



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

**BCA Computer Applications (Full Time)
Curriculum & Syllabus
2017 Regulations**

I SEMESTER						
S.NO	Sub.Code	Title of the Subject	L	T	P	C
1.	HBTA17001/ HBHI17001/ HBFR17001	Tamil/ Hindi/French – I	3	0	0	3
2.	HBEN17001	English – I	3	0	0	3
3.	HBMA17A01	Allied Paper Mathematics I	3	1	0	4
4.	HBCA17G01	Fundamentals of Computers	3	1	0	4
5.	HBCA17G02	DOS and Office Automation	3	1	0	4
6.	HBCA17L01	DOS and Office Automation Laboratory	0	0	2	2
Total			15	3	2	20

II SEMESTER						
S.NO	Sub.Code	Title of the Subject	L	T	P	C
1.	HBTA17002/ HBHI17002/ HBFR17002	Tamil/Hindi/French – II	3	0	0	3
2.	HBEN17002	English – II	3	0	0	3
3.	HBMA17A02	Allied Paper Mathematics II	3	1	0	4
4.	HBCA17G03	Financial Accounting	3	1	0	4
5.	HBCA17G04	Programming in C	3	1	0	4
6.	HBCA17L02	Programming in C Laboratory	0	0	2	2
Total			15	3	2	20



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

III SEMESTER						
S.NO	Sub.Code	Title of the Subject	L	T	P	C
1.	HBCA17A01	Allied Paper Introduction to Digital Fundamentals	3	1	0	4
2.	HBCA17G05	Data Structures	3	1	0	4
3.	HBCA17G06	Web Page Designing	3	1	0	4
4.	HBCA17G07	Operating Systems	3	1	0	4
5	HBMG17L01	Soft Skills I	2	0	0	2
6.	HBCA17L03	Data Structures using C Laboratory	0	0	2	2
7.	HBCA17L04	Web Page Designing Laboratory	0	0	2	2
Total			14	4	4	22

IV SEMESTER						
S.NO	Sub.Code	Title of the Subject	L	T	P	C
1.	HBCA17A02	Allied Paper Computer Organization and Microprocessor Design	3	1	0	4
2.	HBCA17G08	Object Oriented Paradigm and Programming in C++	3	1	0	4
3.	HBCA17G09	Introduction to RDBMS	3	1	0	4
4.	HBCA17G10	Software Engineering	3	1	0	4
5.	HBMG17L02	Soft Skills II	2	0	0	2
6.	HBCA17L05	Programming in C++ Laboratory	0	0	2	2
7.	HBCA17L06	RDBMS Laboratory	0	0	2	2
Total			14	4	4	22



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

V SEMESTER						
S.NO	Sub.Code	Title of the Subject	L	T	P	C
1.	HBMG17001	Environment Studies	3	0	0	3
2.	HBCA17G11	Programming in Java	3	1	0	4
3.	HBCA17EXX	Elective I	3	1	0	4
4.	HBCA17G12	Visual Programming	3	1	0	4
5.	HBCA17G13	Computer Graphics and Multimedia Systems	3	1	0	4
6.	HBCA17L07	Programming in Java Laboratory	0	0	2	2
7.	HBCA17L08	Visual Programming Laboratory	0	0	2	2
Total			15	4	4	23

VI SEMESTER						
S.NO	Sub.Code	Title of the Subject	L	T	P	C
1.	HBMG17G01	Entrepreneurial Development	3	0	0	3
2.	HBCA17G14	Linux Operating System	3	1	0	4
3.	HBCA17EXX	Elective II	3	1	0	4
4.	HBCA17L09	Linux Laboratory	0	0	2	2
5.	HBCA17L10	PROJECT WORK	0	0	10	10
Total			9	2	12	23

Summary of Credits

1st Semester – 20

2nd Semester – 20

3rd Semester – 22

4th Semester – 22

5th Semester – 23

6th Semester – 23

Total - 130



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

Elective List

Electives						
S.NO	Sub.Code	Title of the Subject	L	T	P	C
1.	HBCA17E01	Computer Networks	3	1	0	4
2.	HBCA17E02	Information Security	3	1	0	4
3.	HBCA17E03	Professional Ethics	3	1	0	4
4.	HBCA17E04	Software Project Management	3	1	0	4
5.	HBCA17E05	Management Information System	3	1	0	4
6.	HBCA17E06	Mobile Computing	3	1	0	4
7.	HBCA17E07	Image Processing	3	1	0	4
8.	HBCA17E08	Introduction to Cloud Computing	3	1	0	4
9.	HBCA17E09	Open Source Programming	3	1	0	4
10.	HBCA17E10	Software Testing	3	1	0	4



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBTA17001

TAMIL

3 0 0 3

நோக்கம்:

- வாய்மொழி இலக்கியத்தையும் செய்யுள் இலக்கியத்தையும் அறிந்துகொள்ளல்.
- சிறுகதை மரபினைப் புரிந்துகொள்ளல்.
- பிழையின்றித் தமிழ் எழுதுவதற்கு அடிப்படை இலக்கணத்தைப் பயிற்றுவித்தல்.
- கவிதை மரபினையும் சிறுகதை மரபினையும் வரலாற்று நிலையிலிருந்து விளக்குதல்.

முதல் பருவம் – தமிழ்த்தாள் 1

அலகு – 1

செய்யுள் திரட்டு வாய்மொழி இலக்கியம்: நாட்டுப்புறப்பாடல்கள்

1. தாலாட்டு
2. காதல்
3. ஒப்பாரி
4. காணிநிலம் வேண்டும் – பாரதியார்
5. நல்லதோர் வீணை – பாரதியார்
6. தமிழ்க்காதல் – பாரதிதாசன்
7. தமிழ் வளர்ச்சி – பாரதிதாசன்
8. எந்நாளோ? – பாரதிதாசன்
9. ஆறுதன் வரலாறு கூறுதல் – கவிமணி தேசிக விநாயகம்பிள்ளை

அலகு – 2

1. வழித்துணை – ந. பிச்சமுர்த்தி
2. குருடர்களின் யானை – அப்துல் ரகுமான்
3. முள் முள் முள் – சிற்பி

அலகு – 3 (புதுமைப்பித்தன் கதைகள்)

1. கடவுளும் கந்தசாமிப்பிள்ளையும்
2. செல்லம்மாள்
3. துன்பக்கேணி
4. ஆற்றங்கரைப் பிள்ளையார்
5. ஒருநாள் கழிந்தது

அலகு – 4

1. பெயர், வினை, இடை, உரிச்சொற்களின் பொது இலக்கணம், வலிமிகும் இடங்கள், வலிமிகா இடங்கள்

அலகு – 5

1. தமிழ்க்கவிதையின் தோற்றமும் வளர்ச்சியும் (மரபுக்கவிதை, புதுக்கவிதை)
2. தமிழ்ச்சிறுகதையின் தோற்றமும் வளர்ச்சியும்
3. மரபுத்தொடர்கள், பொருந்திய சொல் தருதல், கலைச்சொற்கள், நேர்காணல்

மேற்பார்வை நூல்கள்:

1. சென்னைப்பல்கலைக் கழக வெளியீடு – 2013
2. பொது இலக்கணம்

Total No of Hrs : 45



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

HBHI17001

HINDI – I

3 0 0 3

OBJECTIVES:

- Special emphasis on creative writing with phrases and quotes.
- Essays of eminent authors have been selected
- Administrative terms prescribed by official language department is taught

Prose, Administrative Hindi and Grammer.

UNIT I

9 Hrs

1. Sabhyatakaarahasya – lesson and annotations ,Questions & answers,
2. Administrative terms (Prayojanmulak Hindi)

UNIT II

9 Hrs

1. Mitrathakarahasya - lesson and annotations questions and answers
2. Patralekhan, definitions, correspondence in hindi

UNIT III

9 Hrs

1. Paramanuoorjaevam and kadhyasanrakshan (lesson) annotations and answers,
2. Technical terms and words, letter writing

UNIT IV

9 Hrs

1. Yuvavon se (lesson), annotations, essay and questions and answers
2. Types of official correspondence, technical terms
3. Grammer(Change of voice, correcting the sentences)

UNIT V

9 Hrs

1. Yogyataaurvyavasaykachunav (Lesson) essay, questions and answers
2. Letter writing
3. grammer& technical terms

Total no of Hrs: 45

TEXT BOOK:

1. Dr. Syed Rahmatullah&PoornimaPrakashan, Hindi gadhyamaala

REFERENCES:

1. Dr. Syed Rahmatullah&PoornimaPrakashan, *Prayojanmulak Hindi*
2. Dakshin Bharat Hindi Prachara Sabha, T.Nagar,*Saral Hindi Vyakaran-2*



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBEN17001

ENGLISH - I

3 0 0 3

COURSE OBJECTIVES:

- To prepare students for attaining a comprehensive knowledge of the communication skills.
- To make them understand the nuances of the language and use its vocabulary in appropriate contexts.
- To develop in students a knowledge of the various techniques in language use.
- To develop in them analytical and interpretative skills.
- To train learners in organized academic and business writing.

Unit I-PROSE- For Detailed Study

- | | |
|-------------------------------|-----------------|
| 1. On Running After One's Hat | G.K. Chesterton |
| 2. The Unexpected | Robert Lynd |
| 3. How to be a Doctor | Stephen Leacock |

Unit II- POETRY- For Detailed Study

- | | |
|------------------------------------|---------------------|
| 1. Ulysses | Lord Tennyson |
| 2. If | Rudyard Kipling |
| 3. Leave this Chanting and Singing | Rabindranath Tagore |

Unit III- SHORT STORY

- | | |
|----------------------------|--------------|
| 1. A Retrieved Reformation | O'Henry |
| 2. Engine Trouble | R.K. Narayan |

Unit IV – GLIMPSES FROM GREAT MINDS

- | | |
|------------------------|---------------------|
| 1. I lived with words | R.L. Stevenson |
| 2. My Vision for India | Dr. APJ Abdul Kalam |

Unit V - FUNCTIONAL ENGLISH

Enhancing LSRW Skills through Tasks

Note: Each lesson to be followed by text-based Vocabulary, Grammar, and Usage

Exercises

Synonyms, Antonyms- Affixes (prefixes & Suffixes)-Noun- Adjectives, Verb, Tense, Adverb, Preposition, 'if' clause, Articles, discourse markers, Reported and Direct speech- Voice, Degrees of comparison, Interrogatives
Comprehension, Précis writing

Text Books, Reference Books and Web Resources

1. Quest: A Textbook of Communication Skills, Orient Blackswan,
2. Pushkala R, P.A.Sarada, El Dorado: A Textbook of Communication Skills, Orient Blackswan, 2014
3. Padmasani Kannan.S., Pushkala.R. : Functional English
4. <https://learnenglish.britishcouncil.org>
5. www.englishpage.com
6. www.writingcentre.uottawa.ca/hypergrammar/preposit.html

Total No of Hrs : 45



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

HBMA17A01

MATHEMATICS I

3 1 0 4

OBJECTIVES:

- Engage students in sound mathematical thinking and reasoning.
- Analyze the structure of real world problems and plan solution strategies.
- Solve the Problems using appropriate tools.

UNIT I

12 Hrs

ALGEBRA: Binomial, Exponential, Logarithmic Series (without proof of theorems) –Problemson Summation, Approximation and Coefficients.

UNIT II

12 Hrs

MATRICES: Characteristic equation –Eigen values and Eigen vectors of a real matrix–Properties of Eigen values–Cayley-Hamilton theorem (withoutproof)–Orthogonal reduction of asymmetric matrix to Diagonal form.

UNIT III

12 Hrs

TRIGONOMETRY: Expansion of $\sin n\theta$, $\cos n\theta$ in powers of $\sin\theta$ and $\cos\theta$ –Expansion of $\tan n\theta$ –Expansion of $\sin^n \theta$ and $\cos^n \theta$ in terms of Sines and Conines of multiples of θ –Hyperbolic functions–Separation into real and imaginary parts.

UNIT IV

12 Hrs

DIFFERENTIATION: Basicconcepts of Differentiation–Elementary differentiation methods –Parametric functions–Implicitfunction –Leibnitz theorem(without proof)–Maxima and Minima– Points of inflection.

UNIT V

12 Hrs

FUNCTIONSOF SEVERAL VARIABLES : Partial derivatives– Total differential–Differentiation of implicitfunctions–Taylor'sexpansion–Maxima and Minima by Lagrange'sMethod of undeterminedmultipliers–Jacobians.

Total No of Hrs:60

TEXT BOOK:

1. Kreyszig,E(2001)*AdvancedEngineeringMathematics*(8th ed.),JohnWileyandSons(Asia)Pvt.Ltd., Singapore.

REFERENCES:

- 1.Grewal,B.S(2000) *Higher Engineering Mathematics*(3^{5th} ed.), Khanna Publishers, Delhi,
- 2.JohnBird(2010) *BasicEngineeringMathematics*(5th ed.),ElsevierLtd.
- 3.Veerarajan(2002) ,*EngineeringMathematicsforIYr*.TataMcGrawHillPublishingCo.,NewDelhi.
- 4.Kandasamy, P&Thilagavathy,K&Gunavathy, K(2000) *Engineering Mathematics*(4th Revised ed.),S.Chand& Co., Publishers, New Delhi.



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17G01

FUNDAMENTALS OF COMPUTERS

3 1 0 4

OBJECTIVES:

- To give you a general understanding of how a computer works.
- Introduce you to assembly-level programming.
- To prepare you for future courses.
- Introduction To Programming Environment.
- Input/ Output Devices and Memory units.

UNIT I

12 Hrs

Computer Basics: Algorithms – simple model of computer- Characteristics of computer-Problem solving using computers-**Data Representation:** Characters-integers-fractions-Hexadecimal representation of numbers-Decimal to binary conversion.

UNIT II

12 Hrs

Input/ Output Devices and Memory: **Input Devices:** Keyboard –Display unit-Computer mouse-Touch pad-Touch Screen – MICR – OMR-Flatbed Scanner- OCR-BarCode- **Output Devices** – Flat panel Display Technology – E-ink Display –Printers- Inkjet printers- Laser printers – Dot Matrix printers – Line printers- Plotters - **Memory** : Cell-Memory Organization-ROM-Serial access memory- Magnetic hard disc- CDROM-Magnetic Tap driver-Memory hierarchy.

UNIT III

12Hrs Programming

Languages: Introduction To Programming Languages – Assembly languages –high level programming languages-Computer generations and Classification: First,Second,Third,Fourth and Fifth generation-Classification of computers.

UNIT IV

12 Hrs

Microcomputers: Ideal microcomputer - Actual microcomputer - Memory system for microcomputers-microcomputer configuration- Evolution of microcomputers – Introduction to OS-Types of Operating System: Batch Operating system – Multiprogramming – Time sharing – On-line system- Real time systems – Personal computer operating system.

UNIT V

12 Hrs

Computer Networks : Introduction, Networking devices - NIC, Modem, Repeater, Bridge, Hub, Switch, Router,Types of Networks, Network Architecture-Client/Server,Peer-to-Peer, Network Topologies,Network Communication Technology-Intranet,Extranet,Internet.

Total No of Hrs: 60

TEXT BOOK:

1. Rajaraman, V and Neeharika adabala (2010), “Fundamentals Of Computers(6th ed.),PHI Learning.

REFERENCES:

1. Sinha, P, K(2004), “*Computer Fundamentals(6th ed.)*”, BPB Publications.
2. Reema Thareja(2014), “*Fundamentals of Computers*”, Oxford.
3. Anita Goel(2010), “*Computer Fundamentals*”, Pearson Education India.



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17G02

DOS AND OFFICE AUTOMATION

3 1 0 4

OBJECTIVES:

- To discuss the Disk Operating System.
- Features of MS-WINDOWS.
- To improve quality of output in terms of presentation and reduction in processing time.
- Discussing Microsoft Word documents and working with tables and columns.
- Introduction to Ms-Excel & Powerpoint.

UNIT I

12Hrs

Disk Operating System : Introduction - History & Version of Dos. Dos basics-Physical structure of disk, drive name, FAT, file & directory structure and naming rules. Booting process. DOS system files. Dos Commands - Internal : DIR, MD, CD, RD, COPY, DEL, REN, VOL, DATE, TIME, CLS, PATH, TYPE. External : CHKDSK, XCOPY, PRINT, DISKCOPY, DISCOMP, DOSKEY, TREE, MOVE, LABEL, APPEND, FORMAT, SORT, FDISK, BACKUP, EDIT, MODE, ATTRIB HELP, SYS.

UNIT II

12Hrs

Windows Operating System: Hardware requirements of Windows, Windows concepts, features, windows structure, Desktop, Taskbar, Start Menu, My Computer, Recycle bin - Windows Accessories: Calculator, Notepad, Paint, Wordpad, Character map, Windows Explorer: Creating folders and other explorer facilities. Entertainment, CD Player, DVD Player, Media Player, Sound Recorder, Volume Control.

UNIT III

12 Hrs

Introduction to MS Word: Starting Word-Typing and saving your Masterpiece- Toolbars - The Ruler-Insertion point - Scroll Bars - The Menu bar - The status bar - Dialog Boxes - Command buttons - check boxes - drop-down lists -tabs - radio buttons - Increment buttons -Wizards and Templates - Basic Text Editing: Moving around in a document, Adding Text, Cut, Copy, Paste, Undo, Redo, Delete.

UNIT IV

12 Hrs

Formatting & Working with tables & columns : Character and paragraph Formatting, - font dialog box - Keeping text together- Adding borders and shading - setting page margins - numbering pages- Proof reading Tools: Find and replace, Checking Grammar, Using the Thesaurus - Creating a table- Using table tools changing columns widths with Auto fit: Gridlines, Merging Cells, Formatting Sorting tables, copying tables, deleting tables - Mail merge.

UNIT V

12 Hrs

Introduction to Ms-Excel and Powerpoint : Overview - Excel highlight - starting excel - creating spreadsheet excel menu -Working with Formulas and Functions, advance formulas - Formatting:Types of formatting Using borders, color and patterns- Creating , Formatting and Exploring charts - Creating a Presentation- Modifying a Presentation - Inserting Objects into a Presentation - Working with Advanced Tools and Masters - Enhancing Charts Inserting Objects and Media Clips.

Total No of Hrs: 60

TEXT BOOK:

1. Corey Sandler , Tam Badgett& Jan Weingarten, *Teach Yourself Office 97/2000 For Windows*, BPB Publications.
2. Russell A Stultz *Dos 6.22*, BPB Publication.

REFERENCES:

1. Stephen L. Nelson(1999) , *Office 2000: The Complete Reference* , McGraw-Hill.
2. Paul McFedries (2003), *Teach Yourself VISUALLY Windows 8.1*, Wiley Publisher.



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17L01

DOS AND OFFICE AUTOMATION LABORATORY

0 0 2 2

OBJECTIVES:

- Students will learn various internal and external DOS commands
- Students should know how to operate Windows OS
- Students will be learning and knowing to operate MS WORD
- Students will have knowledge on MS EXCEL worksheets and POWERPOINT

DOS AND WINDOWS

1. Study of various internal and external commands of DOS.
2. Study of various batch file commands and creation of batch file
3. Study of redirection and piping concept.
4. Study of Windows OS and Accessories of windows

MS - WORD

5. Text Manipulations & Formatting
6. Usage of Numbering, Bullets, Footer and Headers.
7. Usage of Spell check, and Find & Replace.
8. Creation templates.
9. Mail Merge Concepts.
10. Copying Text & Pictures from Excel.

MS - EXCEL

11. Cell Editing.
12. Usage of Formulae and Built-in Functions.
13. File Manipulations.
14. Data Sorting (both number and alphabets)& usage of auto formatting
15. Drawing Graphs.

POWER POINT

16. Inserting Clip arts and Pictures AND Frame movements
17. Preparation of Organisation Charts.
18. Presentation using Wizards.

Total Hrs needed to complete the lab: 30



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBTA 17002

TAMIL

3 0 0 3

நோக்கம்:

- தமிழ் இலக்கிய வரலாற்றில் சிற்றிலக்கியங்கள் பெறும் இடத்தைப்பற்றி எடுத்துரைத்தல்.
- சைவ, வைணவ சமயங்களோடு தமிழ் இலக்கிய மரபு கொண்டுள்ள உறவினைப்போல பிற சமயங்களான கிறித்தவ, இஸ்லாம் சமயங்களோடும் தமிழ் இலக்கியம் உறவுகொண்டு விளங்குவதனை எடுத்துரைத்தல்.
- காப்பிய மரபினை எடுத்துரைத்து ஒருசில காப்பியங்களைப் பயிற்றுவித்தல்.
- அடிப்படை இலக்கணத்தைப் பயிற்றுவித்தல்.

இரண்டாம் பருவம் – தமிழ்த்தாள் 2

அலகு – 1

10. சிற்றிலக்கிய வரலாறு
11. கிறித்துவ இலக்கிய வரலாறு
12. இஸ்லாமிய இலக்கிய வரலாறு

அலகு – 2

4. நந்திக்கலம்பகம்
5. முத்தொள்ளாயிரம்
6. தமிழ்விடு தூது (36 கண்ணிகள்)

அலகு – 3

6. திருக்குற்றாலக்குறவஞ்சி (குறத்தி மலைவளம் கூறுதல்)
7. முக்கூடற்பள்ளு (நாட்டுவளம்)
8. இயேசுபிரான் பிள்ளைத்தமிழ் (செங்கீரைப்பருவம் முதல் 5 செய்யுட்கள்)

அலகு – 4

2. நளவெண்பா (கலிநீங்கு காண்டம்)
3. சீறாப்புராணம் (மானுக்குப் பிணை நின்ற படலம்)

அலகு – 5

4. இலக்கணக்குறிப்பு : உவமைத்தொகை, பண்புத்தொகை, உம்மைத்தொகை, வேற்றுமைத் தொகை, வினைத்தொகை இருபெயரொட்டுப் பண்புத்தொகை, அன்மொழித்தொகை
5. ஒருபொருள் குறித்த பலசொல், பலபொருள் குறித்த ஒருசொல்
6. ஒருமை, பன்மை – மயக்கம், பிறமொழிச்சொற்களை நீக்குதல், அகரவரிசைப்படுத்துதல்

மேற்பார்வை நூல்கள்:

3. சென்னைப்பல்கலைக் கழக வெளியீடு – 2013
4. பொது இலக்கணம்



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBEN17002

ENGLISH - II

3 0 0 3

COURSE OBJECTIVES:

- To prepare students to attain a comprehensive knowledge of the communication skills.
- To make them understand the nuances of the English language and use the vocabulary in appropriate contexts.
- To develop in students a knowledge of the various techniques in language usage.
- To develop in them analytical and interpretative skills.
- To train learners in organized, academic and business writing.

Unit I- PROSE- For Detailed Study

- | | |
|------------------------------|---------------|
| 1. The Spoon Fed Age | W.R. Inge |
| 2. Disaster Management | B.M. Hegde |
| 3. If You are Wrong Admit it | Dale Carnegie |

Unit II – POETRY- For Detailed Study

- | | |
|----------------------------|-----------------|
| 1. A Psalm of Life | H.W. Longfellow |
| 2. Anthem for Doomed Youth | Wilfred Owen |
| 3. Street Cries | Sarojini Naidu |

Unit III – SHORT STORY

- | | |
|-----------------------------------|------------------|
| 1. How Much Land does a Man Need? | Leo Tolstoy |
| 2. Uncle Podger Hangs the Picture | Jerome K. Jerome |

Unit IV - DRAMA

- | | |
|---|---------------------|
| 1. Excerpts from The Merchant of Venice | William Shakespeare |
| 2. The Monkey's Paw | W.W. Jacob |

Unit V – FUNCTIONAL ENGLISH

Enhancing LSRW Skills through Tasks

Text Books, Reference Books and Web Resources

1. Quest: A Textbook of Communication Skills, Orient Blackswan,
2. Pushkala R, P.A.Sarada, El Dorado: A Textbook of Communication Skills, Orient Blackswan, 2014
3. Padmasani Kannan.S., Pushkala.R. : Functional English
4. <https://learnenglish.britishcouncil.org>
5. www.englishpage.com
www.writingcentre.uottawa.ca/hypergrammar/preposit.html

Total No of Hrs :45



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBHI17002

HINDI II

3 0 0 3

OBJECTIVES:

- Famous ancient and modern poets from the Hindi literature are prescribed
- Navrasas and meters are taught
- To keep with latest trends in modern Hindi, Computer applications in Hindi, provisions of official language Act etc are included

UNIT I

(Poetry, Hindi computing ,alankar)

9 Hrs

1. Poetry Manu Ki chintha – kaviparichay, annotation, summary, Madhushala and kabirdhas , two padhya only
2. 2. Alankaaranupras, and upma only

UNITII

9 Hrs

- 1.PoetrySurdas (two padh only), kaviparichay, annotation , Kaikeyikapaschatap
2. Utprekshaalankar

UNIT III

9 Hrs

1. Meerabai only only one padya
2. Kaamkajihindi, concept of official language, and hindi computing theory

UNIT IV

9 Hrs

1. Jugnu ,summary & meaning annotation
2. Hin di software packages,

UNIT V

9 Hrs

1. Kaviparichay
2. Kabirdas, MeerabaiMythili saran gupta
3. Jaishankar Prasad
4. Sleshaalankar.

Total No of Hrs :45

TEXT BOOK:

- 1.Dakshin Bharat hindipracharasabha, *KavyaKusum- 3*

REFERENCES:

- 1.Murali Manohar&vidhyanilaya,*Ras Chand Alankar*
- 2.Hareeshvishwavavidyalayprakashan, agra, *Kaamkajihindi and hindi computing*



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

HBFR17002

FRENCH II

3 0 0 3

UNIT - 1

Cultiver les relations

UNIT - 2

9 Hrs

Découvrir le passé

UNIT - 3

9 Hrs

Entreprendre

UNIT - 4

9 Hrs

Prendre des décisions

UNIT - 5

9 Hrs

Faire face aux problèmes et s'évader

9 Hrs

Total No of Hrs: 45

TEXT BOOK:

Authors : Jacky Girardet, Jacques Pécheur

Available at : Goyal Publishers Pvt Ltd 86, University Block Jawahar Nagar

New Delhi – 110007. Tel : 011 – 23858362 / 23858983



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

HBMA17A02

MATHEMATICS II

3 1 0 4

OBJECTIVES :

- Aware about the importance and symbiosis between mathematics and applied sciences
- Use double and triple integrals to find the surface area and volume of a solid region
- To solve equations of tangent planes and normal lines to surfaces

UNIT I

12 Hrs

INTEGRATION: Basic concepts of Integration –Methods of Integration–Integration by substitution–Integration by parts –Definite integrals – Properties of definite integrals–Problems on finding Area and Volume using single integrals(simple problems).

UNIT II

12 Hrs

MULTIPLEINTEGRALS: Double integral in Cartesian and Polar Co-ordinates – Changeoforder of integration–Triple integral inCartesian Co-ordinates– Spherical Polar Co-ordinates–Change of variables (simple problems).

UNIT III

12 Hrs

ORDINARYDIFFERENTIALEQUATIONS: First order differential equations –Second and higher order linear differential equations with constant coefficients and with RHS of the form: e^{ax} , x^n , $\sin ax$, $\cos ax$, $e^{ax} f(x)$, $xf(x)$ where $f(x)$ is $\sin bx$ or $\cos bx$ –Differential equations with variable coefficients(Euler’sform)(simple problems).

UNIT IV

12 Hrs

THREEDIMENSIONALANALYTICALGEOMETRY: Direction Direction CosinesandRatios– Equationofastraightline– Anglebetweentwo lines–Equationofaplane– Co-planarlines – Shortestdistancebetween skewlines–Sphere –Tangentplane.

UNIT V

12 Hrs

VECTORCALCULUS: Scalar and Vector functions–Differentiation–Gradient,Divergence and Curl–Directional derivatives–IrrotationalandSolenoidalfields–Line,SurfaceandVolumeintegrals – Green’s,Stoke’sandGaussdivergencetheorems(statement only) –Verification.

Total No of Hrs: 60

TEXT BOOK:

1. Kreyszig,E(2001)*AdvancedEngineeringMathematics*(8th ed.),JohnWileyandSons(Asia)Pvt.Ltd., Singapore.

REFERENCES:

1. Grewal,B,S(200), *HigherEngineeringMathematics*(35th ed.),KhannaPublishers.
2. JohnBird (2010) *BasicEngineeringMathematics*(5th ed.),ElsevierLtd.
3. Veerarajan, T(2002) *EngineeringMathematicsforIYr.*(FirstReviseded.), TataMcGrawHill Publishing Co.,NewDelhi.
4. Kandasamy,P.,Thilagavathy, K&Gunavathy,K, *EngineeringMathematics*Vol.I(4th Reviseded.)S.Chand&Co.,Publishers,NewDelhi..
6. JohnBird(2006) *HigherEngineeringMathematics*(5th ed.),ElsevierLtd.



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17G03

FINANCIAL ACCOUNTING

3 1 0 4

OBJECTIVES:

- > To convey sufficient knowledge for an accounting structure, Depreciation accounting analysis
- > Students are expected and able to analyze a company's financial statements and come to a reasoned conclusion about the financial situation of the company.

UNIT I

12 Hrs

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.

UNIT II

12 Hrs

Preparation of Final Accounts of Sole Trading Concern – Adjustments – Closing Stock – Outstanding and Prepaid items, Depreciation, Provision of Bad Depts., Provision for Discount on Debtors, Interest on Capital and Drawings – Preparation of Cash Book – Types of Cash Book

UNIT III

12 Hrs

Classification of errors : Rectification of errors – Partnership Accounts-types of partners – Partnership Deed and content – Methods to calculate interest on Drawings – Partners salary or commission – Interest on partners loan – Profit and Loss Appropriation Account.

UNIT IV

12 Hrs

Depreciation : Meaning, Causes, Types – Straight Line Method – Written Down Value Method (Change in Method excluded) - Insurance Claims – Average Clause (loss of stock only)

UNIT V

12 Hrs

Single entry : Meaning – Features – Defects - Difference between Single Entry and Double Entry System-Statement of Affairs Method – Conversion Method (only simple problems)

Total No of Hrs: 60

TEXT BOOKS:

1. Gupta R.L.(2010) *Advanced Accountancy*(14th ed.),S.Chand, Delhi.
2. T.S Reddy and A.Murthy – Financial accounting.

REFERENCES:

1. Agarwala A. N. *Higher Science of Accountancy*(1st ed.) KitabMahal,Allahabad.
2. Jam,S,P&Narang,K,L(2012)*Financial Accounting*(2nd ed.)Kalyani Publisher
3. Shukla, M, C &Grawel,T,S(2010) *Adavnced Accounts(vol I)*(7th ed.), S.ChandPublishing



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17G04

PROGRAMMING IN C

3 1 0 4

UNIT I

12 Hrs

C fundamentals: Character set - keywords and Identifiers - constants - Variables – Declarations of variables –Data types – Expressions - Operators: Arithmetic-Relational-logical- Assignment- Increment and Decrement- Conditional – Bitwise - Special operators - Mathematical functions.

UNIT II

12 Hrs

Decision making, Looping and Arrays: Decision making : Simple if- if...else- nested if..else- switch case - goto statement - Looping: while, do- while, for loop. One dimensional array-two dimensional array - Character arrays – Strings - String handling functions.

UNIT III

12 Hrs

Functions: Definition –function declaration- function call - Passing arguments – Recursion - Storage Classes: Automatic, External, Static and Register Variables.

UNIT IV

12 Hrs

Structures and Pointers : Defining and declaration of structures - Accessing structure members – Unions - Pointers - Declarations – Accessing a variable through its pointer-Pointer and Arrays

UNIT V

12 Hrs

Files: Types of files - Opening and closing a file - Input/ Output operations on files.

Total No of Hrs: 60

TEXT BOOK:

1. Balaguruswamy, E(2012), *Programming in C(6th ed.)*, Tata McGraw-Hill Publishing Company Limited.

REFERENCES:

1. Byron Gottfried & Jitender Chhabra(2010), *Programming with C* (Schaum's Outlines Series), McGraw Hill Education.
2. K N King(2008), *C Programming(2nd ed.)*, W. Norton & Company



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17L02

PROGRAMMING IN C LABORATORY

0 0 2 2

List of Experiments:

1. Finding Biggest number among three numbers.
2. Finding whether the given number is prime or not.
3. Reverse a string and check for palindrome.
4. GCD of two numbers.
5. Fibonacci series.
6. Matrix Operations.
7. Factorial using Recursion.
8. Prepare student mark sheet using structures .
9. Swapping using Pointers.
10. File Operations.

Total Hrs needed to complete the lab: 30



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17A01 ALLIED PAPER INTRODUCTION TO DIGITAL FUNDAMENTALS 3 1 0 4

OBJECTIVES:

- Student will learn the concepts of computer organization for several engineering applications.
- Student will develop the ability and confidence to use the fundamentals of computer organization as a tool in the engineering of digital systems.

UNIT I

12 Hrs

Binary Systems : Digital Computers and Digital Systems – Binary Numbers – Number Based Conversions – Octal and Hexadecimal Numbers - Complements - Binary codes - Binary logic

UNIT II

12 Hrs

Logic Gates and Simplification of Boolean Functions : Digital Logic Gates - Truth tables. K- map method (upto 5 Variables) – Product of Sums Simplifications – Don't Care Conditions - Mc-Clausky Tabulation method.

UNIT III

12 Hrs

Combinational Logic : Adders - Subtractors - Decoders - Encoders - Multiplexer - Demultiplexer - Design of Circuits using decoders/Multiplexers - ROM - PLA (Programmable Logic Array)– PAL(Programmable Array Logic).

UNIT IV

12 Hrs

Sequential logic : Flip flops : RS, JK, Master-Slave flipflop, D and T Flip flops - Registers – Shift Registers – Types of shift registers : SIPO, SISO, PISO, PIPO.

UNIT V

12 Hrs

Counters and Memory : Counters - Ripple Counters - Synchronous Counter-asynchronous counter, Up/down synchronous counters, Cascaded counters –Basics of Memory- RAM-ROM-PROM-EPROM

Total No of Hrs: 60

TEXT BOOKS:

1. Morris Mano, M(1984), *Digital Logic and Computer Design*(2nd ed.), Prentice Hall of India
2. Thomas L. Floyd & R.P. Jain, (2009), *Digital Fundamentals*(8th ed.), Pearson Education

REFERENCE:

1. Bartee, T, C(1991) *Computer Architecture and logical Design* McGraw Hill,.



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17G05

DATA STRUCTURES

3 1 0 4

OBJECTIVES :

- Having successfully completed this course, the student will be able to:
- Choose the data structures that effectively model the information in a problem.
- Select appropriate methods for organizing data files and implement file-based data structures.

UNIT I

12 Hrs

Introductions and Overview: Basic terminology- Elementary data organization - Data structures- Data structure operations – ADT – Mathematical Notations and Functions

UNIT II

12 Hrs

Array, Records And Pointers: Linear array , Representation of linear arrays in memory - Traversing linear arrays - Inserting and Deleting - Sorting methods(Selection, bubble, insertion) -Searching methods (Binary and linear search) – Multidimensional Arrays – Pointers – Pointer Arrays – Record Structures – Representation of Records in memory.

UNIT III

12 Hrs

Linked List: Representation of Linked list in memory – Traversing and Searching a linked list - Memory allocation - Garbage collection - Insertion and deletion in linked list

UNIT IV

12 Hrs

Stacks, Queues, Recursion: Stacks - Array representation of stacks – Linked List Representation of Stacks - Arithmetic expression – Recursion – Queues – Linked Representation of Queues

UNIT V

12 Hrs

Trees: Binary Trees – Representing Binary Tree in Memory - Traversing of binary trees - Header Nodes – Threaded Binary Tree – Binary Search Tree – Searching, Inserting and Deleting in a Binary Search Tree

Total No of Hrs: 60

TEXT BOOK:

1. Seymour Lipschutz(2011) *Data Structures with C*, Schaum's Oulines, Mcgraw Hill

REFERENCE:

1. Jeanpaul, Tremblay Paul & Sorenson, G(2007) *An Introduction To Data Structure With Application*(2nd ed.), Tata Mcgraw Hill.



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17G06

WEB PAGE DESIGNING

3 1 0 4

OBJECTIVES:

- Understand the importance of the web as a medium of communication.
- Understand the principles of creating an effective web page, including an in-depth consideration of information architecture.
- Learn the language of the web: HTML and CSS.

UNIT I

12Hrs

Web Publishing: Web browser – WWW - Web design process: Implementation, Maintenance Phases of Website - Web Publishing - HTML Documents: Overview, rules guidelines, structure of HTML documents, document types.

UNIT II

12 Hrs

HTML Tags: <HTML> - <HEAD> - <TITLE> , <BODY>,<Marquee> - Paragraphs - Lists - Text Formatting, , Text Styles - Adding Graphics to HTML Documents- Linking Documents.

UNIT III

12Hrs

Tables, Frame and Forms: Table tag and its Attributes - Frame: Overview of frame, Frameset - Simple frame, Frame targeting - Forms: Form objects and Methods.

UNIT IV

12 Hrs

DHTML: Introduction to Dynamic HTML – CSS – Addition Style to a Document : Linking to a Style Sheet - Embedding and Importing Style Sheet.

UNIT V

12 Hrs

Introduction to PHP : Including PHP in a page - Data types - Arrays -Regular expressions - Functions- Managing Cookies - Maintaining Sessions.

Total No of Hrs: 60

TEXT BOOK:

1. Thomas A. Powell(1999), *HTML: The Complete Reference*(2nd. ed.), Bpb Publication.

REFERENCES:

1. Ed. Wilson (2006), *Microsoft VBScript: Step by Step*, Microsoft Press.
2. Sterling Hughes(2001) *PHP:Developers's Cook book*,BPB publications.
3. Ivan N Bayross(2000), *Web Enabled Commercial Applications Development Using, HTML, DHTML, Java Script, Perl CGI*(2nd ed.), BPB Publications.



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17G07

OPERATING SYSTEMS

3 1 0 4

OBJECTIVES:

- Student will learn the functioning of modern computers.
- Student will learn the purpose, structure and functions of operating systems.
- Student will learn the illustration of key OS aspects by example.

UNIT I

12 Hrs

Introduction: What is an operating system? - Mainframe, desktop, multiprocessor, distributed, clustered, real - time and handheld systems - Operating System Structures - System components - operating system services - system calls - systems programs - system structure - virtual machines.

UNIT II

12 Hrs

Process: Process concept - process scheduling - operations on processes - cooperating processes - Inter process communication - CPU Scheduling: Basic concepts, scheduling criteria, scheduling algorithms.

UNIT III

12 Hrs

Process Synchronization: The critical section problem – semaphores - classical problems of synchronization - Deadlocks: Deadlock characterization, methods for handling deadlocks, Deadlock prevention, avoidance and detection, Recovery from deadlocks.

UNIT IV

12 Hrs

Memory Management: Swapping - contiguous memory allocation – paging – segmentation - segmentation with paging - Virtual Memory - Demand paging - page replacement - location of frames - thrashing.

UNIT V

12 Hrs

Storage Management: Introduction- File Concept – File Attributes- File Operations - File Types – Access Methods: Sequential and Direct - Directory Structure: Storage Structure , Directory Overview.

Total No of Hrs: 60

TEXTBOOK :

1. . Abraham Silberschatz, Peter Baer Galvin, Greg Gagne(2006), *Operating System Principles(7th ed.)* , John Wiley & Sons(Asia) Pte Ltd.

REFERENCES:

1. Thomas Anderson & Michael Dahlin (2014) , *Operating Systems: Principles and Practice* (2nd ed.)
2. H.M. Deitel(1990), *An Introduction to Operating System*, 2nd ed. Addison Wesley.
3. Andrew S. Tanenbaum , *Modern Operating Systems* (4th ed.)
4. Stallings, *Operating systems*(6th ed.), Prentice Hall.



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBMG17L01

SOFT SKILL-I

0 1 1 2

OBJECTIVES:

- To diagnose the strength and weakness of the student in Functional English.
- To develop the functional grammar.
- To prepare them to use Functional English through LSRW.
- To make them learn through practice and activity.
- To use English Language as a life skill.

Prelude

Diagnostic Test- Articles, Forms of 'be' verbs, Tense, Preposition, Gerund & Infinitives, Reported Speech, Active & Passive Voice, Letter Writing.

UNIT-I

6 hours

Job and Career-three types-Govt., pvt and public sector-Bank, govt.offices, navy, defense, govt.institutions-IT and, BPO and corporate-semi govt like ISRO etc- requirements-advt-skills needed(download the details)
Delivery Audio and Video cassettes.

UNIT-II

6 hours

Technical skill-Communication skill especially in English-strengthening communicative English-Listening, Reading, Speaking and Writing-Listening-sounds of vowels and consonants and writing them-functional English-difference between functional and theoretical English.

UNIT-III

6 hours

Listening and Writing
Activity based exercise on articles, modals, preposition and infinitives.
The above topics are chosen as we don't find equivalents' in L1.

UNIT-IV

6 hours

Reading and Writing
Vocabulary-synonyms, antonyms, collocations, confused words, homonym, odd man out, words with correct spelling, avoid redundancy-Inferential comprehension (based on BEC and Blog on Soft Skills BY me)

UNIT-V

6 hours

Speaking
Introducing yourself (giving questions)-collecting information in pairs and presenting it for 2 minute-story telling through picture- interpretation of psychometric pictures through question and answer- PPT preparation and presentation- developing the story in pairs as game.

Total:

30 Periods

Text Book

1. Soft Skill for Everyone-Jeff Butterfield, Part-1; Unit-D&E
2. EFA (English For All)- Dr. Padmasanni Kannan, Libin Roy Thomas
3. English for Competitive Exam- R.P. Bhatnagar, Rajul Bhargava

Reference Books:

1. Soft Skill Blog
2. Jobsearch.about.com
3. www.exsearch.in/interview.html



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17L03

DATA STRUCTURES USING C LABORATORY

0 0 2 2

List of Experiments

1. Implement PUSH, POP operations of a stack using arrays.
2. Implement add, delete operations of a queue using arrays.
3. Implement PUSH, POP operations of a stack using pointers.
4. Implement add, delete operations of a queue using pointers.
5. Implement Selection sorting method.
6. Implement Bubble sorting method.
7. Implement Insertion sorting method.
8. Implementation of Linear Search.
9. Implementation of Binary Search.
10. Depth first search for graphs using recursion.
11. Breadth first search for graphs.
12. Implementation of Tree traversals.

Total No of Hrs needed to complete the Lab : 30



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17L04

WEB PAGE DESIGNING LABORATORY

0 0 2 2

List of experiments

1. Program to illustrate Text Formatting tags.
2. Create a web page using ordered list and unordered list.
3. A program to illustrate Hyperlink tag(Anchor tag) .
4. Create a webpage which contains table with its Attributes.
5. Create a Web Page using frame tag with its attributes.
6. Create a webpage using img tag..
7. Create a web page using form tag.
8. Use Cascading Style Sheet to create web page.
9. Write a PHP program for Login Validation.
10. Finding page hit count and setting page expiry using PHP.

Total No of Hrs needed to complete the Lab : 30



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17A02 ALLIED PAPER COMPUTER ORGANIZATION AND MICROPROCESSOR DESIGN

3 1 0 4

OBJECTIVES :

- Student will learn the concepts of computer organization for several engineering applications.
- Will learn building blocks of Computer Systems.
- To be understand memory management.
- Student will develop the ability and confidence to use the fundamentals of computer organization as a tool in the engineering of digital systems.

UNIT I

12 Hrs

Building blocks of computer system: Basic building blocks – I/O, Memory, ALU and its components, Control Unit and its functions - Instruction –word, Instruction and Execution cycle - branch, skip, jump and shift instruction - Operation of control registers- Controlling of arithmetic operations.

UNIT II

12 Hrs

Addressing techniques and registers: Addressing techniques – Direct, Indirect, Immediate, Relative, Indexed addressing and paging. Registers – Indexed, General purpose, Special purpose, overflow, carry, shift, scratch, Memory Buffer register, accumulators , stack pointers , floating point, status information and buffer registers.

UNIT III

12 Hrs

Memory: Main memory: RAM, static and dynamic, ROM, EPROM, EEPROM, EAROM, Cache and Virtual memory.

UNIT IV

12 Hrs

Interconnecting System components: Buses: Interfacing buses, Bus formats – address, data and control, Interfacing keyboard, display, auxiliary storage devices and printers - I/O cards in personal computers.

UNIT V

12 Hrs

Introduction to Microprocessors and Microcontrollers: introduction to 8085 micropocesor - examples of few instructions to understand addressing techniques - Difference between microprocessor and microcontrollers.

Total No of Hrs: 60

TEXT BOOK:

1. Andrew S. Tanenbaum(2005), “*Structured Computer Organization(5th ed.)*”,Printice Hall.

REFERENCES :

1. William Stallings(2003), “*Computer Organization and Architecture(6th ed.)*”, Pearson.
2. Bartee,T,C(1991), “*Computer Architecture and logical Design*”, McGraw Hill,.
3. David A. Patterson & John L. Hennessy(2011), “*Computer Organization and Design: The Hardware/Software Interface(4th ed.)*”, Morgan Kaufmann Publishers Inc.



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17G08 OBJECT ORIENTED PARADIGM AND PROGRAMMING IN C++ 3 1 0 4

OBJECTIVES:

- To prepare object-oriented design for small/medium scale problems.
- To explain class structures as fundamental, modular building blocks.
- To understand the role of inheritance, polymorphism, dynamic binding and generic structures in building reusable code.

UNIT I 12 Hrs

Introduction to OOPs : Object Oriented Programming, Basic concepts of OOPs, Benefits of OOPs.

UNIT II 12 Hrs

Introduction to C ++ : Tokens - Keywords, -Identifiers - Data types – Constant – Operators : Operator precedence and associativity - I/O statements - Structure of C++ program - Control statements - Looping statements - Type casting – Arrays – Pointers - Functions: Function Prototype, Call by value, Call by reference, Inline function, Friend functions, Function Overloading.

UNIT III 12 Hrs

Class & Objects : Class Members - Objects - Visibility modes - Static members - Constructors & Destructors - Operator Overloading - Rules for Overloading, Unary and Binary operator overloading.

UNIT IV 12 Hrs

Inheritance & Polymorphism : Concept of Inheritance : Types of Inheritance – Polymorphism - Virtual Classes - Pointer to Derived class - Virtual functions : Rules for Virtual function , Pure Virtual functions.

UNIT V 12 Hrs

C++ I/O System : C++ Streams, Stream classes - Formatted I/O - Overloading <<, Overloading >>

Total No of Hrs : 60

TEXT BOOK:

1. Balguruswamy, E (2008) *Object Oriented Programming With C++*, (4th ed.) Tata McGraw-Hill.

REFERENCES:

1. Richard Johnson Baugh & Martin Kalin (1998) *Object Oriented Programming In C++*(1st ed.) , Prentice Hall.
2. Sheild,H (2002) *C++ Complete Reference*(4th ed.) , McGraw-Hill Osborne Media.



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17G09

INTRODUCTION TO RDBMS

3 1 0 4

OBJECTIVES :

- To Understand basic database concepts, including the structure and operation of the relational data model.
- To Construct simple and moderately advanced database queries using Structured Query Language (SQL)

UNIT I

12 Hrs

Introduction and Basic Concepts: Structure of DBMS - Advantages and Disadvantages of DBMS - Relational Database: attributes & domains, tuples, relations and their schemes - Integrity rules - Relational Algebra: basic operations.

UNIT II

12 Hrs

SQL Language Basics : Oracle & Client-Server Technology - types of SQL Declarations – DDL - DML - SELECT command - data types - Expressions and Operators- Types of Operators - Precedence of Operators-.

UNIT III

12 Hrs

More on SQL: Data Integrity : types of integrity , integrity constraints , NOT NULL, UNIQUE, Primary KEY, CHECK Constraints - Oracle Dual Table - Oracle Built in Function - Union, Intersect, Minus,

UNIT IV

12 Hrs

SQL Performance Tuning: Indexes : creating indexes, changing an index, eliminating an Index –Views : properties and privileges of view, creating view, deleting a view – Sequences : creating, changing, deleting sequence, synonyms : creating, renaming, removing a synonyms

UNIT V

12 Hrs

Introduction to PL/SQL:Introduction -The Generic PL/SQL Block - How PL/SQL works-control structures, Stored Procedures and Functions - Database Triggers- types of triggers - creating, modifying and deleting a trigger - Introduction to Cursor

Total No of Hrs : 60

TEXT BOOK:

1. Jose A Ramalho(2000), *Oracle 8i*, BPB Publications.

REFERENCES:

1. Bipin C. Desai (1997), *An Introduction To Database Systems*, West Publishing Company.
2. Ivan Bayross Sql, *Pl/Sql The Programming Language Of Oracle*(2nd ed.) , Bpb Publications.



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17G10

SOFTWARE ENGINEERING

3 1 0 4

OBJECTIVE:

- To inculcate knowledge on Software engineering concepts in turn gives a roadmap to design a new software project.

UNIT I

12Hrs

Introduction to Software Engineering: Planning a Software Project: Planning the Development Process – Planning an Organizational Structure. Definitions – Size Factors – Quality and Productivity Factors. Software cost Factors – Software Cost Estimation Techniques – Staffing-Level Estimation – Estimating Software Estimation Costs.

UNIT II

12Hrs

Design Notations & Techniques: Software Requirements Definition: The Software Requirements specification – Formal Specification Techniques. Software Design: Fundamental Design Concepts – Modules and Modularization Criteria. Implementation Issues: Structured Coding Techniques – Coding Style – Standards and Guidelines – Documentation Guidelines.

UNIT III

12Hrs

Testiing Environment And Test Processes: Overview of Software Testing Process - Organizing for Testing : Requirement Specifications – Static & Dynamic Testing : Verification & Validation - Analyzing and Reporting Test Results – Post Implementation Analysis. Software Testing Life Cycle: SDLC & STLC , Stages - Test case Templates– Traceability Matrix - Defect Tracking Templates – Postmortem Report.

UNIT IV

12Hrs

Types, Techniques And Levels Of Testing: Developing the Test Plan - Using White Box Approach –Using Black Box Approaches to Test Case Design – Random Testing – Requirements based testing –Decision tables – State-based testing – Cause-effect graphing – Error guessing – Compatibility testing – Levels of Testing - Functionality Testing - Performance Testing - Compatibility Testing - Case study

UNIT V

12Hrs

Quality Assurance: Walkthroughs and Inspections - Static Analysis - Symbolic Execution - Unit Testing and Debugging - System Testing - Formal Verification: Enhancing Maintainability during Development - Managerial Aspects of Software Maintenance - Source Code Metrics

Total No of Hrs : 60

TEXT BOOK:

1. Pressman,R,S(1997) *Software Engineering*(4th ed.) , McGraw Hill.

REFERENCES:

1. Fairley,R(1997) *Software Engineering Concepts*, Tata McGraw-Hill.
2. Jeff Tian, *Software Quality Engineering*, Student Edition, 2006, Wiley India



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBMG17L02

SOFT SKILL-II

0 1 1 2

OBJECTIVES:

- To strengthen the students with the needed vocabulary.
- To infer information from the given passage through reasoning.
- To train them in attending group discussion.
- To face the technical and hr interview of the corporate.
- To raise communication proficiency to global standards

UNIT-I

6 hours

Preparation of resume- functional resume with objective according to different advts- how to have interview file- how to send it by email- concept of writing email- practise through BEC method (questions and answer)

UNIT-II

6 hours

Writing secretarial letters like intra-mail and inter-mail, agenda, memo and business reports- introducing GD through video-conduct of GD on a topic and also case studies

UNIT-III

6 hours

Body language-grooming- Interview skill- Dos and Donts- mock interview- exchange of interviewee practical session

UNIT-IV (Department of Mathematics)

6 hours

Number system- H.C.F & L.C.M- Problems on ages – Percentage- Profit & Loss- Ratio &Proportion- Partnership.

UNIT-V

6 hours

Time& work-Time& Distance- Clocks – Permutation &Combibnations- Heights &Distancea- Odd man out and Series.

Total No of Hrs : 30

TEXT BOOKS

1. Soft Skill for Everyone-Jeff Butterfield,Part-1; Unit-D&E
2. EFA (English For All)- Dr. PadmasanniKannan, Libin Roy Thomas
3. English for Competitive Exam- R.P. Bhatnagar,RajulBhargava
4. Placement Interview- S.Anandamurugan,Chapter-2&3
5. Alex K, Soft Skills; S. Chand& Company Pvt Ltd,2009
- 6.Rizvi Ashraf M, Effective Technical Communication; Tata McGraw-Hill; 2005
7. Thorpe, Edgar, Course in Mental Ability and Quantitative Aptitude Tata McGraw- Hill,2003
- 8.Agarwal, R.S, A Modern Approach to Verbal and Non-Verbal Reasoning, S. Chand& Co;2004
9. R.S.Agarwal, Quantitative Aptitude for Competitive Examinations,S. Chand& Co., (2017)

REFERENCES:

1. Jobsearch.about.com
2. www.exsearch.in/interview.html



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17L05

PROGRAMMING IN C++ LABORATORY

0 0 2 2

List of experiments:

1. To find GCD of two numbers using recursion.
2. To implement matrix multiplication.
3. To implement Class.
4. To implement Constructor.
5. Using Friend Function.
6. To demonstrate Inheritance.
7. To implement Virtual Function.
8. To Prepare bio data using file Operations.
9. To overload << Operator.
10. To add two complex numbers using Operator Overloading.

Total no. of Hrs needed to complete the Lab: 30



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17L06

RDBMS LABORATORY

0 0 2 2

List of experiments:

- I. SQL BASICS :**
 - 1. DDL – Create,Alter,Drop.
 - 2. DML-Update ,Insert,Delete.
 - 3. DRL-Select.
- II. VIEWS**
- III. INTEGRITY CONSTRAINTS-** Naming Constraints.
- IV. SUB QUERIES-** Nested, Complex.
- V. SQL FUNCTIONS-**Built in functions.
- VI. SET OPERATIONS**
- VII. PL/SQL-**Factorial ,Fibonacci Series.

Total no. of Hrs needed to complete the Lab : 30



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBMG17001

ENVIRONMENTAL STUDIES

3 0 0 3

OBJECTIVES:

- To gain a variety of experiences and acquire a basic understanding and knowledge.
- To develop a world in which persons are aware of and concerned about environment.
- To acquire an attitude of concern for the environment.
- To acquire the skills for identifying and solving environmental problems.
- To participate in improvement and protection of environment.
- To develop the ability to evaluate measures for the improvement and protection of environment.

UNIT-I ENVIRONMENT AND ECOSYSTEMS

9 Hours

Definition, scope and importance of environment – need for public awareness – concept, structure and function of an ecosystem – producers, consumers and decomposers – energy flow in the ecosystem. Biodiversity at National and local level – India.

UNIT-II ENVIRONMENTAL POLLUTION

9 Hours

Definition – causes, effects and control measures of: (a) Air Pollution (b) Water Pollution (c) Soil Pollution (d) Marine Pollution (e) Noise Pollution (f) Nuclear hazards (g) E-Wastes and causes, effects and control measures.

UNIT-III NATURAL RESOURCES

9 Hours

Forest resources: Use and over-exploitation, deforestation. Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems. Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems.

UNIT-IV SOCIAL ISSUES AND THE ENVIRONMENT

9 Hours

From unsustainable to sustainable development – urban problems related to energy – water conservation, rain water harvesting, watershed management – resettlement and rehabilitation of people; its problems and concerns climate change, global warming, acid rain, ozone layer depletion, nuclear accidents, central and state pollution control boards – Public awareness.

UNIT-V HUMAN POPULATION AND THE ENVIRONMENT

9 Hours

Population growth, variation among nations – population explosion, environment and human health – human rights – value education – HIV/AIDS – women and child welfare – role of information technology in environment and human health.

Total No of Hrs : 45

TEXT BOOKS

1. Gilbert McMasters, 'Introduction to Environmental Engineering and Science', 2nd edition, Pearson Education (2004).
2. Benny Joseph, 'Environmental Science and Engineering', Tata McGraw-Hill, New Delhi, (2006).



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17G11

PROGRAMMING IN JAVA

3 1 0 4

OBJECTIVES:

- To understand the concepts of object-oriented, event driven, and concurrent programming paradigms and develop skills in using these paradigms using Java.
- Be exposed to Java specific, Web services Architecture

UNIT I

12 Hrs

Introduction to Java : Features of Java - Object Oriented Concepts - Lexical Issues - Data Types - Variables - Arrays - Operators - Control Statements.

UNIT II

12 Hrs

Classes & Objects : Class – Objects-Methods- Constructors - Overloading methods - Access Control- Understanding Static - String Class – Objects – String Buffer - Char Array- Inheritance - Overriding methods - Using super- Abstract class - Java Utilities.

UNIT III

12 Hrs

Packages & Interfaces : Access Protection - Importing Packages - interfaces - Exception Handling - Multithreading -Thread - Synchronization - Messaging - Runnable Interface - Inter thread Communication – Deadlock - Suspending, Resuming and stopping threads.

UNIT IV

12 Hrs

I/O Streams : File Streams - Applets - Working with windows using AWT Classes - AWT Controls - Layout Managers and Menus.

UNIT V

12 Hrs

Network Basics : Socket Programming - Proxy Servers - TCP/IP Sockets - Net Address - URL - Datagrams

Total No of Hrs : 60

TEXT BOOK:

1. Naughton, P & Schildt, H(1999) *Java2 The Complete Reference* (3rd ed.),TMH.

REFERENCES:

1. Cay S.Horstmann, Gary Cornell (2000) *Core Java 2 Volume I Fundamentals* (5th ed.), PHI.
2. Arnold, K & Gosling, J(1996) *The Java Programming Language*(2nd ed.), Addison Wesley.



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17G12

VISUAL PROGRAMMING

3 1 0 4

OBJECTIVES:

- Identify the differences between the procedural languages and event driven languages
- Define and modify the properties and methods associated with an object
- Define and implement form objects, including data arrays, control arrays, text boxes, message boxes, dialog boxes, labels, pull down menus, and combo boxes.
- Design of application using visual data manager

UNIT I

12 Hrs

Customizing a Form : Writing Simple Programs - Toolbox - Creating Controls - Name Property - Command Button - Access Keys - Image Controls - Text Boxes - Labels - Message Boxes - Grid - Editing Tools - Variables - Data Types - String - Numbers.

UNIT II

12 Hrs

Loops and Functions: Displaying Information - Determinate Loops - Indeterminate Loops - Conditionals - Built-in Functions - Functions and Procedures .

UNIT III

12 Hrs

Arrays: Lists - Arrays - Sorting and Searching - Records - Control Arrays - Combo Boxes - Grid Control - Projects with Multiple forms - Do Events and Sub Main - Error Trapping.

UNIT IV

12 Hrs

VB Objects: Dialog Boxes - Common Controls - Menus - MDI Forms - Testing, Debugging and Optimization - Working with Graphics.

UNIT V

12 Hrs

Database programming with VB: Record set – Data control-Using the visual data manager – Entering data – Validating data – Accessing fields and record sets – using SQL statements - ADO objects.

Total No of Hrs : 60

TEXT BOOKS:

1. Gary Cornell(1999) *Visual Basic 6 from the Ground up* , Tata McGraw Hill.(I – IV Units)
2. Gary Bronson, Introduction to programming Using Visual Basic 6, Dreamtech publications, II Edition(Vth Unit)

REFERENCES:

1. Noel Jerke (1999) *Visual Basic 6 The Complete Reference* Tata McGraw Hill .



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17G13 COMPUTER GRAPHICS AND MULTIMEDIA SYSTEMS 3 1 0 4

OBJECTIVES:

- Gain knowledge about graphics hardware devices and software used.
- Understand the two and three dimensional graphics and their transformations.
- Be familiar with understand clipping techniques and Appreciate illumination and color models
- Introduce students to the design issues related to multimedia systems.
- Explain the interaction problems introduced by multimedia(e.g. Compression and synchronization)
- Students will be able to handle image files and can also create animations

UNIT I

12 Hrs

Introduction to computer Graphics : Video display devices- Raster scan Systems -Random Scan Systems - Output primitives - line drawing algorithms - - circle Generating algorithms- Attributes of output Primitives - line attributes

UNIT II

12 Hrs

Two dimensional transformation : Basic transformation - Composite transformation - Matrix representation - Two - dimensional viewing - window- to view port co-ordinate transformation - clipping algorithms - Interactive input methods-

UNIT III

12 Hrs

Three dimensional concepts : parallel Projection - Perspective Projection - Three dimensional transformation- -Three - dimensional concepts - Visible line and surface identification – Three dimensional viewing - Projection - Viewing transformation .

UNIT IV

12 Hrs

Multimedia System- Elements,- Application,- System Architecture - Data Compression and Need -Types Of Data Compression- Image and Graphics -Principles Of Raster Graphic- ,Computer Visual Display Concept-Resolution Color – Palettes - Refresh Rates - Digital Image Representation and Formats-Image Scanner -File Formats

UNIT V

12 Hrs

Animation principle : Special Effects - Survey Of Animation Tools- Video Technologies: Analog Video - Ccd Camera, Broadcasting - Recording Formats - Storage Principle and Retrieval Technologies - Magnetic Media Technologies and Storage Devices

Total No of Hrs : 60

TEXT BOOKS:

1. Hearn, D & Baker, M,P (1997) *Computer Graphics* - Prentice Hall of India(I-III Units)
2. Naleigh & Kiran Thakrar, P, K *Multimedia System Design* (IV,V Units)

REFERENCES:

1. Newman, M, W & RF.Sproull (1979) ,” *Principles of Interactive Computer Graphics*”, McGraw Hill International Edition.
2. Scott Fisher, “ *Multimediaauthoring Building &Developing Documents*”
3. Ralf Steinmetz, & Klara Nashtedt , “*Multimedia Computing Communication &Application* “
4. John F.Koegel Buford,” *Multimedia System*”
5. S.Gokul , “*Multimedia Magic*”, Bpb Publications



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17L07

PROGRAMMING IN JAVA LABORATORY

0 0 2 2

List of experiments:

1. Write a Java program to calculate Area and perimeter of a circle.
2. Write a Java Program to Check if the given number is Prime or not.
3. Write a simple Java program to Display Month of year using Calendar class.
4. Write a java program to sort a given set of numbers.
5. Write a java program for handling string Functions a) Reverse b) Replace c) Concat d) Compare.
6. Create New Thread Using Runnable interface in java.
7. Read File Using Java BufferedInputStream class.
8. Draw Oval, Circle, Rectangle & Square using Applets.
9. Write an applet Program for flowlayout.
10. Create AWT controls for button,combobox,checkbox,Textfield using java applet.

Total no. of Hrs needed to complete the Lab : 30



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17L08

VISUAL PROGRAMMING LABORATORY

0 0 2 2

List of experimemnts:

1. Building simple application using form object.
2. Working with intrinsic controls.
3. Application with menus.
4. Application with MDI.
5. Create a simple Calculator using windows common controls.
6. Block for factorial using Function.
7. Pay -roll system.
8. Inventory Processing System
9. Railway / Airway Reservation System.
10. Library Management System.

Total no. of Hrs. needed to complete the Lab : 30



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

HBMG17G01

ENTREPRENEURSHIP DEVELOPMENT

3 0 0 3

OBJECTIVES:

- To motivate a person for entrepreneurial career.
- To make him capable of perceiving and exploiting successfully opportunities for enterprises.
- To enable the participants internalize the concept and process of entrepreneurial motivation training.
- To adapt to varying audience and situation.
- To internalize the concept of achievement syndrome and its application with performance.

UNIT-I Concept of Entrepreneurship

9 Hours

Entrepreneurship – Meaning – Types – Qualities of an Entrepreneur – Classification of Entrepreneur – Factors influencing Entrepreneurship – Functions of Entrepreneurships.

UNIT-II Entrepreneurial Developments Agencies

9 Hours

Commercial Banks – District Industries Centre – National Small Industries Corporation – Small Industries Development Organization – Small Industries Service Institute, All India Financial Institutions – IDBI – IFCI – ICICI – IRDBI.

UNIT-III Project Management

9 Hours

Business idea generation techniques – Identification of Business Opportunities – Feasibility study – Marketing, Finance, Technology and Legal Formalities – Preparation of project report – Tools of Appraisal.

UNIT – IV Entrepreneurial Development Programmes

9 Hours

Entrepreneurial Development Programmes (EDP) – Role, relevance and achievements – Role of Government in organized EDPs – Critical Evaluation.

UNIT-V Economic Development and Entrepreneurial Growth

9 Hours

Role of Entrepreneurs in Economic Growth – Strategic approaches in the changing Economic scenario for small scale Entrepreneurs – Networking. Niche plat, Geographic Concentration. Franchising/Dealership – Development of Women Entrepreneurship.

Total No of Hrs : 45

TEXT BOOKS

1. Dr.V.balu – ENTREPRENEURIAL DEVELOPMENT
2. Dr. P.T.Vijayashree & Dr.M.Alagammal – ENTREPRENEURIAL DEVELOPMENT



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17G14

LINUX OPERATING SYSTEM

3 1 0 4

OBJECTIVES:

- To be aware of the evolution of the Operating System.
- To have an exposure to Linux.
- To enable the students to install and use Linux distribution.
- To train the students in the Linux environment, administration and configuration.
- To train shell programming in Linux.

UNIT I

12 Hrs

Linux Introduction: Introduction to OS: What is Linux OS-Comparison of various operating systems- Pros and Cons of Linux-Flavours of Linux-Linux Loader-Linux kernel-Linux Installation notes - File System :File System concept-Types of File Systems. File System Related Commands: mount, umount, mkfs, fsck, fdisk, dd, du, df, fsconf. Files: What is a File - Sorts of Files.

UNIT II

12 Hrs

Linux commands and Utilities: alias, at, atrm. File Manipulation commands: Files-Creating, Moving, Copying and Deleting Files -Viewing File and its properties. Directory related commands: cd, mkdir, rm, rmdir,ls, pwd, mv, tree. Filters: cat, grep, cut, wc, sort, more, pipe examples. Tools and utilites: find, locate, date, cal, gzip, gunzip, zcat, man, tar. Vi editor: Using Vim Editor-Basic Commands.

UNIT III

12 Hrs

System Administration: Security: File Security. Communication commands :- write, wall, talk, mesg, motd,Pre-login Message. Managing software with RPM:- Installing, Uninstalling, Upgrading. Managing users and Groups: Adding users, changing password, removing users, Adding groups, changing user group , removing groups. Administrative Commands: who, whoami, su, fdformat, login, logout, chmod, chown, chroot, hostname, ifconfig, netstat, ping.

UNIT IV

12 Hrs

Managing Processes and Scheduling: Processes: What is a Process-Process types-Commands for controlling processes-Process Attributes-Display Process Information – Life Cycle of Process. Managing Processes: Performance – Load - Process Scheduling. Backup and Restore: Backup Strategies and Operations-Restoring files.

UNIT V

12 Hrs

Shell Programming and Linux configuration: Shell Programming: Introduction to Shell Programming- Basics- Variables – Special Characters – Comparison of Expressions – Iteration Statements - Control Statements – Functions - Linux Configuration: Network configuration, DHCP configuration for Linux.

Total No of Hrs : 60

TEXT BOOKS:

1. Machtelt Garrels, Introduction to Linux,A Beginner's Guide, 3rd Edition, Linux Docuention Library, www.linbrary.com.
2. David Pitts, et al., Red Hat Linux 5.2 Unleashed, 2nd Edition, SAM Publishing.

REFERENCES:

1. Christopher Negus, Linux Bible 8th Edition, John Wiley & Sons, Inc.
2. Peter Norton, Complete guide to Linux, Techmedia Publications.
3. Redhat, Official Red Hat Linux User's guide ,Wiley Dreamte.
4. Yeswant Kanethkar,UNIX Shell Programming , BPB.



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17L09

LINUX LABORATORY

0 0 2 2

List of experiments:

1. Prime test.
2. Palindrome test.
3. Fibonacci series generation.
4. Armstrong No test.
5. Solving Quadratic Equation.
6. Sorting: Ascending & Descending - Menu Driven Shell Script.
7. Usage of Case Structures.
8. Process Scheduling: FCFS.
9. Process Scheduling: Round Robin.
10. Using Pipes to calculate nCr.

Total no. of Hrs. needed to complete the Lab : 30



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17L10

PROJECT WORK

0 0 10 10

OBJECTIVES:

1. Students will be able to develop an application in specific domains. Students are expected to carry out the following:
 - i. Implementing the technologies or its combinations
 - ii. Analysing and modeling the concepts of system engineering
 - iii. Generate Database Models
 - iv. Develop an executable application
 - v. Prepare project report



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17E01

COMPUTER NETWORKS

3 1 0 4

OBJECTIVES:

- To introduce the students the functions of different layers.
- To understand the layering concepts in computer networks.
- Be exposed to the required functionality at each layer.
- To have knowledge in different applications that use computer networks.

UNIT I

12 Hrs

Introduction to Computer Network - Protocols and standards - standards organizations - Topology - Transmission mode - Classification of Network - OSI Model - Layers of OSI Model.

UNIT II

12 Hrs

Media of Transmission - Guided Media - Unguided Media - Performance Types of Error - Error Detection - Error Corrections.

UNIT III

12 Hrs

Multiplexing - Types of Multiplexing - Multiplexing Application - Telephone system - Project 802 - Ethernet Token Bus - Token Ring.

UNIT IV

12 Hrs

FDDI- IEEE 802.6-Circuit Switching - Packet Switching - Message switching - Connection Oriented and Connectionless services.

UNIT V

12 Hrs

Analog and Digital Network-Access to ISDN – ISDN layers – TCP/IP Network- Transport and Application layers of TCP/IP-WWW.

Total No of Hrs : 60

TEXT BOOK :

1. Behrouz and Forouzan(2001), “ Data Communication and Networks”, (2nd ed), TMH.
2. Tanenbaum A.S (2003), “Computer Networks”,(4th ed),PHI.

REFERENCES:

1. Jean Wairand (1998), “ *Communication Networks (A first Course)* “ , (2nd ed.), WCB/ McGraw Hill8.
2. Olivier Bonaventure(2011), “*Computer Networking : Principles, Protocols and Practice*”, The Saylor Foundation .
3. Iresh A. Dhotre, Vilas S. Bagad (2013), “*Computer Networks An Illustrated Guide to Computer Networking*”, Technical Publications.



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17E02

INFORMATION SECURITY

3 1 0 4

UNIT I

12 Hrs

Introduction: History, What is Information Security? Critical Characteristics of Information - NSTISSC Security Model - Components of an Information System - Securing the Components - Balancing Security and Access - The SDLC - The Security SDLC

UNIT II

12 Hrs

Security Investigation: Need for Security - Business Needs, Threats, Attacks, Legal, Ethical and Professional Issues

UNIT III

12 Hrs

Security Analysis : Risk Management: Identifying and Assessing Risk, Assessing and Controlling Risk

UNIT IV

12 Hrs

Logical Design: Blueprint for Security - Information Security Policy - Standards and Practices - ISO 17799/BS 7799 - NIST Models - VISA International Security Model - Design of Security Architecture - Planning for Continuity

UNIT V

12 Hrs

Physical Design : Security Technology – IDS - Scanning and Analysis Tools – Cryptography - Access Control Devices - Physical Security - Security and Personnel

Total No of Hrs : 60

TEXT BOOK:

1. Michael E Whitman and Herbert J Mattord(2003) , “*Principles of Information Security*”, Vikas Publishing House, New Delhi.

REFERENCES:

1. Micki Krause, Harold F. Tipton(2004), “ *Handbook of Information Security Management*”, Vol 1-3 CRC Press LLC.
2. Stuart Mc Clure, Joel Scrambray, George Kurtz(2003), “*Hacking Exposed*”, Tata McGraw-Hill. Matt Bishop(2002), “ *Computer Security Art and Science*”, Pearson/PHI.



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17E03

PROFESSIONAL ETHICS

3 1 0 4

UNIT I

12 Hrs

ENGINEERING ETHICS : Senses of 'engineering ethics' – variety of moral issues – types of inquiry – moral dilemmas – moral autonomy – Kohlberg's theory – Gilligan's theory – consensus and controversy – professions and professionalism – professional ideals and virtues – theories about right action – self-interest – customs and religion – uses of ethical theories.

UNIT II

12 Hrs

ENGINEERING AS SOCIAL EXPERIMENTATION: Engineering as experimentation – engineers as responsible experimenters – codes of ethics – a balanced outlook on law – the Challenger case study.

UNIT III

12 Hrs

ENGINEER'S RESPONSIBILITY FOR SAFETY: Safety and risk – assessment of safety and risk – risk benefit analysis – reducing risk – the Three Mile Island and Chernobyl case studies.

UNIT IV

12 Hrs

RESPONSIBILITIES AND RIGHTS : Collegiality and loyalty – respect for authority – collective bargaining – confidentiality – conflicts of interest – occupational crime – professional rights – employee rights – intellectual property rights (IPR) – discrimination

UNIT V

12 Hrs

GLOBAL ISSUES : Multinational corporations – environmental ethics – computer ethics – weapons development – engineers as managers – consulting engineers – engineers as expert witnesses and advisors – moral leadership – sample code of conduct

Total No of Hrs : 60

TEXT BOOK:

1. Mike Martin and Roland Schinzinger (1996), "*Ethics in Engineering*", McGraw Hill, New York.

REFERENCES:

1. Charles D Fleddermann (1999), "*Engineering Ethics*", Prentice Hall, New Mexico.
2. Laura Schlesinger (1996), "*How Could You Do That: The Abdication of Character, Courage, and Conscience*", Harper Collins, New York.
3. Stephen Carter (1996), "*Integrity*", Basic Books, New York.
4. Tom Rusk (1993), "*The Power of Ethical Persuasion: From Conflict to Partnership at Work and in Private Life*", Viking, New York.



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17E04

SOFTWARE PROJECT MANAGEMENT

3 1 0 4

OBJECTIVES:

- To know of how to do project planning for the software process.
- To learn the cost estimation techniques during the analysis of the project.
- To understand the quality concepts for ensuring the functionality of the software.

UNIT I

12 Hrs

Introduction to Software Projects : An Overview of Project Planning – Project Management and Evaluation.

UNIT II

12 Hrs

Selection of an appropriate Project approach : Software effort Estimation -Activity Planning :- Project Schedules – Sequencing and Scheduling Projects – Network Planning Model – forward and backward pass- Identifying the Critical path-Activity float-Shortening Project Duration – Identifying Critical Activities- precedence networks.

UNIT III

12 Hrs

Software quality assurance plan & Risk Management : Resource Allocation – Monitoring and Control, Reviews and Audits – Management.

UNIT IV

12 Hrs

Models : ISO 9000 model, CMM model – Comparisons - ISO 9000 weaknesses - Managing People and Organizing Teams – Software Quality -Planning for Small Projects.

UNIT V

12 Hrs

Case Study – PRINCE Project Management, BS 6079:1996

Total No of Hrs : 60

TEXT BOOK:

1. Mike Cotterell, Bob Hughes , “Software Project Management”, Inclination/Thomas Computer Press, 4th Edition, 2004. Chapters : 1-13.

REFERENCES:

1. Darrel Ince, H.Sharp and M.Woodman,” Introduction to Software Project Management and Quality Assurance”, Tata McGraw Hill, 1995.
2. Philip.B.Crosby, Quality is Free: The Art of Making Quality Certain, Mass Market, 1992.



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17E05

MANAGEMENT INFORMATION SYSTEM

3 1 0 4

OBJECTIVES:

- To know about basics of information system and MIS.
- To understand about database storage.
- To design the system for problem identifying and solving.
- To understand the conceptual and detailed system design.

UNIT I

12 Hrs

Foundation of Information System : Introduction to Information System and MIS – Decision support and decision making systems - systems approach - the systems view of business - MIS organization within company - Management information and the systems approach.

UNIT II

12 Hrs

Information Technology : A manager's overview - managerial overviews - computer hardware and software - DBMS - RDBMS – Telecommunication.

UNIT III

12 Hrs

Conceptual system design: Define the problems - set systems objective - establish system – constraints - determine information needs determine information sources - develop alternative conceptual design and select one document the system concept - prepare the conceptual design report.

UNIT IV

12 Hrs

Detailed system design : Inform and involve the organization - aim of detailed design - project management of MIS detailed design - identify dominant and trade of criteria - define the sub systems - sketch the detailed operating sub systems and information flow - determine the degree of automation of each operation - inform and involve the organization again - inputs outputs and processing - early system testing – software - hardware and tools propose an organization to operate the system - document the detailed design - revisit the manager user.

UNIT V

12 Hrs

Implementation evaluation and maintenance of the MIS : Plan the implementation - acquire floor space and plan space layouts - organize for implementation - develop procedures for implementation - train the operating personnel - computer related acquisitions - develop forms for data collection and information dissemination - develop the files test the system - cut-over - document the system - evaluate the MIS control and maintain the system - Pitfalls in MIS development.

Total no. of Hrs : 60

TEXT BOOK:

1. W. S. Jawadekar(2002), *Management Information System*, Tata McGraw Hill.

REFERENCES:

2. Robert G. Murdick, Loel E. Ross & James R. Claggett, *Information System for Modern Management* (3rd Ed), PHI.
3. Brian, O, *Management Information System*, TMH.
4. Davis Olson, *Management Information System*, McGraw Hill.



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17E06

MOBILE COMPUTING

3 1 0 4

OBJECTIVES:

- Understand and identify requirements issue limitation parameters and components in computing
- To understand the rationale for the solution adopted in existing or emerging systems
- To participate in the development and proposal of future systems

UNIT I

12 Hrs

Fundamentals of Wireless Transmission: Wireless-Wireless networks in comparison to fixed networks-Mobile communication: Development – Principles of mobile communication – Overview of mobility and portability-Issues for portability- Effects of device portability – Applications-Reference model

UNIT II

12 Hrs

Radio Transmission: Frequency – Signals – antennas –Signal propagation- Multiplexing – Modulation-Spread Spectrum(DSSS,FHSS).

UNIT III

12 Hrs

Medium access control:Motivation for specialized MAC,SDMA,FDMA,TDMA,CDMA, Comparison of the Medium access mechanism-Telecommunication Networks –GSM, Satellite communication.

UNIT IV

12 Hrs

Wireless LAN:Advantages of Wireless LAN-Design goals-Wireless transmission technology-Settings for wireless LAN-IEEE 802.11: System architecture-Bluetooth

UNIT V

12 Hrs

Mobile Network Layer and Transport Layer :Mobile IP-DHCP-Traditional TCP-Congestion control – mechanism to alter the transmission - Classical TCP Improvements

Total No of Hrs : 60

TEXT BOOK:

1. Jochen Schiller (2014) *Mobile Communications*(2nd ed.), Pearson Education
2. Nithyanandam .S,Ambika.M,Gayathri K.S., “Mobile Computing”, Dhanpat Rai &co.(P)Ltd

REFERENCE:

1. William C.Y.Lee(1995) *Mobile Cellular Telecommunications*(2nd ed.), Mc-Graw- Hill.



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17E07

IMAGE PROCESSING

3 1 0 4

Objectives :

- To gain knowledge about the fundamentals of digital image processing
- To understand the techniques in digital image processing
- To know the methods of image restoration techniques, Image compression and Segmentation

UNIT I

12 Hrs

DIGITAL IMAGE FUNDAMENTALS AND TRANSFORMS: Elements of visual perception – Image sampling and quantization Basic relationship between pixels – Basic geometric transformations-Introduction to Fourier Transform and DFT – Properties of 2D Fourier Transform – FFT.

UNIT II

12 Hrs

IMAGE ENHANCEMENT TECHNIQUES: Spatial Domain methods: Basic grey level transformation – Histogram equalization – Image subtraction – Image averaging –Spatial filtering: Smoothing, sharpening filters – Laplacian filters.

UNIT III

12 Hrs

IMAGE RESTORATION: Model of Image Degradation/restoration process – Noise models – Inverse filtering - Least mean square filtering – Constrained least mean square filtering – Blind image restoration.

UNIT IV

12 Hrs

IMAGE COMPRESSION: Lossless compression: Variable length coding – LZW coding – Bit plane coding predictive coding-DPCM. Lossy Compression: Transform coding – Wavelet coding – Basics of Image compression standards.

UNIT V

12 Hrs

IMAGE SEGMENTATION AND REPRESENTATION: Edge detection – Thresholding - Region Based segmentation – Boundary representation: chain codes- Polygonal approximation –Boundary segments –boundary descriptors: Simple descriptors-Fourier descriptors - Regional descriptors.

Total No of Hrs : 60

TEXT BOOK:

1. Rafael C Gonzalez, Richard E Woods(2003), “*Digital Image Processing*(2nd. ed.), Pearson Education.

REFERENCES:

1. William K Pratt(2001), “*Digital Image Processing*”, John Willey (2001) .



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY
(Decl. U/S 3 of the UGC Act 1956)
DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17E08

INTRODUCTION TO CLOUD COMPUTING

3 1 0 4

Objectives:

- Recognize terminology and concepts related to cloud computing
- Understand cloud computing security measures
- Differentiate cloud storage options, cloud compute services, and cloud networking options
- Describe cloud resource management services and cloud based database services
- Identify virtual resource deployment and management options

UNIT 1

12 Hrs

Introduction and Concepts: Defining cloud computing – Cloud models- Characteristics of Cloud Computing – Cloud based services and Applications- Cloud services and platforms: Compute Services, Storage Services, Database services, Application Services, Content Delivery Services.

UNIT II

12 Hrs

Cloud Application Design: Introduction- Scalability- Reliability – Reference Architectures for Cloud Applications- Cloud Application Design Methodologies : Service Oriented Architecture, Cloud Component Model, IaaS, PaaS and SaaS Services for Cloud Applications- Data Storage Approaches.

UNIT III

12 Hrs

Python Basics : Introduction – Installing Python – Python Data types and Data Structures- control flow – functions – modules- Python for Cloud : Python for Amazon Web Services , Python for Google Cloud Platform – Python for windows Azure.

UNIT IV

12 Hrs

Cloud Application Development in Python : Python Packages of Interest – Python Web Application Framework (Django) – Designing RESTful API - Design Approaches – Image Processing App.

UNIT V

12 Hrs

Advanced Topics : Multimedia Cloud - Using the Mobile Cloud – Cloud Application Benchmarking and Tuning – Cloud Security – Cloud for Industry, Healthcare and Education.

Total No of Hrs : 60

TEXT BOOK:

1. Arshdeep Bahga & Vijay Madiseti(2016), “*Cloud Computing A Hands – on Approach*”, Universities Press

REFERENCES:

2. Kris Jamsa(2013), “*Cloud Computing: SaaS, PaaS, IaaS, Virtualization, Business Models, Mobile, Security and More*”, Jones & Bartlett Learning , Publisher.
3. Barrie Sosinsky(2011), “*Cloud Computing Bible*“, Wiley Publishing.



**Dr.M.G.R.
Educational and Research Institute
UNIVERSITY**

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17E09

OPEN SOURCE PROGRAMMING

3 1 0 4

Objectives:

- Understand concepts, strategies, and methodologies related to open source software development.
- Understand the business, economy, societal and intellectual property issues of open source software.
- Be familiar with open source software products and development tools currently available on the market.

UNIT I

12 Hrs

Introduction to Open Source: Definition, Open Source History, Initiatives, Free Software, Free Software vs. Open Source software, Public Domain Software, FOSS does not mean no cost. History: BSD, The Free Software Foundation and Open Source GNU Project.

UNIT II

12 Hrs

Principle and methodologies: Philosophy: Software Freedom, Open Source Development Model Licences and Patents: What Is A License, Important FOSS Licenses (Apache, BSD, GPL, LGPL), copyrights and copylefts, Patents Economics of FOSS: Zero Marginal Cost, Income-generation opportunities.

UNIT III

12 Hrs

Case Studies: Apache, BSD, Linux, Mozilla (Firefox), Wikipedia, Joomla, GCC, Open Office. Starting and Maintaining an Open Source Project, Open Source Hardware, Open Source Design, Open source Teaching. and Open source media.

UNIT IV

12 Hrs

IoT: Definitions - overview, applications, potential & challenges, and architecture. IoT examples: Case studies, e.g. sensor body-area-network and control of a smart home.

UNIT V

12 Hrs

INTRODUCTION TO BIG DATA: Distributed file system – Big Data and its importance, Four Vs, Drivers for Big data, Big data analytics, Big data applications. Algorithms using map reduce, Matrix-Vector Multiplication by Map Reduce.

Total No of Hrs : 60

TEXT BOOK:

1. https://tavaana.org/sites/default/files/introduction_to_opensource.pdf
2. Chris Eaton, Dirk deRoos et al.(2012), “*Understanding Big data*”, McGraw Hill.

REFERENCES:

1. Greg Elmer, Ganaele Langlois, Dr. Joanna Redden(2015), “*Compromised Data: From Social Media to Big Data*”, Bloomsbury Academic Publishing.



Dr.M.G.R.
Educational and Research Institute
UNIVERSITY

(Decl. U/S 3 of the UGC Act 1956)

DEPARTMENT OF COMPUTER APPLICATIONS

HBCA17E10

SOFTWARE TESTING

3 1 0 4

- To discuss the distinctions between validation testing and defect testing.
- To describe the principles of system and component testing.
- To describe strategies for generating system test cases.
- To understand the essential characteristics of tool used for test automation.

UNIT I

12 Hrs

Testiing Environment And Test Processes: Introduction – World Class Software Testing Model – Building a Software Testing Environment - Overview of Software Testing Process – Organizing for Testing : Requirement Specifications (Software, User, market, Business) – Static & Dynamic Testing : Verification & Validation - Analyzing and Reporting Test Results – Post Implementation Analysis.

UNIT II

12 Hrs

Developing the Test Plan : Using White Box Approach to Test design – Code Functional Testing – Coverage and Control Flow Graphs –Using Black Box Approaches to Test Case Design – Random Testing – Requirements based testing –Decision tables –State-based testing – Cause-effect graphing – Error guessing – Compatibility testing – Levels of Testing : Functionality Testing - Performance Testing - Unit Testing - Integration Testing - System Testing – User Acceptance Testing - Compatibility Testing.

UNIT III

12 Hrs

Software Testing Life Cycle : Software Testing Life Cycle: SDLC & STLC , Stages – System Study – Test case design, Review, Approval, Execution - Test case Templates: Header - Body & Footer Templates – Traceability Matrix - Defect Tracking Templates – Postmortem Report (Achievements & Comments) – Rapid Application Development Testing – Testing in a Multiplatform Environment – Testing Software System Security - Testing Web Applications – Web based system – Web Technology Evolution – Testing a Data base.

UNIT IV

12 Hrs

TEST AUTOMATION : Introduction : Software Testing Tools (Win Runner, Load Runner) - Software Test Automation – Skills needed for Automation – Scope of Automation – Design and Architecture for Automation – Requirements for a Test Tool – Challenges in Automation – Tracking the Bug.

UNIT V

12 Hrs

Quality Assurance & Quality Control : Complexity Metrics and Models – Quality Management Metrics - Defect Removal Effectiveness Quality Function Deployment – Taguchi Quality Loss Function.

Total No of Hrs : 60

TEXT BOOK:

1. Srinivasan Desikan and Gopalaswamy Ramesh(2007) “Software Testing – Principles and Practices”,Pearson Education.

REFERENCES:

1. William Perry(2007), “*Effective Methods of Software Testing*”, Third Edition,Wiley Publishing 2007
2. Naresh Chauhan(2010) , “*Software Testing Principles and Practices* ” Oxford University Press , New Delhi , 2010.