big data and to understand the technologies involved in big data analysis.

Unit-1 (12 Hours)
Grasping the fundamentals of big data: The evolution of data management - Understanding the waves of managing data- Defining big data- Building a Successful Big Data Management Architecture- Examining Big Data Types.

Unit -II (12 Hours)
Old Meets New: Distributed Computing. Technology Foundations for Big Data.

Unit -III (12 Hours)
Virtualization and How It Supports Distributed Computing- Examining the Cloud and Big Data.

Unit -IV (12 Hours)
Big Data Management: Operational Databases- Map Reduce Fundamentals- Exploring the World of Hadoop- The Hadoop Foundation and Ecosystem.

Unit -V (12 Hours)
Analytics and Big Data. The Part of Tens-Ten Big Data Best Practices- Ten Great Big Data Resources- Ten Big Data Do's and Don'ts.

Text Books

1. "Big Data for Dummies", Judith S. Hurwitz, Alan Nugent, Fern Halper, Marcia Kaufman, 2013.
2. "Statistics for Big Data for Dummies", Alan Anderson, 2015.

Reference Books

1. Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data, EMC Education Services, 2015.
2. Big Data in Practice: How 45 Successful Companies Used Big Data Analytics to Deliver Extraordinary Results, Bernard Marr, Wiley Publication, 2016.
3. E book link :
<https://eecs.wsu.edu/~yinghui/mat/courses/fall%202015/resources/Big%20data%20for%20dummies.pdf>

Master of Computer Application Degree Examination-Syllabus for candidates admitted from the academic year 2018-2019 onwards

**SIXTH SEMESTER
ELECTIVE IV – GREEN COMPUTING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To learn the fundamentals of Green Computing and to know & analyze the importance of green computing techniques.

Unit-I (12 Hours)

Getting a Little Green Behind the Ears: What Is Green Computing? Choosing Your Green PC Path: Assessing What You've Got.

Unit -II (12 Hours)

Choosing Your Green PC Path (cont):Buying a Green Computer. Finding Green devices, Green servers and datacenters.

Unit -III (12 Hours)

Choosing Your Green PC Path (cont):Recycling Your Computer. Greener Under the Hood: Optimize Your Computer Power Management.

Unit -IV (12 Hours)

Greener Under the Hood (cont):Greening Mobile Devices, Print Less, Breathe More, Telecomm Central: The Green Home Office.

Unit -V (12 Hours)

Telecommuting, Teleconferencing, and Teleporting: Collaborating and Cloud Computing, The Part of Tens.

Text Books

1. Green Home Computing For Dummies By Woody Leonhard, Katherine Murray, 2009. (UNIT-1,3,4,5)
2. Green Computing: Tools and Techniques for Saving Energy, Money, and Resources By Bud E. Smith, 2013(UNIT-2).

Reference Books

1. Green Illusions: The Dirty Secrets of Clean Energy and the Future of Environmentalism, Ozzie Zehner, 2012.
2. Green Communications: Principles, Concepts and Practice edited by Konstantinos Samdanis, Peter Rost, Andreas Maeder, Michela Meo, Christos Verikoukis,2015

E LINK:

1. <https://the-eye.eu/public/Books/For%20Dummies/Green%20Home%20Computing%20for%20Dummies%20%28%20ISBN%20-%200470467452%29.pdf>.((PDF)Green Home Computing for Dummies (ISBN - 0470467452).pdf)
2. <https://books.google.co.in/books?id=0TLsBQAAQBAJ&printsec=frontcover&dq=green++computing+for+dummies+pdf&hl=en&sa=X&ved=0ahUKEwjs9a7psZjgAhWLXisKHd55DgoQ6AEIOTAD#v=onepage&q=green%20%20computing%20for%20dummies%20pdf&f=false>.

Master of Computer Application Degree Examination-Syllabus for candidates admitted from the academic year 2018-2019 onwards**SIXTH SEMESTER
ELECTIVE IV – MACHINE LEARNING**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: To learn the basics of Machine learning and to analyze the different parametric, non parametric methods in machine learning.

Unit-I (12 Hours)
Introduction-Supervised learning.

Unit -II (12 Hours)
Bayesian decision theory-Parametric methods –Multivariate methods.

Unit -III (12 Hours)
Clustering, Non parametric methods, Decision trees.

Unit IV (12 Hours)
Combining multiple learners, reinforcement learning.

Unit V (12 Hours)
Design and analysis of machine learning experiments.

Text Books:

1. Introduction to Machine Learning By Ethem Alpaydin, 2014.
2. Machine Learning and Knowledge Discovery in Databases by Michele Berlingerio, 2018.

Reference Books

1. Machine Learning: A Guide to Current Research edited by Tom M. Mitchell, Jaime G. Carbonell, Ryszard S. Michalski, 2012.
2. Machine Learning: An Artificial Intelligence Approach, Volume 3, Yves Kodratoff, Ryszard S. Michalski, 2014.

E link :

1. <https://books.google.co.in/books?id=NP5bBAAAQBAJ&printsec=frontcover&dq=MACHINE+LEARNING+SYLLABUS&hl=en&sa=X&ved=0ahUKEwiR3pHqs5jgAhWEknAKHbV3DJgQ6AEIKDAA#v=onepage&q&f=false>

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2015-2016 Onwards

**THIRD SEMESTER
PART-V - PAPER: ANIMATION TECHNIQUES**

Maximum CE : 100

Objective: On the successful completion of the course, the students should have understood the key features of Animation technique, learnt the Animation development for future development of application.

UNIT I

Introduction to Flash CS4-New Features in Flash CS4-Creating a New Flash File- Exploring Flash CS4 Interfaces-Working With Workspace-Setting the Stage-Saving the Flash File- Closing the Flash File-Opening an Existing Flash File.

Getting Started with Drawing Tools-Exploring Drawing Modes in Flash-Working with Drawing Tools in Flash-Using Colors in Flash.

UNIT II

Selecting Object in Flash-Moving-Copying-Deleting & Editing an Object-Transforming Object-Working with Text in Flash-Editing Text Field-Working with TIMELINE-Frames & Keyframes-Layer & Layer Folder .

UNIT III

Using Symbols, Instance and the Library – Creating –Modifying Symbols-Instance-about Library-Working With Sound and Video.

UNIT IV

Creating Animation –Creating Motion Tweens -Editing the Motion Path-Motion Present in Flash-Frame by Frame Animation –Shape Tweening in Flash.

UNIT V

Working with Advanced Animation-Understanding Bones-Animating an Armature- Exploring 3D Animation – Working with Action Script-ACTION Panel Overview-Resizing the Action Toolbox or script pane

TEXT BOOK

1. Kogent, “Flash CS4 in Simple Steps”, Dreamtech Press,2009.

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2015-2016 Onwards

**FOURTH SEMESTER
PART- V - PAPER – BASICS OF ANDROID**

Maximum CE :100

Objective: On successful completion of this paper the students should have acquired expert knowledge in basics of Android Applications.

UNIT I

What is Android-History of Embedded device programming-Open handset alliance and android-Introduction to android-Downloading and installing eclipse-Downloading and installing the android SDK.

UNIT II

Exploring the android SDK-What is the android SDK-Application life cycle-Application: hello world – Creating your first android Projects in Eclipse-Examine the Android-created files.

UNIT III

Using the command-Line tools and the Android Emulator: Creating a Shell activity using the windows CLI-Creating the hello world!,Activity in the windows CLI. Using intents and the phone dialer: What are intents-Using the Dialer-Placing a call from your activity.

UNIT IV

Lists, Menus, and Other Views: Building the Activities-Using the menu, using the cell phone's GPS Functionality: using the android Location-Based API-Reading the GPS with the Android Location-Based API.

UNIT V

Application: Find a Friend: Creating a SQLite Database-Creating a Custom Content Provider-Creating the FindA Friend Activity-Running FindA Friend Activity, Android SDK Tool Reference-Emulator commands-Debug Bridge Commands.

TEXT BOOK

J.F.DiMarzio, Android A Programmer's Guide, Tata McGraw-Hill Publication,2010,New Delhi

Master of Computer Application Degree Examination-Syllabus for Candidates admitted from the Academic Year 2015-2016 Onwards

FIFTH SEMESTER

PAPER- V - PAPER - SOFTWARE QUALITY ASSURANCE

Maximum CE :100

Objectives :

On successful completion of this paper the students should have understood the factors to be considered for quality software.

UNIT I

Introduction - Quality and the quality system - Standards and procedures - Technical activities. Software Tasks - Management responsibility - Quality system - Contract Review – Design control - Document control - Purchasing - Product identification and trace ability.

UNIT II

Process control - and checking - Identification of Testing Tools - Control of non-informing product - Corrective action.

UNIT III

Handling. Storage, Packaging and delivery - Quality records - Internal Quality Audits - Training - Servicing - Statistical Techniques.

UNIT IV

QA and New technologies - QA and Human - Computer Interface - Process Modeling - Standards and procedures.

UNIT V

ISO 9001 - Elements of ISO 9001 - Improving Quality system - Case study.

TEXT BOOKS

1. Darrel Ince, "An introduction to S/W Quality Assurance its Implementation", McGrawHill Book Company Ltd. 1994.
2. Darrel Ince, "ISO 9001 and S/W Quality Assurance". McGraw- Hill Book company Ltd, 1994.

M.Sc., ELECTRONICS AND COMMUNICATION SYSTEMS
Scheme of Examination (CBCS Pattern)
For the candidates admitted from the Academic Year 2018 – 2019 and onwards

Subject Code	Subject Title	Instruct ion Hrs / week	Examination				Credit
			Exam Dur.H	CIA Marks	CE Marks	Total Marks	
SEMESTER-I							
18MES101	Paper I : Control Systems	5	3	30	70	100	4
18MES102	Paper II : MEMS and Power Drives	5	3	30	70	100	4
18MES103	Paper III: 8051 Micro Controller and Its Applications	5	3	30	70	100	4
18MES104	Paper IV : Digital Communications	5	3	30	70	100	4
18MESP01	Practical I: Microcontroller Programming	5	3	40	60	100	4
18MESP02	Practical II : Electronics and Communication Systems	5	3	40	60	100	4
Total		30				600	24
SEMESTER-II							
15MES201	Paper V: VHDL Programming	5	3	30	70	100	4
18MES202	Paper VI: Embedded Systems and Real Time Operating Systems	5	3	30	70	100	4
18MESP03	Practical III: Embedded Systems	6	3	40	60	100	4
15MESP04	Practical IV: VHDL Programming	6	3	40	60	100	4
18MESE01/ 18MESE02/ 18MESE03	Elective I : (Signals and Systems / Fiber Optic Communications / Intelligent Instrumentation)	5	3	30	70	100	4
15MESID1	IDC1: Web Technologies	3	3	30	70	100	4
Total		30				600	24
SEMESTER-III							
18MES301	Paper VII: Digital Signal Processing	5	3	30	70	100	4
15MES302	Paper VIII : ARM Processor	5	3	30	70	100	4
18MES303	Paper XIII: Advanced Wireless Communication	5	3	30	70	100	4
18MESP05	Practical V : Digital Signal Processing	5	3	40	60	100	4
15MESP06	Practical VI : ARM Processor Programming	5	3	40	60	100	4

18MESE04/ 18MESE05/ 18MESE06	Elective II: Nano Electronics / Opto Electronic Devices / Advanced Digital Image Processing	3	3	30	70	100	4
18MESED1	EDC1: Internet Of Things (IOT)	2	3	-	50	50	2
Total		30				650	26

SEMESTER-IV							
15MESPR1	Project: Project and Viva-Voce		3	150	100	250	8
18MES401	Paper X : Advanced Programmable Logic Controller	5	3	30	70	100	4
18MESE07/ 18MESE08/ 18MESE09	Elective III: MATLAB Programming / High Performance Communication Networks / RF System Design	5	3	30	70	100	4
Total		10				450	16
Grand Total						2300	90

LIST OF ELECTIVE PAPERS

ELECTIVE- I		
II	18MESE01	Signal and Systems
II	18MESE02	Fiber Optic Communications
II	18MESE03	Intelligent Instrumentation
ELECTIVE – II		
III	18MESE04	Nano Electronics
III	18MESE05	Opto Electronic Devices
III	18MESE06	Advanced Digital Image Processing
ELECTIVE – III		
IV	18MESE07	MATLAB Programming
IV	18MESE08	High Performance Communication Networks
IV	18MESE09	RF System Design

ADDITIONAL CREDIT PAPERS

Sem	Code	Subject Title	Credits
II	15MESAC1	Electronic Test Instruments	2
III	15MESAC2	Research Methodology	2
IV	15MESAC3	Aptitude for NET and Gate	2

SUMMARY

Part	No of Papers	Total Credits	Total Marks
Paper ,Elective and Project	20	84	2150
IDC –Inter Disciplinary Course	1	4	100
EDC –Extra Department Course	1	2	50
Total		90	2300

REGULATIONS

1. PRACTICALS

a) Submission of Record Notebooks for Practical Examinations

Candidates Appearing for Practical Examinations Should Submit Bonafide Record Note Books Prescribed for Practical Examinations, Otherwise the Candidates will not be permitted to Appear for the Practical Examinations. Students Should Complete Minimum 50% of Practical List to Appear for the End Semester Practical Examination.

b) i) Distribution of Internal Marks for Practical's (40)

MAXIMUM MARKS -40		
S.NO	CIA	Distribution of Marks
1	Minimum 10 Experiments	20
2	Test -I	8
3	Test -II	8
4	Observation	4
Total		40

c) Distribution of Comprehensive Exam Marks for Practical's

i) Electronics Related Practical

MAXIMUM MARKS -60		
S.NO	Comprehensive Examination	Distribution of Marks
1	Record	10
2	a) Circuit Diagram/ Program	25
	b) Observation and Construction/ Execution	15
	c) Result	10
Total		60

2. PROJECT

a) Project and Viva Voce

Each Student in the PG Final Year must compulsorily undergo Project Work in the 4th Semester. Projects shall be done on Individual Basis. Project Co-Ordinators will allocate the project title and the guide for each student. Project Work must be done only in the Industry, including Project Record Preparation. Project Reviews will be conducted thrice in which the Progress of Project work will be Strictly Evaluated by Respective Project Guide and Project Coordinator. Viva – Voce will be conducted only in the presence of Industrialists or Academicians. In the total of 250 Marks, 150 marks are allocated for CIA and 100 marks for CE Viva Voce.

b) Distribution of Marks for Project Viva- Voce

S.NO	CIA	Distribution of Marks
1	INTERNAL	
	Review-I	40
	Review-II	40
	Review-III	40
	Document Preparation and Implementation	30
		Total (150)
2	EXTERNAL *	
	Presentation	60
	Viva Voce	40
		Total (100) *

Total	250
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* Marks to be awarded by both internal and external examiners

3. THEORY

i) Distribution of Internal Mark for Theory (30)

ii)

S.NO	CIA	Distribution of Marks
1	Pre-model Examination	70
2	Model Examination	70
5	Seminar	30
6	Attendance	10
	Total	180/6=30

4. SEMINARS

The students are also to make presentation on any topic of their choice based on the syllabus. The marks to be awarded for seminar shall be 30 marks

S.NO	SEMINAR SPLIT UP	marks
1	Content	10
2	Flow of the presentation	10
3	Stage management and Body language	10
	Total	30

Breakup for Attendance:

65% - 74 % - 4 Marks

75% - 80% - 6 Marks

81% - 90% - 8 Marks

91% - 100% - 10 Marks

5. Question Paper Pattern

Time: 3 Hours Max marks: 70

SECTION – A (10×1=10)

Answer ALL questions

Each Question carries One Mark

(NO CHOICE)

Five Definition Questions

Five Multiple Choice Questions

SECTION – B (5×4=20)

Answer ALL questions

Each question carries FOUR Marks

(INTERNAL CHOICE)

SECTION – C (5×8=40)

Answerer ALL questions

Each question carries EIGHT Marks

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**FIRST SEMESTER
PAPER I - CONTROL SYSTEMS**

Maximum CIA:30
Maximum CE:70
Total Hours: 60

Objective: Enable the students to learn the fundamentals of control systems and its analysis.

UNIT I CONTROL SYSTEM MODELING (12 HOURS)

Basic Elements of Control System – Open loop and Closed loop systems - Differential equation - Transfer function, Modeling of Electric systems, Translational and rotational mechanical systems - Block diagram reduction Techniques - Signal flow graph.

UNIT II TIME RESPONSE ANALYSIS (12 HOURS)

Time response analysis - First Order Systems - Impulse and Step Response analysis of second order systems - Steady state errors – P, PI, PD and PID Compensation, Analysis using MATLAB.

UNIT III FREQUENCY RESPONSE ANALYSIS (12 HOURS)

Frequency Response - Bode Plot, Polar Plot, Nyquist Plot - Frequency Domain specifications from the plots - Constant M and N Circles - Nichol's Chart - Use of Nichol's Chart in Control System Analysis. Series, Parallel, series-parallel Compensators - Lead, Lag, and Lead Lag Compensators, Analysis using MATLAB.

UNIT IV STABILITY ANALYSIS (12 HOURS)

Stability, Routh-Hurwitz Criterion, Root Locus Technique, Construction of Root Locus, Stability, Dominant Poles, Application of Root Locus Diagram - Nyquist Stability Criterion - Relative Stability, Analysis using MATLAB.

UNIT V STATE VARIABLE ANALYSIS (12 HOURS)

State space representation of Continuous Time systems – State equations – Transfer function from State Variable Representation – Solutions of the state equations - Concepts of Controllability and Observability – State space representation for Discrete time systems. Sampled Data control systems – Sampling Theorem – Sampler & Hold – Open loop & Closed loop sampled data systems.

TEXT BOOKS

- 1.A.K.Sawhney, A Course In Electrical And Electronic Measurements & Instrumentation, Dhanpat Rai Publication.
- 2.A.Nagoor Kani “ Control Systems”RBA Publications , 2nd Edition, 2006.

REFERENCE BOOKS

- 1.Katsuhiko. Ogata, Modern Control Engineering. Pearson Education Asia, 4th Edition, 2002.
- 2.S.N.Verma, Automatic Control Systems, Khanna Publisher, 1999.
- 3.H.S.Kalsi, Electronic Instrumentation, Tmh - 2nd Edition, 2002.

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FIRST SEMESTER

PAPER II - MEMS AND POWER DRIVES

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective: Enable the students to gain knowledge on Working principles, Fabrication of MEMS and Power devices in terms of design and applications.

UNIT I [12 HOURS]

MATERIALS FOR MEMS and MICROSYSTEMS: Introduction to MEMS and Microsystems and its materials-Substrates and Wafers – Active Substrate Materials – Silicon as a Substrate material – Silicon Compounds – Silicon Piezo resistors – Gallium Arsenide – Quartz – Piezoelectric Crystals – Polymers – Packaging materials.

UNIT II [12 HOURS]

MICROSYSTEMS FABRICATION PROCESSES: Introduction- Photolithography – Ion Implantation – Diffusion – Oxidation – Chemical Vapor Deposition – Physical Vapor Deposition– Deposition by Epitaxy– Etching – Bulk Micro Manufacturing – Surface Micro Machining – The LIGA Process .

UNIT III [12 HOURS]

MICROSYSTEMS DESIGN AND PACKAGING:

Introduction –Design Considerations – Process Design – Design of Silicon Die for a Micro Pressure Sensor – Capillary Electrophoresis Network Systems for the design of Microfluidic – Computer Aided Design (CAD) – Micro System Packaging – Interfaces in Micro System Packaging –Assembly of Microsystems – Selection of packaging materials.

UNIT IV [12 HOURS]

DC DRIVES: Introduction – operating modes –single phase drives – three phase drives – phase locked loop control– Microcomputer control of dc drives – Switched mode regulators : Introduction – Buck and Boost regulator –Cuk regulator.

UNIT V [12 HOURS]

AC DRIVES: Introduction – Induction motor drives – Stator voltage control – Rotor voltage control – Closed loop control of Induction motor – synchronous motor drives –Permanent magnet motor – Switched Reluctance motors – closed loop control of synchronous motor – Brushless DC and AC motor drives .

TEXT BOOKS

1. Tai-Ran-Hsu, Mems & Micro Systems Design and Manufacture, Tmh, 2002 Edition.
2. Muhammed Rashid, Power Electronics, Circuits, Devices and Applications, 3rd Edition, Prentice Hall Edition, 1999.

REFERENCE BOOKS

1. Dr.P.S. Bimbhra, Power Electronics, 4th Edition, Anna University.
2. M.D.Singh, Power Electronics.

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FIRST SEMESTER

PAPER III – 8051 MICROCONTROLLER AND ITS APPLICATIONS

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective: Enable the students to develop the programming skills in 8051 and to know the concept of Embedded system.

UNIT I (10 HOURS)

OVERVIEW : Introduction to Microcontrollers and Embedded Processors – Microcontrollers survey-four bit, eight bit, sixteen bit, thirty two bit Microcontrollers - Comparing Microprocessors and Microcontrollers-Overview of the 8051 family

UNIT II (12 HOURS)

THE 8051 ARCHITECTURE: Hardware- Oscillator and clock-program counter –data pointer-registers-stack and stack pointer-special function registers- -memory organization-program memory-data memory -Input / Output Ports –External memory-counter and timer-serial data Input / output-Interrupts

UNIT III (18 HOURS)

8051 ASSEMBLY LANGUAGE PROGRAMMING-Structure of Assembly language- Assembling and running an 8051 program- Addressing modes-Accessing memory using Various addressing modes- Instruction set- Arithmetic operations and Programs-Logical Operations and Programs -Jump and Call instructions and Programs -I /O Port Programs - Single bit instructions and Programs –Timer and counter - and Programs

UNIT IV (8 HOURS)

8051 SERIAL COMMUNICATION- Introduction -Connection to RS-232- Serial Communication Programming- Interrupts Programming

UNIT V MICROCONTROLLER INTERFACING

(10 HOURS)

Key Board – LCD interface - D / A and A/D conversion- Stepper Motor –Sensors Interfacing- DC motor interfacing and PWM.

TEXT BOOKS

1. Muhammad Ali Mazidi, Janice Gillispie Mazidi and Rolin D. Mckinlay, The 8051 Microcontroller and Embedded Systems Using Assembly and C, 2nd Edition PHI, 2006.

2.Kenneth J. Ayala, The 8051 Microcontroller Architecture, Programming and Applications, 3rd Edition, Penram International.

M.Sc. (Electronics and Communication Systems) Degree Examination – Syllabus for candidates admitted from the Academic Year 2018 – 2019 onwards

FIRST SEMESTER

PAPER IV– DIGITAL COMMUNICATIONS

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: Enable the students to acquire the knowledge on Digital Communication techniques and its applications.

UNIT I (12 HOURS)
SAMPLING & QUANTIZATION

Low pass sampling – Aliasing- Signal Reconstruction-Quantization - Uniform & non-uniform quantization - quantization noise - Logarithmic Companding of speech signal- TDM

UNIT II (12 HOURS)
PULSE MODULATION

Introduction- Representation of Time and Signal Amplitude –PCM – Noise Considerations – Digital Multiplexers- Delta modulation – Differential PCM –Adaptive Delta Modulation

UNIT III (12 HOURS)
BASEBAND PULSE TRANSMISSION

Introduction – Effect of Channel Noise – Limited Channel Bandwidth – Matched Filter – Pulse Shaping Filter – Digital Subscriber Lines – Optimum Linear Receiver

UNIT IV (12 HOURS)
BASE BAND DIGITAL TRANSMISSION

Introduction – Base Band Transmission Model- Coherent Phase Shift Keying – Hybrid Amplitude – Coherent Frequency Shift Keying – Voice band Modems – Multi channel modulation

UNIT V (12 HOURS)
ERROR CONTROL CODING

Introduction- Channel coding theorem - Linear Block codes - Hamming codes - Cyclic codes - Convolutional codes - Vitterbi Decoder.

TEXT BOOK

1. S. Haykin, “Digital Communications”, John Wiley, 2005 .

REFERENCE BOOKS

1. B. Sklar, “Digital Communication Fundamentals and Applications”, 2nd Edition, Pearson Education, 2009

2. B.P.Lathi, “Modern Digital and Analog Communication Systems” 3rd Edition, Oxford University Press 2007.

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FIRST SEMESTER

PRACTICAL I – MICROCONTROLLER PROGRAMMING

Maximum CIA:40

Maximum CE:60

Total Hours: 60

Objective: Imparting knowledge in programming of 8051 Microcontroller and its real world applications.

(ANY 12 EXPERIMENTS)

1. Develop an ALP for addition and subtraction of 8 and 16 bit data.
2. Develop an ALP for multiplication and division of 8 bit data.
3. Develop an ALP for Logical operations.
4. Develop an ALP to find the factorial of a given 8 bit data.
5. Develop an ALP for block data transfer.
6. Develop an ALP for smallest / largest of N numbers.
7. Develop an ALP to sort given series of numbers in ascending / descending order.
8. Develop an ALP for Real Time Digital Clock.
9. Develop an ALP to interface traffic light controller.
10. Develop an ALP for Time delay program using 8253.
11. Develop an ALP for Rolling and flashing of a message.
12. Develop an ALP for ADC interface.
13. Develop an ALP for DAC interface.
14. Develop an ALP for Stepper motor interface.
15. Develop an ALP to interface Solid state Relay.

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FIRST SEMESTER

PRACTICAL II –ELECTRONICS AND COMMUNICATION SYSYEMS

Maximum CIA:40

Maximum CE:60

Total Hours: 60

Objective: Imparting designing skills in advance electronic circuits and communication systems.

(ANY 12 EXPERIMENTS)

1. TRIAC Characteristics
2. Voltage to Current and Current to Voltage Converters
3. Street Light Controller
4. Thyristor Commutation Techniques
5. IR Transmitter & Receiver
6. Light Dimmer using TRIAC
7. Single Phase AC Voltage control using TRIAC.
8. Designing of Function generator using Linear ICs.
9. Generation and Detection of PAM, PWM
10. Generation and Detection of PCM
11. Fiber Optic Communications
12. Study of ASK & FSK Transmitter and Receiver
13. Study of PSK, QPSK & DPSK
14. Delta and Adaptive Delta Modulation
15. Study of GPS and GSM Modules

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SECOND SEMESTER

PAPER V - VHDL PROGRAMMING

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective: Enable the students to learn the basic modeling techniques used in IC fabrication and also to make them to design the digital systems using VHDL.

UNIT I (12 HOURS)

INTRODUCTION AND BAISC CONCEPT OF VHDL: History Of VHDL – Capabilities Of VHDL – Hardware Abstraction – Basic Terminology – Entity Declaration - Architecture Body Declaration – Basic Language Elements – Identifiers – Data Objects– Data Type Operators.

UNIT II (12 HOURS)

BEHAVIORAL MODELING TECHNIQUES OF VHDL:

Behavioral Modeling: Entity Declaration – Architecture Declaration – Process Statements- Variable Assignment Statements – Signal Assignments Statements – Wait Statement – IF Statement – Case Statement – Null Statement – Loop Statement – Exit Statement – Next Statement – Multiple Process.

UNIT III (14 HOURS)

DATA FLOW & STRUCTURAL MODELING TECHNIQUES OF VHDL:

Data Flow Style Of Modeling: Concurrent Signal Assignment Statement Versus Signal Assignment – Delta Delay Revisited – Multiple Drivers – Conditional Signal Assignment Statement – Selected Signal Assignment Statement. – The Unaffected Value – Block Statement- Concurrent Assertion Statement. Structural Modeling: Component Declaration – Component Instantiation – Resolving Signal Value – Examples – Half Adder – Full Adder – Four To One Multiplexers – Decoders And Encoders.

UNIT IV (12 HOURS)

ADVANCED FEATURES IN VHDL: Generics – Configuration – Configuration Specification – Configuration Declaration Sub Programs – Sub Program Overloading - Operator Overloading - Signatures – Default Value Of Parameters – Package Declaration - Package Body – Design File – Design Libraries.

UNIT V (10 HOURS)

DESIGN OF FPGA’S AND CPLD: State Machine Start – Programmable Logic Arrays – Programmable Array Logic Devices – Altera Max 7000 CPLD’S – Xilinx Xc 4000 Structures -Xilinx Interconnection – Xilinx Logic – Xilinx 3000 Series FPGA’s – Altera Complex Programmable Logic Devices – CPLD’S.

TEXT BOOKS

1. J.Bhasker, VHDL Primer, Low Price Edition, Phi, 2001
2. Jr Charles H.Roth, Digital System Design Using VHDL, Brooks / Cole Thomson Learning Publishing.

REFERENCE BOOKS

1. Morris Mano and Charles R.Kime, Logic Circuit Layout Design, 2nd Edition, Person Education,Asia.
2. Stephen Brown and Zvonko Vranesic, Fundamentals of Digital Logic with VHDL Design, McGraw Hill Publications, 2000

**M.Sc. (Electronics and Communication Systems) Degree Examination – Syllabus – For candidates admitted from the Academic Year 2018 – 2019 and onwards
SECOND SEMESTER**

PAPER VI - EMBEDDED SYSTEMS AND REAL TIME OPERATING SYSTEMS

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective:

Enable the students to acquire knowledge in Embedded and real time operating systems.

UNIT I (12 Hours)

INTRODUCTION TO EMBEDDED SYSTEMS: Definition And Classification – Overview Of Microprocessor, Microcontroller, And DSP – Exemplary High Performance Processors – CISC And RISC Architecture – Hardware Unit In Embedded System- Software Embedded Into A System – Exemplary Applications – Embedded Systems On A Chip And In VLSI Circuit.

UNIT II (12 Hours)

PIC 16F87X MICROCONTROLLERS: Device Overview – Architecture – Memory Organization – Status Register – Option Register – INTCON Register – PCON Register – I/O Ports – Data EEPROM – Instruction Set: Byte Oriented Operations – Bit Oriented Operations – Literal And Control Operations.

UNIT III (12 Hours)

PERIPHERAL FEATURES OF 16F87X MICROCONTROLLERS: TIMER0 Module – TIMER1 Module – TIMER2 Module – Capture/Compare/PWM Modules – I²C Transmission And Reception – USART – ADC Module - Special Features Of The CPU : Oscillator Selection – Power On Reset – Power Up Timer – Oscillator Start Up Timer – Brown Out Reset – Interrupts – Watchdog Timer – SLEEP.

UNIT IV (12 Hours)

REAL TIME OPERATING SYSTEMS: Operating System Services – Goals – Structures- Kernel- Process, Tasks, And Threads - Process Management – Memory Management – Device Management – File System Organization And Implementation – I/O Sub Systems – Concept of Semaphores.

UNIT V

(12 Hours)

RTOS PROGRAMMING TOOLS: MICRO C/OS-II AND VXWORKS: Types of RTOS- RTOS MUCOS –II - System Level Functions – Task Service Functions – Time Delay Functions – Memory Allocation Related Functions – Semaphore Related Functions – Mailbox Related Functions – Queue Related Functions – RTOS Vx Works – Basic features.

TEXT BOOKS

1. Rajkamal, Embedded Systems Architecture, Programming and Design, TATA Mcgraw-Hill, First Reprint, 2003.
2. PIC 16F87X Data Book, Microchip Technology Inc., 2001

REFERENCE BOOK

1. Sriram.V.Iyer, Pankaj Gupta, Embedded Real Time Systems Programming, TATA Mcgraw-Hill, 13th Reprint, 2010

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**SECOND SEMESTER
PRACTICAL III – EMBEDDED SYSTEMS**

Maximum CIA:40
Maximum CE:60
Total Hours: 60

Objective: Imparting programming skills in Embedded Systems Using PIC Microcontroller.

(ANY 12 EXPERIMENTS)

1. Arithmetic And Logical Operation
2. Timer Operation
3. Traffic Light Control System
4. ADC Interface
5. DAC Interface
6. Stepper Motor Interface
7. Relay interfacing
8. LCD Interfacing
9. PWM Generation
10. Single Seven Segment Display interfacing
11. Temperature Measurement
12. DC motor
13. Real Time Clock
14. Serial Port Interfacing Using RS232C
15. PIC to PIC Communication Using I2 C Bus

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**SECOND SEMESTER
PRACTICAL IV – VHDL PROGRAMMING
(USING XILINX PROJECT NAVIGATOR AND SPARTAN 3E)**

Maximum CIA:40
Maximum CE:60
Total Hours: 60

Objective: Imparting programming skills in VHDL Language.

(ANY 12 EXPERIMENTS)

1. Implementation of Sample Programs in Cpld or Fpga Kit
2. Simulation of Simple Logic Gates
3. Simulation of Half Adder and Full Adder
4. Simulation of Half Subtractor and Full Subtractor
5. Simulation of Encoder and Decoder
6. Simulation of Multiplexer and Demultiplexer
7. Develop a VHDL Program to Solve the Boolean Equations
8. Simulation of Flip – Flops
9. Simulation of Ring Counters
10. Simulation of Shift Registers and Ring Counter
11. Simulation of 4 Bit and 8- Bit Multiplier
12. Simulation of Arithmetic and Logic Unit
13. Simulation of Up-Down Counters
14. Simulation of Programmable Logic Array
15. Simulation of State Machine Moore Model

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candidates admitted from the Academic Year 2018 – 2019 onwards
SECOND SEMESTER
ELECTIVE I – SIGNALS AND SYSTEMS**

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective: Enable the students to acquire the knowledge on Signals and Systems techniques and its applications.

UNIT I (12 HOURS)
CLASSIFICATION OF SIGNALS AND SYSTEMS

Continuous time signals (CT signals) - Discrete time signals (DT signals) - Step, Ramp, Pulse, Impulse, Sinusoidal, Exponential, Classification of CT and DT signals - Periodic & Aperiodic signals, Deterministic & Random signals, Energy & Power signals - CT systems and DT systems- Classification of systems – Static & Dynamic, Linear & Nonlinear, Time-variant & Time-invariant, Causal & Noncausal, Stable & Unstable.

UNIT II (12 HOURS)
ANALYSIS OF CONTINUOUS TIME SIGNALS

Fourier series analysis-spectrum of Continuous Time (CT) signals- Fourier and Laplace Transforms in CT Signal Analysis - Properties.

UNIT III (12 HOURS)
LINEAR TIME INVARIANT- CONTINUOUS TIME SYSTEMS

Differential Equation-Block diagram representation-impulse response, convolution integrals- Fourier and Laplace transforms in Analysis of CT systems.

UNIT IV (12 HOURS)
ANALYSIS OF DISCRETE TIME SIGNALS

Baseband Sampling - DTFT – Properties of DTFT - Z Transform – Properties of Z Transform

UNIT V (12 HOURS)
LINEAR TIME INVARIANT-DISCRETE TIME SYSTEMS

Difference Equations-Block diagram representation-Impulse response - Convolution sum- Discrete Fourier and Z Transform Analysis of Recursive & Non-Recursive systems.

TEXT BOOK

1. Allan V.Oppenheim, S.Wilsky and S.H.Nawab, “Signals and Systems”, Pearson, 2007.

REFERENCE BOOKS

1. B. P. Lathi, “Principles of Linear Systems and Signals”, Second Edition, Oxford, 2009.
2. R.E.Zeimer, W.H.Tranter and R.D.Fannin, “Signals & Systems - Continuous and Discrete”, Pearson, 2007.
3. John Alan Stuller, “An Introduction to Signals and Systems”, Thomson, 2007.

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candidates admitted from the Academic Year 2018 – 2019 onwards**

SECOND SEMESTER

ELECTIVE I – FIBER OPTIC COMMUNICATIONS

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective: Enable the students to acquire the knowledge on Fiber types and characteristics, optical sources and optical networks.

UNIT I (12HOURS)

INTRODUCTION

Overview of Optical Fiber Communication: Historical development- The general system- Advantages of Optical Fiber Communications- Optical Fiber Wave Guides- Introduction- Ray Theory Transmission- Total Internal Reflection- Acceptance Angle- Numerical Aperture- Skew Rays-Cylindrical Fibers- Modes- Mode Coupling-Step Index Fibers-Graded Index Fibers.

UNIT II (12HOURS)

TRANSMISSION CHARACTERISTICS OF OPTICAL FIBERS

Introduction-Attenuation – Material absorption losses in silica glass fibers – Linear and Non linear Scattering losses - Fiber bend losses – Mid-infrared and far- infrared transmission –Intra and inter Modal Dispersion – Overall Fiber Dispersion – Polarization- non linear Phenomena. Optical fiber connectors- Fiber alignment and Joint Losses – Fiber Splices– Fiber connectors – Expanded Beam Connectors.

UNIT III (12HOURS)

OPTICAL SOURCES AND DETECTORS

Optical sources: Light Emitting Diodes - The Double hetero junction LED – LED structures: Planar, Dome, surface and edge emitters. LASER- basic concepts- optical emission from basic semiconductors- semiconductor injection Laser. Optical Detectors: PIN Photo detectors– Avalanche photo diodes – Mid-infrared and far- infrared Photo detectors - Quantum-dot photo detectors – Photo transistors.

UNIT IV (12HOURS)

OPTICAL RECEIVER AND AMPLIFIERS

Fundamental receiver operation- Digital receiver performance-Eye diagrams-Coherent detection- Burst mode receivers- Analog receivers. Basic applications and types of Optical amplifiers – Semiconductor optical amplifiers- Erbium – doped fiber amplifiers –Amplifier noise- Optical SNR – Raman amplifiers- Wideband optical amplifiers.

UNIT V (12HOURS)

OPTICAL NETWORKS

Network concepts - Network topologies – SONET / SDH – High-speed Light wave links – Optical Add/ drop multiplexing – optical switching- WDM network examples- Mitigation of Transmission impairments.

TEXT BOOKS

1. John M. Senior & M.Yousif Jamro, “Optical Fiber Communications Principles and Practice” 3rd Edition, Prentice Hall Pearson Education, 2009 [Units I, II & III]
2. Gerd Keiser “Optical Fiber Communications” 4th Edition, Tata Mc Graw Hill Publishing company, 2008. [Units IV & V]

REFERENCE BOOKS

1. J.Gower, “Optical Communication System”, Prentice Hall of India, 2001
2. Govind P. Agrawal, “Fiber-optic communication systems”, 3rd edition, John Wiley & sons, 2004.

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SECOND SEMESTER

ELECTIVE I – INTELLIGENT INSTRUMENTATION

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective: Enable the students to acquire the knowledge on Virtual Instrumentation and its applications.

UNIT I (12 HOURS)
INTRODUCTION

Virtual Instrumentation- Virtual Instrument and Physical Instrument- Hardware and software in Physical Instrumentation- Virtual Instrumentation for Test, Control, and Design- Virtual Instrumentation in the Engineering Process- Graphical system design using LabVIEW, Graphical programming and Textual Programming.

UNIT II (12 HOURS)
INTRODUCTION TO LABVIEW AND LOOPS

Introduction- Advantages of LabVIEW- Software Environment – Front Panel Control and Indicators- Block diagram- Data Types- Data Flow Program- LOOPS: For Loop- While Loop- Structure Tunnels- Shift registers- Feedback Nodes- Control Timing- Communication among multiple loops- Local variables- Global variables.

UNIT III (12 HOURS)
ARRAYS AND CLUSTERS

Introduction- Arrays in LabVIEW- One Dimensional array- Two Dimensional array- Multi dimensional array- Initializing arrays- Deletion, Inserting and Replacing – Array functions Matrix operations with array. Clusters: Introduction- creating controls, Indicators and constant,- Cluster operations- Assembling and Disassembling clusters- conversion between arrays and clusters. Waveforms - waveform chart- XY graphics.

UNIT IV (12 HOURS)
DATA ACQUISITION

Introduction- signals- signal conditioning- DAQ hardware configuration- DAQ hardware Analog Inputs- Analog outputs- Counters- DAQ software architecture- DAQ assistant Selecting and configuring a data acquisition device- Components of computer based measurements system.

UNIT V (12 HOURS)
ANALYSIS TOOLS AND APPLICATIONS IN VIRTUAL INSTRUMENTATION
Fourier transform-Power spectrum-Correlation-Windowing and filtering tools Simple temperature indicator-ON/OFF controller-P-I-D controller – Oscilloscope emulation Simulation of a simple second order system

TEXT BOOK

1. Jovitha Jerome, "Virtual Instrumentation Using LabVIEW", Eastern Economy Edition, PHI Learning private ltd, 2010.

REFERENCE BOOKS

1. S.Gupta and J.P.Gupta, "PC Interfacing for Data Acquisition and Process Control" Instrument society of America, 1994.
2. Peter W. Gofton, "Understanding Serial Communications" Sybex International.

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**SECOND SEMESTER
IDC I - WEB TECHNOLOGIES**

Maximum CIA:30

Maximum CE:70

Total Hours: 60

Objective:

After successful completion of the subject the students acquire knowledge about web technologies and web pages.

UNIT –I

(12 HOURS)

Internetworking Concepts – Devices: Repeaters – Bridges – Routers – Gateways –Internet Topology Internal Architecture of ISP – IP Address – Basics of TCP –Features of TCP – UDP.

UNIT -II

(12 HOURS)

DNS – Email – FTP – HTTP – TELNET- Electronic commerce and Web technology– Aspects – Types – E-procurement models – Solutions – Supply Chain management – Customer Relationship Management – Features required for enabling-ecommerce –Tiers – Concepts of a Tier

UNIT –III

(12 HOURS)

Web page – Static Web pages – Dynamic Web pages – DHTML – CGI – Basics of ASP technology – Active Web pages - User Sessions: Sessions and session Management – Maintaining state information - Transaction Management: Transaction Processing monitors – Object Request Brokers – Component Transaction – monitor – Enterprise Java Beans.

UNIT -IV

(14 HOURS)

Security Issues: Basic Concepts – Cryptography – Digital Signature – Digital Certificates – Security Socket Layer (SSL) – Credit Card Processing Models – Secure Electronic Transaction – 3D Secure Protocol – Electronic Money. Electronic Data Interchange: Overview of EDI – Data Exchange Standards – EDI Architecture – EDI and the Internet

UNIT -V

(10 HOURS)

Extensible Markup Language (XML) – Basics Of XML – XML Parsers – Need For Standard– Limitations Of Mobile Devices – WAP Architecture – WAP Stack – Object Technology.

TEXT BOOK

- 1.Achyat.S.Godbole and Atul Kahate, Web Technologies, Tata McGraw Hill Pub. Co, Delhi, 2006.

REFERENCE BOOKS

- 1.Ellote Rusty Harold, Java Network Programming, O’Reilly Publications, 1997.
- 2.Jason Hunter, William Crawford, Java Servlet Programming, O’Reilly Publications, 1998.

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**SECOND SEMESTER
ELECTRONIC TEST INSTRUMENTS**

UNIT I - ANALOG METERS

D.C,A.C voltmeters, ammeters, multimeter, power meter, Q-meter,true RMS meter,vector impedance meter, vector voltmeter, component measuring instrument.

UNIT II - SIGNAL SOURCES

Sine wave generator-Frequency synthesized sine wave generator-Sweep frequency generator, pulse and square wave generator-Function generator-Wave analyzer-Applications-Harmonic distortion analyzer-Spectrum analyzer-Applications-Audio Frequency generator-Noise generator.

UNIT III - OSCILLOSCOPES

General purpose oscilloscope-Screens for CRT -Vertical & horizontal deflection systems- Time base operation, triggers – sweep control, z axis input – Delay line-Multiple trace- Dual beam & dual trace-Probes-Oscilloscope techniques-special oscilloscopes-Storage oscilloscope-sampling oscilloscope-digital CRO.

UNIT IV - DIGITAL INSTRUMENTS

Digital method for measuring frequency, period, phase difference, pulse width, time interval, total count-Digital voltmeter-Types-Automatic polarity indication, automatic ranging, and auto zeroing-DMM-Microprocessor based DMM-DPM-swept – spectrum analyzer-network analyzer- discharge analyzer- logic probes-logic analyzer.

UNIT V - DISPLAY AND RECORDING DEVICES

Bar graph display-Segmental and dot matrix display-X-Y recorders, magnetic tape recorders- Digital recording-Data loggers-Interference and screening-Electrostatic and electromagnetic interference & earth loops.

TEXT BOOKS

- 1.Albert D. Herlfrick & William D. Cooper, “Modern electronic Instrumentation & Measurement Techniques” Prentice Hall of India,2002.
- 2.A.J.Bouwens,’Digital Instrumentation” Tata Mc Graw Hill, 1997.
- 3.RobertA.Witte,’Electronic Test Instruments,Theory and applications’ Prentice Hall, 1993.

REFERENCE BOOKS

- 1.B.M.Oliver and J.M.Cage,’Electronic Measurements & Instrumentation” Mc Graw Hill International Edition, 1975.
- 2.Joseph, J.Carr,’Elements of Electronic Instrumentation & Measurements” III edition, Pearson Education,2003.
- 3.C.S.Rangan, G.R.sarma, V.S.V.Mani,’Instrumentation Devices & systems” Tata McGraw Hill, 2002
- 4.D.A.Bell, “Electronic Instrumentation and Measurements” Prentice Hall of India,2002.
- 5.Rajendra Prasad,’Electronic Measurements and Instrumentation”, Khanna Publishers, Delhi,2003.
- 6.B.R.Gupta,’Electronics and Instrumentation”S.Chand Co. (P)Ltd., Delhi

M.Sc. (Electronics and Communication Systems) Degree Examination – Syllabus for candidates admitted from the Academic year 2015-2016 onwards

THIRD SEMESTER

PAPER 7- DIGITAL SIGNAL PROCESSING

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: Enable the students to acquire the knowledge in signal processing, design of discrete filters and its concepts, uses of DSP in satellite and communication technologies.

UNIT I

[12 Hours]

DIGITAL SIGNAL PROCESSOR: TMS320C50 Family Overview – Key Features – Architectural Overview – Functional Block Diagram – Internal Memory Organization – CALU – System Control – PLU – Interrupts – Addressing Modes – Instruction Set.

UNIT II

[12 Hours]

STRUCTURES FOR DISCRETE TIME SYSTEMS: Introduction – Block Diagram And Signal Flow Graph Representation Of Linear Co-Efficient Difference Equation – Basic Structure For IIR System – Basic Network Structures For FIR Systems –Lattice Structures – Zero Input Cycles In Fixed Point Realization Of IIR Digital Filters

UNIT III

[12 Hours]

COMPUTATION OF DISCRETE FOURIER TRANSFORM: Introduction – Efficient Computation Of DFT – Decimation In Time FFT Algorithms – Decimation In Frequency Algorithms – Implementation Of FFT Algorithms – FFT Algorithms For Composite N.

UNIT IV

[12 Hours]

FILTER DESIGN TECHNIQUES: Introduction – Design Of Discrete Time IIR Filters From Continuous Time Filters – Frequency Transformation Of Low Pass IIR Filters – Design Of FIR Filters By Windowing – Comparison on IIR And FIR Digital Filters.

UNIT V

[12 Hours]

ANALYSIS OF FINITE WORD LENGTH EFFECTS: Introduction – Quantization Process And Errors – Analysis Of Co-Efficient Quantization Effects – Analysis Of Co-Efficient Quantization Effects In FIR Filters – A/D Conversion Noise Analysis – Low Sensitivity Digital Filters – Limit Cycle In IIR Filters – Round Of Errors In FFT Algorithms.

TEXT BOOKS:

1. P. Ramesh Babu, Digital Signal Processing, 4th Edition-Scitech Publication,2009.
2. John G.Proakis, Dimitris G. Manolakis, D.Sharma, Digital Signal Processing Principles, Algorithms, and Applications, Pearson Education, 2006.
3. Oppenheim A. V and Schaffer RW, Buck C, Discrete Time Signal Processing, PHI, 1999.
4. Andreas Antoniou, Digital Signal Processing, Tata Mcgraw Hill Publication, Edition 2006.

REFERENCE BOOKS:

1. TMS 320C5X Users Guide, Texas Instruments, 1993.
2. TMS320C67x/C67x+ DSP CPU and Instruction Set - Reference Guide.

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**THIRD SEMESTER
PAPER 8 – ARM PROCESSOR**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: Enable the students to acquire the knowledge on ARM processor techniques and its peripherals.

UNIT I [12 Hours]

SAMSUNG S3C2440A ARM9: Introduction - Product View – Features – Block Diagram – Pin Assignments – Signal Descriptions – Programmers Model – Processor Operation States – Switching State – Memory Format – Big and Little Endian – Instruction Length – Operating Modes – Exceptions – Reset.

UNIT II [12 Hours]

MEMORY CONTROLLERS: Introduction– Overview – Functional Descriptions – Nand Flash Controllers: Features – Boot Loader Function – Pin Configuration – Nand Flash Configuration Table – Software Modes – USB Controllers.

UNIT III [12 Hours]

TIMER : Introduction – Features – PWM Timer Operation – I/O Port Control Description – Watchdog Timer – Functional Description Of Clock And Power Management DMA Operation – LCD Controller – STN LCK Controller Operation – ADC And Touch Screen Interface Operation.

UNIT IV [12 Hours]

PERIPHERALS: Introduction To UART – Features – Block Diagram And Operation – MMC / SD/ SDIO Controller: Features – Block Diagram And SDIO Operation – IIC Bus Interface – Overview And Operation – SPI – Features, Block Diagram And Operation.

UNIT V [12 Hours]

APPLICATIONS: Introduction To Camera Interface – Features – Block Diagram – Camera Interface Operation – AC97 Controller – Features And Operation And Its Flow Chart Development Tools: Overview of Embedded Linux and Microsoft WIN CE

TEXT BOOK:

1. S3C2440A 32 Bit CMOS Microcontroller User Manual from Samsung

REFERENCE BOOKS:

1. Steve Furber, “ARM System-on-chip Architecture”, Pearson Education, Second Edition, 2005.
2. B.Kanta Rao, “Embedded systems”, PHI publishers, Eastern Economy Edition, 2011.

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THIRD SEMESTER

PAPER 9 – WIRELESS COMMUNICATIONS AND NETWORKS

Maximum CIA : 30

Maximum CE : 70

Total Hours: 60

Objective: Enable the students to acquire the knowledge on encoding techniques, coding methods, satellite communication, cellular communication and wireless LANs.

UNIT I [12 Hours]

SIGNAL ENCODING TECHNIQUES: Antennas - Types – Propagation Modes – Line Of Sight Transmission – Fading In The Mobile Environment – Signal Encoding Techniques: Criteria – ASK- FSK – BFSK – MFSK – PSK – BPSK – QPSK – Multilevel PSK – AM Modulation – Angle Modulation – PCM - Delta And Adaptive Delta Modulation.

UNIT II [12 Hours]

CODING AND ERROR CONTROL : Error Detection – Parity Check – Cyclic Redundancy Check – Block Error Correction Codes – Block Code Principles - Hamming Code – Cyclic Codes – BCH Code – Reed-Solomon Codes – Block Interleaving – Convolution Codes – Decoding – Turbo Coding – Automatic Repeat Request – Flow Control – Error Control.

UNIT III [12 Hours]

SATELLITE COMMUNICATION : Satellite Parameters And Configurations – Satellite Orbits – Frequency Bands – Transmission Impairments – Satellite Footprint – Atmospheric Attenuation – Satellite Network – Configurations – Capacity Allocation- Multiplexing : Frequency Division – Time Division.

UNIT IV [12 Hours]

CELLULAR WIRELESS NETWORKS : Principles Of Cellular Networks: Cellular Network Organization – Frequency Reuse – Operation – Mobile Radio Propagation Effects – Handoff – Power Control – Traffic Engineering – First Generation Analog –Advanced Mobile Phone Service – Second Generation – Time Division Multiple Access – Mobile Wireless TDMA Design Consideration - CDMA – Mobile Wireless CDMA Design Considerations – Soft Hand Off – IS-95 – Third Generation Systems – Wireless Local Loop.

UNIT V [12 Hours]

WIRELESS LANS: Overview: Wireless LAN Applications – Wireless LAN Requirements – Wireless LAN Technology – Infrared LAN's – Spread Spectrum LAN's – Narrow Band Microwave LAN's – IEEE802.11 Architecture and Services.

TEXT BOOKS:

1. William Stallings, Wireless Communication and Networks, 2nd Edition Pearson Education in South Asia, 2007.
2. William Stallings, Data and Computer Communication, 6th Edition, Pearson Education, 2000.

REFERENCE BOOK:

1. T.S Rappaport “Wireless communication“2nd Edition ,Pearson Education,2002.

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THIRD SEMESTER

PRACTICAL 5 – DIGITAL SIGNAL PROCESSING LAB

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Objective: Imparting programming skills in signal processing and designing of discrete filters and its concepts.

[ANY 12 EXPERIMENTS]

1. Study of addressing Modes of DSP using simple examples
2. Performing Arithmetic operations.
3. DFT computations.
4. FFT Computations
5. Convolution of two discrete signals
6. Correlation of two discrete signals
7. Quantization noise
8. Waveform generation
9. Performing & Solving differential equations
10. Performing & Solving z-transform
11. Voice storing & Retrieval
12. FIR Filter design
13. IIR filter design
14. Generation of signals
15. Amplitude Modulation, FFT response and FFT Computations

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THIRD SEMESTER

PRACTICAL 6- ARM PROCESSOR LAB

Maximum CIA: 40

Maximum CE: 60

Total Hours: 60

Objective: Enable the students to impart programming skills in Arm processor.

[ANY 12 EXPERIMENTS]

1. Interfacing LED
2. Seven Segment display
3. Keyboard interface
4. Relay interface
5. LCD interface
6. DAC interface
7. ADC Interface
8. Serial interfaced
9. Stepper motor interface
10. Study and Implementation of Multitasking
11. Study and Implementation of priority scheduling
12. Generation of PWM
13. RTC Interfacing
14. LCM Interfacing
15. Finger print interfacing

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THIRD SEMESTER

ELECTIVE II - NANO SCIENCE AND TECHNOLOGY

Maximum CIA: 30

Maximum CE: 70

Total Hours: 36

Objective: Enable the students to acquire the knowledge on Nanostructures, Nano materials, Nano Electronics and Generic Methodologies for Nano Technology.

UNIT I

[8 Hours]

INTRODUCTION AND CLASSIFICATION : Classification Of Nanostructures, Nanoscale Architecture – Effects Of The Nanometer Length Scale – Changes To The System Total Energy, Changes To The System Structures, Vacancies In Nanocrystals, Dislocations In Nanocrystals – Effect Of Nanoscale Dimensions On Various Properties – Structural, Thermal, Chemical, Mechanical, Magnetic, Optical And Electronic Properties – Effect Of Nanoscale Dimensions On Biological Systems.

UNIT II

[7 Hours]

NANO MATERIALS AND CHARACTERIZATION : Fabrication Methods – Top Down Processes – Milling, Litho graphics, Machining Process – Bottom-Up Process – Vapor Phase Deposition Methods, Plasma-Assisted Deposition Process, MBE And MOVPE, Liquid Phase Methods, Colloidal And Solgel Methods – Methods For Templating The Growth Of Nanomaterials – Ordering Of Nanosystems, Self-Assembly And Self organization – Preparation, Safety And Storage Issues.

UNIT III

[7 Hours]

GENERIC METHODOLOGIES FOR NANOTECHNOLOGY: Characterization: General Classification Of Characterization Methods – Analytical And Imaging Techniques – Microscopy Techniques - Electron Microscopy, Scanning Electron Microscopy, Transmission Electron Microscopy, STM, Field Ion Microscopy, Scanning Tunneling Microscopy, Atomic Force Microscopy.

UNIT IV

[7 Hours]

NANO ELECTRONICS AND INTEGRATED SYSTEMS: Basics Of Nanoelectronics – Single Electron Transistor – Quantum Computation – Tools Of Micro nanofabrication – Nanolithography – Quantum Electronic Devices – MEMS And NEMS – Dynamics Of NEMS – Limits Of Integrated Electronics.

UNIT V

[7 Hours]

NANO DEVICES AND APPLICATIONS : Nanomagnetic Materials – Particulate Nanomagnets And Geometrical Nanomagnets – Magneto Resistance – Probing Nanomagnetic Materials – Nanomagnetism In Technology – Carbon Nanotubes – Fabrication- Applications – Organic FET, Organic LED's – Organic Photovoltaics – Injection Lasers, Quantum Cascade Lasers, Optical Memories, Electronic Applications, Colulomb Blockade Devices.

TEXT BOOKS:

1. Kelsall Robert W, Ian Hamley, Mark Geoghegan, Nanoscale Science and Technology, 2nd Edition, Wiley Eastern, 2004.
2. Michael Kohler, Wolfgang, Fritzsche, Nanotechnology: Introduction to Nanostructuring Techniques, 2004.
3. William Goddard, Donald W Brenner, Handbook of Nano Science Engineering and Technology, CRC Press, 2004.

REFERENCE BOOKS:

1. Bharat Bhushan, Springer Handbook of Nanotechnology, 2004.
2. Charles P Poole, Frank J Owens, Introduction to Nanotechnology, John Wiley and Sons, 2003.
3. Mark Ratner, Danial Ratner, Nanotechnology: A Gentle Introduction To The Next Big Idea, Pearson, 2003.
4. Gregory Timp, Nanotechnology, Springer-Verlag, 1999.

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THIRD SEMESTER

ELECTIVE II – DIGITAL IMAGE PROCESSING

Maximum CIA: 30

Maximum CE: 70

Total Hours: 36

Objective: To introduce the student to various image processing techniques.

UNIT I [8Hours]

DIGITAL IMAGE FUNDAMENTALS: Elements of digital image processing systems, Vidicon and Digital Camera working principles, Elements of visual perception, brightness, contrast, hue, saturation, mach band effect, Color image fundamentals - RGB, HSI models, Image sampling, Quantization, dither, Two-dimensional mathematical preliminaries, 2D transforms - DFT, DCT, KLT, SVD.

UNIT II [8 Hours]

IMAGE ENHANCEMENT: Histogram equalization and specification techniques, Noise distributions, Spatial averaging, Directional Smoothing, Median, Geometric mean, Harmonic mean, Contraharmonic mean filters, Homomorphic filtering, Color image enhancement.

UNIT III [7 Hours]

IMAGE RESTORATION: Image Restoration - degradation model, Unconstrained restoration - Lagrange multiplier and Constrained restoration, Inverse filtering-removal of blur caused by uniform linear motion, Wiener filtering, Geometric transformations-spatial transformations.

UNIT IV [7 Hours]

IMAGE SEGMENTATION: Edge detection, Edge linking via Hough transform – Thresholding - Region based segmentation – Region growing – Region splitting and Merging – Segmentation by morphological watersheds – basic concepts – Dam construction – Watershed segmentation algorithm.

UNIT V [6 Hours]

IMAGE COMPRESSION: Need for data compression, Huffman, Run Length Encoding, Shift codes, Arithmetic coding, Vector Quantization, Transform coding, JPEG standard, MPEG.

TEXTBOOKS:

1. Rafael C. Gonzalez, Richard E. Woods, , Digital Image Processing', Pearson, Second Edition, 2004.
2. Anil K. Jain, , Fundamentals of Digital Image Processing', Pearson 2002.

REFERENCE BOOKS:

1. Kenneth R. Castleman, Digital Image Processing, Pearson, 2006.
2. Rafael C. Gonzalez, Richard E. Woods, Steven Eddins,' Digital Image Processing using MATLAB', Pearson Education, Inc., 2004.

3. D.E. Dudgeon and R.M. Mersereau, , 'Multidimensional Digital Signal Processing', Prentice Hall Professional Technical Reference, 1990.
4. William K. Pratt, , 'Digital Image Processing', John Wiley, New York, 2002
5. Milan Sonka et al, 'IMAGE PROCESSING, ANALYSIS AND MACHINE VISION', Brookes/Cole, Vikas Publishing House, 2nd edition, 1999,

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THIRD SEMESTER

ELECTIVE II- PROGRAMMING WITH VISUAL BASIC AND VISUAL C++

Maximum CIA: 30

Maximum CE: 70

Total Hours: 36

Objective: Enable the students to acquire the knowledge in visual basic and visual C++ and programming in visual basic and visual C++.

UNIT I

[7 Hours]

The windows programming Model – Event driven programming – GUI concepts – Overview of Windows programming – Creating and displaying the window – Message Loop – windows procedure – WM_PAINT message – WM_DESTROY message – Data types – Resources – An Introduction to GDI – Device context – Text output – Scroll Bars – Keyboard – Mouse – Menus.

UNIT II

[7 Hours]

Visual Basic Applications – Form and properties – Variables and Constants – Variant type – Procedure scope – Main – Control statements – control arrays – Creating and using Controls – Menus and Dialogs – Programming fundamentals – Objects and instances – Debugging –

UNIT III

[7 Hours]

Responding to mouse events – Drag and Drag drop events Responding to keyboard events – keypress, keyup, keydown events – Using grid control – Graphics controls – shape and line control – File system controls – Common dialog controls – Processing files – Accessing databases with the data controls..

UNIT IV

[7 Hours]

Visual C++ components – Introduction to Microsoft Foundation Classes Library – Getting started with AppWizard – Class Wizard – Event handling – Keyboard and Mouse events - WM_SIZE, WM_CHAR messages - Graphics Device Interface - Pen, Brush, Colors, Fonts - Single and Multiple document interface - Reading and Writing documents - Resources – Bitmaps creation, usage of BMP and displaying a file existing as a BMP.

UNIT V

[8 Hours]

Dialog Based Applications, controls – Animate control, image list, CRect tracker – Tree control – CtabControl – Dynamic controls – slider control – progress control – Inheriting CTreeView – CRicheditView – Modal Dialog, – Modeless Dialog – CColorDialog – CFileDialog.

TEXT BOOKS:

1. Charles Petzold, “Windows Programming”, Microsoft press, 2013.
2. J. David Kruglirski, “Programming Microsoft Visual C++”, Fifth Edition, Microsoft press, 2011.

**M.Sc (Electronics and Communication Systems) Degree Examination – Syllabus for
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EDC1 - RDBMS****MAXIMUM CE: 50
TOTAL HOURS: 24**

Objective: On successful completion of this paper the students should have acquired expert knowledge of the basic principles of database management systems, parallel & distributed databases.

UNIT I [5 Hours]

Overview of Database Systems- Managing Data- File Systems versus a DBMS - Advantages of a DBMS- Describing and Storing Data in a DBMS - Queries in a DBMS - Transaction Management – Structure of a DBMS- Database Design and ER Diagrams – Entities- Attributes and Entity Sets – Relationships and Relationship Sets - ER model and its design issues.

UNIT II [5 Hours]

Relational Model-Integrity Constraints Over Relations – Enforcing Integrity Constraints – Querying Relational Data –Relational Algebra Operations-Introduction to Views – Destroying / Altering Tables and Views.

UNIT III [5 Hours]

SQL : The Form of a Basic SQL Query – UNION- INTERSECT and EXCEPT – Nested Queries – Aggregate Operators – Null Values –Complex Integrity Constraints in SQL - Triggers and Transaction Management Overview-The ACID Properties - Transactions and Schedules – Lock-Based Concurrency Control – Performance of Locking.

UNIT IV [5 Hours]

Functional Dependencies–Normal Forms–Properties of Decompositions–Normalization, Object Database System-Structured data types-Operations on Structured Data-Database Design for an ORDBMS-OODBMS-Comparing RDBMS, OODBMS and ORDBMS.

UNIT V [4 Hours]

Parallel and Distributed Databases-Architecture for Parallel Databases – Parallel Query Evaluation – Parallelizing Individual Operations –Parallel Query Optimization – Introduction to Distributed Databases – Distributed DBMS Architecture -Storing Data in a Distributed DBMS-Distributed Query Processing.

TEXT BOOKS:

1. Raghu Ramakrishnan, Johannes Gehrke , Database Management Systems, 3rd Edition, Tata McGraw-Hill Higher Education,2014,New Delhi.
2. Silberschatry, Korth, Sundarshan, Database system Concepts, 4th Edition, Tata Mc Graw-Hill Higher Education, 2005, New Delhi.

REFERENCE BOOKS:

1. C.J.Dates, A.Kannan,S.Swamynathan, —An Introduction to Database systemsl , 8th Edition, Pearson Education,2000.
2. Nilesh Shah, Database Systems using Oracle, 2nd Edition, Prentice Hall of India,2002,Asia.
- 3.Elmasri, Navathe, —Fundamentals of Database Systemsl, 3rd Edition, Pearson Education,2000, Asia.

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FOURTH SEMESTER

PAPER 10- ADVANCED PROGRAMMABLE LOGIC CONTROLLER

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: Enable the students to acquire theoretical knowledge on Programmable Logic Controller and its Applications

UNIT I [10 Hours]

FUNDAMENTALS OF LOGIC: Introduction-The Binary Concept-AND,OR and NOT Functions-Boolean Algebra-Developing Circuits from Boolean Expressions-Producing the Boolean Equation from a given circuit-Hard wired versus Programmed logic-Programming Word-level logic instructions- Programmable Logic Structures –Read only memory[ROM]- Programmable Logic Arrays [PLA's]- Programmable Array Logic [PAL's]- Field Programmable Gate Arrays [FPGA's]-Complement programmable Gate array[CPGA]

UNIT II [12 Hours]

PLC HARDWARE COMPONENTS: Introduction- Parts of PLC- Principles of Operation- PLC Sizes- PLC Hardware Components- I/O Section-I/O Addressing- Analog I/O Section- Discrete I/O Modules- CPU Processor- Memory Module-Memory Types- Programming Devices- Diagnostics Of PLC's with Computers.

UNIT III [15 Hours]

PLC INSTRUCTIONS: Simple Instructions-Program scan-PLC Programming languages- Relay type instructions-Instruction Addressing-Branch Instructions-Internal Relay Instructions- Programming EXAMINE ON And EXAMINE OFF Instructions- Electromagnetic Control Relays- Motor Starters -Manually Operated Switches-Mechanically Operated and Proximity Switches -Output Control Devices -Latching Relays- PLC Ladder Diagram-Converting Simple Relay Ladder Diagram to PLC Relay Ladder Diagram.

UNIT IV [12 Hours]

PLC TIMERS & COUNTERS: Instructions ON DELAY Timer and OFF DELAY Timer -Counter Instructions-Up/Down Counters -Timer and Counter Applications-Program Control Instructions -Data Manipulating Instructions -Math Instructions.

UNIT V [11 Hours]

APPLICATION OF PLC: Bottle Label Detection Process Control Application- Automatic Lubricating Oil Supplier -Conveyor Belt Motor Control- Automatic Car Washing Machine- Automatic Control of Warehouse Door.

TEXT BOOKS:

1. Charles H. Roth, Jr, & Larry L Kinney Fundamentals of Logic Design, Jaico Publishing house, 6th Edition 2010.
2. Frank D. Petruzella, Programmable Logic Controllers, McGraw- Hill book, company, 4th Edition 2011.

REFERENCE BOOKS:

1. William I. Fletcher , An Engineering Approach to Digital Design , Prentice, Hall of India Ltd., New Delhi, 1999.

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FOURTH SEMESTER

ELECTIVE III –HIGH PERFORMANCE COMMUNICATION NETWORKS

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: Enable the students to acquire the knowledge on data communication, various standards in networks and to developed their skills in networking

UNIT I [12 Hours]

DATA COMMUNICATION : Introduction – Basic terms and concepts – Line configurations – Topology – Transmission media – MODEM: Standard and types – Analog and Digital transmission: Encoding and modulating – Channel capacity - Base band and Broad band - Transmission impairments – Multiplexing – Error Detection and control :CRC.

UNIT II [12 Hours]

STANDARD ARCHITECTURE AND PROTOCOLS : Layered Architecture – OSI model – functions of layers – Data link control protocols – ARQ Stop and wait, Sliding window, Go back N and Selective repeat– Asynchronous protocol: X Modem, Y Modem, Kermit – Synchronous protocol: BSC, SDLC, HDLC- TCP/IP model, SMTP, HTTP and FTP.

UNIT III [12 Hours]

NETWORK STANDARDS : LAN Standard, Protocol, IEEE 802 Standards – ETHERNET, LLC, MAC, CSMA/CD, Token Ring – Token bus – FDDI – ALOHA, Wireless LAN Technology, Hub, Bridge, Router, gateway, X.25.Protocols: SLIP, PPP, LCP – Optical network – SONET, WAN - MAN- Basic Concept and standards.

UNIT IV [12 Hours]

ISDN : Introduction: Services – IDN – Channels – User Interfaces – ISDN Layers –Broad Band ISDN – Frame Relay – ATM: Concept And Architecture – ISDN Protocol: Physical Layer Protocol, D-Channel Data Link Layer And Layer 3 Protocols, Network Signaling Systems, SS7 Protocol.

UNIT V [12 Hours]

UPPER OSI LAYERS: Session Layer Protocols, Presentation Layer – Encryption / Decryption, Data Security, Encryption/ Decryption, Authentication, Data Compression, Application Layer Protocols – MHS, File Transfer, Virtual Terminal, CMIP.

TEXT BOOK:

1. Behrous.A.Forouzan, Data Communication and Networking, 4th Edition, Tata Mcgraw Hill, 2006.

REFERENCE BOOKS:

1. William Stallings, Data and Computer communication, 10th edition, Pearson education, 2014.
2. Gary C. Kessler and Peter Southwick, ISDN Concepts, Facilities and Services, 3rd edition, MCGRAW HILL, 1997.

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**FOURTH SEMESTER
ELECTIVE III- ANDROID**

Maximum CIA: 30

Maximum CE:70

Total Hours: 60

Objective: On successful completion of this paper the students should have acquired expert knowledge in basics of Android Applications.

UNIT I [12 Hours]

What is Android-History of Embedded device programming-Open handset alliance and android-Introduction to android-Downloading and installing eclipse-Downloading and installing the android SDK.

UNIT II [12 Hours]

Exploring the android SDK-What is the android SDK-Application life cycle-Application: hello world – Creating your first android Projects in Eclipse-Examine the Android-created files.

UNIT III [12 Hours]

Using the command-Line tools and the Android Emulator: Creating a Shell activity using the windows CLI-Creating the hello world!,Activity in the windows CLI. Using intents and the phone dialer: What are intents-Using the Dialer-Placing a call from your activity.

UNIT IV [12 Hours]

Lists, Menus, and Other Views: Building the Activities-Using the menu, using the cell phone's GPS Functionality: using the android Location-Based API-Reading the GPS with the Android Location-Based API.

UNIT V [12 Hours]

Application: Find a Friend: Creating a SQLite Database-Creating a Custom Content Provider-Creating the Find A Friend Activity-Running Find A Friend Activity, Android SDK Tool Reference-Emulator commands-Debug Bridge Commands.

TEXT BOOK:

1.J.F.DiMarzio, Android A Programmer's Guide, Tata McGraw-Hill Publication,2010,New Delhi

REFERENCE BOOK:

1. Android Application KitKat Support, Black Book by Pradeep Kothari.

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**FOURTH SEMESTER -
ELECTIVE III -PROGRAMMING WITH .NET**

Maximum CIA: 30

Maximum CE: 70

Total Hours: 60

Objective: Enable the students to acquire the knowledge in dot net and programming in .net

UNIT I

[12 Hours]

Getting started with .Net Framework 4.0: – Evolution of .Net – Benefits of .Net Framework - Architecture of .Net Framework – Components of .Net Framework - Exploring new features of .Net Framework 4.0 – Introducing Visual Studio 2010: – Exploring New Features of Visual Studio – Installing Visual Studio 2010 – Visual Studio 2010 IDE.

UNIT II

[12 Hours]

Window Forms in Visual Basic 2010: – Exploring Window Forms – Creating main window forms – Adding Controls to Window form application – Disabling and Enabling Window forms – Changing Title – Setting Border – Displaying and Hiding the Maximize, Minimize, and Close Buttons in Window Forms – Specifying Initial Position – Creating Multiple Window Applications – Setting Startup Form – Displaying Messages – Common Operations on Controls – Handling Common Events for Window Forms and Controls. Window Form Controls I: – The Control Class – Button – Label – Text Box – Rich Text Box – Masked Text Box – List Box – Combo Box – Window Form Controls II: – Radio Buttons – Check Box – Tree View – Panel – Window Form Controls III: – Image List – Picture Box – Timer – Progress Bar – Calendar – Window Form Controls IV: – Menu Strip Control.

UNIT III

[12 Hours]

Introducing C#: – Need of C# – C# Pre-Processor Directives – Features of C# - Creating Simple C# Console Application – Identifiers and Keywords – Data Types –Type Conversions - Variables – Constants – Expressions and Operators - ?? Operator – :: Operator – Namespaces – Classes and Objects – Constructors and Destructors – Static Class and Class Member – Structs – Object Oriented Programming: – Encapsulation – Inheritance – Polymorphism – Abstraction – Interfaces. Flow Control: – Control Flow Statements.

UNIT IV

[12 Hours]

Exception Handling: – Exception Handling – Checked and Unchecked Statements. Threading: – Thread Class – Difference between Process and Threads – Working with Thread – Multi Threading – Thread Priorities – Thread States – Thread Synchronization – Join Threads.

UNIT V

[12 Hours]

Data Access with ADO.Net : – Understanding Databases – Understanding SQL –Understanding ADO.Net – Creating Connection String – Creating Connection to a Database – Creating Command Object – Data Adapters – Data Readers – Data grid.

TEXT BOOK:

1. Net 4.0 Programming [6 in 1] Black Book Kogent Dream Tech Press,2011.

REFERENCE BOOKS:

1. Jitendra Patel, “C# Programming”, eBookIt.com, 2012.
2. Ying Bai, “Practical Database Programming with Visual Basic.NET, IEEE press, Wiley second edition 2012.

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THIRD SEMESTER

ADDITIONAL CREDIT: RESEARCH METHODOLOGY

Maximum CE Marks: 100

Objective: Enabling students to acquire the fundamentals of research skills

UNIT - I

INTRODUCTION TO METHODOLOGY: Format of thesis and dissertation, Research article, Reviews, Monographs, Bibliography, Literature search, Significance of research, Research methods versus methodology, Research and Scientific methods, Defining the research Problem and Research design.

UNIT-II

QUANTITATIVE METHODS FOR PROBLEM SOLVING: Introduction to Statistical Modeling and Analysis, Concepts of Correlation and Regression, Fundamentals of Time Series Analysis and Spectral Analysis, Error Analysis, Applications of Spectral Analysis.

UNIT III

PHYSICAL STATISTICAL METHODS DEFINITION AND SCOPE; Types of data; Collection and presentation of Data [Tables, Graphs, Diagrams]; Measure of Central Tendency; Dispersion; Goodness of fit [X² Test].

UNIT IV

SAMPLING FUNDAMENTALS: Census and sample Survey, Steps in sample design, Different types sample design, Selection of a random sample, Estimation, Estimating the population mean and population proportion

UNIT-V

INTERPRETATION AND REPORT WRITING: Meaning of interpretation; Techniques of interpretation; Precautions in Interpretation; Significance of Report writing; Different steps in Report writing; Layout of Research Project; Types of Reports; Patent writing and filing and Oral presentation.

TEXT BOOKS:

1. Kothari, C.R; II ed. [2006], Research Methodology, Methods and techniques; New Age International [p] Ltd., Publishers, New Delhi. :
2. Kumar K. L.' [1997], Educational Technology, New Age International [P] Ltd., New Delhi.

REFERENCE BOOKS:

1. Donald R. Cooper, Pamela S. etc., Business Research Methods, 8th Edition, Tata McGraw Hill Co. Ltd. 2006
2. Tony Bates A.W. Technology, [2005], e-Learning and Distance Education, New York

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FOURTH SEMESTER

ADDITIONAL CREDIT: APTITUDE FOR NET AND GATE

Objective: Enabling the students to prepare the competitive examinations.

Maximum CE Marks: 100

UNIT I

Network graphs: matrices associated with graphs; incidence, fundamental cut set and fundamental circuit matrices. Solution methods: nodal and mesh analysis. Network theorems: superposition, Thevenin and Norton's maximum power transfer, Wye-Delta transformation. Steady state sinusoidal analysis using phasors. Linear constant coefficient differential equations; time domain analysis of simple RLC circuits, Solution of network equations using Laplace transform: frequency domain analysis of RLC circuits. 2-port network parameters: driving point and transfer functions. State equations for networks. **Electronic Devices:** Energy bands in silicon, intrinsic and extrinsic silicon. Carrier transport in silicon: diffusion current, drift current, mobility, and resistivity. Generation and recombination of carriers. p-n junction diode, Zener diode, tunnel diode, BJT, JFET, MOS capacitor, MOSFET, LED, p-I-n and avalanche photo diode, Basics of LASERS. Device technology: integrated circuits fabrication process, oxidation, diffusion, ion implantation, photolithography, n-tub, p-tub and twin-tub CMOS process.

UNIT II

Analog Circuits: Small Signal Equivalent circuits of diodes, BJTs, MOSFETs and analog CMOS. Simple diode circuits, clipping, clamping, rectifier. Biasing and bias stability of transistor and FET amplifiers. Amplifiers: single-and multi-stage, differential and operational, feedback, and power. Frequency response of amplifiers. Simple op-amp circuits. Filters. Sinusoidal oscillators; criterion for oscillation; single-transistor and op-amp configurations. Function generators and wave-shaping circuits, 555 Timers. Power supplies. **Digital circuits:** Boolean algebra, minimization of Boolean functions; logic gates; digital IC families [DTL, TTL, ECL, MOS, CMOS]. Combinatorial circuits: arithmetic circuits, code converters, multiplexers, decoders, PROMs and PLAs. Sequential circuits: latches and flip-flops, counters and shiftregisters. Sample and hold circuits, ADCs, DACs. Semiconductor memories. Microprocessor[8085]: architecture, programming, memory and I/O interfacing.

UNIT III

Signals and Systems: Definitions and properties of Laplace transform, continuous-time and discrete-time Fourier series, continuous-time and discrete-time Fourier Transform, DFT and FFT, z-transform. Sampling theorem. Linear Time-Invariant [LTI] Systems: definitions and properties; causality, stability, impulse response, convolution, poles and zeros, parallel and cascade structure, frequency response, group delay, phase delay. Signal transmission through LTI systems. **Control Systems:** Basic control system components; block diagrammatic description, reduction of block diagrams. Open loop and closed loop [feedback] systems and stability analysis of these systems. Signal flow graphs and their use in determining transfer functions of systems; transient and steady state analysis of LTI control systems and frequency response. Tools and techniques for LTI control system analysis: root loci, Routh-Hurwitz criterion, Bode and Nyquist plots. Control system compensators: elements of lead and lag compensation, elements of Proportional-Integral Derivative [PID] control. State variable representation and solution of state equation of LTI control systems.

UNIT IV

Communications: Random signals and noise: probability, random variables, probability density function, autocorrelation, power spectral density. Analog communication systems: amplitude and angle modulation and demodulation systems, spectral analysis of these operations, superheterodyne receivers; elements of hardware, realizations of analog communication systems; signal-to-noise ratio [SNR] calculations for amplitude modulation [AM] and frequency modulation [FM] for low noise conditions. Fundamentals of information theory and channel capacity theorem. Digital communication systems: pulse code modulation [PCM], differential pulse code modulation [DPCM], digital modulation schemes: amplitude, phase and frequency shift keying schemes [ASK, PSK, FSK], matched filter receivers, bandwidth consideration and probability of error calculations for these schemes. Basics of TDMA, FDMA and CDMA and GSM.

UNIT V

Electromagnetics: Elements of vector calculus: divergence and curl; Gauss' and Stokes' theorems, Maxwell's equations: differential and integral forms. Wave equation, Poynting vector. Plane waves: propagation through various media; reflection and refraction; phase and group velocity; skin depth. Transmission lines: characteristic impedance; impedance transformation; Smith chart; impedance matching; S parameters, pulse excitation. Waveguides: modes in rectangular waveguides; boundary conditions; cut-off frequencies; dispersion relations. Basics of propagation in dielectric waveguide and optical fibers. Basics of Antennas: Dipole antennas; radiation pattern; antenna gain.

TEXT BOOKS:

1. Kennedy and Davis, Electronic Communication Systems, 8th Edition Tata McGraw Hill, 1999.
2. S. Salivahanan & S. Arivazhagan, Electronic devices and circuits, Vikas Pub. House Pvt. Ltd. II Reprint 2002.
3. D.Roy Choudhury and Shahil B Jain, Linear Integrated Circuits, 3rd Edition, New Age International Publishers, 2007.

REFERENCE BOOKS:

1. M.Kulkarni, Microwave and Radar Engineering, 2nd Edition, Umesh Publications,
2. Alen V Oppenheim Alen S. Wilsky and Hamid Nawab S, Signals and Systems, 2nd Edition PHI, New Delhi, 1997.
3. Katsuhiko. Ogata, Modern Control Engineering. Pearson Education Asia, 4th Edition, 2002.
4. S. Salivahanan & S. Arivazhagan, Digital Circuits and Design, Vikas Pub. House Pvt. Ltd. II Reprint 2002.

MATHEMATICS BOARD
SCHEME OF EXAMINATIONS (CBCS PATTERN)
Programme: M.Sc MATHEMATICS
For Candidates admitted during the Academic Year 2018-2019

Sub Code	Paper	Subject Title	Ins.Hrs/ Week	Examination				
				Dur. Hrs.	CIA	CE	Total	Credit
SEMESTER I								
16MSM101	Paper1	Algebra	6	3	30	70	100	4
16MSM102	Paper 2	Real Analysis	6	3	30	70	100	4
16MSM103	Paper 3	Ordinary Differential Equations	6	3	30	70	100	4
16MSM104	Paper 4	Numerical Methods	6	3	30	70	100	4
16MSM105	Paper 5	Number Theory	6	3	30	70	100	4
Total			30				500	20
SEMESTER II								
16MSM201	Paper 6	Complex Analysis	6	3	30	70	100	4
16MSM 202	Paper 7	Partial Differential Equations	6	3	30	70	100	4
16MSM 203	Paper 8	Mechanics	5	3	30	70	100	4
18MSM204	Paper 9	Control Theory	5	3	30	70	100	4
18MSME01*/ 18MSME02/ 18MSME03*/	Elective I	Mat lab /Magneto hydro Dynamics /Latex	5	3	30	70	100	4
18MSMID1	IDC 1	Operations Research	3	3	30	70	100	4
Total			30				600	24
SEMESTER III								
16MSM301	Paper 10	Topology	6	3	30	70	100	4
16MSM302	Paper 11	Fluid Dynamics	6	3	30	70	100	4
16MSM303	Paper 12	Mathematical Statistics	6	3	30	70	100	4
18MSM304	Paper 13	Graph Theory	4	3	30	70	100	4
18MSME04/ 18MSME05/ 18MSME06	Elective II	Differential Geometry/Cryptography/Automata Theory	6	3	30	70	100	4

16MSMED1	EDC 1	Web Designing	2	3	-	50	50	2
Total			30				550	22
SEMESTER IV								
16MSM 401	Paper 14	Functional Analysis	6	3	30	70	100	4
18MSM402	Paper 15	Mathematical Methods	6	3	30	70	100	4
18MSM403	Paper 16	Fuzzy sets and Fuzzy Logic	6	3	30	70	100	4
18MSME07/ 18MSME08/ 18MSME09	Elective III	Neural Networks / Stochastic Differential Equation /Non Linear Differential Equation	6	3	30	70	100	4
16MSMPR1	Project		6	3	150	100	250	8
Total			30				650	24
Total							2300	90

*For the Elective papers:		Ins Hours	CIA	CE	Total	Credit
Mat lab	18MSME01	4	20	50	70	3
Programming in Mat lab	18MSMPE1	2	10	20	30	1
Latex	18MSME07	4	20	50	70	3
Programming in Latex	18MSMPE2	2	10	20	30	1

Additional Credit Course

Sem	Code	Subject Title	Max Marks	Credits
II	16MSMAC1	Mathematical Modeling	100	2
III	16MSMAC2	Distribution Theory	100	2
IV	16MSMAC3	Probability Theory	100	2

Summary

Part	No of Papers	Total Credits	Total Marks
Paper ,Elective and Project	20	84	2150
IDC –Inter Disciplinary Course	1	4	100
EDC –Extra Department Course	1	2	50
Total	22	90	2300

REGULATIONS FOR BOARD OF MATHEMATICS (FOR PG COURSES ONLY)

(Effective from the academic year 2018-2019 onwards)

1. Project and Viva Voce:

Each student in the PG final year shall compulsorily undergo Project Work in the 4th semester. Projects shall be done individually. Project Reviews shall be conducted thrice in which the progress of project work shall be strictly evaluated by respective Project Guides. Viva-Voce shall be conducted only in the presence of Industrialists or academicians. Out of the Total of 250 marks, 150 marks shall be allocated for CIA and 100 for CE VIVA VOCE.

2. Submission of Record Note Books for practical examinations

Candidates appearing for practical examinations shall submit bonafide Record Work for the concerned Practical Examinations. If not the candidate has to submit a bonafide certificate issued by the concerned subject in-charge duly signed by the Head of the Department in order to be permitted to take up the Practical Examination. The Candidate so permitted will not be eligible for the Record Work mark.

3. Distribution of Marks:

The following are the distribution of marks for Comprehensive Examinations and CIA for Theory, Practical and Project.

Category	Max Marks	Comprehensive Examination		Internal Marks	Overall passing minimum (Internal + CE)
		Max Marks	Passing Minimum		
Theory Paper	100	70	35	30	50
	70	50	25	20	35
	50	50	25	-	25
Practical Paper	30	20	10	10	15
Project	250	100	50	150	125

4. Distribution of Internal Mark for Theory:
(No Passing Minimum for CIA)

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6(Months)=30

Breakup for Attendance:

65% - 74 %	- 4 Marks
75% - 80%	- 6 Marks
81% - 90%	- 8 Marks
91% - 100%	- 10 Marks

Seminar Mark Split up:

Content	- 10 Marks
Flow of presentation	- 10 Marks
Stage Management & Body Language	- 10 Marks

5. Distribution of Internal Mark for Practical:

MAXIMUM MARKS : 10		
S No	CIA	Distribution of Marks
1	Test –I	5
2	Test –II	5
Total		10

6. Distribution of Comprehensive Exam Mark for Practical:

MAXIMUM MARKS : 20		
S. No	Comprehensive Examination	Distribution of Marks
1	Record	4
2	Program – I a)Algorithm	4
	b)Coding and Execution	4 TOTAL (8)
3	Program – II a)Algorithm	4
	b)Coding and Execution	4 TOTAL (8)
Total		20

7. Distribution of Mark for Project VIVA-VOCE:

S.No	CIA	Distribution of Marks
1	INTERNAL	
	Review –I	40
	Review –II	40
	Documentation & Final Review	70 Total (150)
2	EXTERNAL *	
	Presentation	60
	Viva	40 Total (100)
Total		250

***Marks to be awarded by both External and Internal Examiners.**

8. Question Paper Pattern

Time: 3 Hour

Max Marks: 70

SECTION – A (10×1=10)
Answer ALL questions
Each Question carries ONE Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B (5×4=20)
Answer ALL questions
Each Question carries FOUR Marks
(INTERNAL CHOICE)

SECTION – C (5×8=40)
Answerer ALL questions
Each Question carries EIGHT Marks
(INTERNAL CHOICE)

9. Question Paper Pattern

Time: 3 Hour

Max Marks: 50

SECTION – A (10×1=10)
Answer ALL questions
Each Question carries ONE Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B (5×3=15)
Answer ALL questions
Each Question carries THREE Marks
(INTERNAL CHOICE)

SECTION – C (5×5=25)
Answerer ALL questions
Each Question carries FIVE Marks
(INTERNAL CHOICE)

10. Question Paper Pattern

Time: 3 Hour

Max marks: 100

SECTION – A (10×1=10)
Answer ALL questions
Each Question carries ONE Mark
(NO CHOICE)
Ten Multiple Choice Questions

SECTION – B (5×8=40)
Answer ALL questions
Each Question carries EIGHT Marks
(INTERNAL CHOICE)

SECTION – C (5×10=50)
Answerer ALL questions
Each Question carries TEN Marks
(INTERNAL CHOICE)

NOTE:

1. The questions should be numbered continuously running through the Sections A, B and C.
2. Questions should be evenly distributed among the unit in the syllabus in all the sections of the question paper.
3. While framing questions with internal choice the questions must be identified as (a) or (b). (e.g. 11. a or b). Further, the internal choice must be from the same unit.
4. The Controller of the Examinations shall arrange for the setting of question papers on the basis the syllabus and the pattern of question paper duly certified by the Chairpersons of the respective Board of Studies.

11. Conduct of Practical Examinations:

Practical examinations shall be conducted with one internal examiner and one external examiner and the question paper for practical examination shall be set by both Internal and External examiners.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from 2016-2017 onwards

**FIRST SEMESTER
Paper 1: ALGEBRA**

Maximum CIA : 30
Maximum CE : 70
Total Hours : 72

Objective: To enable students gain fundamental knowledge about the rings, fields, canonical forms and their applications

Unit-I: (14 HOURS)
Group Theory: Another counting principle – Sylow’s theorem – Direct product

Unit-II (14 HOURS)
Ring Theory: Euclidean rings – A particular Euclidean ring – Polynomial rings – Polynomials over the rational field.

Unit-III (15 HOURS)
Fields: Extension Fields – Roots of polynomials – More about roots.

Unit-IV (14 HOURS)
Fields: Elements of Galois theory – Finite Fields.

Unit-V (15 HOURS)
Linear Transformations: Canonical forms: Triangular form – Trace and Transpose – Hermitian, unitary and normal Transformations.

TEXT BOOK

1. N.Herstein ,Topics in Algebra,John Wiley and Sons India(P),Ltd., (II Edition), Reprint 2013, New Delhi.
UNIT I: Chapter 2 - Sections 2.11 to 2.13.
UNIT II : Chapter 3 - Sections 3.7 to 3.10.
UNIT III: Chapter 5 - Sections 5.1, 5.3 and 5.5.
UNIT IV: Chapter 5 - Section 5.6.
UNIT V: Chapter 6 - Sections: 6.4, 6.8 and 6.10. Chapter 7 - Section 7.1.

REFERENCE BOOKS

1. J.B.Fraleigh, A First Course in Abstract Algebra, 7th July 2002, Narosa Publishing House, New Delhi.
2. T.W.Hungerford, Algebra, 1990 ,Springer, New York.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from 2016-2017 onwards

**FIRST SEMESTER
Paper 2: REAL ANALYSIS**

Maximum CIA : 30
Maximum CE : 70
Total Hours : 72

Objective: To enable students gain fundamental knowledge about the Riemann Stieltjes Integral , Lebesgue Measure, Lebesgue Integral and their applications

Unit I (15 HOURS)

RIEMANN STIELTJES INTEGRAL: Definition and Existence of the Integral – properties of the integral – Integration and differentiation – Integration of vector valued function – rectifiable curves.

Unit II (14 HOURS)

Uniform convergence and continuity – uniform convergence and integration - uniform convergence and differentiation – equicontinuous families of functions – The Stone Weirstrass theorem

Unit III (14 HOURS)

FUNCTIONS OF SEVERAL VARIABLES: Linear transformation – contraction principle – Inverse function theorem – Implicit function theorem – determinants – derivatives of higher order – differentiation of integrals

Unit IV (14 HOURS)

LEBESGUE MEASURE: Outer measure – Measurable sets and Lebesgue measure – Measurable functions – Littlewood’s Theorem

Unit V (15 HOURS)

LEBESGUE INTEGRAL: The Lebesgue integral of bounded functions over a set of finite measure – integral of a non – negative function – General Lebesgue Integral – convergence in measure

TEXT BOOKS

1. W. Rudin, Principles of Mathematical Analysis, Third Edition 1976, TataMcGraw Hill,New York.
Unit I – III: Chapters 6, 7, 9.
2. H.L. Roydon, Real Analysis, Macmillan, Fourth Edition, 2016, New York.
Unit IV – V: Chapters 3 and 4.

REFERENCE BOOKS

1. R.G. Bartle, Elements of Real Analysis, 2nd Edition 1976, John Wily and Sons, New York.

2. W. Rudin, Real and Complex Analysis, 3rd Edition 1986, McGraw-Hill, New York.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from 2016-2017 onwards

FIRST SEMESTER

Paper 3: ORDINARY DIFFERENTIAL EQUATIONS

Maximum CIA : 30

Maximum CE : 70

Total Hours: 72

Objective: To enable students gain fundamental knowledge about the second order linear equation with ordinary points, existence and uniqueness theorem, non homogeneous linear system, successive approximation, fundamental results and their applications.

Unit I: (15 HOURS)

Second order linear equations with ordinary points – Legendre equation and Legendre polynomials – Second order equations with regular singular points – Bessel equation.

Unit II: (14 HOURS)

Systems of first order equations – existence and uniqueness theorem – Fundamental matrix.

Unit III: (14 HOURS)

Non-homogeneous linear systems – linear systems with constant coefficients – linear systems with periodic Co-efficients.

Unit IV: (14 HOURS)

Successive approximation – Picard's theorem - Non-uniqueness of solution – Continuation and dependence on initial conditions, Existence of solutions in the large – Existence and uniqueness of solutions of systems.

Unit V: (15 HOURS)

Fundamental results – Sturm's comparison theorem – Elementary linear oscillations.

Comparison theorem of Hille-Winter – Oscillations of $x^{a(t)x}$ - Elementary non-linear oscillation.

TEXT BOOK

1. S.G.Deo and V.Raghavendra , Ordinary Differential Equations and Stability Theory , Third Edition 2015. Tata McGraw Hill, New York.

Unit I - Chapter – 3 - Section 3.2 – 3.5

Unit II - Chapter – 4 - Section 4.2 – 4.4

Unit III - Chapter – 4 - Section 4.5 – 4.7

Unit IV - Chapter – 5 - Section 5.3 – 5.8

Unit V - Chapter – 8 - Section 6.1 – 6.6

REFERENCE BOOKS

1. E.A. Coddington and N.Levinson , Theory of Ordinary Differential Equations, 9th Edition, Reprint 1987, Tata McGraw Hill, New York.
2. D.A. Sanchez, Ordinary Differential Equations and Stability Theory, W.H.Freeman & Co., San Francisco, 1968.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from 2016-2017 onwards

FIRST SEMESTER

Paper 4: NUMERICAL METHODS

Maximum CIA : 30

Maximum CE : 70

Total Hours: 72

Objective: To enable students gain fundamental knowledge about the Numerical algebraic Functions and their applications.

Unit I (15 HOURS)

SOLUTION OF NONLINEAR EQUATIONS: Newton's method – Convergence of Newton's method – Bairstow's Method for quadratic factors NUMERICAL DIFFERENTIATION AND INTEGRATION: Derivatives from Differences tables – Higher order derivatives – Divided difference, Central-Difference formulas– Composite formula of Trapezoidal rule – Romberg integration – Simpson's rules.

Unit II (15 HOURS)

SOLUTION OF SYSTEM OF EQUATIONS: The Gauss Elimination method – Gauss Jordan method – LU Decomposition method – Matrix inversion by Gauss-Jordan method – Methods of Iteration – Jacobi and Gauss Seidal Iteration – Relaxation method – Systems of Nonlinear equations.

Unit III (14 HOURS)

SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS: Taylor series method – Euler and Modified Euler methods – Rungekutta methods – Multistep methods – Milne's method – Adams Moulton method.

Unit IV (14 HOURS)

BOUNDARY VALUE PROBLEMS AND CHARACTERISTIC VALUE PROBLEMS: The shooting method – solution through a set of equations – Derivative boundary conditions – Characteristic value problems – Eigen values of a matrix by Iteration – The power method.

Unit V (14 HOURS)

NUMERICAL SOLUTION OF PARTIAL DIFFERENTIAL EQUATIONS: Solutions of Elliptic, Parabolic and Hyperbolic partial differential equations) Representation as a difference equation – Laplace's equation on a rectangular region – Iterative methods for Laplace equation – The Poisson equation – Derivative boundary conditions – Solving the equation for time-dependent heat flow (i) The Explicit method (ii) The Crank Nicolson method – solving the wave equation by Finite Differences.

TEXT BOOK

1. C.F. Gerald and P.O.Wheatley, APPLIED NUMERICAL ANALYSIS, , Seventh Edition 2008 Addison Wesley.

REFERENCE BOOKS

1. S.C. Chapra and P.C. Raymond: Numerical Methods for Engineers, Sixth Edition 2014, Tata McGraw Hill, New Delhi.
2. S.S. Sastry: Introductory methods of Numerical Analysis, Third Edition 2004 ,Prentice Hall of India, New Delhi.
3. P. Kandasamy, K. Thilagavathi and K.Gunavathi, Numerical Methods , Reprint 2013, S.Chand and Company Ltd., New Delhi..

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from 2016-2017 onwards

**FIRST SEMESTER
Paper 5: NUMBER THEORY**

Maximum CIA : 30

Maximum CE : 70

Total Hours: 72

Objective: To enable students gain fundamental knowledge about the Number theory.

Unit I (14 HOURS)

Introduction, Divisibility, Primes.

Unit II (15 HOURS)

Congruences, solutions of congruences, Congruences of Degree 1. The functions $\phi(n)$, congruences of higher degree, Prime power moduli, Prime modulus.

Unit III (15 HOURS)

Congruences degree 2, prime modulus, POWER Residues, Number theory from an algebraic view point, Multiplicative groups, Rings and fields, quadratic residues.

Unit IV (14 HOURS)

Quadratic reciprocity – The Jacobi Symbol – Greatest integer function.

Unit V (14 HOURS)

Arithmetic functions – The Moebius Inversion formula – The multiplication of arithmetic functions – Recurrence functions.

TEXT BOOK

1. An Introduction to Theory of Numbers by Ivan Nivan and Herberts Zucherman.

Unit-I: Chapter I: Sections 1.1 – 1.3

Unit-II: Chapter II: Sections: 2.1 – 2.7

Unit-III: Chapter II: Sections: 2.8 – 2.11

Chapter III: Section: 3.1

Unit-IV: Chapter III: Sections: 3.2, 3.3

Chapter IV: Section: 4.1

Unit-V: Chapter IV: Sections: 4.2 – 4.5

REFERENCE BOOKS

1. T.M. Apostol, Introduction to Analytic Number Theory, Springer Verlag, 1976.
2. Kenneth and Rosan, Elementary Number Theory and its Applications, Addison Wesley Pulishing Company, 1968.
3. George E. Andrews, Number Theory, Hindustan Publishing, New Delhi, 1989.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from 2016-2017 onwards

SECOND SEMESTER

Paper 6: COMPLEX ANALYSIS

Maximum CIA : 30

Maximum CE : 70

Total Hours:72

Objective: To enable students gain fundamental knowledge about the Complex integration, calculus of residues, the Reimann mapping and their applications.

Unit I (14 HOURS)

Introduction to the concept of analytic function: Limits and continuity – Analytic functions – Polynomials – Rational functions – Conformality: Arcs and closed curves – Analytic functions in regions – Conformal Mapping – Length and Area – Linear Transformations: The Linear group – The Cross ratio – Elementary Riemann Surfaces.

Unit II (15 HOURS)

Complex Integration: Line Integrals Rectifiable Arcs – Line Integrals as Functions of Arcs – Cauchy's theorem for a rectangle - Cauchy's theorem in a disk, Cauchy's Integral formula: The Index of a point with respect to a closed curve – The Integral formula – Higher derivatives Removable singularities, Taylor's Theorem – Zeros and Poles – The Local Mapping – The Maximum principle – chains and cycles.

Unit III (14 HOURS)

The Calculus of Residues: The Residue theorem – The Argument principle – Evaluation of definite integrals. Harmonic functions: The Definitions and basic Properties – Mean value property – Poisson's Formula.

Unit IV (14 HOURS)

Series and Product Developments: Weierstrass Theorem – The Taylor Series – The Laurent Series – Partial fractions and Factorization: Partial Fractions – Infinite Products – Canonical Products.

Unit V (15 HOURS)

The Riemann Mapping Theorem – Statement and Proof – Boundary Behaviour – Use of the reflection principle – Analytic arcs – Conformal mapping of Polygons: The Behaviour at an angle – The Schwarz – Christoffel Formula – Mapping on a rectangle.

TEXT BOOK

1. L.V. Ahlfors ,Complex Analysis, Third Edition 2015, Tata Mc Graw Hill, New York.

Unit I:	Chapter – 2	Sections 1.1 – 1.4
	Chapter – 3	Sections 2.1 – 2.4, 3.1, 3.2 and 4.3
Unit II:	Chapter – 4	Sections 1.1 – 1.5, 2.1 – 2.3, 3.1 - 3.4 and 4.1
Unit III:	Chapter – 4	Sections 5.1 – 5.3, 6.1 – 6.3
Unit IV:	Chapter – 5	Sections 1.1 – 1.3, 2.1 – 2.3
Unit V:	Chapter – 6	Sections 1.1 – 1.4, 2.1 – 2.3

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from 2016-2017 onwards

SECOND SEMESTER

Paper 7: PARTIAL DIFFERENTIAL EQUATIONS

Maximum CIA : 30

Maximum CE : 70

Total Hours : 72

Objective: To enable students gain fundamental knowledge about Mathematical models, Boundary value problems, Green's function and their applications.

Unit I (14 HOURS)

Mathematical Models: The Classical equation – The vibrating string – The vibrating membrane – Conduction of Heat in solids. Classification of second order equations: Second order equations in two independent variables – Canonical forms – equations with constant coefficients – general solution.

Unit II (14 HOURS)

The Cauchy problem: The Cauchy problem – Cauchy – Kowalewsky theorem – Homogeneous wave equation – Initial – Boundary value problems – Non-homogeneous boundary conditions – Non-homogeneous wave equation, Riemann Method.

Unit III (15 HOURS)

Methods of separation of variables: Separation of variables – The vibrating string problem – Existence and Uniqueness of solution of the vibrating string problem. The heat conduction problem – existence and uniqueness of solution of the heat conduction problem – The Laplace and beam equations.

Unit IV (15 HOURS)

Boundary value problems: Boundary value problems – Maximum and minimum principles – Uniqueness and continuity theorems – Dirichlet problems for a circle – Dirichlet problems for a circular annulus – Neumann problem for a circle Dirichlet problem for a rectangle – Neumann problem for a rectangle.

Unit V (14 HOURS)

Green's function: The delta function – Green's function – method of Green's function – Dirichlet problem for the Laplace operator – method of images – method of eigen functions.

TEXT BOOK

1. Tyn Myint. U with Lokenath Debnath, Partial Differential Equations for Scientists and Engineers, Third Edition 2012, American Elsevier Publishing Company, NEW YORK.

Unit I:	Chapter 2:	Sections 2.2 – 2.5 (omit 2.4)
	Chapter 3:	Sections 3.1 – 3.4
Unit-II:	Chapter 4:	Sections 4.1 – 4.8 (omit 4.6)
Unit-III:	Chapter 6:	Sections 6.2 – 6.6
Unit-IV:	Chapter 8:	Sections 8.1 – 8.9 (omit 8.8)
Unit-V:	Chapter 10:	Sections 10.1 – 10.7 (omit 10.5)

REFERENCE BOOKS

1. I.N.Sneddon, Elements of Partial Differential Equations, Reprint 2006, Tata McGraw Hill, London, 1957.
2. L.C.Evans, Partial Differential Equations, Reprint 2003, AMS, Providence.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from 2016-2017 onwards

**SECOND SEMESTER
Paper 8: MECHANICS**

Maximum CIA : 30
Maximum CE : 70
Total Hours : 60

Objective: To enable students gain fundamental knowledge about the Lagrange's equations, Hamilton's equations, Canonical transformations and their applications.

Unit-I (12 HOURS)
INDRODUCTORY CONCEPTS: Mechanical system – Generalized Coordinates – Constraints – Virtual Work – Energy and Momentum.

Unit-II (12 HOURS)
LAGRANGE'S EQUATIONS: Derivations of Lagrange's Equations: Derivations of Lagrange's Equations – Examples – Integrals of Motion.

Unit-III (12 HOURS)
HAMILTON'S EQUATIONS: Hamilton's Principle – Hamilton's Equations.

Unit-IV (12 HOURS)
HAMILTON – JACOBI THEORY: Hamilton's Principle function – Hamilton – Jacobi Equation – Separability.

Unit-V (12 HOURS)
CANONICAL TRANSFORMATIONS: Differential forms and Generating Functions – Lagrange and Poisson Brackets.

TEXT BOOK

1. D.T.Greenwood: Classical Dynamics, Dover Publication, New York, 1997.
Unit-I: Chapter 1: Sections 1.1 – 1.5
Unit-II: Chapter 2: Sections 2.1 – 2.3
Unit-III: Chapter 4: Sections 4.1 – 4.2
Unit-IV: Chapter 5: Sections 5.1 – 5.3
Unit-V: Chapter 6: Sections 6.1, 6.3

REFERENCE BOOKS

1. F. Gantmacher, Lectures in Analytic Mechanics, First Edition 1975, MIR Publishers, Moscow.
2. I.M. Gelfand and S.V. Fomin, Calculus of Variations, Prentice Hall.
3. S.L. Loney, An Elementary Treatise on Statics, 1979, Kalyani Publishers, New Delhi.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from 2018-2019 onwards

**SECOND SEMESTER
Paper 9: CONTROL THEORY**

Maximum CIA : 30
Maximum CE : 70
Total Hours : 60

Objective: To enable students gain fundamental knowledge about the observability, controllability, stability, stabilizability, optimal control and their applications.

Unit I (12 HOURS)

OBSERVABILITY: Linear Systems – Observability Grammian – Constant coefficient systems – Reconstruction kernel – Nonlinear Systems.

Unit II (12 HOURS)

CONTROLLABILITY: Linear systems – Controllability Grammian – Adjoint systems – Constant coefficient systems – steering function – Nonlinear systems.

Unit III (12 HOURS)

STABILITY: Stability – Uniform Stability – Asymptotic Stability of Linear Systems - Linear time varying systems – Perturbed linear systems – Nonlinear systems.

Unit IV (12 HOURS)

STABILIZABILITY: Stabilization via linear feedback control – Bass method – Controllable subspace – Stabilization with restricted feedback.

Unit V (12 HOURS)

OPTIMAL CONTROL: Linear time varying systems with quadratic performance criteria – Matrix Riccati equation – Linear time invariant systems – Nonlinear Systems.

TEXT BOOK

1. K.Balachandran and J.P.Dauer, Elements of Control Theory, 1999, Narosa, New Delhi.

REFERENCE BOOKS

1. R.Conti, Linear Differential Equations and Control Academic Press, 1976, London.
2. R.F.Curtain and A.J.Pritchard, Functional Analysis and Modern Applied, 1977, Mathematics Academic Press, New York,
3. J.Klamka, Controllability of Dynamical Systems, 1991, Kluwer Academic Publisher, Dordrecht,
4. D.L.Russell, Marcel Dekker, Mathematics of Finite Dimensional Control Systems, 1979, New York.
5. E.B. Lee and L. Markus, Foundations of optimal Control Theory, 1967, John Wiley, New York.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from the Academic year 2018-2019 onwards**SECOND SEMESTER****Elective I : MATLAB**

Maximum CIA : 20

Maximum CE : 50

Total Hours :36

Objective: To enable students gain fundamental knowledge about the Matlab and their applications.

Unit - I (7 HOURS)

Introduction - Basics of MATLAB, Input – Output, File types – Platform dependence – General commands.

Unit - II (8 HOURS)

Interactive Computation: Matrices and Vectors – Matrix and Array operations – Creating and Using Inline functions – Using Built-in Functions and On-line Help – Saving and loading data – Plotting simple graphs.

Unit - III (7 HOURS)

Programming in MATLAB: Scripts and Functions – Script files – Functions files- Language specific features .

Unit - IV (7 HOURS)

Applications – Linear Algebra – Data analysis and Statistics -Numerical Integration – Ordinary differential equations – Nonlinear Algebraic Equations.

Unit- V (7 HOURS)

Graphics: Basic 2-D Plots – Basic 3 – D Plots – Saving and printing Graphs.

TEXT BOOK

1. RUDRA PRATAP, Getting Started with MATLAB – A Quick Introduction for Scientists and Engineers, 2003,Oxford University Press.

REFERENCE BOOKS

1. Dolores M. Etter, David C. Kuncicky , “Introduction to MATLAB 7”,2005, Prentice Hall.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from the Academic year 2018-2019 onwards

SECOND SEMESTER

Elective Practical I: PROGRAMMING IN MATLAB

Maximum CIA : 10

Maximum CE : 20

Total Hours : 24

Objective: To enable students gain fundamental knowledge about the Practical applications of Matlab programming.

- 1.Solving Fibonacci series using MATLAB.
- 2.Solving a system of linear Equations using MATLAB.
- 3.A function subprogram to calculate the compound Interest.
4. Solving a First order Linear ordinary differential Equation with given initial conditions.
5. Calculate mean, median, standard deviation, variance, maximum value, minimum value, range for the following data: 40, 41, 45, 49, 50, 51, 55, 59, 60, 60.
6. Creating inset Figures.
7. Solving Arithmetic operations on arrays.
8. Drawing 2D and 3D plots.

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SECOND SEMESTER

Elective I: MAGNETO HYDRO DYNAMICS

Maximum CIA : 30
 Maximum CE : 70
 Total Hours : 60

Objective: To enable students gain fundamental knowledge about the Magneto hydro Dynamics and their applications.

Unit - I (12 HOURS)

Electromagnetism – Fundamental Laws – Electrostatic Energy – Electrodynamics – Ampere’s Law – Lorentz force on a moving charge – Magnetostatic Energy – Faraday’s Law of Induction – Poynting stresses.

Unit – II (12 HOURS)

Kinematics of fluid motion – equation of continuity – Stress tensor – Navier-stokes equations – boundary condition – Velocity Magneto fluid dynamic equations – MHD approximation – equation of Magnetic diffusion in a moving conducting medium .

Unit – III (12HOURS)

Alfven’s theorem Law of isorotation - Magneto hydrostatics – Force-free field – Alfven waves in incompressible MHD.

Unit – IV (12 HOURS)

Incompressible viscous flows in the presence of magnetic field – Hartmann Flow – unsteady Hartmann flow – Magnetofluid dynamic pipe flow.

Unit – V (12 HOURS)

Stability – Instability of linear pinch – Sausage and flute types – Method of small oscillations – gravitational instability.

TEXT BOOK

1. Crammer K.R. and Pai S.I, Magneto Fluid Dynamics for Engineers and Applied Physicists, McGraw Hill, 1973.

REFERENCE BOOK

1. Ferraro, VCA and Plumpton: Introduction to Magneto Fluid Dynamics, Oxford, 1966.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from the Academic year 2018-2019 onwards

**SECOND SEMESTER
Elective I : LATEX**

Maximum CIA : 20

Maximum CE : 50

Total Hours: 36

Objective: To enable students gain fundamental knowledge about the Latex and their applications.

Unit – I (7 HOURS)

Text formatting- TEX and its offspring- What's different in LATEX 2 ϵ - Distinguishing LATEX 2 ϵ - Basics of a LATEX file.

Unit – II (8 HOURS)

Commands and Environments–Command names and arguments- Environments-Declarations- Lengths- Special Characters-Fragile Commands- Exercises.

Unit – III (7 HOURS)

Document Layout and Organization – Document class, Page style, Parts of the document, Table of contents, Fine – Tuning text, Word division. Displayed Text - Changing font, Centering and indenting, Lists, Generalized lists, Theorem–like declarations, Tabulator stops, Boxes.

Unit – IV (7 HOURS)

Tables, Printing literal text, Footnotes and marginal notes. Drawing pictures with LATEX.

Unit – V (7 HOURS)

Mathematical Formulas – Mathematical environments, Main elements of math mode, Mathematical symbols, Additional elements, Fine–tuning mathematics.

TEXT BOOK

1. H. Kopka and P.W. Daly , “A Guide to LATEX” , Third Edition, Addison – Wesley, 1999, London.

REFERENCE BOOK

1. V.Kavitha and Dr.M.Mallikaarjunan, “Fundamental to Latex” Lambert Academic publishing corporation ,Germany 2013.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from the Academic year 2018-2019 onwards

SECOND SEMESTER

Elective Practical I : PROGRAMMING IN LATEX

Maximum CIA : 10

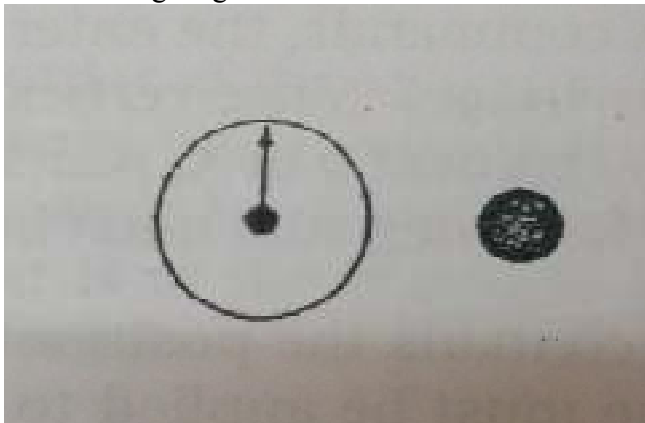
Maximum CE : 20

Total Hours : 24

Objective: To enable students gain fundamental knowledge about the Practical applications of Latex programming .

1.Type the following paragraph, to including the 9.5in text height, 6.30in text width, 0.10in left margin, 0.120in right margin, -0.6in top margin, 1.5in line space and foot notes

2.Draw the following diagram:



3.Create the following table using LaTeX:

S.No.	Register Number	Name of the Student	Percentage of Marks	Rank
1	xxxxxx	xxxxxx	xxxxx	xxxx
2	xxxxxx	xxxxxxx	xxxx	xxxx
3	xxxxxx	xxxxxx	xxxx	xxxxx

4. Write a program to generate the formula for R.K method of fourth order.

5. Write a program
$$\sum_{i=1}^{\lfloor \frac{n}{2} \rfloor} \left(x_{i,i+1}^{i^2} \right) \frac{\sqrt{\mu(i)^{\frac{3}{2}}(i^2-1)}}{\sqrt[3]{p(i)-2+\sqrt[3]{p(i)-1}}}$$

6.Create the short articles by using latex.

7.Creating Hebrew letters, Greek Characters, Binary Relations, by using latex.

8.Create AMS binary Relations, Miscellaneous Symbols , Arrows by using latex.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from 2018-2019 onwards

**SECOND SEMESTER
IDC1 : OPERATIONS RESEARCH**

Maximum CIA : 30

Maximum CE : 70

Total Hours: 36

Objective: To enable students gain fundamental knowledge about Operations research and their applications.

Unit I: (7 HOURS)

Simulation – Introduction – simulation models – Event – Type simulation - Generation of Random Numbers -Monte-Carlo simulation.

Unit II: (7 HOURS)

Network scheduling by PERT / CPM: Introduction – Network and basic components – Rules of Network construction – Critical path method - PERT – PERT calculations – Problems. – Distinction between PERT / CPM

Unit III: (7 HOURS)

Integer Programming Problem –Introduction- Pure and mixed IPP - Gomory's fractional cut Method – Branch Bound Method.

Unit IV: (7 HOURS)

Non-linear Programming Methods –Introduction-Graphical solution – Kuhn Tucker Condition with non negative constrains – Problems

Unit V: (8 HOURS)

Markov analysis – Introductcion – Markov process-State and Transition Probabilities- characteristic of Markov process-State Transition Diagram- Construction of a State Transition matrix.

TEXT BOOK:

1. Operations Research by – Kanti swarup , Manmohan and Gupta.
Unit-I: section 22.1 -22.7
Unit-II: section 25.1 -25.8
Unit-III: section 7.1,7.2,7.4,7.5
Unit-IV: section 28.1 -28.3
Unit-V: section 15.1 -15.7

REFERENCE BOOK:

1. Operations Research – Prem Kumar Gupta D. S. Hira,S.Chand & Company Ltd, Ram Nagar, New Delhi
2. Operations Research – Kandiswarup, P. K. Gupta, Man Mohan, S. Chand & Sons Education Publications, New Delhi, 12th Revised edition.
3. Operations Research Principles and Problems: S. Dharani Venkata Krishnan, Keerthi publishing house PVT Ltd

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SECOND SEMESTER

MATHEMATICAL MODELLING

Maximum CE: 100

Objective: To enable students gain Knowledge about the Concept of Mathematical Modelling and their applications.

UNIT I

Introduction-Mathematical Modelling. Mathematical Modelling through Ordinary Differential Equations of First order : Linear Growth and Decay Models – Non-Linear Growth and Decay Models .

UNIT II

Mathematical Modelling through Systems of Ordinary Differential Equations of First Order: Population Dynamics – Compartment Models – Medicine, Arms Race, Battles and International Trade – Dynamics.

UNIT III

Mathematical Modelling through Ordinary Differential Equations of Second Order : Planetary Motions – Circular Motion and Motion of Satellites .

UNIT IV

Mathematical Modelling through Difference Equations : Simple Models – Basic Theory of Linear Difference Equations with Constant Coefficients - Population Dynamics and Genetics

UNIT V

Mathematical Modelling through Graphs :Situations that can be Modelled

Through Graphs – Mathematical Modelling in Terms of Directed Graphs.

TEXT BOOK

1. J.N.Kapur,Mathematical Modelling, Second Edition 2015,New Age International Publishers, New Delhi.

REFERENCE BOOKS

1. J.N. Kapur, Mathematical Models in biology and Medicine, 1985,EWP, New Delhi.

2. J.N. Kapur, Mathematical Modelling, 1988, Wiley Eastern Limited, New Delhi.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from the Academic year 2016-2017 onwards

**THIRD SEMESTER
PAPER 10: TOPOLOGY**

Maximum CIA : 30

Maximum CE : 70

Total Hours: 72

Objective: To enable students gain fundamental knowledge about the Topological Spaces and their applications.

UNIT I: (15 HOURS)

Topological Spaces: Topological spaces – Basis for a Topology – The order topology – The product topology on – The subspace topology – Closed sets and limit points.

UNIT II: (14HOURS)

Continuous Functions: Continuous functions – The product topology – The metric topology and its continuation.

UNIT III: (14 HOURS)

Connectedness and Compactness: Connected spaces – Connected subspace of the real line – Compact spaces – Compact subspace of real line and limit point compactness.

UNIT IV: (14 HOURS)

Countability and Separation Axioms: The countability axioms – The separation axioms – Normal spaces – The Urysohn lemma – The Urysohn metrization theorem.

UNIT V: (15 HOURS)

The Tychonoff theorem, Complete Metric Spaces and Function Spaces: The Tychonoff theorem – The Stone-Cech compactification

TEXT BOOK:

1. James R. Munkres , “Topology” , Second Edition, Prentice Hall of India Private Limited, 2016, New Delhi.

UNIT I: chapter 2 –section 12 to 17

UNIT III: chapter 3-section 23,24,26 to 28

UNIT II: chapter 2 –section 18 to 21

UNIT IV: chapter 4-section 30 to 34

UNIT V: chapter 5 –section 37,38 sec 43

REFERENCE BOOK:

1. G.F.Simmons , “Introduction to topology and modern analysis”, Second Reprint, 2011, McGraw Hill International Edition

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**THIRD SEMESTER
PAPER 11: FLUID DYNAMICS**

Maximum CIA : 30

Maximum CE : 70

Total Hours : 72

Objective: To enable students gain fundamental knowledge about the Fluid Dynamics and their applications.

UNIT I: INVISCID THEORY (15 HOURS)

Introductory Notions- velocity-streamlines and paths of particles- stream tubes and filaments- fluid body- density- pressure- Bernoulli's theorem-equation of continuity- boundary conditions - kinematical and physical- rate of change of linear momentum- equation of motion of an inviscid fluid.

UNIT II: (14 HOURS)

Euler's momentum theorem- conservative forces- Lagrangian form of the equation of motion- steady motion- energy equation- rate of change of circulation- vortex motion-permanence of vorticity.

UNIT III: TWO DIMENSIONAL MOTION (14 HOURS)

Two dimensional functions – stream function, velocity potential, complex potential, indirect approach, inverse function; basic singularities – source, doublet, vortex, mixed flow; method of images – circle theorem, flow past circular cylinder with circulation.

UNIT IV: VISCOUS THEORY (14 HOURS)

Equations of motion – Stress tensor, Navier-Stokes equations, vorticity and circulation in a viscous fluid, flow between parallel flat plates - Couette flow, Plane Poiseuille flow; steady flow in pipes.

UNIT V: BOUNDARY LAYER THEORY (15 HOURS)

Boundary layer concept; boundary layer equations in two dimensional flow; boundary layer along a flat plate - Blasius solution-shearing stress and boundary layer thickness, Momentum integral theorem for the boundary layer - von Karman Integral relation, von Karman Integral relation by momentum law.

TEXT BOOKS:

- 1.L.M.Milne Thomson ,“Theoretical Hydrodynamics”, dover publications, 1996, new yark.
2. N.Curle and H.J.Davies, “Modern Fluid Dynamics Vol-I”, D' Van Nostrand Company Ltd., 1968, London.

REFERENCE BOOK:

1. S.W.Yuan , “Foundations of Fluid Mechanics”, Prentice- Hall of India, 1988, New Delhi.

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THIRD SEMESTER

PAPER12: MATHEMATICAL STATISTICS

Maximum CIA : 30

Maximum CE : 70

Total Hours : 72

Objective: To enable students gain fundamental knowledge about the Mathematical Statistics and their applications.

UNIT I: (15 HOURS)

Random variables – random variables of the discrete and continuous – Independent random variables – Distribution function – Two dimensional random variables: Marginal distribution functions-Joint density functions distributions- Conditional distributions function and Conditional probability density functions

UNIT II: (14 HOURS)

Levy theorem –Uniqueness theorems of characteristic function-Hall- Bray theorem-Chebychev's Inequality-Convergence in Probability- Bernoulli law of large numbers- The DeMoivre Laplace theorem – the Lindeberg-Levy theorem.

UNIT III: (14 HOURS)

Discrete Probability distribution: Binomial distribution – Probability generating functions of Binomial distribution. Poisson distribution – Probability generating functions of Poisson distribution -Geometric distribution .

UNIT IV: (14 HOURS)

Continuous probability distributions: Normal distribution –Gamma distribution –Rectangular distribution- Exponential distribution. Exact sampling distributions: Chi-square distribution- Students t- distribution- F-distribution .

UNIT V: (15 HOURS)

Test of significance – Procedure for Testing of hypothesis – Test of significance for large samples and small samples test - simple problems. Non-parametric methods: Test for randomness- Median Test-Sign test – Mann-Whitney-Wilcoxon U –test- Simple problems.

TEXT BOOK:

1.Gupta, S.C and V.K.Kapoor, "Fundamentals of Mathematical Statistics", S.Chand and Co , 2013,New Delhi.

REFERENCE BOOK:

1.Gupta, S.P, "Statistical Methods", S.Chand and Co, 2007, New Delhi.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from the Academic year 2016-2017 onwards

THIRD SEMESTER

PAPER 13: MATHEMATICAL METHODS

Maximum CIA : 30

Maximum CE : 70

Total Hours: 48

Objective: To enable students gain fundamental knowledge about the Mathematical methods and their applications.

UNIT I : Fourier transforms (10 HOURS)

Fourier Transform- Properties of Fourier Transform - problems based on Fourier Transform -Inverse Fourier Transform - Problems based on Inverse Fourier Transform - Convolution Theorem for Fourier Transform. Fourier sine Transform - Fourier cosine Transform- Properties of Fourier cosine and sine Transform.

UNIT II : Hankel transforms (9 HOURS)

Hankel transforms: Properties of Hankel transforms - Hankel inversion theorem of derivatives of function (excluding proof). The parsevals relation – Relation between Fourier and Hankel transforms.

UNIT III : (10HOURS)

Definition of One sided Z –Transform - Z –Transform some basic functions namely $Z [1]$, $Z [n]$, $Z \left[\frac{1}{n} \right]$, $Z \left[\frac{1}{n+1} \right]$, $Z \left[\frac{1}{n+2} \right]$, $Z \left[\frac{1}{n-1} \right]$, $Z \left[\frac{1}{n!} \right]$, $Z \left[\frac{1}{(n+1)!} \right]$, $Z [a^n]$ – Linear property-First Shifting theorem(Only Unilateral problems). Definition of Inverse Z –Transform - Method of Partial fraction -Long Division Method .

UNITIV: Integral equations (10HOURS)

Integral equation : Types of Integral equations – Integral Fredholm Alternative theorem (proof omitted) – Approximation method –equation with separable kernel - Volterra integral equations

UNIT V : Applications of integral equation (9 HOURS)

Applications of integral equation to Ordinary differential equations – Initial value problem – Boundary value problem – Abel’s equation

TEXT BOOKS:

1. I.N Sneddon ,“ The use of Integral Transforms” Tata Mc Graw Hill, 1974, New Delhi. .
2. R.P Kanwal ,“Linear integral equations - Theory and Technique” , Second Edition , Academic Press, 1971, New York.
3. Dr. A. SINGARAVELU, “Transforms and Partial differential Equations”, Revised Edition : June 2013, Meenakshi Agency.

REFERENCE BOOK:

- 1.K.Vairamanickam, Nirmala, P.Ratchagar, S.Tamilselvam, “Transforms and Partial differential equations”, Second Edition, scitech publications india pvt.ltd,2013.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from the Academic year 2016-2017 onwards**THIRD SEMESTER
ELECTIVE II: MATLAB**

Maximum CIA : 20

Maximum CE : 50

Total Hours: 48

Objective: To enable students gain fundamental knowledge about the Matlab and their applications.

UNIT I : (9 HOURS)

Introduction - Basics of MATLAB, Input – Output, File types – Platform dependence – General commands

UNIT II: (10 HOURS)

Interactive Computation: Matrices and Vectors – Matrix and Array operations – Creating and Using Inline functions – Using Built-in Functions and On-line Help – Saving and loading data –Plotting simple graphs.

UNIT III : (10 HOURS)

Programming in MATLAB: Scripts and Functions – Script files – Functions files- Language specific features .

UNIT IV: (10 HOURS)

Applications – Linear Algebra – Data analysis and Statistics -Numerical Integration – Ordinary differential equations.

UNIT V: (9 HOURS)

Graphics: Basic 2-D Plots – Basic 3 – D Plots – Saving and printing Graphs.

TEXT BOOK:

1.RUDRA PRATAP, Getting Started with MATLAB – A Quick Introduction for Scientists and Engineers, 2003,Oxford University Press.

REFERENCE BOOK:

1. Dolores M. Etter, David C. Kuncicky , “Introduction to MATLAB 7”,2005, Prentice Hall.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from the Academic year 2016-2017 onwards**THIRD SEMESTER****ELECTIVE II: PROGRAMMING IN MATLAB**

Maximum CIA : 10

Maximum CE : 20

Total Hours : 24

Objective: To enable students gain fundamental knowledge about the Practical applications of Mat lab programming.

1. Solving Fibonacci series using MATLAB.
2. Solving a system of linear Equations using MATLAB.
3. A function subprogram to calculate the compound Interest.
4. Solving a First order Linear ordinary differential Equation with given initial conditions.
5. Calculate mean, median, standard deviation for the following data: 40, 41, 45, 49, 50, 51, 55, 59, 60, 60.
6. Creating inset Figures.
7. Solving Arithmetic operations on arrays.
8. Drawing 2D and 3D plots.

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THIRD SEMESTER

ELECTIVE II: STOCHASTIC DIFFERENTIAL EQUATIONS

Maximum CIA : 30

Maximum CE : 70

Total Hours: 72

Objective: To enable students gain fundamental knowledge about the Stochastic differential equations and their applications.

UNIT I: (15 HOURS)

Introduction: Stochastic Analogs of Classical Differential Equations-Filtering Problems- Stochastic Approach to Deterministic Boundary Value Problems- Optimal Stopping- Stochastic Control and Mathematical Finance- Some mathematical preliminaries: Probability Spaces and Random Variables.

UNIT II: (14 HOURS)

Ito Integrals- Construction of the Ito integral - Some Properties of the Ito Integral and Extensions of the Ito Integral.

UNIT III : (14 HOURS)

The Ito formula and the Martingale Representation Theorem: The 1- dimensional Ito Formula-the Multi dimensional Ito Formula and the Martingale Representation Theorem. Stochastic Differential Equations- Examples and Some Solution Methods.

UNIT IV: (14 HOURS)

The Filtering problem: Introduction-The 1- dimensional Linear Filtering Problem and the Multi- dimensional Linear Filtering Problem.

UNIT V: (15 HOURS)

Diffusions: Basic Properties- The Markov Property- the Strong Markov Property- the Generator of an Ito Diffusion- the Dynkin Formula- the Characteristic Operator.

TEXT BOOK:

1. Bernt Oksendal, "Stochastic Differential Equations - An Introduction with Applications", Sixth Edition, 2003, Springer-Verlag, Heidelberg.

Unit I : Chapter 1 and 2 Unit III: Chapter 4 and 5

Unit II : Chapter Unit V : Chapter 7.

REFERENCE BOOK:

1. Rong Situ "Theory of differential stochastic Equations with Jumps and Application" 2011, New Delhi.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from the Academic year 2016-2017 onwards

THIRD SEMESTER

ELECTIVE II: NON LINEAR DIFFERENTIAL EQUATIONS

Maximum CIA : 30

Maximum CE : 70

Total Hours: 72

Objective: To enable students gain fundamental knowledge about the non linear differential equations and their applications.

UNIT I: (15 HOURS)

First order systems in two variables and linearization: The general phase plane - Some population models – Linear approximation at equilibrium points – Linear systems in matrix form.

UNIT II: (14 HOURS)

Averaging Methods: An energy balance method for limit cycles – Amplitude and frequency estimates – Slowly varying amplitudes ; Nearly periodic solutions - Periodic solutions: Harmonic balance – Equivalent linear equation by harmonic balance .

UNIT III: (15 HOURS)

Perturbation Methods: Outline of the direct method – Forced oscillations far from resonance Forced oscillations near resonance with weak excitation – Amplitude equation for undamped pendulum – Amplitude perturbation for the pendulum equation – Lindstedt's method – Forced oscillation of a self – excited equation.

UNIT IV: (14 HOURS)

Linear systems: Structure of solutions of the general linear system – Constant coefficient system – Periodic coefficients – Floquet theory – Wronskian.

UNIT V: (15 HOURS)

Stability: Poincare stability – Solutions- paths and norms – Liapunov stability- Stability of linearsystems – Comparison theorem for the zero solutions of nearly-linear systems.

TEXT BOOK:

1. D.W.Jordan and P.Smith “Nonlinear Ordinary Differential Equations” , Clarendon Press, 1977, Oxford.

Unit-I : Chapter 2.

Unit-IV: Chapter 8: Sections: 8.1 - 8.4.

Unit-II : Chapter 4.

Unit-V : Chapter 9: Sections: 9.1 - 9.4, 9.6.

Unit-III: Chapter 5: Sections: 5.1 - 5.4, 5.7 -5.10.

REFERENCE BOOK:

2. G.F. Simmons ”Differential Equations” , Tata McGraw-Hill, 2011, New Delhi.

M.Sc (Mathematics) Degree Examination – Syllabus for Candidates admitted from the Academic year 2016– 2017 onwards**THIRD SEMESTER****EDC I: WEB DESIGNING**

Maximum CE: 50

Total Hours: 24

Objective: To inculcate the students to learn the concept of PHP.

UNIT I: (5HOUR)

The Building Blocks of PHP Variables - Data Types - Operators and Expressions - Constants
Flow Control Functions in PHP Switching Flow - Loops - Code Blocks and Browser Output
- Working with Functions What Is a Function? - Calling Functions - Defining a Function -
Returning Values from User-Defined Functions - Variable Scope - Saving State between
Function Calls with the static Statement.

UNIT II: (5 HOUR)

Working with Arrays What Are Arrays? - Creating Arrays - Some Array-Related Functions -
Working with Objects Creating an Object - Object Inheritance.

UNIT III: (5HOUR)

Working with Strings, Dates, and Time Formatting Strings with PHP - Investigating Strings
in PHP - Manipulating Strings with PHP - Using Date and Time Functions in PHP - Other
String- Date and Time Functions .

UNIT IV: (5 HOUR)

Working with Forms Creating a Simple Input Form - Accessing Form Input with User-
Defined Arrays - Combining HTML and PHP Code on a Single Page - Using Hidden Fields
to Save State - Redirecting the User - Sending Mail on Form Submission .

UNIT V: (4HOUR)

Working with Cookies and User Sessions Introducing Cookies - Setting a Cookie with PHP -
Deleting a Cookie with PHP - Session Function Overview - Starting a Session - Working
with Session - Passing Session IDs in the Query String - Destroying Sessions and Unsetting
Variables.

TEXT BOOK:

1. Julie C. Meloni,” PHP MYSQL and APACHE, Pearson Education,” , 2009, India.

REFERENCE BOOKS:

1. Luke Welling, Laura Thomson, “PHP and MYSQL”, Pearson Education , 2010 ,India.
2. Kevin Tatroe, Peter MacIntyre , Rasmus Lerdorf “Programming PHP”, O’Reilley Media Inc.2013.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from the Academic year 2016-2017 onwards

**THIRD SEMESTER
DISTRIBUTION THEORY**

Maximum CE : 100

Objective: To enable students gain fundamental knowledge about the DISTRIBUTION THEORY and their applications.

UNIT - I:

TEST FUNCTIONS AND DISTRIBUTIONS: Test functions - Distributions - Localization and regularization - Convergence of distributions -Tempered distributions.

UNIT - II:

DERIVATIVES AND INTEGRALS :Basic Definitions - Examples - Primitives and ordinary differential equations.

UNIT - III:

CONVOLUTIONS AND FUNDAMENTAL SOLUTIONS :The direct product of distributions - Convolution of distributions – Fundamental solutions.

UNIT - IV:

THE FOURIER TRANSFORM: Fourier transforms of test functions - Fourier transforms of tempered distributions- The fundamental solution for the wave equation-Fourier transform of convolutions-Laplace transforms.

UNIT - V:

GREEN'S FUNCTIONS: Boundary-Value problems and their adjoints - Green's functions for boundary-Value problems- Boundary integral methods.

TEXTBOOK:

1. "An Introduction to Partial Differential Equations" by M. Renardy and R.C. Rogers, Second Edition, Springer Verlag, New York, 2008.

REFERENCE BOOK:

1. "The Analysis of Linear Partial Differential Operators I – Distribution Theory and Fourier analysis" by L. Hormander, Second Edition, Springer Verlag, Berlin, 2003.

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FOURTH SEMESTER

PAPER 14: FUNCTIONAL ANALYSIS

Maximum CIA : 30

Maximum CE : 70

Total Hours : 72

Objective: To enable students gain fundamental knowledge about the Functional Analysis and their applications.

UNIT I: (15 HOURS)

Banach spaces – The definition and some examples – Continuous linear transformations – The Hahn-Banach theorem – The natural imbedding of N in N^{**} - The open mapping problem.

UNIT II: (14 HOURS)

The conjugate of an operator – Hilbert spaces – The definition and some simple properties – Orthogonal complements - Orthonormal sets.

UNIT III: (14 HOURS)

The Conjugate space H^* - The adjoint of an operator – Self-adjoint operators – Normal and unitary operators.

UNIT IV: (14 HOURS)

Matrices – Determinants and the spectrum of an operator – The spectral theorem.

UNIT V: (15 HOURS)

The definition and some examples of Banach algebra – Regular and singular elements – Topological divisors of zero – The spectrum – The formula for the spectral radius.

TEXT BOOK:

1. G.F. Simmons, Introduction to Topology and Modern Analysis, McGraw –Hill Book Company, London, 1963.

REFERENCE BOOK:

1. C. Goffman and G. Pedrick, A First Course in Functional Analysis, Prentice Hall of India, New Deli, 1987.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from the Academic year 2016-2017 onwards

**FOURTH SEMESTER
PAPER 15: C++ PROGRAMMING**

Maximum CIA : 30

Maximum CE : 70

Total Hours : 60

Objective: To enable students gain fundamental knowledge about the Computer programming and their applications.

UNIT I: (12 HOURS)

Principles of object-Oriented Programming: Software crisis – Software evolution – A look at procedure-oriented Programming – Object-oriented Programming Paradigm – Basic Concept of Object-Oriented Programming – Benefits of OOP – Object-Oriented languages – Applications of OOP.

UNIT II: (12 HOURS)

Tokens, Expressions and Control structure: Introduction – Tokens – Keywords – Identifiers and constants – basic data types – User defined data types - Derived data types – Symbolic constants – type compactability – Declaration of variables – Dynamic insulation of variables – Reference variables – operations in C++ - Scope resolution operator – memory management operators – Special assignment expressions .

UNIT III: (12 HOURS)

Functions in C++: Introduction – The main function – Function prototyping – call by reference – return by reference inline functions – default arguments – constant arguments – function over loading – Math library functions –Managing Console I/O operations: – Unformatted I/O operations - Formatted I/O operations – Managing output with manipulators.

UNIT IV: (12 HOURS)

Classes and Objects: Defining Member Functions – A C++ Program with class – Making an outside Function Inline –Nesting of Member Functions – Private Member Functions – Arrays within a class – Memory Allocation for Objects .Objects as Function Arguments.. Constructors and Destructors: Introduction – Constructors – Parameterized Constructors – Multiple Constructors in a class – Dynamic Initializations of Objects – Constructing Two dimensional arrays – Constant Objects – Destructors.

UNIT V: (12 HOURS)

Operators Overloading : Introduction – Defining Operator Overloading – Overloading Unary Operators – Overloading Binary Operators – manipulating of strings Using Operators – Rules of Overloading Operators. Inheritance: Introduction – Defining Derived Classes – Single inheritance – Multilevel Inheritance – Hierachial Inheritance – Hybrid Inheritance.

TEXT BOOK:

1. E. Balaguruswamy, “Object – Oriented Programming with C++”, Tata McGrawHill Publishing Company Limited, Reprint 2012.

REFERENCE BOOK:

1.D. Ravichandran, Programming with C++, Tata McGraw Hill, 1996, New Delhi.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from the Academic year 2016-2017 onwards

FOURTH SEMESTER

Practical 1: C++ PROGRAMMING - Practical

Maximum CIA : 40

Maximum CE : 60

Total Hours : 60

Objective: To enable students gain fundamental knowledge about the Practical applications Computer programming

1. Write a class to represent a vector (a series of float values). Include member functions to perform the following tasks:
 - a) Creation of Vector
 - b) Modify the value of a given Element
 - c) Multiply by a scalar value
 - d) Display the vector in the form (10, 20, 30,...)
2. Define two classes polar and rectangle to represent points in the polar and rectangle systems. Use conversion routines to convert from one system to another.
3. Write a program to read an array of integer numbers and sort it in descending order. Use `readdata()`, `putdata()`, and `arraymax()` as member functions in a class.
4. Create a class `FLOAT` that contains one float data member. Overload all the four arithmetic operators so that they operate on the objects of `FLOAT`.
5. Create two classes `DM` and `DB`, which store the value of distances. `DM` stores distances in meters and centimeters in `DB` in feet and inches. Write a program that can create the values for the class objects and add object `DM` with another object `DB`.
6. Write a program to read two character strings and use the overloaded '+' operator to append the second string to the first.
7. Define a class for vector containing scalar values. Apply overloading concepts for vector addition, Multiplication of a vector by a scalar quantity; replace the values in a position vector.
8. Write a program to add two complex numbers using constructors.
9. Solve differential equations using Runge Kutta fourth order method.
10. Write a program to illustrate the dynamic initialization of constructors.
11. Create a 'MATRIX' class of size $m \times n$. Overload the '+' operator to add two MATRIX objects. Write a main function to implement it.
12. Area computation using derived class.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from the Academic year 2016-2017 onwards

**FOURTH SEMESTER
ELECTIVE III: LATEX**

Maximum CIA : 30

Maximum CE : 70

Total Hours: 48

Objective: To enable students gain fundamental knowledge about the Latex and their applications.

UNIT I: (9 HOURS)

Text formatting- TEX and its offspring- What's different in LATEX 2e- Distinguishing LATEX 2e - Basics of a LATEX file.

UNIT II: (10 HOURS)

Commands and Environments–Command names and arguments- Environments-Declarations- Lengths- Special Characters-Fragile Commands- Exercises.

UNIT III: (10 HOURS)

Document Layout and Organization – Document class, Page style, Parts of the document, Table of contents, Fine – Tuning text, Word division.

Displayed Text - Changing font, Centering and indenting, Lists, Generalized lists, Theorem–like declarations, Tabulator stops, Boxes.

UNIT IV: (9 HOURS)

Tables, Printing literal text, Footnotes and marginal notes. Drawing pictures with LATEX.

UNIT V: (10 HOURS)

Mathematical Formulas – Mathematical environments, Main elements of math mode, Mathematical symbols, Additional elements, Fine–tuning mathematics.

TEXT BOOK:

L.H. Kopka and P.W. Daly , “A Guide to LATEX” , Third Edition, Addison – Wesley, 1999, London.

REFERENCE BOOK:

L.V.Kavitha and Dr.M.Mallikaarjunan, “Fundamental to Latex” Lambert Academic publishing corporation ,Germany 2013.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from the Academic year 2016-2017 onwards

FOURTH SEMESTER

ELECTIVE III: PROGRAMMING IN LATEX

Maximum CIA : 10

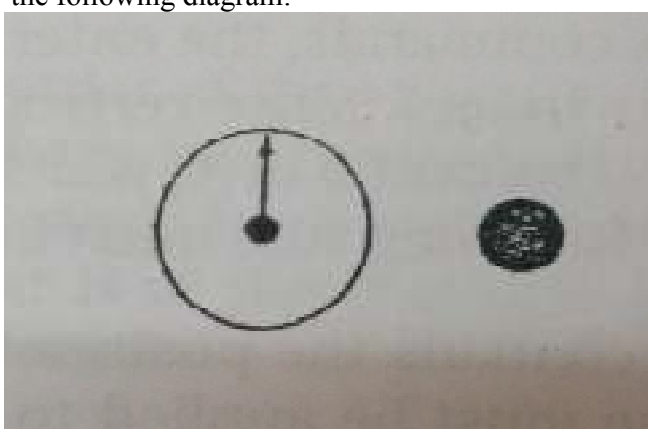
Maximum CE : 20

Total Hours : 24

Objective: To enable students gain fundamental knowledge about the Practical applications of Latex programming

1.Type the following paragraph, to including the 9.5in text height, 6.30in text width, 0.10in left margin, 0.120in right margin, -0.6in top margin, 1.5in line space and foot notes

2. Draw the following diagram:



3. Create the following table using LaTeX:

S.No.	Register Number	Name of the Student	Percentage of Marks	Rank
1	xxxxxx	xxxxxx	xxxxx	xxxx
2	xxxxxx	xxxxxxx	xxxx	xxxx
3	xxxxxx	xxxxxx	xxxx	xxxxx

4. Write a program to generate the formula for R.K method of fourth order.

5. Write a program $\sum_{i=1}^{\lfloor \frac{n}{2} \rfloor} \left(x_{i,i+1}^{i^2} \right) \frac{\sqrt{\mu(i)^{\frac{3}{2}}(i^2-1)}}{\sqrt[3]{p(i)-2+\sqrt[3]{p(i)-1}}}$

6. Create the short articles by using latex.

7. Creating Hebrew letters, Greek Characters, Binary Relations, by using latex.

8. Create AMS binary Relations, Miscellaneous Symbols, Arrows by using latex.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from the Academic year 2016-2017 onwards

FOURTH SEMESTER

ELECTIVE III: MAGNETOHYDRO DYNAMICS

Maximum CIA : 30

Maximum CE : 70

Total Hours : 72

Objective: To enable students gain fundamental knowledge about the Magneto hydro Dynamics and their applications.

UNIT I: (15 HOURS)

Electromagnetism – Fundamental Laws – Electrostatic Energy – Electrodynamics – Ampere’s Law – Lorentz force on a moving charge – Magnetostatic Energy – Faraday’s Law of Induction – Poynting stresses.

UNIT II: (14 HOURS)

Kinematics of fluid motion – equation of continuity – Stress tensor – Navier-stokes equations – boundary condition – Velocity Magneto fluid dynamic equations – MHD approximation – equation of Magnetic diffusion in a moving conducting medium .

UNIT III: (14 HOURS)

Alfven’s theorem Law of isorotation - Magneto hydrostatics – Force-free field – Alfven waves in incompressible MHD.

UNIT IV: (15 HOURS)

Incompressible viscous flows in the presence of magnetic field – Hartmann Flow – unsteady Hartmann flow – Magnetofluid dynamic pipe flow.

UNIT V: (14 HOURS)

Stability – Instability of linear pinch – Sausage and flute types – Method of small oscillations – gravitational instability.

TEXT BOOK:

1. Crammer K.R. and Pai S.I, Magneto Fluid Dynamics for Engineers and Applied Physicists, McGraw Hill, 1973.

REFERENCE BOOK:

1. Ferraro, VCA and Plumpton: Introduction to Magneto Fluid Dynamics, Oxford, 1966.

M.Sc. (Mathematics) Degree Examination- Syllabus- For Candidates admitted from the Academic year 2016-2017 onwards

**FOURTH SEMESTER
ELECTIVE III: DIFFERENTIAL GEOMETRY**

Maximum CIA : 30

Maximum CE : 70

Total Hours: 48

Objective: To enable students gain fundamental knowledge about the concept of differential geometry and it's applications.

UNIT I: (9 HOURS)

Curves: Analytic representation - Arc Length – Tangent - Osculation plane – Curvature torsion – Formulas of Frenet.

UNIT II: (10 HOURS)

Contact – Natural equations – Helices – General solutions of Natural equations – Evolutes and Involutives.

UNIT III: (10 HOURS)

Elementary theory of surface: Analytic representation – First fundamental form –Normal, Tangent plane – Developable surfaces.

UNIT IV: (10 HOURS)

Second fundamental form – Meusnier's theorem – Euler's Theorem – Dupin's indicatrix– Some surfaces – The fundamental equations – The equations of Gauss-Weingarten.

UNIT V: (9 HOURS)

The theorem of Gauss and the equations of Codazzi – Some applications of the Gauss and Codazzi equations. The fundamental theorem of surface theory – Geodesic curvature – Geodesics.

TEXT BOOK:

1. D. Struik, "Lectures on Classical Differential Geometry", Addison Wesley Publishing Company, 1961.

REFERENCE BOOK:

2. U.C.De and A.A.Shaiks. "Differential Geometry of Manifolds", Edition 2007.

M.Sc. (Mathematics) Degree Examination- Syllabus- for Candidates admitted from the Academic year 2016-2017 onwards

**FOURTH SEMESTER
PROBABILITY THEORY**

Maximum CE: 100

Objective: To enable students gain Knowledge about the Concept of Probability Theory.

UNIT I:

What is Probability? Random Variables and Measurability Results, Expectations and the Lebesgue Theory, Image Measure and the Fundamental Theorem of Probability

UNIT II:

Independence and Strong Convergence- Independence – Convergence Concepts, Series and Inequalities

UNIT III:

Law of Large Numbers, Applications to Empiric Distributions, Densities, Queuing and Random walk.

UNIT IV:

Conditional Expectation, Conditional Probabilities. Probability Distributions and Characteristic Functions - Distribution Functions and Selection Principle – Characteristic Functions, Inversion.

UNIT V:

Weak limit Laws – Classical Central Limit Theorems.

TEXTBOOK:

1.M.M. Rao, 'Probability Theory with Applications' , Academic Press, 1984.

REFERENCE BOOK:

1. William Feller, 'An Introduction to Probability theory &Its Application', Second Edition, Wiley Publisher (2008).

BA, BBA, BCA, B Com, B.Sc. Part I- HINDI I
(For the students admitted from 2018- 2019 onwards)
FIRST SEMESTER –Paper I
Prose, Non Detailed, Grammar, Functional Hindi, Translation

Objective: On successful completion of the paper, students should have acquired proficiency in language and good communication skills.

Unit I 11hrs

Prose-Sansad men by Harshankar Parsai, Non Detailed-Dukhbhariduniya by Kamaleswar, Grammar-Sangya, Applied grammar-Change gender, Translation I&2, Technical words-10

Unit II 13hrs

Prose- Kaphan by Premchand, Non Detailed- Gulelbajladkaby Bhishma Sahni, Grammar-Sarvanaam, Applied Grammar- Change Number, Translation -3&4, Comprehension

Unit III 12hrs

Prose- Gillu by Mahadevi Varma, Non Detailed- Phoolokakurtha by Yashpal, Grammar-Kaarak, Applied Grammar- Prepositions, Translation 6&7, Technical Words-10

Unit IV 12hrs

Prose-Gehumaugulab by Ramvriksh Benipuri, Non Detailed- Mahuyekaped by Markandey, Grammar-Verb, Applied Grammar- Different forms of verb, Translation 8&9, Comprehension.

Unit V 12hrs

Prose- Sipahikimaa by Mohan Rakesh, Non Detailed-Pahaad by Nirmalvarma Grammar-Tense, Applied Grammar- Use of Tense, Translation 11&12, Comprehension, Technical Words-10

Text Books

1. Prose & Non Detailed - College Edited Book
2. Translation (English –Hindi, 1-15) -Anuvad Abhyas III –Edited by Dakshin Hindi Prachar Sabha

Reference Books

1. Grammar - Hindi Vyakaran, Dr. Umesh Chandra Shukla-Vani Prakashan, New Delhi.
2. Functional Hindi - Vyavaharik Hindi -Ram Kishore Sharma- Lokbharathi Prakashan, Allahabad

BA, BBA, BCA, B Com, B.Sc. Part I- HINDI I
(For the students admitted from 2018- 2019onwards)
FIRST SEMESTER –Paper I
Prose, Non Detailed, Grammar, Functional Hindi, Translation

Pattern of Question paper- End Semester Examination

Section A-1x10- 10 Marks Objective type (Answer all the questions)

5 Questions from Prose

5 Questions from Non detailed

Section B-4x5 -20 Marks (Answer all the questions)

1. Explain with reference & context-4x2(Either or)
2. Short note -4x 1(Either or)
3. Applied Grammar -1x 4Sentences (change gender, number, tense, use of verb and prepositions)
4. Technical words - 1x4(4 out of 6)

Section C 8x5= 40 marks

1. Essay from prose -8x1(Either or)
2. Essay from Non Detailed -8x1(Either or)
3. Short Notes -4x2(No choice)
4. Comprehension (4 Questions) - 2x4(No choice)
5. Translation - 8x1(No choice)

Minimum Pass Marks in the paper -40% of Total Marks

BA, BBA, BCA, B Com, B.Sc. Part I- HINDI II
(For the students admitted from 2018- 2019 onwards)
SECOND SEMESTER-Paper II

Poetry, Novel, Letter Drafting, Functional Hindi, Conversion, Translation

Objective: On successful completion of the paper, students should have acquired proficiency in language and good communication skills.

Unit I	12hrs
Poetry-KabirkeDohe , Novel-Wohi bath by Kamaleswar ,Letter – Leave Application- Translation I&2,Technical words-10-Conversation 1& 2.	
Unit II	13hrs
Poetry- Bhishuk byNirala, Surdaskepadh, Novel 20-35 Comprehension,Translation 3&4- Conversation 3&4.	
Unit III	12hrs
Poetry - Tulsidas, Tumnekehatha- by Nagarjun , Novel35-50, Translation 6&7,Technical Words-10-Conversation 5&6	
Unit IV	12hrs
Poetry – Rahim kePadh,HamaraDesh by Agney, Novel- 50-65, Translation 8&9,Comprehension – Conversation 7&8.	
Unit V	11hrs
Poetry - Sradhkeanne by Arun Kamal, Novel- 65-75 , Translation 11&12, Comprehension, Technical Words	

Text Books

- 1.Poetry - College edited Book
2. Novel - Wohi Bath by Kamaleswar, Rajkamal prakashan, Edition-2011
3. Translation (Hindi – English, 1-15) - AnuvadAbhyasIII –Edited by Dakshin HindiPracharSabha

Reference Books

- 1.Functional Hindi -Vyavaharik Hindi - Shri.Ram Kishore Sharma,
LokBharathiPrakashan, Ilahabad.
2. Conversation- Bolchalki Hindi aur Sanchar -Dr.MadhuDhavan,
VaniPrakashan] New Delhi

BA, BBA, BCA, B Com, B.Sc. Part I- HINDI II
(For the students admitted from 2018- 2019 onwards)
SECOND SEMESTER –Paper II
Poetry, Novel, Letter Drafting, Functional Hindi, Conversion, Translation

Pattern of Question paper- End Semester Examination

Section A-1x10- 10 Marks Objective type (Answer all the questions)

5 Questions from poetry

5 Questions from Novel

Section B-4x5 -20 Marks (Answer all the questions)

1. Explain with reference & context (Poetry)-4x2(Either or)

2. Short notes (Novel) -4x 1(Either or)

3. Letter Drafting -4x 1(Either or)

4. Technical words -1x4(4 out of 6)

Section C 8x5= 40 marks

1. Essay from poetry -8x1(Either or)

2. Essay from Novel-8x1(Either or)

3. Conversation -8x1(No choice)

4. Comprehension (4 Questions) - 2x4(No choice)

5. Translation - 8x1(No choice)

Minimum Pass Marks in the paper -40% of Total Marks

UG Degree Examination- Syllabus for Candidates admitted from the academic year 2018-2019 Onwards.

FIRST SEMESTER

PART- IV: ENVIRONMENTAL STUDIES

Total Hours: 24

Objective: To sensitize the students on environmental values and make them conscious of the need to maintain the environmental quality in the benefit of our posterity.

UNIT I (5 Hours)

Introduction and Scope of Environmental Studies
Conservation of Energy

UNIT II (5 Hours)

Ecosystem

UNIT III (5 Hours)

Biodiversity

UNIT IV (5 Hours)

Water Pollution
Noise Pollution
Solid Waste Management

UNIT V (4 Hours)

Social Issues and Environment

TEXT BOOK:

1. Arumugam N & Kumaresan V. *Environmental Studies*, Saras Publication, Nagercoil, 2018.

REFERENCE BOOK:

1. Narayanan Sriraman Badri P.Dr. & Kannan R.Dr. *Environmental Studies*, Rukmani Offset Printers, 2015.

UG Degree Examination- Syllabus for Candidates admitted from the academic year 2018-2019 Onwards.

SECOND SEMESTER

PART- IV: Value Education – Ethics and Human Excellence

Total Hours: 24

Objective: To sensitize the students on Ethics and Human values and make them conscious of the need to maintain the Human Excellence in the benefit of our posterity.

1) Personal Excellence

Self-realization - Mrs. Shyamala – HOD, Maths

Physical Empowerment - Mrs. Golda – Physical Education

Intellectual Enhancement- Dr. K.Chithra – UG Director

Mind Developments- Dr. Sulekha – HOD, Commerce

2) Social Relevance

Man is the part of Society - Mr. Karthik - Asst. Prof MCA

Enlightened Citizenship- Mrs. Srimathi - Asst. Prof English

Human Rights - Dr. Latha HOD, B.Com CS & IT

Service to the Society - Dr. G.Suresh HOD - Tamil

3) National Cohesiveness

Patriotic Movement in India - Dr. C. Dheeba HOD – Tamil

Pride and Heritage of India - Dr. Radhika – HOD, CDF

Unity in diversity- Mrs. Revathi - Asst. Prof English

Wealth of India - Mr. Kanagaraj - HOD B.Sc IT&CT

4) Global Adhesiveness

Global Coexistence – Mr. Murugesan - Asst. Prof Maths

Impact of World War - Dr. K.Chithra – HOD, English

Threat of Global Unity – Dr.SivaKumar – HOD, B.Com CA

Indian Message and Contribution to Global Adhesiveness - Mr. SanthGokul, HOD, BCA

5) Spiritual Oneness

Spirituality and Science - Dr.K.Vasudevan – HOD, ECS

Concept of God - Mr. S.Saravana Kuamr - Tamil

Central Message of the Religions on Spiritual Oneness - Dr.Jaya Prakash – Librarian

Towards Spiritual Oneness - Dr. N. RajaKumar - Principal

வி.எல்.பி.ஜானகியம்மாள் கலை அறிவியல் கல்லூரி

தன்னாட்சி

தேசியத் தர நிர்ணய மறு மதிப்பீட்டுக் குழுவினரால்

(NAAC) 'A' கிரேடு மற்றும் சர்வதேசத் தரச்சான்றிதழ் (ISO)பெற்றக் கல்லூரி

கோவைப்புதூர், கோயமுத்தூர் -641 042.

தமிழ்த்துறை

தெரிவு அடிப்படை மதிப்பீடு அமைப்பு (CBCS)

இளங்கலைப் பட்டவகுப்புகள்

பி.ஏ, பி.எஸ்.சி,பி.காம்,பி.சி.ஏ,பி.பிஏ.....

2016-2017 கல்வியாண்டு முதல் பயிலுபவர்களுக்குப் பாடத்திட்டத்தின் நோக்கம் : பகுதி – I தமிழ்ப் பயிலும் மாணவ மாணவியர்கள் தமிழ் இலக்கிய வரலாற்றினை அறிந்து கொள்ளவும், சிறப்புடைய இலக்கியங்களிலிருந்து சில பகுதிகளைக் கற்றுக் கொள்ளவும், அறக்கருத்துக்களைப் பின்பற்றி நல்ல சான்றோர்களாகத் திகழவும், பிழையின்றித் தமிழ்ச் சொற்களைப் பேசவும், எழுதவும் இப்பகுதி உதவும்.

பருவம் ஒன்று

பகுதி – I தமிழ்ப்பாடத்திட்டம்

தாள் - I -இக்கால இலக்கியமும் உரைநடையும்

மொத்தப் பாடவேளைகள் : 12 மணிநேரம்

அலகு – I கவிதை

- | | |
|-------------------------------|-------------------------------|
| 1. புத்தகச் சாலை | - பாவேந்தர் பாரதிதாசன் |
| 2. தமிழன் இதயம் | -நாமக்கல் கவிஞர் |
| 3. கடைசிக்கல் | -ஈரோடு தமிழன்பன் |
| 4. இயற்கை வாழ்வு | -கவிமணி தேசிக விநாயகம் பிள்ளை |
| 5. மானுடத்தின் திருவிழா | -கவிக் கோ அப்துல் ரகுமான் |
| 6. தாய் மொழியில் ஒரு தாலாட்டு | -கவிஞர் மு.மேத்தா |

அலகு – II உரைநடை (18 மணிநேரம்)

- | | |
|--------------------------|------------|
| 1. உடலோம்பலும் கல்வியும் | -திரு.வி.க |
|--------------------------|------------|

2. தமிழ் காணும் தடைகள் ஆட்சி,
கல்வி,கோயில்,நீதி மன்றங்களில் -முனைவர் க.ப.அறவாணன்
3. கவலை ஒழித்தல் -திரு.வேதாத்திரி மகரிஷி
4. புலமைக்குப் பொழிவுதந்த
புரட்சிக் கவிஞர்(பாரதியார்) -தீபம்.நா.பார்த்தசாரதி
5. இசைக்கலை -முனைவர் மா.இராசமாணிக்கனார்

அலகு – III உரைநடை (18 மணிநேரம்)

6. புதிர் எதிர் காலம் -முனைவர் சிற்பிபாலசுப்பிரமணியன்
7. செயலும் மனிதனே
தீர்வும் மனிதனே -முனைவர் ந.ராஜகுமார்
8. திருக்குறளில் மனித உறவுகள் -திருக்குறள் செல்வர் .நாகேசுவரன்
9. சிலம்பு காட்டும் சீர்மிகு சிந்தனைகள் -முனைவர் கோ.சுரேஷ்
10. தமிழில் இணைய இதழ்கள் -முனைவர் மு.இளங்கோவன்

அலகு – IV -இலக்கணம் (6 மணிநேரம்)

- i) அணி இலக்கணம்
 - 1.சொற்பொருள் பின்வருநிலை அணி
 - 2.வஞ்சப்புக்கழ்ச்சி அணி
 - 3.தற்குறிப்பேற்ற அணி
- ii) வல்லினம் மிகும் இடங்கள்,வல்லினம் மிகா இடங்கள்
- iii) பிழைத்திருத்தம்(ல-ள-ழ-ன-ண-ர-ற வேறுபாடுகள்)
- iv) வேர்ச்சொற்களை வினையாலணையும் பெயர்,
வினைமுற்று,வினையெச்சம்,பெயரெச்சமாக மாற்றுதல்

அலகு – V இலக்கிய வரலாறு,விண்ணப்பம் மற்றும் பொதுக்கட்டுரை

(6 மணிநேரம்)

1. புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும்
2. உரைநடையின் தோற்றமும் வளர்ச்சியும்

3. விண்ணப்பம் எழுதுதல் (வேலை வேண்டி, மாற்றுச்சான்றிதழ், அலுவலகப் பயன்பாடுகளுக்காக)
4. பொதுக்கட்டுரை-சமுதாயம், பொருளாதாரம், அறிவியல், இன்றைய நடப்புகள்

பாடநூல் வெளியீடு

1. செய்யுள், இலக்கணம், இலக்கிய வரலாறு பாடநூல் (அலகு –I, IV & V)

தொகுப்பு : தமிழ்த்துறை

வி.எல்.பி.ஜானகியம்மாள் கலை அறிவியல் கல்லூரி

2. கட்டுரைத் தொகுப்பு (அலகு – II, III)

தொகுப்பு : தமிழ்த்துறை,

வி.எல்.பி.ஜானகியம்மாள் கலை அறிவியல் கல்லூரி,

வி.எல்.பி.ஜானகியம்மாள் கலை அறிவியல் கல்லூரி

தன்னாட்சி

தேசியத் தர நிர்ணய மறு மதிப்பீட்டுக் குழுவினரால்

(NAAC) 'A' கிரேடு மற்றும் சர்வதேசத் தரச்சான்றிதழ் (ISO)பெற்ற கல்லூரி

கோவைப்புதூர், கோயமுத்தூர் -641 042.

தமிழ்த்துறை

தேரிவு அடிப்படை மதிப்பீடு அமைப்பு (CBCS)

இளங்கலைப் பட்டவகுப்புகள்

பி.ஏ, பி.எஸ்.சி,பி.காம்,பி.சி.ஏ,பி.பிஏ.....

2016-2017 கல்வியாண்டு முதல் பயிலுபவர்களுக்குப் பாடத்திட்டத்தின் நோக்கம் : பகுதி – I தமிழ்ப் பயிலும் மாணவ மாணவியர்கள் தமிழ் இலக்கிய வரலாற்றினை அறிந்து கொள்ளவும், சிறப்புடைய இலக்கியங்களிலிருந்து சில பகுதிகளைக் கற்றுக் கொள்ளவும், அறக்கருத்துக்களைப் பின்பற்றி நல்ல சான்றோர்களாகத் திகழவும், பிழையின்றித் தமிழ்ச் சொற்களைப் பேசவும், எழுதவும் இப்பகுதி உதவும்.

பருவம் இரண்டு

பகுதி – I தமிழ்ப்பாடத்திட்டம்

தாள் - I –சங்கம் மற்றும் நீதி இலக்கியமும் நாவலும்

மொத்தப் பாடவேளைகள் : 60

அலகு – I

(12 மணிநேரம்)

- | | |
|--------------|-------------------------------|
| 1. அகநானூறு | -பா.எண்(14,41,70,141,219) |
| | 5 பாடல்கள் மட்டும் |
| 2. புறநானூறு | --பா.எண்(2,18,27,95,183) |
| | 5 பாடல்கள் மட்டும் |
| 3. நற்றிணை | - பா.எண்(110,115,117,172,370) |
| | 5 பாடல்கள் மட்டும் |

4. குறுந்தொகை

- பா.எண்(2,3,29,40,46,57,69,78,110,242)

10 பாடல்கள் மட்டும்

அலகு – II

(12 மணிநேரம்)

1. திருக்குறள்

-நடுவு நிலைமை,
வாய்மை இரண்டு அதிகாரங்கள்
மட்டும்

2. நாலடியார்

-குடிப்பிறப்பு,நட்பாராய்தல் இரண்டு
அதிகாரங்கள் மட்டும்

3. இன்னா நாற்பது

-முதல் 20 பாடல்கள்

4. ஆசாரக்கோவை

-முதல் 20 பாடல்கள்

அலகு – III நாவல்

(18 மணிநேரம்)

கள்ளோ? காவியமோ?

-மு.வரதராசனார்

அலகு – IV பொது அறிவும் இலக்கணமும்

(12 மணிநேரம்)

- i) அ.வழுஉச் சொற்கள் நீக்கிச் சரியான சொற்களைக் கண்டறிதல்
ஆ.ஆங்கிலச் சொற்களுக்கு நிகரான தமிழ்ச் சொற்களைக் கண்டறிதல்
- ii) அடைமொழியால் பெயர் பெறும் நூலும் ஆசிரியரும்
- iii) நூற்பெயரும், ஆசிரியர் பெயரும்
ஐம்பெருங்காப்பியங்கள், ஐஞ்சிறுங்காப்பிங்கள்,இலக்கணம்,பக்தி
இலக்கியம்,சிறுநிலக்கிய,கிறித்துவ,இஸ்லாமிய இலக்கியங்கள் மற்றும்
நாவல்(தி.ஜானகிராமன், நா.பார்த்தசாரதி,ஜெயகாந்தன்)
- iv) வேற்றுமை உருபுகள்

அலகு – V இலக்கிய வரலாறும் பொதுக்கட்டுரையும்

(6 மணிநேரம்)

1. தமிழ் நாவலின் தோற்றமும் வளர்ச்சியும்
2. பாட்டும் தொகையும்
3. பதினெண் கீழ்க்கணக்கு நூல்கள்
4. பொதுக்கட்டுரை (சுற்றுப்புறச்சூழல், தகவல்
தொழில்நுட்பம்,பெண்ணியம், நாட்டுப்புற இயல்)

பாடநூல் வெளியீடு

1. செய்யுள் இலக்கணம் மற்றும் இலக்கிய வரலாறு-
மருத்துவம்,விளையாட்டு,நம்பிக்கை (அலகு – I,II,IV & V)
தொகுப்பு :தமிழ்த்துறை
வி.எல்.பி.ஜானகியம்மாள் கலை அறிவியல் கல்லூரி
2. நாவல் :கள்ளோ?காவியமோ? (அலகு – III)
முனைவர் மு.வரதராசனார்

பாரி நிலையம்,பிராட்வே,சென்னை.

மேற்பார்வை நூல்கள்

1. சங்க இலக்கியம் (எட்டுத்தொகை) -ச.வே.சுப்பிரமணியன் (அலகு-I)
மணிவாசகர் பதிப்பகம்
31,சிங்கர் தெரு,பாரி முனை,
சென்னை - 600 018.(ப.ஆ -சூன் 2010)
2. பதினெண் கீழ்க்கணக்கு-உரை-துரை ராசாராம்
பாரி நிலையம்,சென்னை - 18
(ப.ஆ-ஆகஸ்டு 2007)
3. வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு(அலகு -I,II, மற்றும்V)
நியூ செஞ்சரி புக் ஹவுஸ் (பி) லிட்
41-பி,சிட்கோ இண்டஸ்ட்ரியல் எஸ்டேட்,
அம்பத்தூர், சென்னை - 600 098.
(ப.ஆ- சூன் 2010.
4. தண்டியலங்காரம் -மாபுலவர் தண்டி (அலகு - IV)
(உரை) - ச.திருநானசம்பந்தன்
கதிர் பதிப்பகம்,
5. நன்னூல் -பவணந்தி முனிவர் (அலகு - IV)
(உரை) - இரா.வடிவேலனார்
சாரதா பதிப்பகம்,
திருவல்லிக்கேணி,சென்னை - 05
(ப.ஆ-ஆகஸ்டு 2006)

வி.எல்.பி. ஜானகியம்மாள் கலை அறிவியல் கல்லூரி
கோவைப்புதூர், கோயம்புத்தூர் - 42.

(தன்னாட்சி)

தமிழ்த்துறை

மறு மதிப்பீட்டுக் குழுவினரால் (NACC) 'A' கிரேடு மற்றும் சர்வதேச
தரச்சான்றிதழ் (ISO) தேசிய தரக் கொள்கை பெற்றக் கல்லூரி
தெரிவு அடிப்படை மதிப்பீடு அமைப்பு (CBCS)
இளங்கலைப் பட்டவகுப்பு பி.எஸ்.சி (கணிதம்) மற்றும் பி.ஏ (ஆங்கிலம்)

2014 - 2015 - கல்வியாண்டு முதல் பயிலுபவர்களுக்கு

பாடத்திட்டத்தின் நோக்கம்: பகுதி - ஐ தமிழ் பயிலும் மாணவர்கள் தமிழ்
இலக்கிய வரலாற்றினை அறிந்து கொள்ளவும், சிறப்புடைய இலக்கியங்களிலிருந்து சில பகுதிகளைக்
கற்றுக் கொள்ளவும், அறக் கருத்துக்களைப் பின்பற்றி நல்ல சான்றோனாகத் திகழவும், பிழையின்றித்
தமிழ்ச் சொற்களைப் பேசவும், எழுதவும், இப்பகுதி உதவும்

பருவம் மூன்று

பகுதி - I. தமிழ்ப் பாடத்திட்டம்

தாள் -III - தமிழ்க் காப்பியங்களும் நாடகமும்

மொத்தப் பாட வேளைகள்: 60

(15 மணி நேரம்)

அலகு - I

- | | | |
|------------------|---|------------------------------|
| 1. சிலப்பதிகாரம் | - | கொலைக்களக் காதை |
| 2. மணிமேகலை | - | ஆபுத்திரன் திறன் உரைத்தகாதை |
| 3. பெரிய புராணம் | - | காரைக்கால் அம்மையார் புராணம் |
| 4. கம்பராமாயணம் | - | மந்தரை சூழ்ச்சிப்படலம் |

அலகு - II

(15 மணி நேரம்)

- | | | |
|-----------------|---|----------------------------|
| 1.தேம்பாவணி | - | நகரப்படலம் |
| 2.சீறாப்புராணம் | - | மானுக்குப்பிணை நின்ற படலம் |

அலகு - III நாடகம்

(10 மணி நேரம்)

- | | | |
|-----------------|---|------------------|
| 1. நீர் மாங்கனி | - | முனைவர்.மலையமான் |
|-----------------|---|------------------|

அலகு - IV இலக்கிய வரலாறு

(15 மணி நேரம்)

1. காப்பியங்களின் தோற்றமும் வளர்ச்சியும்
2. சமணமும் - தமிழும்
3. பௌத்தமும் -தமிழும்
4. கிறித்துவமும் -தமிழும்
5. இஸ்லாமியமும் - தமிழும்
6. நாடகத்தின் தோற்றமும் வளர்ச்சியும்

அலகு - V படைப்பும் திறனாய்வும்

(5 மணி நேரம்)

1. கவிதை உருவாக்கம்
2. பேச்சுத்திறன் பயிற்சி(வரவேற்புரை, தலைமையுரை, வாழ்த்துரை, நன்றியுரை)
3. நூல்உருவாக்கம்
4. நூல்,திரைப்பட விமர்சனம்

(தற்படிப்பு)

1. செய்யுட்பகுதி பாடநூல் (அலகு I மற்றும் II)
அளிப்பு: தமிழ்த்துறை,
வி.எல்.பி. ஜானகியம்மாள் கலை அறிவியல் கல்லூரி
2. நீர்மாங்கனி நாடகம் (அலகு III)
முனைவர்.மலையமான்
(வெளியீடு) அன்பு பதிப்பகம்,
63 அரங்காச்சாரி சாலை,
சென்னை - 600 018.

1. சிலப்பதிகாரம் - சந்தியா பதிப்பகம்,
நீயுடெக் வைபவ்,
53-வது தெரு,
அசோக்நகர், சென்னை - 83.
2. மணிமேகலை - சாரதா பதிப்பகம்
பு - 4 சாந்தி சருக்ககம்,
3,ஸ்ரீ கிருணாபுரம் தெரு,
ராயப்பேட்டை, சென்னை - 14.
3. பெரியபுராணம் - உமா பதிப்பகம், 18, பவளக்காரத்தெரு,
மண்ணடி, சென்னை - 1
4. கம்பராமாயணம் - கம்பன் அறநிலை
மணி மேல்நிலைப்பள்ளி வளாகம்,
பாப்ப நாயக்கம் பாளையம்,
கோவை.
5. தேம்பாவணி - பாரி வெளியீடு, (முதல் பதிப்பு 2010),
184/88 பிராட்வே, சென்னை-14.
உ.ஆ. - சே.சுந்தரராசன்
6. சீறாப்புராணம் - முல்லை நிலையம்,
9, பாரதி சரகர் முதல் தெரு,
தி.நகர் சென்னை-17.
உ.ஆ. - செய்குதம்பி பாவலர்

16LATA04

வி.எல்.பி. ஜானகியம்மாள் கலை அறிவியல் கல்லூரி
கோவைப்புத்தூர், கோயம்புத்தூர் - 42.

(தன்னாட்சி)

தமிழ்த்துறை

மறு மதிப்பீட்டுக் குழுவினரால் (NACC) 'A' கிரேடு மற்றும் சர்வதேச
தரச்சான்றிதழ் (ISO) தேசிய தரக் கொள்கை பெற்றக் கல்லூரி
தெரிவு அடிப்படை மதிப்பீடு அமைப்பு (CBCS)
இளங்கலைப் பட்டவகுப்பு பி.எஸ்.சி (கணிதம்) மற்றும் பி.ஏ (ஆங்கிலம்)

2014 - 2015 - கல்வியாண்டு முதல் பயிலுபவர்களுக்கு

பாடத்திட்டத்தின் நோக்கம்: பகுதி - I தமிழ் பயிலும் மாணவர்கள் தமிழ் இலக்கிய
வரலாற்றினை அறிந்து கொள்ளவும், சிறப்புடைய இலக்கியங்களிலிருந்து சில பகுதிகளைக் கற்றுக்
கொள்ளவும், அறக் கருத்துக்களைப் பின்பற்றி நல்ல சான்றோனாகத் திகழவும், பிழையின்றித்தமிழ்ச்
சொற்களைப் பேசவும், எழுதவும், இப்பகுதி உதவும்

பருவம் நான்கு

பகுதி - I. பாடத்திட்டம்

தாள் - IV தமிழ்ச் சமய இலக்கியமும் சிறுகதையும்

மொத்தப் பாட வேளைகள்: 60

அலகு - I பக்தி இலக்கியம்

(15 மணி நேரம்)

1. திருஞானசம்பந்தர்(தேவாரம்) - திரு நாகேச்சுரப் பதிகம் 20 பாடல்கள்
2. திருமுலர்(திருமந்திரம்) - முதல் மந்திரம் 20 பாடல்கள்
(144,156,182,183,188,195, புலால்
மறுத்தல்(2),
கொல்லாமை(2), வான்சிறப்பு(2),270,277,
295,297,300,306,320,322.
3. மாணிக்கவாசகர்(திருவாசகம்)- திருப்பள்ளியெழுச்சி
(முதல் 10பாடல்கள்)

அலகு - II

(15 மணி நேரம்)

1. ஆண்டாள் - திருப்பாவை 30 பாடல்கள்
2. திருமங்கை ஆழ்வார் - சிறிய திருமடல் 40 பாடல்கள்

அலகு III

(15 மணி நேரம்)

சிறுகதை - சிறுகதைத் தொகுப்பு

அலகு - IV இலக்கிய வரலாறு

(9 மணி நேரம்)

1. சிறுகதையின் தோற்றமும் வளர்ச்சியும்
2. சைவமும் தமிழும்
3. வைணவமும் - தமிழும்
4. சிற்றிலக்கியத்தின் தோற்றமும் வளர்ச்சியும்

அலகு – V படைப்புத்திறன்

(6 மணி நேரம்)

1. நன்னூல் - 26 முதல் 46 நூற்பாக்கள் வரை (எழுத்து அதிகாரம்)
2. படைப்பாக்கம்
சிறுகதை உருவாக்கம்
பொதுக் கடிதம் எழுதுதல்.

1. செய்யுட்பகுதி பாடநூல் (அலகு I மற்றும் II), அளிப்பு: தமிழ்த்துறை, வி.எல்.பி. ஜானகியம்மாள் கலை அறிவியல் கல்லூரி

2. சிறுகதைத் தொகுப்பு சிறுகதை (அலகு III), தொகுப்பு: தமிழ்த்துறை, வி.எல்.பி. ஜானகியம்மாள் கலை அறிவியல் கல்லூரி, (வெளியீடு) அறிவு பதிப்பகம், 142, ஜானி ஜான் கான் ரோடு, இராயப்பேட்டை, சென்னை – 600 014.

3. பார்வைநூல்: (அலகு V -1) நன்னூல்

4. தேவாரம் - உமா பதிப்பகம், 18, பவளக்காரத்தெரு, மண்ணடி, சென்னை – 1

5. திருமந்திரம் - உமா பதிப்பகம், 18, பவளக்காரத்தெரு, மண்ணடி, சென்னை – 1

6. திருவாசகம் - உமா பதிப்பகம், 18, பவளக்காரத்தெரு, மண்ணடி, சென்னை – 1

7. திருப்பாவை – ஆழ்வார்கள் ஆய்வு மையம், நந்தம் பாக்கம், குன்றத்தூர் வழி, சென்னை – 69.

8. சிறிய திருமடல் - ஆழ்வார்கள் ஆய்வு மையம், நந்தம் பாக்கம், குன்றத்தூர் வழி, சென்னை – 69.

வி.எல்.பி. ஜானகியம்மாள் கலை அறிவியல் கல்லூரி
கோவைப்புதூர், கோயம்புத்தூர் - 42.

(தன்னாட்சி)

தமிழ்த்துறை

ஒன்று முதல் நான்காம் பருவத்திற்கான

தேர்வுத்திட்டம்

அகமதிப்பீட்டுத் தேர்வு -30

புறமதிப்பீட்டுத் தேர்வு - 70

மொத்தமதிப்பெண்கள் -100

அகமதிப்பீட்டுத்தேர்வு

மாதிரி முன் தேர்வு - 70

மாதிரித் தேர்வு - 70

கருத்தரங்கம் - 30

வருகைப்பதிவு - 10

மொத்தம் - 180 (180÷6) = 30

(ஒவ்வொருவரும் 180 மதிப்பெண்களுக்கு பெறும் மதிப்பெண்களை 6 ஆல்
வகுத்துக் கொள்ள வேண்டும்)

புறமதிப்பீட்டுத்தேர்வு

காலம்:3மணி

மொத்த மதிப்பெண்கள்:70

பிரிவு-அ

அனைத்து வினாக்களுக்கும் ஒரே சொற்களில் விடையளி $10 \times 1 = 10$

பிரிவு-ஆ

‘இது’ அல்லது ‘அது’ என்ற வகையில் 5 வினாக்களுக்கு விடையளி $5 \times 4 = 20$

பிரிவு-இ

‘இது’ அல்லது ‘அது’ என்ற வகையில்

5 வினாக்களுக்கு கட்டுரை வடிவில் விடையளி $5 \times 8 = 40$

வி.எல்.பி.ஜானகியம்மாள் கலை அறிவியல் கல்லூரி

தன்னாட்சி

தெரிவு அடிப்படை மதிப்பீடு அமைப்பு (CBCS)

தமிழ்த்துறை

இளங்கலைப் பட்ட வகுப்புகள்

பி.ஏ, பி.எஸ்.சி,பி.காம்,பி.சி.ஏ,பி.பிஏ.....

வினாத்தாள் அமைப்பு

பருவம் ஒன்று

பகுதி – I தமிழ் தாள் - I - இக்கால இலக்கியமும் உரைநடையும்

நேரம்: 3 மணி

மொத்த மதிப்பெண்கள் :70

(10X1 =10)

(பிரிவு – அ)

அனைத்து வினாக்களுக்கும் விடையளி

அலகு (1) – 2 வினாக்கள்

அலகு (2) – 2 வினாக்கள்

அலகு (3) – 2 வினாக்கள்

அலகு (4) – 4 வினாக்கள்

(5X4 =20)

(பிரிவு – ஆ)

இரண்டு பக்க அளவில் விடையளி

ஒவ்வொரு அலகிலிருந்தும் ஒரு வினா அமைதல் வேண்டும்.

அலகு (1) – 1 வினா

அலகு (2) – 1 வினா

அலகு (3) – 1 வினா

அலகு (4) – 1 வினா

அலகு (5) – 1 வினா

(பிரிவு – இ)

கட்டுரை வடிவில் விடையளி

அலகு (1) – 1 வினா

அலகு (2,3) – மொத்தம் 3 வினாக்கள்

அலகு (5) – 1 வினா

குறிப்பு

1. பிரிவு “அ” சரியான விடைகளைத் தேர்ந்தெடுத்தல்
அ) அலகு 4லிருந்து ஒரு மதிப்பெண் வினாக்கள் 4 கேட்கப்பட வேண்டும்.
ஆ) அலகு 5லிருந்து ஒரு மதிப்பெண் வினா இடம் பெறுதல் கூடாது.
2. பிரிவு ‘ஆ’ மற்றும் ‘இ’ ஆகிய பகுதிகளில் வினாக்கள் ‘இது’ அல்லது ‘அது’ என்ற வகையில் அவற்றிற்கு உரிய அலகுகளில் இருந்து அமைதல் வேண்டும்.
3. பிரிவு ‘இ’ அலகு IV லிருந்து 8 மதிப்பெண் வினா இடம் பெறுதல் கூடாது.

வி.எல்.பி.ஜானகியம்மாள் கலை அறிவியல் கல்லூரி
தன்னாட்சி
தேர்வு அடிப்படை மதிப்பீடு அமைப்பு (CBCS)
தமிழ்த்துறை
இளங்கலைப் பட்ட வகுப்புகள்
பி.ஏ, பி.எஸ்.சி,பி.காம்,பி.சி.ஏ,பி.பிஏ.....
வினாத்தாள் அமைப்பு
பருவம் இரண்டு

பகுதி – I தமிழ் தாள் - II – சங்கம் மற்றும் நீதி இலக்கியமும் நாவலும்

நேரம்: 3 மணி

மொத்த மதிப்பெண்கள் :70

(பிரிவு – அ)

(10X1 =10)

அனைத்து வினாக்களுக்கும் விடையளி

அலகு (1) – 1 வினா

அலகு (2) – 1 வினா

அலகு (3) – 1 வினா

அலகு (4) – 6 வினாக்கள்

அலகு (5) – 1 வினா

(பிரிவு – ஆ)

(5X4 =20)

இரண்டு பக்க அளவில் விடையளி

ஒவ்வொரு அலகிலிருந்தும் ஒரு வினா அமைதல் வேண்டும்.

அலகு (1) }

அலகு (2) } – இரு அலகுகளிலிருந்து மொத்தம் 3 வினாக்கள்

அலகு (3) – 1 வினா

அலகு (5) – 1 வினா

(பிரிவு – இ)

(5X8 =40)

கட்டுரை வடிவில் நான்கு பக்க அளவில் விடையளி

அலகு (1) }

அலகு (2) } – இரு அலகுகளிலிருந்து மொத்தம் 3 வினாக்கள்

அலகு (3) – 1 வினா

அலகு (5) – 1 வினா

அலகு (5) – 1 வினா

குறிப்பு

1. பிரிவு “அ” சரியான விடைகளைத் தேர்ந்தெடுத்தல்

அலகு (I,II,III,V) ஆகியவற்றிலிருந்து தலா 1 கேள்வி மட்டுமே கேட்கப்பட வேண்டும். அலகு (IV) லிருந்து 6 வினாக்கள் கேட்கப்பட வேண்டும்.

2. பிரிவு 'ஆ' மற்றும் 'இ' ஆகிய பகுதிகளில் வினாக்கள் 'இது' அல்லது 'அது' என்ற வகையில் அவற்றிற்கு உரிய அலகுகளில் அமைதல் வேண்டும்.
3. அலகு (IV) பிரிவு 'ஆ' மற்றும் 'இ' ஆகியவற்றிலிருந்து 4 மற்றும் 8 மதிப்பெண்கள் வினாக்கள் இடம் பெறுதல் கூடாது.
4. பாடநூலில் கொடுக்கப்பட்டுள்ள பகுதியிலிருந்து மட்டுமே வினாக்கள் கேட்கப்பட வேண்டும்.

வி.எல்.பி. ஜானகியம்மாள் கலை அறிவியல் கல்லூரி
(தன்னாட்சி)

கோவைப்புதூர், கோவை - 641042

தெரிவு அடிப்படை மதிப்பீடு அமைப்பு (CBCS)

தமிழ்த் துறை

இளங்கலைப் பட்டவகுப்பு பி.எஸ்.சி (கணிதம்) மற்றும் பி.ஏ
(ஆங்கிலம்)

வினாத்தாள் அமைப்பு

பருவம் - மூன்று

பகுதி - I- தமிழ்த்தாள் -III- தமிழ்க் காப்பியங்களும் நாடகமும்

அகமதிப்பீட்டுத் தேர்வு - 30

புற மதிப்பீட்டுத் தேர்வு - 70

காலம் - 3 மணி

பிரிவு - அ

அனைத்து வினாக்களுக்கும் விடையளி

10X1=10

ஒவ்வொரு அலகிலிருந்தும் இரண்டு வினாக்கள் அமைதல் வேண்டும்.

அலகு (1) - 3 வினாக்கள்

அலகு (2) - 3 வினாக்கள்

அலகு (3) - 2 வினாக்கள்

அலகு (4) - 2 வினாக்கள்

பிரிவு ஆ

இரண்டு பக்க அளவில் விடை எழுதுக:

5X4=20

ஒவ்வொரு அலகிலிருந்தும் ஒரு வினா அமைதல் வேண்டும்.

அலகு (1) - 1 வினா

அலகு (2) - 1 வினா

அலகு (3) - 1 வினா

அலகு (4) - 1 வினா

அலகு (5) - 1 வினா

பிரிவு இ

கட்டுரை வடிவில் விரிவான விடை எழுதுக.

5X8=40

ஒவ்வொரு அலகிலிருந்தும் ஒரு வினா அமைதல் வேண்டும்.

அலகு- (1) - 1 வினா

அலகு- (2) - 1 வினா

அலகு- (3) - 1 வினா

அலகு- (4) - 1 வினா

அலகு- (5) – 1 வினா
குறிப்பு:

1.பிரிவு ‘ஆ’ மற்றும் ‘இ’ ஆகிய பகுதிகளில் வினாக்கள் ‘இது’ அல்லது ‘அது’ என்ற வகையில் அவற்றிற்கு உரிய அலகுகளில் அமைதல் வேண்டும்.

2.பிரிவு “அ” அ.சரியான விடைகளைத்தேர்ந்தெடுத்தல் - 10 வினாக்கள்

வி.எல்.பி. ஜானகியம்மாள் கலை அறிவியல் கல்லூரி
(தன்னாட்சி)

கோவைப்புதூர், கோவை - 641042

வினாத்தாள் அமைப்பு

பருவம் நான்கு

பகுதி - I

தாள் - IV தமிழ்ச் சமய இலக்கியமும் சிறுகதையும்

அகமதிப்பீட்டுத் தேர்வு - 30

புற மதிப்பீட்டுத் தேர்வு - 70

காலம் - 3 மணி

பிரிவு - அ

10X1=10

சரியான விடை எழுதுக

அலகு (1) - 3 வினாக்கள்

அலகு (2) - 3 வினாக்கள்

அலகு (3) - 2 வினாக்கள்

அலகு (4) - 2 வினாக்கள்

பிரிவு ஆ

5X4=20

இரண்டு பக்க அளவில் விடை எழுதுக:

ஒவ்வொரு அலகிலிருந்தும் ஒரு வினா அமைதல் வேண்டும்

அலகு (1) - 1 வினா

அலகு (2) - 1 வினா

அலகு (3) - 1 வினா

அலகு (4) - 1 வினா

அலகு (5) - 1 வினா

பிரிவு இ

5X8=40

கட்டுரை வடிவில் விரிவான விடை எழுதுக

ஒவ்வொரு அலகிலிருந்தும் ஒரு வினா அமைதல் வேண்டும்

அலகு (1) - 1 வினா

அலகு (2) - 1 வினா

அலகு (3) - 1 வினா

அலகு (4) - 1 வினா

அலகு (5) - 1 வினா

குறிப்பு:

பிரிவு 'அ' அலகு V லிருந்து ஒரு மதிப்பெண் வினா இடம் பெறுதல் கூடாது.

பிரிவு 'ஆ' மற்றும் 'இ' ஆகிய பகுதிகளில் வினாக்கள் 'இது' அல்லது 'அது' என்ற வகையில் அவற்றிற்கு உரிய அலகுகளில் அமைதல் வேண்டும்.

வி.எல்.பி.ஜானகியம்மாள் கலை அறிவியல் கல்லூரி
தன்னாட்சி

தேசியத் தர நிர்ணய மறு மதிப்பீட்டுக் குழுவினரால்
(NAAC) 'A' கிரேடு மற்றும் சர்வதேசத் தரச்சான்றிதழ் (ISO)பெற்றக் கல்லூரி
கோவைப்புதூர், கோயமுத்தூர் -641 042.

தமிழ்த்துறை

தேரிவு அடிப்படை மதிப்பீடு அமைப்பு (CBCS)
இளங்கலை இரண்டாம் ஆண்டு பயிலும் அனைத்து பிரிவு மாணவர்களுக்குரியது
பி.ஏ,பி.எஸ்.சி,பி.காம்,பி.சி.ஏ,பி.பிஏ.....

பகுதி-IV

அடிப்படைத் தமிழ்த்தாள் - I
மூன்றாம்பருவம்

(2015-2016 கல்வியாண்டு முதல் 12 ஆம் வகுப்பு வரை தமிழ்மொழிப் பாடம்
பயிலாதவர்களுக்கு)

புறமதிப்பீட்டுத் தேர்வு மட்டும்

மொத்த மதிப்பெண்கள் : 100

மொத்தபாட வேளைகள் : 24

அலகு - I

(11 மணி நேரம்)

1. தமிழ் எழுத்துக்கள்(உயிர் எழுத்து, மெய் எழுத்து, உயிர் மெய் எழுத்துகள்)
2. குறில் எழுத்துக்கள், நெடில் எழுத்துக்கள்
3. வல்லினம், மெல்லினம், இடையினம்

அலகு - II

(3மணிநேரம்)

1. உயிர் எழுத்துக்களில் துவங்கும் எழுத்துக்கள்
2. எண்ணுப் பெயர்கள், மாதப்பெயர்கள்,உறவுப் பெயர்கள்
3. பறவைகள், விலங்குகள், இருதிணை, மூவேந்தர், நான்குதிசைகள்
4. பஞ்சபூதம், அறுசுவை

அலகு - III

(4மணிநேரம்)

1. ஓரெழுத்து ஒருமொழி
2. தொடர்களை உருவாக்குதல்
3. அலுவலகங்களின் பெயர்கள்

அலகு - IV

(3மணிநேரம்)

1. ஒருமைப்பன்மை எழுதுதல், எழுத்துப்பிழை கண்டறிதல்
2. உயர்திணை, அ.றிணை கண்டறிதல்
3. எழுத்துப்பயிற்சி பாடலைப் பார்த்து எழுதுதல்

அலகு - V

(3மணிநேரம்)

1. ஆங்கிலப் பழமொழிக்கு நிகரான தமிழ்ப் பழமொழிகளை எழுதுக
2. படங்களைக் கொடுத்து பெயர்களை எழுதுதல்
3. பேச்சுப்பயிற்சி

பாடநூல் - தமிழ்த்துறை வெளியீடு

வி.எல்.பி.ஜானகியம்மாள் கலை அறிவியல் கல்லூரி

தன்னாட்சி

தேசியத் தர நிர்ணய மறு மதிப்பீட்டுக் குழுவினரால்
(NAAC) 'A' கிரேடு மற்றும் சர்வதேசத் தரச்சான்றிதழ் (ISO)பெற்றக் கல்லூரி
கோவைப்புதூர், கோயமுத்தூர் -641 042.

தமிழ்த்துறை

தெரிவு அடிப்படை மதிப்பீடு அமைப்பு (CBCS)
இளங்கலை இரண்டாம் ஆண்டு பயிலும் அனைத்து பிரிவு மாணவர்களுக்குரியது
பி.ஏ,பி.எஸ்.சி,பி.காம்,பி.சி.ஏ,பி.பி.ஏ.....

பகுதி-IV

அடிப்படைத் தமிழ்த்தாள் - II

நான்காம் பருவம்

(2015-2016 கல்வியாண்டு முதல் 12 ஆம் வகுப்பு வரை தமிழ்மொழிப்
பாடம் பயிலாதவர்களுக்கு) புறமதிப்பீட்டுத் தேர்வு மட்டும்

மொத்த மதிப்பெண்கள் : 100

மொத்தபாட வேளைகள் : 24

அலகு - I

(8 மணி நேரம்)

1. ஆத்திச்சூடி - “அறம்செயவிரும்பு” முதல் “ஒளவியம் பேசேல்” வரை
2. கொன்றை வேந்தன் - “அன்னையும் பிதாவும் முன்னறி தெய்வம்” முதல்
“எண்ணும் எழுத்தும் கண்ணெனத் தகும்” வரை

அலகு - II

(5 மணி நேரம்)

1. திருக்குறள்(5குறள் மட்டும்) - அ) அகர முதல... (1 குறள்)
ஆ) அன்பும் அறனும் (45 குறள்)
இ) இனிய உளவாக (100 குறள்)
ஈ) நன்றி மறப்பது...(108 குறள்)
உ) கற்க கசடறக்... (391 குறள்)

அலகு - III

(5 மணி நேரம்)

1. பஞ்சதந்திர கதைகள் - (2 கதைகள்)
2. தெனாலி ராமன் கதைகள் - (2 கதைகள்)
3. பீர்பால் கதைகள் - (2 கதைகள்)

அலகு - IV

(3 மணி நேரம்)

ஆங்கிலச் சொற்களுக்கு நிகரானத் தமிழ்ச் சொற்கள் அறிதல்

1. வாகனங்கள், காய்கறிகள், பழவகைகள்
2. பறவைகள், விலங்குகள், உடல் உறுப்புக்கள்

அலகு - V

(3 மணி நேரம்)

1. விழாக்கள் (பொங்கல், தீபாவளி, கிறிஸ்துமஸ்)
2. தலைவர்கள் (காந்தியடிகள்,காமராஜர்,அம்பேத்கார்,பாரதியார்,நேரு)

பாடநூல் - தமிழ்த்துறை வெளியீடு

வி.எல்.பி.ஜானகியம்மாள் கலை அறிவியல் கல்லூரி
தன்னாட்சி
அடிப்படைத் தமிழ்த்தாள் - I&II

தேர்வுத்திட்டம்

புறமதிப்பீட்டுத்தேர்வு மட்டும்

காலம்:3மணி

மொத்த மதிப்பெண்கள்:100

பிரிவு-அ

அனைத்து வினாக்களுக்கும் சரியான விடையை எடுத்தெழுதுதல். $10 \times 2 = 20$

பிரிவு-ஆ

8 வினாக்கள் கொடுக்கப்பட்டு 5 வினாக்களுக்கு விடையளிக்க வேண்டும்

$5 \times 6 = 30$

பிரிவு-இ

8 வினாக்கள் கொடுக்கப்பட்டு 5 வினாக்களுக்கு விடையளிக்க வேண்டும்

$5 \times 10 = 50$

வி.எல்.பி.ஜானகியம்மாள் கலை அறிவியல் கல்லூரி
தன்னாட்சி

தேசியத் தர நிர்ணய மறு மதிப்பீட்டுக் குழுவினரால்
(NAAC) 'A' கிரேடு மற்றும் சர்வதேசத் தரச்சான்றிதழ் (ISO)பெற்றக் கல்லூரி
கோவைப்புதூர், கோயமுத்தூர் -641 042.

தமிழ்த்துறை

தெரிவு அடிப்படை மதிப்பீடு அமைப்பு (CBCS)
இளங்கலை இரண்டாம் ஆண்டு பயிலும் அனைத்து பிரிவு மாணவர்களுக்குரியது
பி.ஏ,பி.எஸ்.சி,பி.காம்,பி.சி.ஏ,பி.பி.ஏ.....

பகுதி - IV தமிழ்ப்பாடத்திட்டம்

அடிப்படைத் தமிழ்த்தாள் - I & II

மூன்றாம் மற்றும் நான்காம்பருவம்

(2015-2016 கல்வியாண்டு முதல் 12 ஆம் வகுப்பு வரை தமிழ்மொழிப்
பாடம் பயிலாதவர்களுக்கு)

வினாத்தாள் அமைப்பு

காலம் : 3மணி

மொத்த மதிப்பெண்கள் :100

பகுதி - அ

10 X 2 = 20

பொருத்தமான விடைகளைத் தேர்ந்தெடுத்து எழுதுக.

ஒவ்வொரு அலகிலிருந்தும் 2 வினாக்கள் கேட்கப்பட வேண்டும்.

பகுதி - ஆ

5 X 6 =30

சுருக்கமாக விடையளிக்கவும்.

மொத்தம் 8 வினாக்கள் கொடுக்கப்பட்டு 5 வினாக்கள் கேட்கும்படி வினாத்தாள்
அமைய வேண்டும்.

ஒவ்வொரு அலகிலிருந்தும் வினாக்கள் அமைதல் வேண்டும்.

பகுதி - இ

5 X 10 = 50

விரிவாக விடையளிக்கவும்

மொத்தம் 8 வினாக்கள் கொடுக்கப்பட்டு 5 வினாக்கள் கேட்கும்படி வினாத்தாள்
அமைய வேண்டும்.

ஒவ்வொரு அலகிலிருந்தும் வினாக்கள் அமைதல் வேண்டும்.

வி.எல்.பி.ஜானகியம்மாள் கலை அறிவியல் கல்லூரி

தன்னாட்சி

தேசியத் தர நிர்ணய மறு மதிப்பீட்டுக் குழுவினரால்

(NAAC) 'A' கிரேடு மற்றும் சர்வதேசத் தரச்சான்றிதழ் (ISO)பெற்றக் கல்லூரி

கோவைப்புதூர், கோயமுத்தூர் -641 042.

தமிழ்த்துறை

தெரிவு அடிப்படை மதிப்பீடு அமைப்பு (CBCS)

இளங்கலை இரண்டாம் ஆண்டு பயிலும் அனைத்து பிரிவு மாணவர்களுக்குரியது

பி.ஏ,பி.எஸ்.சி,பி.காம்,பி.சி.ஏ,பி.பிஏ.....

பகுதி-IV

சிறப்புத் தமிழ்த்தாள் - I

மூன்றாம் பருவம்

(2015-2016 கல்வியாண்டு முதல் 12 ஆம் வகுப்பு வரை தமிழ்மொழிப் பாடம் பயின்றுக் கல்லூரியில் பகுதி- I தமிழ் பயிலாதவர்களுக்குரியது)

புறமதிப்பீட்டுத் தேர்வு மட்டும்

மொத்த மதிப்பெண்கள் : 100

மொத்தபாட வேளைகள் : 24

அலகு - I

(8 மணி நேரம்)

கவிதை

1. எங்கள் தாய் - பாரதியார்
2. கோவில் வழிபாடு - கவிமணி

அலகு - II

(4 மணி நேரம்)

1. ல-ள-ழ, ர-ற, ன-ண-ந வேறுபாடு அறிதல்
2. பிறமொழிச் சொற்களை நீக்கித் தமிழ்ச் சொற்களைக் கண்டறிதல்
3. காப்பியங்கள் நூற்குறிப்பு (ஐம்பெரும்காப்பியங்கள் - ஐஞ்சிறுகாப்பியங்கள்)

அலகு - III

(6 மணி நேரம்)

சிறுகதை

1. செவ்வாழை - அறிஞர் அண்ணா
2. மாத்திரை - ஆண்டாள் பிரியதர்சினி

அலகு - IV

(3 மணி நேரம்)

1. புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும்
2. சிறுகதையின் தோற்றமும் வளர்ச்சியும்

அலகு - V

(3 மணி நேரம்)

விண்ணப்பப் பயிற்சியும் மொழி பெயர்ப்பும்

1. கடிதம் எழுதுதல்
2. விண்ணப்பம் எழுதுதல்
3. மொழி பெயர்ப்பு(ஆங்கிலத்திலிருந்து தமிழில் மொழி பெயர்த்தல்)

பாடநூல் - தமிழ்த்துறை வெளியீடு

வி.எல்.பி.ஜானகியம்மாள் கலை அறிவியல் கல்லூரி

வி.எல்.பி.ஜானகியம்மாள் கலை அறிவியல் கல்லூரி

தன்னாட்சி

தேசியத் தர நிர்ணய மறு மதிப்பீட்டுக் குழுவினரால்

(NAAC) 'A' கிரேடு மற்றும் சர்வதேசத் தரச்சான்றிதழ் (ISO)பெற்றக் கல்லூரி

கோவைப்புதூர், கோயமுத்தூர் -641 042.

தமிழ்த்துறை

தேரிவு அடிப்படை மதிப்பீடு அமைப்பு (CBCS)

இளங்கலை இரண்டாம் ஆண்டு பயிலும் அனைத்து பிரிவு மாணவர்களுக்குரியது

பி.ஏ,பி.எஸ்.சி,பி.காம்,பி.சி.ஏ,பி.பி.ஏ.....

பகுதி-IV

சிறப்புத் தமிழ்த்தாள் - II

நான்காம் பருவம்

(2015-2016 கல்வியாண்டு முதல் 12 ஆம் வகுப்பு வரை தமிழ்மொழிப் பாடம் பயின்றுக் கல்லூரியில் பகுதி- I தமிழ் பயிலாதவர்களுக்குரியது)

புறமதிப்பீட்டுத் தேர்வு மட்டும்

மொத்த மதிப்பெண்கள் : 100

மொத்தபாட வேளைகள் : 24

அலகு - I

(8 மணி நேரம்)

1. திருக்குறள் : 3 அதிகாரங்கள் - அன்புடைமை(8), இறைமாட்சி(39), நட்பு(79)
2. இனியவை நாற்பது : முதல் 20 பாடல்கள்

அலகு - II

1. ஒற்று மிகும் இடங்கள்
2. ஒற்று மிகா இடங்கள்
3. இலக்கணக்குறிப்பு(பண்புத்தொகை, வினைத்தொகை, உம்மைத்தொகை, உவமைத் தொகை, இரட்டைக்கிளவி, அடுக்குத்தொடர், வியங்கோள் வினைமுற்று)

அலகு - III

கட்டுரை

1. கவலை ஒழித்தல் - வேதாத்திரி மகரிசி
2. செயலும் மனிதனே தீர்வும் மனிதனே - முனைவர் ந.இராஜகுமார்

அலகு - IV

1. பாட்டும் தொகையும்
2. பதினென் கீழ்க்கணக்கு நூல்கள்

அலகு - V

படிவம் நிரப்புதல், பொதுக் கட்டுரை மற்றும் நாட்டுப்புறவியல்

1. காசோலை, பணவிடை, தொடர்வண்டி முன்பதிவு
2. பொதுக் கட்டுரை (சுற்றுப்புறச் சூழல், அறிவியல், பெண்ணியம் மற்றும் இன்றைய நடப்புகள்)
3. நாட்டுப்புற நம்பிக்கை, விளையாட்டு

பாடநூல் - தமிழ்த்துறை வெளியீடு

வி.எல்.பி.ஜானகியம்மாள் கலை அறிவியல் கல்லூரி

வி.எல்.பி.ஜானகியம்மாள் கலை அறிவியல் கல்லூரி

தன்னாட்சி

சிறப்புத் தமிழ்த்தாள் - I&II

தேர்வுத்திட்டம்

புறமதிப்பீட்டுத்தேர்வு மட்டும்

காலம்:3மணி

மொத்த மதிப்பெண்கள்:100

பிரிவு-அ

அனைத்து வினாக்களுக்கும் சரியான விடையை எடுத்தெழுதுதல். $10 \times 2 = 20$

பிரிவு-ஆ

8 வினாக்கள் கொடுக்கப்பட்டு 5 வினாக்களுக்கு விடையளிக்க வேண்டும்

$5 \times 6 = 30$

பிரிவு-இ

8 வினாக்கள் கொடுக்கப்பட்டு 5 வினாக்களுக்கு விடையளிக்க வேண்டும்

$5 \times 10 = 50$

வி.எல்.பி.ஜானகியம்மாள் கலை அறிவியல் கல்லூரி
தன்னாட்சி

தேசியத் தர நிர்ணய மறு மதிப்பீட்டுக் குழுவினரால்
(NAAC) 'A' கிரேடு மற்றும் சர்வதேசத் தரச்சான்றிதழ் (ISO)பெற்றக் கல்லூரி
கோவைப்புதூர், கோயமுத்தூர் -641 042.

தமிழ்த்துறை

தெரிவு அடிப்படை மதிப்பீடு அமைப்பு (CBCS)
இளங்கலை இரண்டாம் ஆண்டு பயிலும் அனைத்து பிரிவு மாணவர்களுக்குரியது
பி.ஏ,பி.எஸ்.சி,பி.காம்,பி.சி.ஏ,பி.பி.ஏ.....

பகுதி-IV

சிறப்புத் தமிழ்த்தாள் - I & II
மூன்றாம் மற்றும் நான்காம் பருவம்

(2015-2016 கல்வியாண்டு முதல் 12 ஆம் வகுப்பு வரை தமிழ்மொழிப்
பாடம் பயின்றுக் கல்லூரியில் பகுதி- I தமிழ் பயிலாதவர்களுக்குரியது)

வினாத்தாள் அமைப்பு

காலம் : 3மணி

மொத்த மதிப்பெண்கள் :100

பகுதி - அ

10 X 2 = 20

பொருத்தமான விடைகளைத் தேர்ந்தெடுத்து எழுதுக.

ஒவ்வொரு அலகிலிருந்தும் 2 வினாக்கள் கேட்கப்பட வேண்டும்.

பகுதி - ஆ

5 X 6 = 30

சுருக்கமாக விடையளிக்கவும்.

மொத்தம் 8 வினாக்கள் கொடுக்கப்பட்டு 5 வினாக்கள் கேட்கும்படி வினாத்தாள்
அமைய வேண்டும்.

ஒவ்வொரு அலகிலிருந்தும் வினாக்கள் அமைதல் வேண்டும்.

பகுதி - இ

5 X 10 = 50

விரிவாக விடையளிக்கவும்

மொத்தம் 8 வினாக்கள் கொடுக்கப்பட்டு 5 வினாக்கள் கேட்கும்படி வினாத்தாள்
அமைய வேண்டும்.

ஒவ்வொரு அலகிலிருந்தும் வினாக்கள் அமைதல் வேண்டும்.

15LAFR03

B.Sc/BBM/B.Com/BCA... Degree Examination – Syllabus- for the candidates admitted from the academic year 2015-16 onwards

THIRD SEMESTER

PART-1 – FRENCH - III

Total Hours: 60

Prescribed text : **ALORS II**

Units : 1 – 5

Authors : Marcella Di Giura Jean-Claude Beacco

Available at :

Goyal Publishers Pvt Ltd 86,

University Block Jawahar Nagar (Kamla Nagar),

New Delhi – 110007.

Tel : 011 – 23852986 / 9650597000

15LAFR04

B.Sc/BBM/B.Com/BCA... Degree Examination – Syllabus- for the candidates admitted from the academic year 2015-16 onwards

FOURTH SEMESTER

PART-1 – FRENCH – IV

Total Hours :60

Prescribed text : **ALORS II**

Units : 6 – 10

Authors :

Marcella Di Giura

Jean-Claude Beacco

Available at :

Goyal Publishers Pvt Ltd 86,

University Block Jawahar Nagar (Kamla Nagar)

New Delhi – 110007.

Tel : 011 – 23852986 / 9650597000

B.Sc/BBM/B.Com/BCA... Degree Examination – Syllabus- for the candidates admitted from the academic year 2015-16 onwards

**THIRD SEMESTER
PART - I – MALAYALAM - III**

Total Hours: 60

Paper III – Poetry

This paper will have the following five units:

Unit I , II & III - A part of Ezuthachan's Work

Unit IV & V A Khandakavya of Kumaranasan

Text Books

Prescribed:

Unit I , II & III - Karnnaparvam – Ezuthachan (Poorna Publications, Calicut)

Unit IV & V Veenapoovu - Kumaranasan (D.C . Books, Kottayam)

Reference Books

1. Kavitha Sahithya Charitram – Dr. M. Leelavathi (Kerala Sahithya Academy, Trichur)
2. Kairaliyude Katha – Prof. N. Krishna Pillai (NBS, Kottayam)
3. Kavitha Dwani – Dr. M. Leelavathi (D.C. Books, Kottayam)
4. Aadhunika Sahithyacharithram Prasthanangalilude – Dr. K. M. George(D.C. Books, Kottayam)
5. Padya Sahithya Charithram – T. M. Chummar (Kerala Sahithya Academy, Trichur)

B.Sc/BBM/B.Com/BCA... Degree Examination – Syllabus- for the candidates admitted from the academic year 2015-16 onwards

**FOURTH SEMESTER
PART-1 – MALAYALAM - IV**

Total Hours: 3

Paper IV Drama & Screenplay

This paper comprises the following five units:

Unit I, II & III A Drama
Unit IV & V Screenplay

Text Books Prescribed:

Unit I, II & III Lankalakshmi – C. N. Sreekantan Nair (D.C. Books, Kottayam)

Unit IV & V Oru Vadakkanveeragatha – M.T. Vasudevan Nair [Current Books, Thrissur]

Reference Books

1. Natyasasthram, K.P. Narayana Pisharodi, Trans. (Kerala Sahithya Akademi, Thrissur).
2. Malayala Nataka Sahithya Charithram, G. Sankara Pillai (Kerala Sahithya Akademi, Thrissur).
3. Malayala Nataka Sahithya Charithram, Vayala Vasudevan Pillai (Kerala Sahithya Akademi Thrissur).
4. Natakam – Oru Patanam (C. J. Smaraka Prasanga Samithi, Koothattukulam).
5. Natakaroopacharcha, Kattumadam Narayanan (NBS, Kottayam)
6. M.T. Yudesinimakal, Kozhikkoden, Mathrubhumi Books, Kozhikkode

VLB JANAKIAMMAL COLLEGE OF ARTS AND SCIENCE

BA English/ B.Sc Mathematics –PART- I HINDI III - For the students admitted during the academic year 2015-2016 onwards

THIRD SEMESTER - PAPER III

(POETRY, ONE ACT PLAY, SHORT STORY, TRANSLATION, LETTERDRAFTING, COMPREHENSION)

MAXIMUM CIA:30

MAXIMUM CE:70

Total Hours :60

OBJECTIVE: On successful completion of the paper, students should have acquired proficiency and good communication skills

UNIT I

(12 Hours)

Poetry – Pralay ki chaya by Jayashankar Prasad-One Act Play: Reshmi tie by Dr. RamkumarVerma-Non detailed: Mauth ka Nagar by Amarkanth-Translation -Comprehension- Letter writing: Karyalayi Gyapan32

UNIT II

(12 Hours)

Poetry: Ek bhoothpoorvu vidrohi ka aathmakathan by Mukthibodh –Nondetailed: Zindagi aur jonk –Translation-Comprehension –Letter writing: Paripathra.

UNIT III

(12 Hours)

One act play: Bimar ki ilaj by Uday Shankar Bhatt- Nondetailed : Ladki ki shadi-Translation – Comprehension – Letter :Anusmarak .

UNIT IV

(12 Hours)

Poetry: Pravard parv by Naresh Mehtha- Nondetailed : Basthi –Translation –Comprehension – Letter:Adhisoochna.

UNIT V

(12 Hours)

One act play: Gaanv ka eswer –Nondetailed: Palash ke phool –Translation-Comprehension– Letter:Pressvigyapthi.

TEXT BOOKS

1. Poetry-Nakshatra- Dr.SarojSingh- Lokbharathi Prakashan,11 Edition2007
2. Non Detailed – Amarnath ki Pradinithi Kahaniyon- Rajkamal Prakashan,2nd Edition,2013
- 3.Oneactplay-GadyaMukurEditedbyDr.SekhAbdulWahabRakaPrakashan, 1 st Edition2015
- 4.Translation,AnuvadAbhyas111(1630,EnglishHindi)Dakshin Hindi Prachar Sabha,3rdEdition,2003
- 5.Comprehension and Letter Writing-Vyavaharik Hindi –Ramkishore Sharma-Lokbharathi prakashan,5th Edition 2003

VLB JANAKIAMMAL COLLEGE OF ARTS AND SCIENCE

BA English/ B.Sc Mathematics –PART- I HINDI III - For the students admitted during the academic year 2015-2016 onwards

THIRD SEMESTER - PAPER III

(POETRY, ONE ACT PLAY, SHORT STORY, TRANSLATION, LETTERDRAFTING, COMPREHENSION)

The following are the Distribution of **Internal Marks**

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6=30

Seminar:

S.NO	SEMINAR SPLIT UP	Marks
1	Content	10
2	Flow of the Presentation	10
3	Stage Management and Body Language	10
Total		30

Breakup for Attendance:

Up to 74 %	- 4 Marks
75% - 84%	- 6 Marks
85% - 94%	- 8 Marks
95% - 100%	- 10 Marks

QUESTION PAPER PATTERN

For Pre-Model, Model and Comprehensive Examinations

Time: 3 Hours

Max. Marks: 70

Section – A (10 x 1 = 10 Marks)

Answer all the Questions

(Each Question carries one mark)

Objective Type

Section – B (5x4=20 Marks)

Answer all the Questions

(Each Question carries four marks)

(INTERNAL CHOICE only)

Explain with reference and context

1. Poetry 2x4
2. One act plays 1x4
3. Short notes from Non Detailed 1x4
4. Letter Writing 1x4

Section – C (5x8=40 Marks)

(Each Question carries Eight marks)

1. Essay Poetry 1 1x8
2. Essay One Act Play 1x8
3. Essay Non Detailed 1x8
4. Comprehension 1x8
5. Translation 1x8

Minimum pass marks in the paper 40%

VLB JANAKIAMMAL COLLEGE OF ARTS AND SCIENCE

BA English/ B.Sc Mathematics –PART- I HINDI IV - For the students admitted during the academic year 2015-2016 onwards

FOURTH SEMESTER - PAPER IV

(POETRY, DRAMA, NON DETAILED, TRANSLATION, GENERAL ESSAY, FUNCTIONAL HINDI)

MAXIMUM CIA: 30

MAXIMUM CE: 70

Total Hours: 60

OBJECTIVE-On successful completion of paper the student should have mastered proficiency and Communication skills in Language.

UNIT I (12 Hours)

Poetry: Panchvadi by Mydhilisanan Gupth pages 3-10- Drama: Andher Nagari –Bharathendu Harischandra- chapter1- Non Detailed: Chutti ka din –Translation –General Essay-OFFICIAL Hindi.

UNIT II (12 Hours)

Poetry: Panchvadi 10-18 - Drama-Andher Nagari -Chapter 2 -Non Detailed: Kithna bada Ghoot-Translation–General Essay.

UNIT III (12 Hours)

Poetry:- Panchvadi 18-27 -Drama: Andher Nagari- chapter 3 -Non Detailed: Zindagi aur Gulab ke phool-Translation –General Essay- Official Hindi .

UNIT IV (12 Hours)

Poetry: Panchvadi 27-36 - Drama: Andher Nagari chapter 4 -Non Detailed: Mohabandh – Translation-General Essay.

UNIT V (12 Hours)

Poetry: Panchvadi 36-4- Drama:Andher Nagari chapter 5 Translation-General Essay – Official Hindi .

TEXT BOOKS

- 1.Poetry -Panchvadi- Mythilisanan Gupt- Lokbharathi Prakashan-21st Edition 2009
- 2.Drama-Andher Nagari.Bharathendu Harichandra -Vani Prakashan-3rd Edition 2009
- 3.Non Detailed –Meri Kahaniyan-Usha Priyamvada-vani Prakashan-NewDelhi
- 4.Translation-Hindi to English –Anuvad Abhyas 3-(1630)DakshinHindiHindiPrachar sabha,
- 5.General Essay &Functional Hindi- Reference Book-Vyavaharik Hindi-Rankishore Sharma – Lokbharathi Prakashan-V1 Edition-2003.

VLB JANAKIAMMAL COLLEGE OF ARTS AND SCIENCE

**BA English/ B.Sc Mathematics –PART- I HINDI III – For the students admitted during
the academic year 2015-2016 onwards**

FOURTH SEMESTER – PAPER III

**(POETRY, ONE ACT PLAY, SHORT STORY, TRANSLATION, LETTERDRAFTING,
COMPREHENSION)**

The following are the Distribution of **Internal Marks**

S. No	CIA	Distribution of Marks
1	Pre Model Examination	70
2.	Model Examination	70
3.	Seminar	30
4.	Attendance	10
Total		180/6=30

Seminar:

S.NO	SEMINAR SPLIT UP	Marks
1	Content	10
2	Flow of the Presentation	10
3	Stage Management and Body Language	10
	Total	30

Breakup for Attendance:

Up to 74 %	- 4 Marks
75% - 84%	- 6 Marks
85% - 94%	- 8 Marks
95% - 100%	- 10 Marks

QUESTION PAPER PATTERN

For Pre-Model, Model and Comprehensive Examinations

Time: 3 Hours

Max. Marks: 70

Section – A (10 x 1 = 10 Marks)

Answer all the Questions

(Each Question carries one mark)

Objective Type

Section – B (5x4=20 Marks)

Answer all the Questions

(Each Question carries four marks)

(INTERNAL CHOICE only)

Explain with reference and context

1. Poetry 2x4
2. Drama 1x4
3. Short notes from Non Detailed 1x4
4. Official Hindi Translation 1x4

Section – C (5x8=40 Marks)

(Each Question carries eight marks)

1. Essay Poetry 1 1x8
2. Drama 1x8
3. Essay Non Detailed 1x8
4. General Essay 1x8
5. Translation 1x8

Minimum pass marks in the paper 40%

VLB JANAKIAMMAL COLLEGE OF ARTS AND SCIENCE

**B Sc CATERING SCIENCE HOTEL MANAGEMENT PART 1V – For the students
admitted during the academic year 2015-2016 onwards**

**FOURTH SEMESTER
COMMUNICATIVE HINDI**

MAXIMUM MARKS: 50

Total Hours: 24

OBJECTIVE: After the completion of the paper students should have communication skills in the Language.

UNIT I

(5 Hours)

Alphabets: Vowels - Construction of Sentence-Primary conversation –Pronouns and usage:
GREETINGS –Words and meanings –Numbers in words and digits :1-10.

UNIT II

(5 Hours)

Alphabets: Ka to Nga – Framing questions with Kya and Koun – Self Introduction in 5 sentences – Days in a week –Names of vegetables –conversation: using Tu, Tum, Aap ; with Auto driver -Numbers 11 to25.

UNIT III

(5 Hours)

Alphabet Cha to Na; Words and Meanings – Framing Questions with Kab and Kehan – Conversation : Time based words like aaj-kal,raath-din,subah-shaam etc-and In Bus station – Names of Fruits – Translation :Hindi to English – Numbers : 26 to 40.

UNIT IV

(5 Hours)

Alphabet :Tha to Ma ;Words and meanings – Questions with Kithna and Kaise - Conversation: Use of Pehla,Doosra,Agla,Pichla etc ; At Railway Station –Names of Groceries – Translation - Numbers :41 to 50.

UNIT V

(4 Hours)

Alphabet: Ya to Ha – Words used in Cookery – Self Introduction in 10 sentences- Conversation :
Simple Recipes: Chai,Chaval,Sambar; In Hotel – Names of Spices – Numbers:50-60.

REFERENCE BOOKS

- 1.Bharathi Bodh -Dakshin Hindi Prachar Sabha- Chennai.
- 2.Bolchal ki Hindi aur Sanchar- Dr.Madhu Dhavan

**B.SC/BBA/B.COM/BCA/M.SC.SS Degree Examination- Syllabus for Candidates admitted from
the Academic Year 2016- 2017 onwards**

SEMESTER I

PART II ENGLISH I

Maximum CIA- 30

Maximum CE-70

Total Hours - 60

OBJECTIVES: 1.To learn the use of language through prescribed texts.

2. To enabling them to recognize and draw parallels to thoughts, feelings, ideas in the texts from life experiences.

UNIT- I: PROSE

- | | |
|---|-----------|
| 1. STEPHEN BUTLER LEACOCK - MY LOST DOLLAR | (3 HOURS) |
| 2. BONNIE CHAMBERLAIN - FACE OF JUDAS ISCARIOT | (3HOURS) |
| 3. HARDIN B. JONES - DANGERS OF DRUG ABUSE | (3HOURS) |
| 4. G.K. CHESTERTON - ON RUNNING AFTER ONE'S HAT | (3HOURS) |

UNIT - II: POETRY

- | | |
|--|------------|
| 1. W.H.AUDEN - THE UNKNOWN CITIZEN | (3 HOURS) |
| 2. W.B.YEATS - THE BALLAD OF FATHER GILLIGAN | (3 HOURS) |
| 3. WALT WHITMAN - O CAPTAIN! MY CAPTAIN! | (3 HOURS) |
| 4. WILLIAM WORDSWORTH - THE DAFFODILS | (3 HOURS) |

UNIT – III: SCENES FROM SHAKESPEARE

- | | |
|------------------------------------|-----------|
| 1. AS YOU LIKE IT – ACT 3- SCENE 4 | (4 HOURS) |
| 2. HAMLET - ACT 3- SCENE 1 | (4 HOURS) |

UNIT- IV: SHORT STORIES

- | | |
|---|------------|
| 1. R.K.NARAYNAN - SWEETS FOR ANGELS | (4 HOURS) |
| 2. H.H.MUNRO - OPEN WINDOW | (4 HOURS) |
| 3. SOMERSET MAUGHAM - ANT AND THE GRASSHOPPER | (4HOURS) |
| 4. GUY DE MAUPASSANT – THE LOST NECKLACE | (4 HOURS) |

UNIT - V: PRACTICAL EXERCISES

- | | |
|--------------------------|------------|
| 1. READING COMPREHENSION | (3 HOURS) |
| 2. DIALOGUE WRITING | (3 HOURS) |
| 3. PARAGRAPH WRITING | (3HOURS) |
| 4. PROVERB EXPANSION | (3 HOURS) |

TEXT BOOK- Compiled by the Department of English

**B.SC/BBM/ B.COM/ BCA/M.Sc.SS Degree Examination- Syllabus for Candidates admitted
from the Academic Year 2016- 2017 Onwards**

SECOND SEMESTER

PART II ENGLISH II

Maximum CIA- 30

Maximum CE-70

Total Hours - 60

OBJECTIVES: To enable students to write cogently and persuasively about literary texts.

UNIT- I: PROSE

- | | |
|--|-----------|
| 1. OSCAR WILDE – SELFISH GIANT | (3 HOURS) |
| 2. CHARLIE CHAPLIN – THE KID | (3 HOURS) |
| 3. A.G. GARDINER – ON THE RULE OF THE ROAD | (3 HOURS) |
| 4. G.B.SHAW - SPOKEN ENGLISH AND BOKEN ENGLISH | (3 HOURS) |

UNIT - II: POETRY

- | | |
|--------------------------------------|-----------|
| 1. ROBERT BROWNING - MY LAST DUCHESS | (3 HOURS) |
| 2. MILTON - ON HIS BLINDNESS | (3 HOURS) |
| 3. SHELLEY – SKYLARK | (3 HOURS) |
| 4. JOHN KEATS - WHEN I HAVE FEARS | (3 HOURS) |

UNIT – III: SCENES FROM SHAKESPEARE

- | | |
|------------------------------|----------|
| 1. TEMPEST - ACT 2 – SCENE 2 | (4HOURS) |
| 2. MACBETH - ACT 5 – SCENE 1 | (4HOURS) |

UNIT- IV: ONE ACT PLAY

- | | |
|----------------------|--|
| 1. SAKI – DEATH TRAP | |
|----------------------|--|

UNIT -V: PRACTICAL EXERCISES

- | | |
|---------------------------------|-----------|
| 1. READING TO COMPREHEND | (3 HOURS) |
| 2. LETTER WRITING | (3 HOURS) |
| 3. GENERAL ESSAY | (3 HOURS) |
| 4. CHARTS AND PICTORIAL WRITING | (3 HOURS) |

TEXT BOOK- Compiled by the Department of English

B.SC/BA Degree Examination- Syllabus for Candidates admitted from the academic year 2015-2016 onwards

**THIRD SEMESTER
PART II ENGLISH III**

**Maximum CIA- 30
Maximum CE-70
Total Hours - 60**

OBJECTIVES:

1. To lead students to effective performances in communication.
2. To build in capacities for self criticism and facilitate growth.

UNIT - I & II

1. J.M. BARRIE – PETER PAN (24HOURS)

UNIT III & IV

1. ARTHUR CONAN DOYLE – HOUND OF BASKERVILLES (24HOURS)

UNIT V

1. VOCABULARY BUILDING (6 HOURS)

2. IDIOMS AND PHRASES (6 HOURS)

Text Books:

1. Barrie .J.M. *Peter Pan*, Rupa Classics, New Delhi, 2001.
2. Doyle, Arthur Conan. *Hound of Baskervilles*, S.Chand (G/L) & CompanyLtd; 2015.
3. Mccarthy, Michael. *English Idioms in Use*, CambridgeUniversity Press , 2004.
4. Michael Mccarthy, *English Vocabulary in Use*, Second Edition, Cambridge University Press, 2012.

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FOURTH SEMESTER

PART II ENGLISH IV

Maximum CIA- 30

Maximum CE-70

Total Hours - 60

OBJECTIVES:

1. To inculcate the communicative behavior in students.
2. To introduce the language learning methods through literature.
3. To enable the students to realize the various contexts of English for their best usage of the Language.

UNIT – I & II (24 HOURS)

G.B. SHAW - PYGMALION

UNIT – III & IV (24 HOURS)

GIRISH KARNAD - TUGHLAQ

UNIT – V (12 HOURS)

1. PRECI WRITING
2. COMMON ERRORS IN ENGLISH

Text Books:

1. Shaw, Bernard .Pygmalion (A romance in five acts (Bernard Shaw)), Orient BlackSwan; First edition (2011)
2. Karnad Girish,Tughlaq Paperback, Oxford India Perennials, 1997

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**B.SC/BBA/B.COM/BCA/M.SC.SS Degree Examination Syllabus for Candidates
admitted from the academic year 2015 - 2016 onwards**

**SEMESTER III & IV
PART IV- COMMUNICATIVE ENGLISH**

**Maximum CE-50
Total Hours -24**

OBJECTIVES:

1. To help students become effective communicators and critical consumers of messages.
2. To prepare them for life as an educated citizen and as a productive professional.

UNIT I **(4 HOURS)**

1. Communication through Words
2. Communication through Body Language

UNIT II **(2 HOURS)**

1. Communication through Technology

UNIT III **(2 HOURS)**

1. Public Speaking and Oral Presentation

UNIT IV **(8 HOURS)**

1. Meetings
2. Seminars and Conferences
3. Group Discussion
4. Audio-Visual Aids

UNIT V **(8 HOURS)**

1. Business and Technical Reports
2. Business Correspondence
3. Notice, Agenda and Minutes
4. Words Often Confused

Text Book:

1. Mohan, Krishna. Meera Banerji. *Developing Communication Skills*, Macmillan India: 2013.