DHANRAJ BAID JAIN COLLEGE

(Autonomous)

Thoraipakkam, Chennai – 600097

Affiliated to the University of Madras

DEPARTMENT OF COMPUTER SCIENCE

B.C.A. (Computer Application)

DARKNESS TO LIGHT

SYLLABUS

(Choice Based Credit System)

Total No. of Semesters: **6**

Total No. of Credits: **140**

SCHEME OF EXAMINATIONS
FIRST SEMESTER

S.No.	Course Components	Name of the Course	Credits	Exam Duration(Hrs)	Max. Marks IA	EA
1	Part – I	Tamil	3	3	20	80
2	Part – II	English	3	3	20	80
3	Core – I	Computing Fundamentals and C Programming	4	3	20	80
4	Core Lab – I	Practical-I: Programming in C Lab	4	3	20	80
5	Allied – 1	Mathematics-I	4	3	20	80
6	Non-Major Elective – I	Office Automation	2	3	20	80
7	Soft skill – I	Language and Communication Level - II	3	3	20	80

IA- Internal Assessment ; EA- External Assessment

B.C.A. - SECOND SEMESTER

S.No.	Course Components	Name of the Course	Credits	Exam Duration(Hrs)	Max. Marks IA	EA
8	Part – I	Tamil	3	3	20	80
9	Part – II	English	3	3	20	80
10	Core – II	Object Oriented Programming with C++	4	3	20	80
11	Core Lab – II	Practical-II: OOPS with C++ Lab	4	3	20	80
12	Allied – II	Mathematics-II	4	3	20	80
13	Non-Major Elective – II	Office Automation Lab	2	3	20	80
14	Soft skill – II	Spoken and Presentation Skills Level – II	3	3	20	80

B.C.A. - THIRD SEMESTER

S.No.	Course Components	Name of the Course	Credits	Exam Duration(Hrs)	Max. Marks IA	EA
15	Core-III	Digital Logic Fundamentals	4	3	20	80
16	Allied –III	Financial Accounting	4	3	20	80
17	Core - IV	Multimedia	4	3	20	80
18	Core-V	Programming in Java	4	3	20	80
19	Core Lab-III	Practical III – Multimedia Lab	2	3	20	80
20	Core Lab-IV	Practical IV– Programming in Java Lab	2	3	20	80
21	*	Environmental Studies	-	-	-	-
22	Soft Skill –III	Personality Enrichment	3	3	20	80

IA- Internal Assessment ; EA- External Assessment

*Examination will be held in IV Semester

B.C.A. - FOURTH SEMESTER

S.No.	Course Components	Name of the Course	Credits	Exam Duration(Hrs)	Max. Marks IA	EA
23	Core –VI	Computer Graphics	4	3	20	80
24	Core –VII	Operating System	4	3	20	80
25	Core-VIII	Data Structure & Algorithm	4	3	20	80
26	Allied -IV	Cost and Management Accounting	4	3	20	80
27	Core Lab-V	Practical V - Data Structure using C++	2	3	20	80
28	Core Lab-VI	Practical VI– Operating System Lab	2	3	20	80
29	Soft Skill –IV	Foreign Language	3	3	20	80
30		Environmental Studies	2	3	20	80

B.C.A. - FIFTH SEMESTER

S.No.	Course Components	Name of the Course	Credits	Exam Duration(Hrs)	Max. Marks IA	EA
31	Core-IX	Web Technology	4	3	20	80
32	Core-X	Database Management System	4	3	20	80
33	Core-XI	Visual Programming	4	3	20	80
34	Allied -V	Numerical methods	4	3	20	80
35	Core Lab-VII	Practical VII– Visual Programming with RDBMS	2	3	20	80
36	Core Lab-VIII	Practical VIII– Web Application Lab	2	3	20	80
37	Soft Skill V	Value Education	2	3	20	80

IA- Internal Assessment ; EA- External Assessment

B.C.A. - SIXTH SEMESTER

S.No.	Course Components	Name of the Course	Credits	Exam Duration(Hrs)	Max. Marks IA	EA
38	Core-XII	Computer Networks	4	3	20	80
39	Core-XIII	PHP	4	3	20	80
40	Core-XIV	Software Engineering	4	3	20	80
41	Core-XV	Elective-I	4	3	20	80
42	Core Lab-IX	Practical IX –PHP Lab	2	3	20	80
43	Core Lab-X	Practical X– Mini Project	4	3	20	80

List of Electives

1. Component Based Technologies
2. Client Server Architecture
3. Distributed Computing
4. Design and Analysis of Algorithms
5. Web Services and XML
6. C# Programming
7. E-commerce

COURSE CODE	COURSE TITLE	L	T	P	C
14M211A	**Computing Fundamentals and C Programming**	**5**			**5**

UNIT	SYLLABUS
UNIT 1	Fundamentals of Computers
UNIT 2	Overview of C
UNIT 3	Decision Making and Branching
UNIT 4	User-Defined Functions
UNIT 5	Pointers

TEXT BOOK:

1. E Balagurusamy: "COMPUTING FUNDAMENTALS & C PROGRAMMING" – Tata McGraw-Hill, Second Reprint 2008, ISBN 978-0-07-066909-3.

REFERENCE BOOKS:

1. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Pub, 2002.
2. Henry Mullish & Huubert L.Cooper: The Sprit of C, Jaico Pub. House, 1996.

COURSE CODE	COURSE TITLE	L	T	P	C
14M2111	**Practical I-** **Programming in C Lab**	**5**			**5**

1. Write a C program to find the sum, average, standard deviation 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 print magic square of order n where n > 3 and n is odd.
5. Write a C program to sort the given set of numbers in ascending order.
6. Write a C program to check whether the given string is a palindrome or not.
7. Write a C Program to find Maximum & Minimum of the given numbers.
8. Write a C Program to find GCD of the given numbers.
9. Write a C program to count the number of Vowels, consonants, words and white spaces 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 find nPr and nCr values using function.
12. 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.
13. Write a C program to add two matrices.
14. Write a C program to subtract two matrices.
15. Write a C program to multiply two matrices.

COURSE CODE	COURSE TITLE	L	T	P	C
14N621A	OFFICE AUTOMATION	5			3

UNIT	SYLLABUS
UNIT 1	**UNIT -I :** DOS commands: (internal (DIR, DATE, TIME, CLS, CD, RD, MD, PATH, TYPE, DEL, ECHO, COPY, REN, PROMPT, VOL, VER), external (ATTRIB, CHKDSK, DISKCOPY, DISKCOMP, XCOPY, TREE, DELTREE, DOSKEY, FORMAT, FIND, SORT, FDISK, MORE, SYS)), Concept of files & directories, Wild card characters, Redirection operators. Windows 7: Definition, Benefits, Features & uses of Windows 7, Control panel, Accessories, Task bar, My computer uses, Recycle bin.
UNIT 2	**UNIT -II :** Office 2007: Elements, Introduction to Office 2007, Customizing the Office Environment, Managing Files in Office, Text Tools, Drawing and Graphics Tools. Word Processing; Definition, Benefits, Features & uses of Word 2007, Menus, Toolbars, Cursor control keys, Short cut keys, Hot keys, Editing Text, Document Formatting, Reusable formatting with Styles and Templates, File handling (opening, creating, saving, printing, editing), Formatting text, Find and replace, Tables and Columns, Advanced Page Layout in Word, Automating Information with Fields, Managing Long Documents, Spell check, Thesaurus, File protection, Mail Merge, Labels, and Envelopes, Macros.
UNIT 3	**UNIT –III :**Spreadsheets: Definition, Benefits, Features & Uses of MS Excel 2007, Menus, Toolbars, Worksheets, Formatting Worksheets and Restricting Data, Calculating with Formulas and Functions, Ranges, Auto fill, Data (sort, filter, validation, subtotal), Viewing and Manipulating Data with charts and PivotTables, Print, Goal seek, Scenario, Macros, Creating Excel Databases.
UNIT 4	**UNIT –IV:** Presentations: Definition, Benefits, Features & Uses of PowerPoint, Menus, Toolbars, Creating and Editing Slides, Adding graphics, Multimedia, and Special Effects to Slides, Insert (picture, slide, text), Master slide, Views, Animation, Action buttons, Macros.
UNIT 5	**UNIT V:** Introduction -Database concepts - Opening & Saving Database files - Creating Tables – Data Types-Properties-Table Design - Entering data -Importing data -Normalization- Creating Queries-Creating Forms-Creating Reports.

Text & Reference Books:

1. Jennifer Ackerman Kettell, Guy Hart-Davis, Curt Simmons, "Microsoft Office 2007: The Complete Reference", Tata McGraw Hill.
2. Step by Step 2007 Microsoft Office System (W/CD) by Curtis Frye, Joyce Cox, Steve Lambert.
3. Microsoft Office Access 2007 Inside Out Microsoft Press Publication.

COURSE CODE	COURSE TITLE	L	T	P	C
14S61AA	Soft skill – I ESSENTIALS LANGUAGE COMMUNICATION-II	5			1

Objectives

- *enable* students to build a repertoire of functional vocabulary and to move from the lexical level to the syntactic level.
- *train* students to summon words, phrases relevant to the immediate communication tasks.
- *enable* students to comprehend the concept of communication.
- *teach* students the four basic communication skills- Listening, Speaking, Reading and Writing.

UNIT 1: Recap of language skills – vocabulary, phrase, clause, sentence.

UNIT 2: Fluency building.

UNIT 3: Principles of Communication.

UNIT 4: Types of Communication.

UNIT 5: LSRW in Communication.

Recommended Texts

- Monippally, Matthukutty. M. 2001. *Business Communication Strategies.* 11th Reprint. Tata McGraw-Hill. New Delhi.
- Sasikumar. V and P.V. Dhamija. 1993. *Spoken English: A Self-Learning Guide to Conversation Practice.* 34th Reprint. Tata McGraw-Hill. New Delhi.
- Swets, Paul. W. 1983. *The Art of Talking So That People Will Listen: Getting Through to Family, Friends and Business Associates.* Prentice Hall Press. New York.
- Hewings, Martin. 1999. *Advanced English Grammar: A Self-Study Reference and Practice Book for South Asian Students.* Reprint 2003. Cambridge University Press. New Delhi.
- Lewis, Norman. 1991. *Word Power Made Easy.* Pocket Books.
- Hall and Shepherd. *The Anti-Grammar Grammar Book: Discovery Activiies for Grammar Teaching.* Longman

Websites

- www.tatamcgrawhill.com/digital_solutions/monippally
- www.dictionary.cambridge.org
- www.wordsmith.org

COURSE CODE	COURSE TITLE	L	T	P	C
14M212B	**OBJECT ORIENTED PROGRAMMING WITH C++**	**5**			**4**

UNIT	SYLLABUS
UNIT 1	**UNIT I:** Principles of Object Oriented Programming (OOP) – Software Evaluation – OOP Paradigm – Basic Concepts of OOP – Benefits of OOP – Application of OOP.
UNIT 2	Introduction to C++ - Tokens – Keywords – Identifiers – Variables – Operators – Manipulators – Expressions and Control Structures – Pointers – Function Prototyping Parameters Passing in function – values Return by Functions – Inline Functions – Friend and Virtual Functions.
UNIT 3	Classes and Objects – Constructors and Destructors – Operator overloading – type conversion – Type of Constructors – Function Overloading.
UNIT 4	Inheritance – Types of Inheritance – Virtual Functions and Polymorphism Constructors to Inheritance – Mapping Console I/O operations.
UNIT 5	File – File Streams – File operations – File pointer – Error Handling during file operations Command line Arguments.

Text Books:

1. E. Balagurswamy – Object Oriented Programming with C++. TMH.
2. Robert Lafore - Object Oriented Programming in Microsoft C++- Galgotia.

COURSE CODE	COURSE TITLE	L	T	P	C
14M2122	PRACTICAL II– OOPS WITH C++ LAB	5			4

1. Write a Program using relational, logical and Bit wise operators
2. Write a program using control statements
3. Write a program using special operators
4. Write a program using user define function to compare two strings
5. Write a program based on Multidimensional Arrays
6. Write a program by using Inline function.
7. Write a program using class and objects
8. Write a program using friend function
9. Write a program by using nested class
10. Write a program using function overloading
11. Write a program based on type conversions
12. Write a program to demonstrate all forms of Inheritance
13. Write a program to overload unary and binary operators.
14. Write a program using pure virtual functions
15. Write a program using error handling during file operations
16. Write a program using stream classes
17. Write a program using command line arguments to print the given numbers in descending and ascending order.
18. Write a program using manipulators
19. Write a program using abstract classes.
20. Write a program to create own manipulators

COURSE CODE	COURSE TITLE	L	T	P	C
14N6223	OFFICE AUTOMATION LAB	5			4

I. WORD PROCESSING

1. **Text manipulation**

Change the font size and type
Aligning and justification of text
Underlining the Text
Indenting the Text

i. Prepare a Bio-Data
ii. Prepare a letter

2. Usage of Numbering, Bullets, Footers and Headers

Usage of Spell checks and Find and Replace

i. Prepare a document in news paper format
ii. Prepare a document with bullets and footers and headers.

3**. Tables and Manipulations**

Creations, Insertion, Deletion (Columns & Rows) and usage of Auto Format

i. Create a mark sheet using table and find out the total marks.
ii. Create a calendar and Auto format it

4. Picture Insertion and alignment

i. Prepare a greeting card
ii. Prepare a handout

5. Creation of documents using templates Creation of Templates

i. Prepare a letter using any template
ii. Prepare two data using various kinds of templates

6. Mail Merge concepts

i. Prepare a business letter for more than one company using mail merge
ii. Prepare an invitation to be sent to specific addresses in the data source.

7. Copying text and pictures from Excel

i. Draw a chart in Excel and paste it on word
ii. Import a picture from Excel and edit the picture.

II. MS-EXCEL

1. Prepare a Mark List for students (use Conditional Formatting).
2. Arrange data in Ascending and Descending order.
3. Pay bill Preparation.
4. Prepare a Calendar - Auto formatting
5. EB bill Preparation.
6. Creating a chart.
7. Prepare an Inventory bill for a company (use Freeze Panes, Track Changes).
8. Insertion, Deletion, Merging and Formatting of cells

III-MS POWERPOINT

1. Design 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. (Apply Animation schemes and Slide Transition)

2. Design slides for the headlines News of a popular TV Channel. The Presentation

Should contain the following transactions:

Top down, Bottom up, Zoom in and Zoom out.

The presentation should work in custom mode.

3. Animate a Smile Face (Cry,Normal,Smile).

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, Basic pay, Dearness Allowance, House Rent Allowance and other deductions if any. Perform queries for different categories.

COURSE CODE	COURSE TITLE	L	T	P	C
14S62AB	Soft skill – II ESSENTIALS SPOKEN AND PRESENTAT SKILLS-II	5			4

Objectives

- *train* students to become aware of their thinking style and to enable them to convert thinking into performance.
- *prepare* students to evolve metal models for intra-personal and inter-personal transactions.
- *make* students reflect and improve their use of body language – posture, gesture, facial expression, tone.

UNIT	SYLLABUS
UNIT 1	Thinking and Articulation – cognitive, affect, critical, creative aspects of articulation. of OOP.
UNIT 2	Acquisition of Oral and Aural Skills.
UNIT 3	Communication Boosters – body language.
UNIT 4	Function of Cultural Codes in Presentation – etiquette.
UNIT 5	Models of Presentation.

Recommended Texts

- Powell. *In Company.* MacMillan.
- Cotton, et al. *Market Leader*. Longman.
- Pease, Allan. 1998. *Body Language: How to Read Others Thoughts by their Gestures.* Sudha Publications. New Delhi.
- Gardner, Howard. 1993. *Multiple Intelligences: The Theory in Practice: A Reader.* Basic Books. New York.
- De Bono, Edward. 2000. *Six Thinking Hats.* 2nd Edition. Penguin Books.
- De Bono, Edward. 1993. *Serious Creativity.* Reprint. Harper Business.

COURSE CODE	COURSE TITLE	L	T	P	C
14M213C	DIGITAL LOGIC FUNDAMENTALS	5			4

UNIT	SYLLABUS
UNIT 1	Number systems – conversion form one number system to another – compliments – binary Codes– Binary logic – Logic gates – truth tables.
UNIT 2	Boolean Algebra – Axioms – Truth table simplification of Boolean function – K-Map method (Up to 5variables) – Mc-Clausky tabulation method
UNIT 3	Sequential logic – RS, JK, D and T Flip flops – Registers – Shift Registers - Counters – Ripple counters – Synchronous Counter – Design of Counters
UNIT 4	Encoders – Multiplexer – Demultiplexer - Design of Circuits using decoders/Multiplexers – ROM – PLA – Designing circuits using ROM/PLA.
UNIT 5	Design of ALU – Design of Status Register – Design of Accumulator – Introducing to Computer Design

BOOKS FOR STUDY

1. M. M. Mano, Digital Logic and computer design, Prentice Hall of India.
2. T. C. Bartee, Computer Architecture, McGraw Hill.

COURSE CODE	COURSE TITLE	L	T	P	C
14M213D	MULTIMEDIA SYSTEMS	5			4

UNIT	SYLLABUS
UNIT 1	Introductory Concepts: Multimedia – Definitions, CD-ROM and the Multimedia Highway, Uses of Multimedia, Introduction to making multimedia – The Stages of project, the requirements to make good multimedia, Multimedia skills and training, Training opportunities in Multimedia. Motivation for multimedia usage, Frequency domain analysis, Application Domain
UNIT 2	Multimedia-Hardware and Software: Multimedia Hardware – Macintosh and Windows production Platforms, Hardware peripherals – Connections, Memory and storage devices, Media software – Basic tools, making instant multimedia, Multimedia software and Authoring tools, Production Standards.
UNIT 3	Multimedia – making it work – multimedia building blocks – Text, Sound, Images, Animation and Video, Digitization of Audio and Video objects, Data Compression: Different algorithms concern to text, audio, video and images etc., Working Exposure on Tools like Dream Weaver, Flash, Photoshop Etc.,
UNIT 4	Multimedia and the Internet: History, Internet working, Connections, Internet Services, The World Wide Web, Tools for the WWW – Web Servers, Web Browsers, Web page makers and editors, Plug-Ins and Delivery Vehicles, HTML, VRML, Designing for the WWW – Working on the Web, Multimedia Applications – Media Communication, Media Consumption, Media Entertainment, Media games.
UNIT 5	Multimedia-looking towards Future: Digital Communication and New Media, Interactive Television, Digital Broadcasting, Digital Radio, Multimedia Conferencing, Assembling and delivering a project-planning and costing, Designing and Producing, content and talent, Delivering, CD-ROM technology.

Recommended Text:

1. S. Heath, Multimedia & Communication Systems, Focal Press, UK.
2. T. Vaughan, Multimedia: Making it work, 4th Edition, Tata McGraw Hill, New Delhi.
3. K. Andleigh and K. Thakkar, Multimedia System Design, PHI, New Delhi.

Reference Books

1. Keyes, "Multimedia Handbook", TMH.
2. R. Steinmetz and K. Naharstedt, Multimedia: Computing, Communications & Applications, Pearson, Delhi.
3. S. Rimmer, Advanced Multimedia Programming, PHI, New Delhi.

COURSE CODE	COURSE TITLE	L	T	P	C
14M2134	PRACTICAL III-MULTIMEDIA LAB –	5			4

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 Mouse using Photoshop.
6. Create See thru text using Photoshop.
7. Create Military Clothe using Photoshop.
8. Create Stone Texture using Photoshop.
9. Create Rollover Buttons using Photoshop.
10. Create Realistic Stone Structure using Photoshop.
11. Create Web Page using Photoshop.
12. Convert Black and White to Color Photo using Photoshop.

COURSE CODE	COURSE TITLE	L	T	P	C
114M3136	**PRACTICAL IV– PROGRAMMING IN JAVA LAB**	**5**			**4**

Application

1. Finding area and perimeter of a circle. Use buffered reader class
2. Substring removal from a string. Use string buffer class.
3. Determining the order of numbers generated randomly using random class
4. Implementation of point class for image manipulation
5. Usage of calendar class and manipulation
6. String manipulation using char Array.
7. Database Creation for storing e-mail address and manipulation
8. Usage of vector classes.
9. Implementation Thread based applications & Exception Handling
10. Application using synchronization such as Thread based, class based and synchronized statements.

Applets

11. Working with frames and various controls
12. Working with dialogs and menus
13. Working panel and layout
14. Importing Graphics
15. Working with colors and fonts

COURSE CODE	COURSE TITLE	L	T	P	C
14E64AA	ENVIRONMENTAL STUDIES	5			4

UNIT	SYLLABUS
UNIT 1	Definition – Scope – Public Awareness
UNIT 2	**NATURAL RESOURCES** Forest Resources – water resources – Mineral resources – Food resources – Energy resources – Land resources
UNIT 3	**ECOSYSTEM** Concept – Structure – Ecological Succession – Food chain – Food web – Pyramids
UNIT 4	**BIODIVERSITY** Introduction – Value of biodiversity – Threats of biodiversity – Conservation of biodiversity
UNIT 5	Definition – Causes – Effects – control measures – Solid waste management – Disaster management : Flood, Earthquake, Cyclone, Landslides
UNIT 6	Sustainable & Unsustainable – Water conservation – Resettlement and rehabilitation of people – environmental ethics – Wasteland reclamation – Environment protection Act – Public Awareness.
UNIT 7	Population growth – population explosion – human rights – Value education – HIV /AIDS – Women and Child welfare.
UNIT 8	**FIELD WORK**

Reference Books:

Anubha Kaushik, “Perspective in Environmental Studies”, New age international Pub.

“Environemental Studies for Under Graduates”, C.P.R. Environmental education Centre.

COURSE CODE	COURSE TITLE	L	T	P	C
14E64AA	Soft skill –III PERSONAL ENRICHMENT	5			4

Soft skill –III PERSONALITY ENRICHMENT

Objectives

1. To make students understand the concepts and components of personality, thereby to apply the acquired knowledge to themselves and to march towards excellence I their respective academic careers.
2. To enable students to keep themselves abreast of general knowledge and current information.
3. To bring out creativity and other latent talents with proper goal setting so that self-esteem gets enhanced.
4. To sharpen memory skills and other study skills which are vital for academic excellence.
5. To give training for positive thinking which will keep the students in a good stead at the time of crisis.

Unit I- Introduction

- Definition of Personality
- Components of Personality – structural and functional aspects.
- Determinants of Personality- biological, psychological and socio-cultural factors.
- Assessment of Personality – observation, interview and psychological tests.
- Misconceptions and Classifications.
- Need for personality development.

Unit II- Self-Awareness and Self Motivation

- Self analysis through SWOT and Johari widow.
- Elements of motivation.
- Seven rules of motivation.
- Techniques and strategies for self motivation.
- Motivation checklist and Goal setting based on the principle of SMART.
- Self motivation and life.

Unit III- General Knowledge and current affairs

- Regional, National and International events.
- Geographical, political and historical facts.
- Information on sports and other recreational activities.
- Basic knowledge with regard to health and health promotion.

Unit IV- Memory, decision making and study skills

- Definition and importance of memory.
- Causes of forgetting.

- How to forget (thought stopping), how to remember (techniques for improving memory)
- The technique of passing exams.
- The rational decision making process.
- Improving creativity in decision making and components of creativity.

Unit V- Power of positive thinking

- Thinking power- seven steps for dealing with doubt.
- Traits of positive thinkers and high achievers,\
- Goals and techniques for positive thinking.
- Enhancement of concentration through positive thinking.
- Practicing a positive life style.

PRACTICAL TRAINING

The course would include the following practical exercises.
Ice-breaking, Brainstorming and stimulation exercises. Thought stopping. Memory and study skills training.

REFERENCES

1. Mile, D.J. (2004). Power of positive thinking. Delhi: Rohan Book Company.
2. Pravesh Kumar. (2005). All about self-motivation. New Delhi: Goodwill Publishing House.
3. Dudley, G.A. (2004). Double your learning power. Delhi: Konark Press. Thomas publishing Group Ltd.
4. Lorayne, H. (2004). How to develop a super power memory. Delhi: Konark Press. Thomas publishing Group Ltd.
5. Hurlock, E.B. (2006). Personality Development, 28th Reprint. New Delhi: Tata McGraw Hill.

COURSE CODE	COURSE TITLE	L	T	P	C
14M214G	COMPUTER GRAPHICS	5			4

UNIT	SYLLABUS
UNIT 1	Introduction to computer Graphics – Video display devices – Raster Scan Systems – Random Scan Systems - Interactive input devices – Hard Copy devices - Graphics software – Output primitives – line drawing algorithms – initializing lines – line function – Circle Generating algorithms - Attributes of output primitives – line attributes
UNIT 2	Area fill attributes – Character attributes inquiry function – Two dimensional transformations – Basic transformation – Matrix representation and Homogeneous co-ordinates - Composite transformation – Matrix representation – other transformations – two dimensional viewing – window – to- viewport co-ordinate transformation.
UNIT 3	Clipping algorithms – Point clipping -line clipping - polygon clipping – Curve clipping - text clipping – Interactive input methods – Physical input devices – logical classification of input devices – Input functions - Interactive picture construction methods – Three dimensional concepts – Three dimensional display methods – parallel projection – perspective projection – Depth cueing – Visible line and surface identification.
UNIT 4	Three dimensional transformation – Three dimensional viewing – Projection – Viewing transformations – Implementation of viewing operations
UNIT 5	Three dimensional transformation – Three dimensional viewing – Projection – Viewing transformations – Implementation of viewing operations

Recommended Text

1. D. Hearn and M.P. Baker, 2006 – Computer Graphics 2nd Edition, Pearson Education

Reference Books

1. W.M. Neumann and R. F. Sproull, Principles of Interactive Computer Graphics, Tata McGraw-Hill, New Delhi.
2. S. Harrington, Fundamentals of Computer Graphics, Tata McGraw-Hill, New Delhi.
3. D. F. Rogers, J. A. Adams, Mathematical elements for Computer Graphics, 2nd Edition, Tata McGraw-Hill, New Delhi.
4. Foley, Van Dan, Feiner, Hughes, Computer Graphics, Addison Wesley, Boston

COURSE CODE	COURSE TITLE	L	T	P	C
14M214H	OPERATING SYSTEMS	5			4

UNIT	SYLLABUS
UNIT 1	Introduction Views – Goals – Types of system – OS Structure – Components – Service Structure – Layered Approach – Virtual Machines – Systems Design and Implementation Management: Process – Process Scheduling – Cooperating Process –InterProcess Communication CPU Scheduling: CPU Schedulers – Scheduling Criteria – Scheduling Algorithms.
UNIT 2	Process Synchronization Critical Section Problem – Synchronization Hardware – Classical Problems of Synchronization – Critical Region – Monitor. Deadlocks: Characterization method for Handling Deadlock Prevention – Avoidance – Detection – Recovery.
UNIT 3	Memory management: Address Binding – Dynamic Loading and Linking – Overlays and physical Address space – Contagious Allocation – Internal & External Fragmentation. Non-Contagious Allocation: Paging and Segmentation Schemes – Implementation – Hardware-protection – Fragmentation.
UNIT 4	Virtual Memory: Demand Paging – Page Replacement – Page Replacement Algorithm Thrashing. File System: File Concepts – Access Methods – Directory Structures – Protection Semantics – File System Structures – Allocation Methods – Free Space Management.
UNIT 5	I/O System: Overview – I/O Hardware – Application I/O Interface – Kernel I/O Transforming I/O Requests to hardware operations – Performance. Secondary Storage Protection – Goals – Domain – Access Matrix – The Security Problem – Authentication – Threats Monitoring – Encryption

BOOKS FOR STUDY:

A. Silbersschatz P.B. Galvin, Gange, "Operating System Concepts", 6th Edn. Addison Pub., Co.

.**Reference BOOK**

H. M. Deitel, An Introduction to operating system, Second Edition, Addison Wesley

COURSE CODE	COURSE TITLE	L	T	P	C
14M214J	DATA STRUCTURES AND ALOGRITHMS	5			4

UNIT	SYLLABUS
UNIT 1	Definition of a Data structure – primitive and composite Data Types, Asymptotic notations Arrays, Operations on arrays, Order Lists
UNIT 2	Stacks – Applications of Stack – Infix to Postfix Conversions, Recursion, and Maze Problems: Queues – Operations on Queues, Queue Applications, And Circular Queue.
UNIT 3	Singly Linked List – Operations, Application – Representation of a Polynomial Addition, Doubly Linked List – Operations, Applications
UNIT 4	Trees and Graphs: Binary Trees – Conversion of Forest to Binary Tree, Operations – Tree Traversals, Graph – Definition, Types of Graphs, Hashing Functions, Traversal – Shortest Path; Dijikstra's Algorithm
UNIT 5	Algorithm – Definition – Examples – Complexity – Divide and Conquer – Binary Search – Maximum and Minimum – Merge Sort.

REFERENCES:

1. E.Horowitz and S.Shani Fundamentals of Data Structures in C++, Galgotia Pub.
2. Horowitz, S.Shani, and S.Rajasekaran, Computer Algorithms,, Galgotia pub.Pvt.Ltd.,
3. R.Kruse C.L. Tondo and B.Leung, Data Structure and Program design in C, PHI,

COURSE CODE	COURSE TITLE	L	T	P	C
14M2146	**PRACTICAL V: DATA STRUCUTURES USING C++ LAB**	**5**			**2**

1. Implement PUSH, POP operations of stack using Arrays.
2. Implement PUSH, POP operations of stack using Pointers
3. Implement add, delete operations of queue using Arrays.
4. Implement add, delete operations of queue using Pointers.
5. Conversion of infix to postfix using stack operations
6. Postfix Expression Evaluation.
7. Addition of two polynomials using Arrays and Pointers.
8. Creation, Insertion, and deletion in doubly linked list.
9. Binary First Search and Breath First Search for Graphs using Recursion.
10. Depth First Search and Breath first search for Graphs using Recursion.

COURSE CODE	COURSE TITLE	L	T	P	C
14M2147	**PRACTICAL V:** OPERATING SYSTEM LAB	5			2

Students can refer the following book for further details.

Charles Crowley – Operating Systems (A Design Oriented Approach) – TMH – 1998.

1. Inter Process Communication (IPC) using Message Queues.
2. IPC using pipes
3. Implementations of wait and signal using counting semaphores
4. Atomic Counter update problem
5. Signaling Processes
6. Deadlock detection (for processes passing messages)
7. Process Scheduling: FCFS
8. Process Scheduling: Least Frequently Used.
9. Process Scheduling: Round Robin
10. Producer – Consumer problem with limited buffers
11. Dining – Philosopher Problem
12. Reader – Writer problem
13. Two Process Mutual Exclusion

COURSE CODE	COURSE TITLE	L	T	P	C
14M215K	WEB TECHNOLOGY	5			4

UNIT	SYLLABUS
UNIT 1	Internet Basic – Introduction to HTML – List – Creating Table – Linking document – Frame Graphics to HTML Doc – Style sheet basic – Add style to document - Creating style sheet rules – Style sheet properties – Font – Text – List – Color and background color – box – displaying properties.
UNIT 2	Introduction to JavaScript – Advantage of JavaScript – JavaScript Syntax – Datatype -variable – Array – Operator and Expression – Looping Constructor – Functions – Dialog box.
UNIT 3	JavaScript document object model – Introduction – Object in HTML – Events Handling - Windows Object – Document object – Browser Object – Form Object – Screen object - Navigator object – Build in Object – User defined object – Cookies.
UNIT 4	I ASP.NET Language Structure – Page Structure – Page event, Compiler Directives. HTML server controls – Anchor, Tables, Forms, File server Controls – Label, Textbox, Button, Image, Links, Check & Radio button, Hyper link, Data List Web Server Controls – Check – Check box list, Radio button list, Drop down list, Data grid, Repeater.
UNIT 5	Request and Response Object, Cookies, Working with Data – OLEDB connection class command class, transaction class, data adaptor class, data set class.

BOOKS FOR STUDY AND REFERENCE:

1. Bayross, Web Enable Commercial Application Development Using HTML, DHTML, Javascript, Perl CGI, BPB Publications,2000
2. J.Jaworski, Mastering Javascript, BPB Publications. 1999
3. T.A.Powell, Complete Reference HTML (Third Edition) TMH,2002
4. G.Buczek, ASP.NET Developers Guide, TMH, 2002.

COURSE CODE	COURSE TITLE	L	T	P	C
14M215L	DATABASE MANAGEMENT SYSTEMS	**5**			**4**

UNIT	SYLLABUS
UNIT 1	DBMS Definition – Characteristics of DBMS – Application and advantages of DBMS– Instances – Schemas and Database States – Three Levels of Architecture – Data Independence – DBMS languages– Data Dictionary– Database Users– Data Administrators.
UNIT 2	Data Models– types and their comparison– Entity Relationship Model– Entity Types– Entity Sets– Attributes and its types– Keys– E-R Diagram– Data Integrity– RDBMS :Concept– Components and Codd's rules.
UNIT 3	Relational Algebra (selection, projection, union, intersection, Cartesian product, Different types of join like theta join–equi-join, natural join, outer join) Functional Dependencies– Good & Bad Decomposition– Anomalies as a database: A consequences of bad design– Normalization: 1NF, 2NF, 3NF, BCNF, 4NF 5NF.
UNIT 4	Introduction to SQL, DDL, DML, and DCL statements– Creating Tables– Adding Constraints– Altering Tables, Update, Insert, Delete Tables & various Form of SELECT- Simple, Using Special Operators for Data Access– Aggregate functions– Joining Multiple Tables (Equi Joins) – Joining a Table to itself (self Joins) Functions.
UNIT 5	Introduction to PL/SQL (blocks of PL/SQL, Variables, constants) – Control Structure – Introduction to Stored Procedures–Functions–Cursor and Triggers

Text Books:

1. Elmasri & Navathe, Fundamentals of Database systems, Addison & Weisely, New Delhi.

References:

1. H. F. Korth & A. Silverschatz, Database Concepts, Tata McGraw Hill, New Delhi
2. C. J. Date, Database Systems, Prentice Hall of India, New Delhi.
3. Ivan Bayross, SQL, PL/SQL, The programming language of Oracle.

COURSE CODE	COURSE TITLE	L	T	P	C
14M215M	VISUAL PROGRAMMING	5			4

UNIT	SYLLABUS
UNIT 1	Customizing a Form – writing Simple Programs – Toolbox – Creating Controls – Name Property – Command Button – Access keys – Image Controls – Text Boxes – Labels – Message Boxes – Grid - Tools – Variables – Data Types – String – Numbers
UNIT 2	Displaying Information – Determinate Loops – Indeterminate Loops – Conditionals – Built in functions and Procedures.
UNIT 3	Lists – Arrays – Sorting and Searching – Records – Control Arrays – Combo Boxes – Grid Control Projects with Multiple forms – Do Events and Sub Main – Error Trapping.
UNIT 4	VB Objects – Dialog Boxes – Common Controls – Menus – MDI Forms – Testing, Debugging and optimization – working with Graphics.
UNIT 5	Monitoring Mouse Activity – File Handling – File System controls – File System Objects – COM/OLE automation – DLL Servers – OLE Drag and Drop.

BOOKS FOR STUDY:

1. Gary Cornell – Visual Basic 6 from the Ground up – Tata McGraw Hill
2. Noel Jerke – Visual Basic 6 (The Complete Reference) – Tata McGraw Hill

COURSE CODE	COURSE TITLE	L	T	P	C
14M215A	RESOURCE MANAGEMENT TECHNIQUES	**5**			**4**

UNIT	SYLLABUS
UNIT 1	Basics of Operations Research (OR): Characteristics of O R – Necessity of O.R in Industry – OR and Decision making – Role of Computers in O.R. Linear programming and Graphical solution of 2 variables) canonical & standard terms of Linear programming problem. Algebraic solution-Simplex method
UNIT 2	Algebraic solution: Charnes method of penalties – two phase simplex method – concept of Duality – Properties of duality – Dual simplex method.
UNIT 3	Transportation model: Definition – formulation and solution of transportation models – the row minima, column minima and Vogel's approximation methods. Assignment model: definition of Assignment model – comparison with transportation model – formulation and solution of Assignment model – variations of Assignment problem.
UNIT 4	Sequencing problem; Processing each of n jobs through m machines – processing n jobs through machines – processing n jobs through 3 machines – processing the through m machines – traveling salesman problem Game Theory : Characteristics of games . Maxima, Minima criteria of optimality – Dominance property – algebraic and graphical method of solution of solving 2 games.
UNIT 5	Pert - CPM: Networks – Flukerson's Rule – measure of activity – PERT computation – CPM computation – resource scheduling. Simulation: Various methods of obtaining of obtaining random number for use in computer simulation – Additive, multiplicative and mixed types of congruence random number generators – Monte Carlo method of simulation – its advantages and disadvantages.

BOOKS FOR STUDY:

1. Harndy A. Taha: Operation Research – An Introduction, 5th ed., Prentice Hall of India, Pvt. Ltd., New Delhi, 1996.
2. Ackoff. R.L. and Sasien M.W. Fundamentals of Operations Research, Jhon wilely and sons, New York , 1968.
3. Charness A Cooper W. and Hendersen A: Introduction to linear programming, wiley and sona New York, 1973
4. Srinath L.S.: PERT and CPM Principles and applications, Affiliated East West Press Pvt. Ltd. New York.1973

COURSE CODE	COURSE TITLE	L	T	P	C
14M2158	**PRACTICAL VII- VISUAL BASIC WITH RDBMS**	**5**			**2**

1. Working with Intrinsic Controls and ActiveX Controls
2. Application with multiple forms
3. Application with Dialogs
4. Application with Menus
5. Application using Data Controls
6. Application using Common Dialogs
7. Creation of Database and performing the given using a Menu Driven Program.
   a) Insertion b) Deletion c) modification d) Generating a Simple report for the Payroll management system
8. Creation of Database and performing the given using a Menu Driven Program.
   a) Insertion b) Deletion c) modification d) Generating a Simple report for Mark sheet processing
9. Creation of Database and performing the given using a Menu Driven Program.
   a) Insertion b) Deletion c) modification d) Generating a Simple report for Student information system
10. Creation of Database and performing the given using a Menu Driven Program.
    a) Insertion b) Deletion c) modification d) Generating a Simple report for Electricity Bill system

COURSE CODE	COURSE TITLE	L	T	P	C
14M2159	PRACTICAL VIII– WEB APPLICATIONS LAB	5			2

1. Create a simple page introduction yourself, how old you are, what you do, what you do, what you do, what you like and dislike Modify the introduction to include a bullet list the 5 thing you like and dislike as numbered lists. Create another page about your favorite hobby, your main page. Center something and put a quote on one of your pages.

2. Put an existing image on a web page. Create a table, use a heading and at least one use of row span/col span. Color a page and some text within the page. Linked to another site.

3. Create a new file called index html
   *Put the normal HTML document structure tags in the file.
   *Give it a title.
   *At the bottom of the page(i.e. the last thing between the tag); remember to put the link to your email address within address tags.
   *A line break.
   *The date. (I have this same structure at the bottom of this page).

4. Above this block (which is called the footer), put a title in heading tags.

5. Write a function to create an array 10 element and display its contents.

6. Create a simple calculator using form fields. Have two fields for number entry & one field for the result. Allow the user to be able plus, minus, multiply & divide.

7. Create a document and add a link to it. When the user moves the mouse over the link, it should load the linked document on its own. (User is not required to click on the link).

8. Create a document, which opens a new window without a toolbar, address bar, or a status bat that unloads itself after one minute.

9. Create a document that accepts the user's name in a text field form and displays the next time when the user visits the site informing him that he has accessed the site for the second time, and so on.

11. Create a web form for an online library. This form must be able to accept the Membership Id of the person borrowing a book, the name and ID of the book, and the name of the book's author. On submitting the form, the user (the person borrowing the book) must be thanked and informed of the date when the book is to be returned. You can enhance the look of the page by using various ASP.NET controls.

11. Display an advertisement at the bottom of the web form that you created in question 10.

12. Create an array containing the titles of five new movies. Use this array as a data source for a dropdown list control. The page must be capable of displaying the selected movie title to the user when the user clicks on the submit button.

13. Create a virtual directory in IIS. Create a global. A sax file includes the "Session Start" and "Session End" and "Application_BeginRequest" and "Application_EndRequest" events. Write a simple ASP.NET page and execute it in the browser.

COURSE CODE	COURSE TITLE	L	T	P	C
14M216M	COMPUTER NETWORKS	5			4

UNIT	SYLLABUS
UNIT 1	Introduction to data communication, network protocols & standards and standard organization line configuration – topology – Transmission mode – Classification of network – OSI model – layer of OSI model
UNIT 2	Parallel and serial Transmission – DTE/DCE/such as EIA-449, EIA-202 and X21 interface – Interface standards – Modems – Guided Media – Unguided Media – Performance – types of Error – Error Detection – Error corrections
UNIT 3	Multiplexing – Types of Multiplexing – Multiplexing Application – Telephone system – Project 802 – Ethernet – Token Bus – Token Ring – FDDI – IEEE 802.6 – SMDS – Circuit Switching – Packet Switching – Message switching – Connection Oriented and Connectionless services.
UNIT 4	History of Analog and Digital Network – Access to ISDN – ISDN Layers – Broadband ISDN – X.25 Layers – Packet Layer Protocol – ATM: Architecture-Applications.
UNIT 5	Repeaters – Bridges – Routers – Gateway – Routing algorithms – TCP/IP Network, Transport and Application Layers of TCP/IP – World Wide Web .

Text:

1. Behrouz and forouzan - Introduction to Data Communication and Networking – 2nd Edition – TMH

Reference

1. Jean Walrand – Communication Networks (A first Course) – Second Edition – WCB/McGraw Hill

COURSE CODE	COURSE TITLE	L	T	P	C
14A216B	PHP	5			4

UNIT	SYLLABUS
UNIT 1	What is PHP? History of web programming; how PHP fits into the web environment; installation and configuration; "Hello World"; syntax, variables, operators, flow control structures
UNIT 2	More language basics; using GET and POST input, working with HTML forms; built-in and user-defined functions; variable scope; using the PHP manual, getting help
UNIT 3	Input validation, string manipulation and regular expression functions; date and time functions
UNIT 4	Code re-use, require (), include (), and the include_path; file system functions and file input and output; file uploads; error handling and logging; sending mail
UNIT 5	HTTP headers and output control functions; HTTP cookies; maintaining state with HTTP Units; writing simple web clients - PHP 5-specific features

REFERENCE:

1. Programming PHP. Rasmus Lerdorf, Kevin Tatroe.,(O'Reilly, ISBN 1565926102)
2. Learning PHP 5. David Sklar, (O'Reilly, ISBN 0596005601)
3. Core PHP Programming. Leon Atkinson, (Prentice Hall, ISBN 0130463469)

COURSE CODE	COURSE TITLE	L	T	P	C
14M216N	SOFTWARE ENGINEERING	5			4

UNIT	SYLLABUS
UNIT 1	Introduction to Software Engineering: Definition – Size Factor – Quality and Productivity of Factors – Managerial Issues – Planning a software project: Defining the problem – Developing the problem – Developing a solution Strategy – Planning the Development Process – planning an Organization structure – Other Planning Activities.
UNIT 2	Software Cost Estimation: Software cost factors – Software Cost Estimation Staffing level Estimation – Estimating Software Maintenance Costs – The Software Specification – Formal Specification Techniques
UNIT 3	Software design: Fundamentals Design Concepts – Modules and Modularization cost Design Notations – Design Techniques – Detailed Design Considerations – Real-Time and Distributors -System Design – Test Plans – Milestones, walkthrough, and Inspections.
UNIT 4	Implementation issues: Structured Coding Techniques – Coding Style – Standards and Guidelines – Documentation guidelines – Type checking – Scoping Rules – Concurrency Mechanisms.
UNIT 5	Quality Assurance – Walkthroughs and Inspection – Static Analysis – Symbolic Executions Unit Testing and Debugging – System Testing – Formal Verification:

BOOKS FOR STUDY:

1. R.Failey, Software Engineering Concepts, Tata McGraw Hill Edn.
2. R.S. Pressman Software Engineering, Fourth Ed., McGraw Hill Edn

COURSE CODE	COURSE TITLE	L	T	P	C
14M2162	PRACTICAL -IX- PHP LAB	5			2

1.Create a PHP program to demonstrate the get and post method.

2. Create a PHP program to validate the user form.

3.Create a PHP program to demonstrate the different predefined function in array.

4.Create a PHP program to demonstrate the different predefined function in Math.

5.Create a PHP program to demonstrate the different predefined function in Date

6. 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.

7. 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.

8. Assume four users user1, user2, user3 and user4 having the passwords pwd1, pwd2, pwd3 and pwd4 respectively.
Write a PHP for doing the following.

i). Create a Cookie and add these four user ID's and passwords to this Cookie.

ii). Read the user id and passwords entered in the Login form (week1) and authenticate with the values (user id and passwords) available in the cookies.
If he is a valid user (i.e., user-name and password match) you should welcome him by name (user-name) else you should display "You are not an authenticated user ''.

9. Create a PHP program to demonstrate the different file handling methods.

10. Create a PHP program to demonstrate the database connectivity

COURSE CODE	COURSE TITLE	L	T	P	C
14M2161	**PRACTICAL X- MINI PROJECT**	**5**			**4**

Each student has develop and implement individually application software based on any emerging latest technologies.