

Indira Gandhi National Tribal University, Amarkantak



Syllabus Scheme
(1st to 6th Semester)
For
Bachelors in
Computer Applications (BCA)

SEMESTER-I (Ist Year)				
Subject Code	Subject Name	Internal Marks (Sessional)	External Marks	Total Marks
BCA-101	Mathematics-I	30	70	100
BCA-102	Fundamentals of Computer	30	70	100
BCA-103	Programming in 'C'	30	70	100
BCA-104	Principle of Management	30	70	100
BCA-105	Professional Communication-I	30	70	100
BCAL-106	Lab-I (OS and PC Package)	50	50	100
BCAL-107	Lab- II (Programming in C)	50	50	100
	Total	250	450	700
SEMESTER-II				
BCA-201	Mathematics-II	30	70	100
BCA-202	Data Structure	30	70	100
BCA-203	Logic Theory and Computer Organization	30	70	100
BCA-204	Accounting and Financial Management	30	70	100
BCA-205	Professional Communication-II	30	70	100
BCAL-206	Lab- III (Internet Programming)	50	50	100
BCAL-207	Lab- IV (Data Structure using c)	50	50	100
	Total	250	450	700

SEMESTER-III (IInd Year)				
Subject Code	Subject Name	Internal Marks (Sessional)	External Marks	Total Marks
BCA-301	Object Oriented Programming in C++	30	70	100
BCA-302	Data Base Management System(DBMS)	30	70	100
BCA-303	Operating System	30	70	100
BCA-304	Computer Network	30	70	100
BCA-305	System Analysis and Design	30	70	100
BCAL-306	Lab- V (Oracle)	50	50	100
BCAL-307	Lab- VI (Programming in VB)	50	50	100
	Total	250	450	700
SEMESTER- IV				
BCA-401	Discrete Mathematics	30	70	100
BCA-402	Computer Graphics and Multimedia.	30	70	100
BCA-403	.NET Programming	30	70	100
BCA-404	Advance DBMS	30	70	100
BCA-405	Network Security	30	70	100
BCAL-406	Lab- VII (.Net)	50	50	100
BCAP-407	Miner Project in .NET	50	50	100
	Total	250	450	700

SEMESTER-V (IIIrd Year)				
Subject Code	Subject Name	Internal Marks (Sessional)	External Marks	Total Marks
BCA-501	Java Programming	30	70	100
BCA-502	Linux and Shell Programming	30	70	100
BCA-503	Computer Architecture and Micro Processor	30	70	100
BCA-504	Information Technology Trends	30	70	100
BCA-505	Marketing Management	30	70	100
BCAL-506	Lab- VIII (JAVA)	50	50	100
BCAL-507	Lab- IX (Linux and Assembly)	50	50	100
	Total	250	450	700
SEMESTER-VI				
BCA-601	Software Engineering and Project management	30	70	100
BCA-602	Web Design Concept	30	70	100
BCAL-603	Lab-X (Web Lab)	50	50	100
BCAP-604	Major Project	100	300	400
	Total	210	490	700
	Grand Total (I +II+III+IV+V+VI semesters)			4200

BCA-101 MATHEMATICS – I

UNIT –I

Trigonometry and Complex Numbers:

Trigonometry: Trigonometry Functions, Functions of angles of any magnitude, Compound and multiple angles, Inverse circular functions.

Complex Numbers: Modules, Argument of complex number, Polar form, vector form, Complex conjugate, Algebraic operations, De-Moivre's theorem, Roots of a complex number.

UNIT –II

Matrices and Determinants:

Definition of different types of matrix. Algebraic operations, Symmetric & skew symmetric matrix, Transpose of matrix, Orthogonal matrices, Rank of matrix, Determinant of a square matrix, Inverse of a square matrix, Solution of Linear Equations by Cramer's Rule and Gauss-Elimination method, Eigen values & Eigen vectors of a square matrix.

UNIT –III

Differential Calculus:

Limit, Continuity and differentiability of functions, Differentiation Rules, Differentiation of functions (Algebraic, Trigonometric, Logarithmic, Exponential and Inverse trigonometric functions), Tangent and normal lines, Condition of tangency, Extreme values of functions, Asymptotes.

UNIT –IV

Integral Calculus:

Indefinite integrals, Basic formulae, Integration by parts, Integration by substitution. Definite integrals, Properties of definite integrals, Evaluation of double integration & triple integration, Application of definite integral to find Area and Volume.

UNIT-V

Vector Calculus:

Vectors in a plane, Linear dependence and independence of vectors, Vectors in space, Dot and cross-product of vectors, Gradient of vectors, Divergence of vectors, Curl of vectors, Physical interpretation of gradient, Divergence and curl of vectors.

References:

1. 12th N.C.E.R.T. Book
2. Differential calculus by Shanti Narayan, S. Chand.
3. Integral Calculus by M. Roy & S. S. Seth, Sivalal Agarwala & Company.
4. Introduction to Engineering Mathematics by H.K. Dass, S. Chand.

BCA-102 - FUNDAMENTALS OF COMPUTERS

UNIT – I

Brief history of development of computers, Computer system concepts, Computer system characteristics, Capabilities and limitations, Types of computers, Generations of computers,. Basic components of a computer system - Control unit, ALU, Input/Output functions and characteristics, memory - RAM, ROM, EPROM, PROM and other types of memory.

UNIT – II

Input/Output & Storage Units:-Keyboard, Mouse, Trackball, Joystick, Digitizing tablet, Scanners, Digital Camera, MICR, OCR, OMR, Bar-code Reader, Voice Recognition, Light pen, Touch Screen, Monitors - characteristics and types of monitor -Digital, Analog, Size, Resolution, Refresh Rate, Interlaced / Non Interlaced, Dot Pitch, Video Standard - VGA, SVGA, XGA etc, Printers& types - Daisy wheel, Dot Matrix, Inkjet, Laser, Line Printer, Plotter, Sound Card and Speakers, Storage fundamentals - Primary Vs Secondary Data Storage and Retrieval methods - Sequential, Direct and Index Sequential, SIMM, Various Storage Devices - Magnetic Tape, Magnetic Disks, Cartridge Tape, Hard Disk Drives, Floppy Disks (Winchester Disk), Optical Disks, CD, VCD, CD-R, CD-RW, Zip Drive, flash drives Video Disk , Blue Ray Disc, SD/MMC Memory cards, Physical structure of floppy & hard disk, drive naming conventions in PC. DVD, DVD-RW.

UNIT – III

Software and its Need, Types of Software - System software, Application software, System Software - Operating System, Utility Program, Programming languages, Assemblers, Compilers and Interpreter, virus working principles, Types of viruses, virus detection and prevention, viruses on network.

UNIT – IV

Use of communication and IT , Communication Process, Communication types- Simplex, Half Duplex, Full Duplex, Communication Protocols, Communication Channels - Twisted, Coaxial, Fiber Optic, Serial and Parallel Communication, Modem - Working and characteristics, Types of network Connections - Dialup, Leased Lines, ISDN, DSL, RF, Broad band ,Types of Network - LAN, WAN, MAN ,Internet, VPN etc., Topologies of LAN - Ring, Bus, Star, Mesh and Tree topologies, Components of LAN -Media, NIC, NOS, Bridges, HUB, Routers, Repeater and Gateways.
Internet-Evolution, World Wide Web Internet Services, Convergence of technologies.

UNIT-V

Concept of Operating System- Definition and needs of Operating System, Function of operating system, Types of operation system, Example of operating system., File Allocation Table (FAT & FAT 32), files & directory structure and its naming rules, booting process details of DOS ,Linux and Windows, DOS system files,

Overview of some popular OS- MS-DOS, Windows, Macintosh, UNIX, Linux and Sun Solaris operating system.

TEXT & REFERENCE BOOKS :

1. *Anurag Seetha, "Introduction to Computers and Information Technology", Ram Prasad & Sons, Bhopal.*
2. *S.K.Basandra, "Computers Today ", Galgotia Publications.*
3. *Alexis Leon & Mathews Leon, " Fundamentals of Information technology ", Vikas Publishing House, New Delhi.*
4. *Rajeev Mathur, " DOS Quick reference ", Galgotia Publications*

BCA-103--PROGRAMMING IN C

UNIT – I

Program Concept, Characteristics of Programming, Various stages in Program Development Programming aids Algorithms, Flow Charts - Symbols, Rules for making Flow chart, Programming Techniques – Top down, Bottom up, Modular, Structured - Features, Merits, Demerits, and their Comparative study. Programming Logic- Simple, Branching, Looping, Recursion, Cohesion & Coupling, Programming Testing & Debugging & their Tools .

UNIT – II

Introduction to C language, C language standards features of C, Structure of C program.

Introduction to C compilers, Creating and compiling C Programs, IDE features of Turbo C compiler, Command line options to compile C program in TC.

Keywords, Identifiers, Variables, constants, Scope and life of variables - local and global variable. Data types, Expressions, Operators : Arithmetic, Logical, Relational, Conditional and Bit wise Operators. Precedence and Associativity of Operators, Type conversion.

Basic input/output library functions: Single character input/output i.e. getch(), getchar(). getche(), putchar(). Formatted input/output i.e. printf() and scanf().

Library functions : Mathematical & Character functions.

UNIT – III

Declaration statement, conditional statement : If statement, If....Else statement, Nesting of If...Else Statement, else if ladder, The ?: operator, Switch statement. Iteration statements: for loop, while loop, do-while loop. Jump statements: break, continue, goto exit().

ARRAYS : concept of Single and Multi Dimensional arrays, Array declaration and initialization of arrays

Strings : declaration, initialization, functions.

UNIT – IV

The need of C functions, User defined and library function, prototype of functions, prototype of main() function, Calling of functions, Function arguments, argument passing: call by value and call by reference, Return values. Nesting of function, Recursion, Array as function argument, Command line arguments.

Storage class specifier - auto, extern, static, register.

Defining structure, Declaration of structure variable, typedef, Accessing structure members, Nested structures, Array of structure, Structure assignment, Structure as function argument, Function that return structure, Union.

Concept of debugging. Finding Errors in the programs, error codes and their meanings, Various debugging options in Turbo C compiler. (Debug and Options Menu of the TCC IDE)

UNIT – V

Introduction – File handling, File structure, File handling function, File types, Streams, Text, Binary, File system basics, The file pointer, Opening a file, Closing a file, Writing a character, Reading a character, Using fopen(), getc(), putc(), and fclose(), Using feof(), Working with string fputs() and fgets(), Standard streams in C, Flushing astream, Using fread() and fwrite(), Direct access file, fseek() and random access I/O, fprintf() and fscanf(), getting file name as Command line arguments.

Graphics on your PC: Graphics and Text mode, Video Adapter, Initialize Graphics Mode and resolution, header file graphics.h. Functions used In Graphics - Drawing a Point on Screen, Drawing – lines, rectangle, circles, arcs, polygon. Functions to fill colors. Display Text in Graphics mode, outtext(), outtextxy(), justifying text.

TEXTS & REFERENCE BOOKS :

1. . E. Balaguruswamy, **“Programming In C ”**, TMH Publications
2. . Gottfried, *Schaums Outline Series*, **“ Programming With C ”**, TMH Publications
3. . Mahapatra, **“ Thinking In C ”**, PHI Publications

BCA-104 PRINCIPLE OF MANAGEMENT

UNIT-I

INTRODUCTION:

Management-Definition, Nature and Scope, Significance of Management, Evolution of Management thought, Contributions of Taylor, Fayol and Weber, Systems approach to Management.

UNIT-II:

FUNCTIONS OF MANAGEMENT-I:

Roles of a Manager (Mintzberg), Planning-Importance & Significance, Decision Making Process, Types of decisions, Motivation-Concept, Process and Contributions of Maslow and McClelland.

UNIT-III

FUNCTIONS OF MANAGEMENT-II:

Organizing-Principles and techniques, Staffing, Recruitment & Selection-A Brief Idea, Leadership-concept & theories, Controlling-Definition, Significance and Objectives.

UNIT-IV

BUSINESS ORGANIZATION :

Organizations-Definition, Nature and types, Components of an organization, Basic Roles in an organization, Organizations in Indian context.

UNIT-V

EMERGING TRENDS & ISSUES:

Role of technology in Management, Quality Standards, Learning Organizations, Virtual Organizations, Corporate Social Responsibility, Quality of Work Life.

References:

1. Koontz-"Essentials of Management", TMH
2. Shukla, MC-"Business Organizations and Management" S Chand & Co.
3. Stoner "Principles of Management," PHI.

BCA-105- PROFESSIONAL COMMUNICATION-I

UNITE –I THEORY

- What is professional communication and why it matter : meaning, significance, and Attribute of professional communication
- who are professional reader and how to profile them : The need for Reader centered approach; High-tech reader, low-tech readers, Lay readers, Mixed Readers.

UNITE-II TECHNIQUE S

- How to research and report information : The research process (Asking the productive questions, primary resources, Secondary resources, Secondary resources , Data analyses and interpretation); Criteria for evaluating resources.
- How to communicate information through visual: Graphic design principles (Continuity, Contrast, Emphasis, Simplicity); Types (Tables Line and surface charts, Bar Charts Pie Charts)

UNITE-III TEXTS

- LETTERS: Letter components; Criteria for different types of letter (Letter of inquiry, Letter of complaint, latter of adjustment Letter of Jo-Application); Resume (Chronology, Function, Element).
- Memos and E-mail : Principal (Politeness, Brevity, Proofreading); usual structure (Main idea, necessary details cordial close).

UNITE-IV TROUBLESPOTS

- Syntax, Tense and Voice
- Preposition and Punctuation

UNITE-V ASPECTS OF SPOKEN ENGLISH

- Phoneme, Allophone, International Phonetic Alphabet.
- Intonation: Rising Tone, falling Tone Falling-rising Tone, and Rising-Falling Tone.

REFERENCE:

1. Sheehan-johnson, Richard," Technical Communication Today", London: Longman, 2006.
2. Watkins, FC and billingham, WB ." Practical English Handbook" Boston: Houghton miffin 2001.

BCA-201 MATHEMATICS – II

UNIT –I

Partial Differentiation and its Application:

Partial Derivatives, Euler's Theorem on Homogeneous function, Total differentiation. Errors, Jacobians, Curve tracing, Expansion of functions of one variable and two variables.

UNIT –II

Ordinary Differential Equation:

Order and degree of differential equations, solution of differential equations of first order and first degree variables separable, Linear D.E., Homogenous D.E., Exact D.E., Linear differential equation with constant coefficients: Complementary function, Particular integral, Method of variation of parameters.

UNIT –III

Partial Differential Equation and Geometry:

Introduction of partial Differential Equations, Linear partial differential equation of second order with constant coefficients, Classification of P.D.E. to parabolic, Elliptic and hyperbolic with examples.

Straight lines, Circle, Parabola, Ellipse, Hyperbola in two dimension.

UNIT –IV

Probability and Distributions:

Definition of probability, Elementary properties, Conditional Probability, Baye's Theorems (without proof), Binomial Distribution, Poission Distribution and Normal Distribution.

UNIT –V

Statistics:

Measures of central Tendency – Mean, Median, Mode, Standard deviation and Variance, correlation – Karl Pearsons correlation coefficient, Rank correlation coefficients, Regression lines, Properties of regression coefficients.

References:

1. Differential equation by Gupta, Malik and Mittal Pragati Prakashan.
2. Probability theory and random process by S.P. Eugene Xavier, S. Chand & company Pvt. Ltd.
3. Elements of partial Differential Equation by Sneddon McGraw Hill.
4. Mathematics and statistics by Ajay Goyal, Taxman Allied Service Pvt. Ltd.
5. Engineering Mathematics – II by H.K. Dass, S. Chand & company Pvt. Ltd.

BCA-202 DATA STRUCTURES

UNIT-I

The concept of data structure, Abstract data type, Concept of list & array Introduction to stack, Stack as an abstract data type, primitive operation on stack, Stacks application: Infix, post fix, Prefix and Recursion, Multiple Stack.

Introduction to queues, Primitive Operations on the Queues, Queue as an abstract data type, Circular queue, Dequeue, Priority queue, Applications of queue

UNIT-II

Introduction to the Linked List , Basic operations on linked list, Stacks and queues linked list, Header nodes, Doubly Linked List, Circular Linked List, Stacks & Queues as a Circular Linked List, Application of Linked List.

UNIT-III

TREES - Basic Terminology, Binary Trees, Tree Representations using Array & Linked List, Basic operation on Binary tree, Traversal of binary trees:- In order, Preorder & post order, Application of Binary tree, Threaded binary tree, B-tree & Height balanced tree, Binary tree representation of trees.

UNIT-IV

Analysis of algorithm, complexity using big 'O' notation. Searching: linear search, Binary search, their comparison.

Sorting :Insertion sort, Selection sort, Quick sort, Bubble sort, Heap sort, Comparison of sorting methods.

Hash Table, Collision resolution Techniques.

UNIT-V

Introduction to graphs, Definition, Terminology, Directed, Undirected & Weighted graph, Representation of graphs, Graph Traversal-Depth first & Breadth first search. Spanning Trees, minimum spanning Tree, Shortest path algorithm.

TEXT & REFERENCE BOOKS

1. *Fundamentals Of Data Structure*, By S. Sawhney & E. Horowitz
2. *Data Structure* : By Trembley & Sorrenson
3. *Data Structure* : By lipschuiests (Schaum's Outline Series Mcgraw Hill Publication)
4. *Fundamentals Of Computer Algorithm*: By Ellis Horowitz and Sartaj Sawhney

BCA-203– Logic Theory and Computer Organization

UNIT – I

Number systems, Binary number system, Octal & Hexa-decimal number system, 1's & 2's complement, Binary Fixed- Point Representation, Arithmetic operation on Binary numbers, Overflow & underflow, Floating Point Representation, Codes, ASCII, EBCDIC codes, Gray code, BCD, Error detection & correcting codes

UNIT – II

Logic Gates, AND, OR, NOT GATES and their Truth tables, NOR, NAND & XOR gates, Boolean Algebra, Basic Boolean Law's, Demorgan's theorem, MAP Simplification, Minimization techniques, K -Map, Sum of Product & Product of Sum

UNIT – III

Combinational & Sequential circuits, Half Adder & Full Adder, Full subtractor, Flip-flops - RS, D, JK & T Flip-flops, Shift Registers, RAM and ROM, Multiplexer, Demultiplexer, Encoder, Decoder, Idea about Arithmetic Circuits, Program Control, Instruction Sequencing ,Counter

UNIT – IV

I/O Interface, Properties of simple I/O devices and their controller, Isolated versus memory-mapped I/O, Modes of Data transfer, Synchronous & Asynchronous Data transfer, Handshaking, Asynchronous serial transfer, I/O Processor.

UNIT – V

Memory Hierarchy, Associative Memory, Virtual Memory, Address space & Memory Space, Address Mapping, Page table, Page Replacement, Cache Memory, Hit Ratio, Mapping Techniques, Writing into Cache

TEXT & REFERENCE BOOKS :

1. . *BARTEE, "Digital Computer Fundamentals "* TMH Publication ISBN 0-07-003899-6
2. . *MALVINO, " Digital Computer Electronics "* TMH Publication ISBN 0-07-462235-8
3. . *MORRIS MANO, "Computer System Architecture "* PHI Publication ISBN 81-203-0417-9
4. Skills in Mathematics :Algebra",S.K.Goyal

BCA-204 – ACCOUNTING AND FINANCIAL MANAGEMENT

UNIT-I

The basic Financial Accounts, types of accounts, Rules of Entries of transaction, Journal.
Cash Book – Types, Format of Cash book, Balancing of Cash Book, Subsidiary books – Purchase, Sales, Purchase return and sales return.
Ledger, posting of entries.

UNIT – II

Trial Balance, Rectification of errors, adjustment entries. Depreciation and Inflation.

UNIT – III

Principles of Cost Accounting, Valuation of Stocks, Allocation of Overheads, Methods of material issues.

UNIT – IV

Pay roll department, Preparation of Pay roll, Preparation of wage record, Methods of payments of wages, overview of computerized method for payroll preparation.

UNIT – V

Inventory account and store record, inventory or stock control and cost accounting, Department demand and supply method of stock control.
Classification and condition of material Report on material handling.
Overview of computerized accounting process – Introduction to accounting system software, their features and some basic operations.

TEXT & REFERENCE BOOKS

1. . Mazda, **Engineering Management**, Addison Wesley
2. . Dr. S P Gupta, **Management Accounting**
3. . I.M.Pandey, **Financial Management**, Vikas Publication.

BCA- 205 PROFESSIONAL COMMUNICATIONS –II

UNIT- I: LANGUAGE THROUGH LITRATURE

(A) Essay:

1. of studies-By Francies Becom.
2. A bookish Topic- By R.K. Narayan .
3. The Civilization of Today By C.E.M. Joad.
4. The Gandhian Outlook – by S. Radhakrishnan.

(B)Short stories:

1. The Renunciation – By Rabindra Nath Tagore.
2. The lament – by Anton. P. Chekhov.
3. The Fly – By Katherine Mansfield .
4. The Barbers Trade Union – By Mulk Raj Anand.

UNIT-II: BASIC OF ORAL PRESENTATION :

1. Definition and feature of Oral Presentation.
2. Preparation and Planning of a presentation.
3. Types of presentation.
4. Public Speaking Skills.

UNIT-III: GD's, Seminar and Interview:

1. Group Discussion: Meaning, Significance, How to prepare and practice for GD , Common Pitfalls in a G.D.
2. Seminars: Definition and convention of a seminar.
3. Interview : Definition, Techniques & Skills, Preparation, Negative Interview factors and Interview Tips.

UNIT-IV : Reading and Listening Comprehension :

1. Way to improve the speed and efficiency of reading.
2. Importance of skim Reading, Note Making, Linear Notes – Making and Patterned note making.
3. Listening skill and features of effective Listening.
4. Benefits of Effective Listening.

UNIT –V : Project Work:

At the commencement of the semester, student would be assigned a topic by the teacher/ instructor . They will research it and submit a duly documented report for about 20-25 pages by the end of the semester.

References :

1. Jo, Billangham, “ Giving Presentation”, Oup-2003.
2. John Peck and Martin Coyle, “How Study A Novel” Palgrave, 2001.
3. John Seely , “Writing Report”, Oup,2004.
4. Ron Fry, “Great Answers to Tough Interview Question”, Pearson,2003.
5. Jones, Denial, “English Pronouncing Dictionary ELBS”,Longman, 1999.
Text
6. Anthology of English Short Stories, Edited by Dr. R.P. Singh.
7. Anthology of English Essays, Edited by Dr. R.P. Singh.

BCA-301-OBJECT ORIENTED PROGRAMMING WITH C++

UNIT-I

Overview of C++ : Object oriented programming, Concepts, Advantages, Usage. C++ Environment: Program development environment, the language and the C++ language standards. Introduction to various C++ compilers, C++ standard libraries, Prototype of main() function, Data types.

Creating and compiling C++ Programs using IDE and through command line, IDE features for compiling, debugging, tracing and testing the C++ program in Turbo C++/Borland C++/MicroSoft VC++/GNU C++ compiler.

Classes & Objects : Classes, Structure & classes, Union & Classes, Friend function, Friend classes, Inline function, Scope resolution operator, Static class members, Static data member, Static member function, Passing objects to function, Returning objects, Object assignment.

UNIT-II

Array, Pointers References & The Dynamic Allocation operators : Array of objects, Pointers to object, Type checking C++ pointers, The This pointer, Pointer to derived types, Pointer to class members, References: Reference parameter, Passing references to objects, Returning reference, Independent reference, C++ 's dynamic allocation operators, Initializing allocated memory, Allocating Array, Allocating objects.

Constructor & Destructor : Introduction, Constructor, Parameterized constructor, Multiple constructor in a class, Constructor with default argument, Copy constructor, Default Argument, Destructor.

UNIT-III

Function & operator overloading : Function overloading, Overloading constructor function finding the address of an overloaded function, Operator Overloading: Creating a member operator function, Creating Prefix & Postfix forms of the increment & decrement operation, Overloading the shorthand operation (i.e. +=, -= etc), Operator overloading restrictions, Operator overloading using friend function, Overloading New & Delete, Overloading some special operators, Overloading [], (), -, comma operator, Overloading << .

UNIT-IV

Inheritance : Base class Access control, Protected members, Protected base class inheritance, Inheriting multiple base classes, Constructors, destructors & Inheritance, When constructor & destructor function are executed, Passing parameters to base class constructors, Granting access, Virtual base classes .

Virtual functions & Polymorphism : Virtual function, Pure Virtual functions, Early Vs. late binding

UNIT-V

The C++ I/O system basics : C++ streams, The basic stream classes: C++ predefined streams, Formatted I/O: Formatting using the ios members, Setting the format flags, Clearing format flags, An overloaded form of setf (), Examining the formatted flags, Setting all flags, Using width() precision() and fill(), Using manipulators to format I/O, Creating your own manipulators. ,File Handling , Temple function and class, Exception Handling, Namespace

TEXT & REFERENCE BOOKS :

1. . *Herbert Schildt, "C++ The Complete Reference " - TMH Publication ISBN 0-07-463880-7*
2. . *R. Subburaj, "Object Oriented Programming With C++ ", Vikas Publishing House, New Delhi.isbn 81-259-1450-1*
3. . *E. Balguruswamy, "C++ ", TMH Publication ISBN 0-07-462038-x*
4. . *M Kumar "Programming In C++", TMH Publications*
5. . *R. Lafore, "Object Oriented Programming C++ "*
6. . *Ashok . N. Kamthane, "Object Oriented Programming with ANSI & Turbo C++", Pearson Education Publication, ISBN 81-7808-772-*

BCA-302-DATABASE MANAGEMENT SYSTEMS

UNIT-I

Operational data, Purpose of database system, Views of data, Data models: Relational, Network, Hierarchical, Instances & Schemes, Data Dictionary, Types of Database languages : DDL, DML, Structures of a DBMS, Advantages & Disadvantages of a DBMS, 3-level Architecture Proposal : External, Conceptual & Internal Levels, Entity Relationship Model as a tool of conceptual design : Entities & Entity set, Relationship & Relationship set, Attributes, Mapping Constraints, Keys, Entity-Relationship diagram (E-R diagram) : Strong & weak entities, Generalization, Specialization, Aggregation, Reducing ER diagram to tables

UNIT-II

Set theory concepts and fundamentals: Relations, Domains, Attributes, Tuple, Concepts of Keys: Candidate key, Primary Key, Alternate Key, Super Key, Foreign Key, Fundamental integrity rules: Entity integrity, Referential integrity, Extension & Intention

Functional Dependencies, Good & Bad Decomposition, Anomalies as a database: A consequences of bad design, Universal Relation, Normalization: 1NF, 2NF, 3NF, BCNF, 4NF 5NF.

UNIT-III

Relational Algebra: Select, Project, Cross product, Different types of joins i.e. theta join, equi-join, natural join, outer join, set operations .

Structured query language(SQL), Using MS Access, Implementing SQL Functions, Integrity, Indexing, View Using MS Access.

DBA – Role, Functionality and Importance.

UNIT-IV

Failure Classification, The Storage Hierarchy, Transaction Model, Storage and File Structure, RAID, Storage Access, File Organization, Organization of Records in File, Data Dictionary storage.

UNIT-V

Database functionality and Importance.

Database system architectures-centralized system, client server system, parallel system, distributed system. Overview Database on Web- concepts of ODBC, DSN.

TEXT & REFERENCE BOOKS :

1. . *“Database Management System”* by Leon & Leon, Vikas Publications
2. . *“Database System Concepts”* by Henry F.Korth & Abraham Silberschatz .
3. . *“an introduction to database system”* by Bipin C.Desai
4. . *“An Introduction To Database System”* by C.J.Date

BCA-303-OPERATING SYSTEM

UNIT-I

Definitions, functions and types of operating system, System components, Operating system Services, System Calls, System programs, System structure.

UNIT-II

Process Concepts, process state & process control block, Process Scheduling, Scheduling Criteria, Scheduling Algorithms, Multiple-Processor Scheduling Real-Time Scheduling, Threads, Threads in Linux.

UNIT-III

Critical Section Problem , Semaphores, Classical Problem Of Synchronization, , Deadlock Characterizations, Method for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock, Process Scheduling in Linux.

UNIT-IV

Logical versus physical address space, Swapping, Contiguous Allocating, Paging, Segmentation, Virtual Memory, Demand Paging, Performance of Demand Paging, Page Replacement, Page Replacement Algorithms, Memory Management in Linux.

UNIT-V

Disk Scheduling, Disk Management, Swap Space Management, Disk reliability, Stable Storage Implementation. File Concepts Directory structure, Protection, File system in Linux.

TEXT & REFERENCE BOOKS :-

1. . *Operating System Concepts* by Silberschatz & Galvin, Addison Wesley Publication 6th Edition.
2. . *Operating System Concepts & Design* by Milan Milen Kovic, TMH Publication

BCA – 304 COMPUTER NETWORK

UNIT –I

Data Communications: Introduction, Communication Systems, types of data: Analog and Digital. Types of signals: Analog and Digital, Communication Channel and its characteristics, Transmission modes, Synchronous and Asynchronous transmission, Bit rate and baud. Radio transmission systems: medium wave, short wave, microwave transmission system, Terrestrial and satellite (eg VSAT), Infra red transmission.

UNIT –II

Data Modulation and data encoding: Concept of Modulation, Analog data Analog signal, Analog data Digital Signal, Digital data Analog Signal, Digital data Digital Signal. Introduction to Multiplexing: Space Division Multiplexing, Frequency Division Multiplexing, Time Division Multiplexing. Switching techniques: Circuit and Packet switching.

UNIT –III

An overview of networking, Network goals, Application of networks. **Network Structure, Services:** Datagram, Virtual circuit and Permanent Virtual Circuit, Connectionless and connection oriented communication. **Network Topologies:** Bus, Ring, Star Topologies. **OSI Model:** Introduction to ISO-OSI reference model and its layers, Network architectures, protocol hierarchy and layering concepts. **OSI Terminology:** interface, Protocol, service primitives.

UNIT –IV

TCP/IP Suite: Introduction to TCP/IP protocol, Brief overview of TELNET, FTP, TFTP, SMTP, NFS, SNMP, DNS.

Data Link Layer Design issues: Services provided to Network layer training: Necessity & Techniques, Error control features & review of techniques. Flow control: sliding window protocols, Go back n, selective repeat. Examples of Data Link protocols: BSC, HDLC.

UNIT –V

Local Area Network (LAN): IEEE standard 802 for LAN, IEEE standard 802.3: CSMA/CD LAN and Ethernet LAN, IEEE standard 802.4: Token BUS LAN, IEEE standard 802.5: Token Ring LAN, FDDI, Repeaters, Bridges, Router, Gateways, Switching and Hubs. LAN H/W, LAN Operating System, Transmission Media, Base baud vs Broadband, Implementation using co-axial, Twisted pair, fibre optic cables, wireless Technology. Introduction to MAN & WAN.

References:

1. B. Forouzan, "Data Communication and Networking", First Edition, 1999, Tata McGraw Hill.
2. W. Stallings, "Data and Communication", 2002, Prentice Hall of India.
3. Lin and Chlatmac, "Wireless and Mobile Network Architecture", 2001, John Wile and Sons, India.

BCA-305-SYSTEM ANALYSIS AND DESIGN

UNIT-I

System Concept: Definition, Characteristics, Elements of system, Physical and abstract system, open and closed system, man-made information systems.

System Development Life Cycle: Various phases of system development, Considerations for system planning and control for system success.

System Planning: Base for planning a system, Dimensions of Planning.

UNIT-II

Initial Investigation: Determining users requirements and analysis, fact finding process and techniques.

Feasibility study: Determination of feasibility study, Technical, Operational & Economic Feasibilities, System performance constraints, and identification of system objectives, feasibility report.

Cost/Benefit Analysis: Data analysis, cost and benefit analysis of a new system. Categories determination and system proposal.

UNIT-III

Tools of structured Analysis: Logical and Physical models, context, diagram, data dictionary, data diagram, form driven methodology, IPO and HIPO charts, Gantt charts, system model, pseudo codes, Flow charts- system flow chart, run flow charts etc., decision tree, decision tables, data validation,

Input/ Output and Form Design: Input and output form design methodologies, menu, screen design, layout consideration.

UNIT-IV

Management standards – Systems analysis standards, Programming standards, Operating standards.

Documentation standards – User Manual, system development manual, programming manual, programming specifications, operator manual.

System testing & quality: System testing and quality assurance, steps in system implementation and software maintenance.

System security: Data Security, Disaster/ recovery and ethics in system development, threat and risk analysis.

System audit.

UNIT-V

Organisation of EDP: Introduction. Job Responsibilities & duties of EDP Personnels- EDP manager, System Analyst, Programmers, Operators etc. Essential features in EDP Organization. Selection of Data Processing Resources: purchase, lease, rent-advantages and disadvantages.

Hardware and software procurement – In-house purchase v/s hiring and lease.

Text & Reference Books:

1. *System Analysis & Design* by V K Jain, Dreamtech Press
2. *Modern System Analysis & Design* by A Hoffer, F George, S Valaciah Low Priced Edn. Pearson Education.
3. *Information Technology & Computer Applications*, by V.K.Kapoor, Sultan Chand & Sons, New Delhi.

BCA 401 DISCRETE MATHMETICS

UNIT –I

Relation: Type and composition of relations, Pictorial representation of relations, Closures of relations, Equivalence relations, Partial ordering relation.

Function: Types, Composition of function, Recursively defined function.

UNIT –II

Algebraic Structures: Properties, Semi group, Monoid, Group, Abelian group, Properties of group, Subgroup, Cyclic group, Cosets, Permutation groups, Homomorphism, Isomorphism and Automorphism of groups.

Propositional Logic: Preposition, Tautologies, Contradictions, Algebra of Proposition, Logical implication, Logical equivalence, Normal forms, Predicates and quantifiers.

UNIT –III

Lattices: Introduction, Ordered set, Posets, Hasse Diagram, Hasse diagram of partially ordered set, Consistent enumeration, Isomorphic ordered set, Well ordered set, Lattices, Properties of lattices, Bounded lattices, Distributive lattices, and Complemented lattices.

UNIT –IV

Automata: Introduction to defining language, Kleene Closure, Arithmetic expressions, Regular expressions, Generalized Transition graph, Conversion of regular expression to Finite Automata, NFA, DFA, Conversion of NFA to DFA, Optimizing DFA, FA with output: Moore machine, Mealy machine, Conversions.

UNIT –V

Non-Regular language: Pumping Lemma, Introduction to Pushdown Automata, Introduction to Turing Machine, and Introduction to CNF, Chomsky Hierarchy.

References:

1. Liptschutz, Seymour, "Discrete Mathematics", TMH
2. Trembley, J.P & R. Manohar, "Discrete Mathematical Structure with Application to Computer Science", TMH
3. Hopcroft J.E, Ullman J.D., "Introduction to Automata theory, Languages and Computation", Narosa Publishing House, New Delhi
4. C.L.Liu, "Elements of Discrete Mathematics", McGraw Hill"

BCA-402 – Computer Graphics & Multimedia

UNIT I

Origin of computer graphics-Application of computer graphics – Random scan & Raster scan systems- Display devices- CRT, LCD, plasma panel. LED devices-input&output devices .
Raster scan algorithms – DDA - Bresenham's line& circle drawing algorithms

UNIT II

Geometrical transformations- Basic 2D transformations-2D composite transformations
Homogeneous coordinate systems and matrix representation of transformations-window to viewport transformation- clipping-line&polygon clipping-Basic interaction tasks & interaction hardware-user interaction software

UNIT III

Multimedia_applications- Media and Data streams- Properties of multimedia systems- Data stream characteristics- Audio:Music –MIDI-audio file formats- Speech

UNIT IV

Images- computer image processing-Video –video file formats-video and animation – animation techniques-multimedia software tools-multimedia authoring tools

UNIT V

Data Compression : Storage Space – Coding Requirements –source,entropy and hybrid compressing techniques JPEG –MPEG – DVI , Optical Storage Media

Main References

1. Hern D and Maker "Computer Graphics" Prentice Hall India
2. Judith Jeffcoate "Multimedia in Practice"Prntice Hall India
3. Ralf Steinmetz & Klara Nahrstedt – " Multimedia Computing , Communication & Applications " Pearson Education

BCA-403-.NET Programming

UNIT-I

Introduction to .NET, .NET Framework features & architecture, CLR, Common Type System, MSIL, Assemblies and class libraries. Introduction to visual studio, Project basics, types of project in .Net, IDE of VB.NET- Menu bar, Toolbar, Solution Explorer, Toolbox, Properties Window, Form Designer, Output Window, Object Browser.

The environment: Editor tab, format tab, general tab, docking tab. visual development & event drive Programming -Methods and events.

UNIT-II

The VB.NET Language- Variables -Declaring variables, Data Type of variables, Forcing variables declarations, Scope & lifetime of a variable, Constants, Arrays, types of array, control array, Collections, Subroutines, Functions, Passing variable Number of Argument Optional Argument, Returning value from function.

Control flow statements: conditional statement, loop statement. MsgBox & Inputbox.

UNIT – III

Working with Forms : Loading, showing and hiding forms, controlling One form within another.

GUI Programming with Windows Form: Textbox, Label, Button, Listbox, Combobox, Checkbox, PictureBox, RadioButton, Panel, scroll bar, Timer, ListView, TreeView, toolbar, StatusBar. There Properties, Methods and events. OpenFileDialog, SaveFileDialog, FontDialog, ColorDialog, PrintDialog. Link Label.

Designing menus : ContextMenu, access & shortcut keys.

UNIT-IV

Object oriented Programming: Classes & objects, fields Properties, Methods & Events, constructor, inheritance. Access Specifiers: Public Private, Protected. Overloading, My Base & My class keywords.

Overview of OLE, Accessing the WIN32 API from VB.NET & Interfacing with office97, COM technology, advantages of COM+, COM & .NET, Create User control, register User Control, access com components in .net application.

UNIT-V

Database programming with ADO.NET – Overview of ADO, from ADO to ADO.NET, Accessing Data using Server Explorer. Creating Connection, Command, Data Adapter and Data Set with OLEDB and SQLDB. Display Data on data bound controls, display data on data grid.

Generate Reports Using CrystalReportViewer.

TEXT & REFERENCE BOOKS :

1. *. VB.NET Programming Black Book by steven holzner –dreamtech publications*
2. *. Mastering VB.NET by Evangelos petroustos- BPB publications*
3. *. Introduction to .NET framework-Worx publication*
4. *. msdn.microsoft.com/net/*
5. *. www.gotdotnet.com*

BCA – 404 ADVANCE DBMS

UNIT –I

Integrity and Security: Domain Constraints, Referential Integrity, Assertions, Triggers, Security and Authorization, Authentication & Encryption.

SQL: Data Definition, Constraints, and Schema Changes in SQL, Basic Queries in SQL, More Complex SQL Queries, Insert, Delete and Update Statements in SQL, Views (in SQL), Specifying General Constraints as Assertion, Additional Features.

UNIT –II

Example of Relational Database Management Systems: Oracle: Basic Structure of the Oracle System, Database Structure and its manipulation in Oracle, Storage Organization in Oracle, Programming Oracle Applications, Oracle Tools.

Indexing and Hashing: Basic Concepts, Ordered Indices, B+ - Tree Index Files, B - Tree Index Files, Static Hashing, Dynamic Hashing, Comparison of Ordered Indexing and Hashing, Index Definition in SQL, Multiple Key Access.

UNIT –III

Transaction Processing Concepts: Introduction to Transaction Processing, Transaction and System Concepts, Desirable Properties of Transactions, Schedules and Recoverability, Seriazibility of Schedules, Transaction Support in SQL.

UNIT –IV

Concurrency Control Technique: Locking Techniques for Concurrency Control, Concurrency Control Based on Timestamp Ordering, Multiversion Concurrency Control Techniques, Validation Concurrency Control Technique, Granularity of Data Items and Multiple Granularity Locking.

UNIT –V

Database Recovery Techniques: Recovery Concepts, Recovery Technique Based on Deferred Update, Recovery Technique Based on Immediate Update, Shadow Paging, Database Backup and Recovery from Catastrophic Failures.

References:

1. "Fundamentals of Database Systems", Elmasri, Nawathe. Addison Wesley.
"Database System Concepts", Silberschatz, Korth, Sudarshan. McGrawHill

BCA-405 Network Security

UNIT - I

Introduction: Attacks, Services and Mechanism, Model for Internetwork Security.
Cryptography: Notion of Plain Text, Encryption, Key, Cipher Text, Decryption and cryptanalysis; Public Key Encryption, digital Signatures and Authentication.

UNIT – II

Net Work Security :
Authentication Application: Kerveros, X.509, Directory Authentication Service, Pretty Good Privacy, S/ Mime.

UNIT – III

IP security Architecture: Overview, Authentication header, Encapsulating Security Pay Load, combining Security Associations, Key Management.

UNIT – IV

Network Management Security: Overview of SNMP Architecture-SMMPVII
Communication Facility, SNMPV3.

UNIT-V

Web Security: Requirements, Secure Socket Layer, Transport Layer Security, and Secure Electronic Transactions
System Security: Intruders, Viruses and Related Threats, Firewall Design Principles

TEXT BOOKS:

1. W. Stallings, Networks Security Essentials: Application & Standards, Pearson Education, 2000
2. W. Stallings, Cryptography and Network Security, Principles and Practice, Pearson Education, 2000.

BCA-501 – JAVA PROGRAMMING

UNIT-I

C++ Vs JAVA, JAVA and Internet and WWW, JAVA support systems, JAVA environment.
JAVA program structure, Tokens, Statements, JAVA virtual machine, Constant & Variables, Data Types, Declaration of Variables, Scope of Variables, Symbolic Constants, Type Casting.
Operators : Arithmetic, Relational, Logical Assignments, Increment and Decrement, Conditional, Bitwise, Special, Expressions & its evaluation.
If statement, if...else... statement, Nesting of if...else... statements, else...if Ladder, Switch, ? operators, Loops – While, Do, For, Jumps in Loops, Labelled Loops.

UNIT-II

Defining a Class, Adding Variables and Methods, Creating Objects, Accessing Class Members, Constructors, Methods Overloading, Static Members, Nesting of Methods.
Inheritance: Extending a Class, Overriding Methods, Final Variables and Methods, Final Classes, Finalize Methods, Abstract methods and Classes, Visibility Control.

UNIT-III

Arrays: One Dimensional & two Dimensional, strings, Vectors, wrapper Classes, Defining Interface Extending Interface, Implementing Interface, Accessing Interface Variable, System Packages, Using System Package, Adding a Class to a Package, Hiding Classes.

Creating Threads, Extending the Threads Class, Stopping and Blocking a Thread, Life Cycle of a Thread, Using Thread Methods, Thread Exceptions, Thread Priority, Synchronization, Implementing the Runnable Interface.

UNIT-IV

Java applets ,Local and Remote, Applets Vs Applications, Writing Applets, Applets Life Cycle, Creating an Executable Applet, Designing a Web Page, Applet Tag, Adding Applet to HTML File, Running the Applet, Passing Parameters to Applets, Aligning the Display, HTML Tags & Applets, Getting Input from the User.

, AWT controls (Button, Labels, Combo box, list and other Listeners, menu bar), layout manager, event handling, swing programming

UNIT-V

Networking (datagram socket and TCP/IP based server socket, JDBC, ,Java Servlet, Servlet LIFE cycle, MVC Architecture, JSP,Tag in JSP,Web Server(Tomcat,websphere,Jboss)

TEXT & REFERENCE BOOKS:

1. . E. Balaguruswamy, **“Programming In Java”, 2nd Edition, TMH Publications** ISBN 0-07-463542-5
2. . Peter Norton, **“Peter Norton Guide To Java Programming”, Techmedia Publications** ISBN 81-87105-61-5
3. H.Schildt, **“The complete Java 2 reference”, TMH, 1998**

BCA-502 – LINUX and Shell Programming

UNIT – I

Linux introduction - Basic Features, Different flavors of Linux. Advantages, Installing requirement, Basic Architecture of Unix/Linux system, Kernel, Shell. Linux File system-Boot block, super block, Inode table, data blocks, How Linux access files, storage files, Linux standard directories.

Installation of Linux system- Partitioning the Hard drive for Linux, Installing the Linux system, System startup and shut-down process, init and run levels.

Essential Linux commands Understanding shells, Commands for files and directories cd, ls, cp, md, rm, mkdir, rmdir, pwd, file, more, less, creating and viewing files using cat, file comparisons – cmp & comm, View files, disk related commands, checking disk free spaces.

UNIT-II

Processes in Linux-process fundamentals, connecting processes with pipes, tee, Redirecting input output, manual help, Background processing, managing multiple processes, changing process priority with nice, scheduling of processes at command, cron, batch commands, kill, ps, who, sleep, Printing commands, find, sort, touch, file, file related commands-ws, sat, cut, dd, etc. Mathematical commands- bc, expr, factor, units.

Creating and editing files with vi, joe & vim editor

UNIT-III

Shell programming- Basic of shell programming, Various types of shell available in Linux, comparisons between various shells, shell programming in bash, read command, conditional and looping statements, case statements, parameter passing and arguments, Shell variables, system shell variables, shell keywords, Creating Shell programs for automate system tasks. Simple filter commands – pr, head, tail, cut, paste, sort, uniq, tr. Filter using regular expressions – grep, egrep, and sed.

awk programming – report printing with awk.

UNIT-IV

System administration Common administrative tasks, identifying administrative files – configuration and log files, Role of system administrator, Managing user accounts-adding & deleting users, changing permissions and ownerships, Creating and managing groups, modifying group attributes, Temporary disable user's accounts, creating and mounting file system, checking and monitoring system performance file security & Permissions, becoming super user using su. Getting system information with uname, host name, disk partitions & sizes, users, kernel. Backup and restore files, reconfiguration hardware with kudzu, installing and removing packages in Linux. Configure X-windows starting & using X desktop. KDE & Gnome graphical interfaces, changing X windows settings.

UNIT-V

Installation, configuration and managing a simple LAN within an organization using Linux.

Setting up and using telnet server and clients.

Installation and simple configuration of Proxy Server - Squid, Mail server – Sendmail, Web server - Apache, File server and Samba server in linux

VNC server and client setting

TEXTS & REFERENCES BOOKS :

1. **UNIX – Concepts & Applications (Third Ed.)** – Sumitabha Das, Tata McGraw Hill Publications.
2. **Unix for programmers and users (Third Ed.)** – Graham Glass & King Ables, Pearson Education India. (Low Prices Edition).
3. **Fedora Core 6 Bible**

BCA 503 Computer Architecture & Microprocessor

UNIT-I

Introduction to Parallel computing; Parallelism in Uniprocessor Systems, Parallel computer structures, Architectural Classification schemes, parallel processing applications.

Pipelining Processing and overlapped parallelism: Principle of Linear Pipelining, Classification of Pipelined Processor, General Pipelined and reservation tables, Interleaved memory organizations, Arithmetic pipelines.

UNIT-II

Principles of designing pipelined processors: pipeline instruction execution, Prefetch buffer, Internal forwarding and register tagging, Hazard detection and resolution.

Pipeline scheduling theory: concept of reservation table, scheduling problem, collision vector, state diagram, pipeline scheduling optimization.

Multiple vector task dispatching, Masking and Data routing.

UNIT-III

SIMD Interconnection network: Static, Dynamic networks, Mesh Connected Illiac Network, Cube interconnection network, Shuffle-exchange and Omega Network.

Parallel Algorithms for array processors: SIMD matrix multiplication, SIMD Fast Fourier Transform.

UNIT-IV

Program partitioning and scheduling: Grain size and Latency, grain packing and scheduling, static multiprocessor scheduling.

Program flow mechanism: Control flow versus Data flow, Demand-driven mechanism, Comparison of flow mechanism.

UNIT-V

Introduction to 8 Bit and 16 Bit Intel Microprocessor Architecture and Register set.

Assembly language programming based on Intel 8085; Instructions: Data Transfer, Arithmetic, Logic, Branch operations, Looping Counting, Indexing, Programming Techniques, Counters and Time Delays.

References:

1. Hwang and Briggs, "Computer Architecture and parallel processing", McGraw Hill.
2. R.S Goankar, "Microprocessor architecture, programming and application with the 8085", Pen Ram International.
3. Hwang, "Advanced Computing Architecture", McGraw Hill.
4. Hall D.V., "Microprocessor and Interfacing, Program and hardware", TMH.

BCA-504 - INFORMATION TECHNOLOGY TRENDS

UNIT - I

DISTRIBUTED SYSTEMS – Introduction, Distributing the processing and storage Function, Advantage and Disadvantage of Distributed System.

E-Supply Chain Management

Introduction, E-Supply-Chain components, E-Supply-Chain architecture, Major Trends in E-SCM, Some examples of using ESCM.

E-Customer Relationship Management (E-CRM)

Customer Relationship management concepts, How technology can help in this. E-CRM solutions, advantages, E-CRM capabilities, Data Mining & E-CRM, Some examples of using E-CRM.

UNIT-II

INTRODUCTION TO VIRTUAL REALITY – Introduction, Brief History of virtual reality, Present uses of virtual reality.

Artificial Intelligence and Expert system- Concepts of AI & Expert Systems, Building of Expert system, Merits and Demerits of Expert system, Application of Expert system and AI.

UNIT-III

DATAWAREHOUSE AND DATA MARTS – Introduction, Advantages of data warehouse, Datawarehouse components, Summarised data, Current details, System of records, Integration and transformation programs, Archives, Metadata, Structure of a datawarehouse, Uses of a datawarehouse, Standards reports and queries, Queries against summarised data, Data mining, Interface with other warehouse

DATAMINING – Introduction, Evolution of data mining, Datamining –verification vs. discovery, Advantages of datamining, Technologies used in dataminnig

UNIT – IV

Mobile Commerce

Introduction, Growth, Success stories of Mobile commerce, Technologies for mobile commerce, WAP & its basics, WAP Programming model, other wireless technology, diffenent generations
Commerce in India.

GEOGRAPHIC INFORMATION SYSTEM (GIS) - Components of a GIS - Hardware, software, data, People, Methods, Working of GIS, Geographic references, Vector and Raster Models, Data for GIS, GIS and Related Technologies, Desktop Mapping, CAD, Remote sensing and GPS, DBMS

UNIT - V

Introduction and basic concepts of modern communication and telephony technology: CDMA, WLL, GSM, VOIP, Blue-tooth, Wi-Fi.

TEXT AND REFERENCE BOOKS :

1. *Fundamentals Of Information Technology* by Alex Leon & M. Leon, Vikas Publications, New Delhi.
2. *Frontiers of Electronic Commerce*, By- Kalakota, Ravi ; Stone, Tom ; Whinston, Andrew B, Addison Wesley Publishing Co , ISBN 8178080575
3. *E-Commerce An Indian Perspective (Second Edition)* – by P.T. Joseph, S.J. Prentice-Hall of India
4. *Recent Magazines of Computers and Communication*

BCA-505 MARKETING MANAGEMENT

UNIT – I - Introduction to Marketing:

Marketing: Concept, Definition, Purpose, Importance.

UNIT II- Marketing Environment:

Marketing environment, Micro and Macro, External & Internal Environment, Indian Marketing scenario.

UNIT III- Consumer Behavior:

Consumer versus Customer, Influences on the consumer, purchase decisions, buying pattern and behavior.

UNIT IV- Marketing Functions:

Market Segmentation, Targeting, Positioning, Differentiation, Product development, Concept of Product life cycle, Pricing and Distribution, Basics of Brand Management

UNIT V- Marketing Information System:

Utility of Information and Information Systems, Classification of Information, Importance and Development of Marketing Information System, Market research and Marketing Information System.

References:

1. Kotler, Philip-“Principles of Marketing” Eleventh Edition, PHI
2. Saxena, Rajan-“Marketing Management”
3. Datta & Datta--“Marketing Management” Vrinda Publications, 2006.

BCA-601 – Software Engineering and Project Management

Unit I: Introduction

Introduction to software Engineering, Software Components, Software Characteristics, Software Applications, Software engineering processes, Similarity and differences from conventional engineering processes
Software Development Life Cycle (SDLC) Models: Water Fall Model, Prototype Model, Spiral Model, Component based Development Model, Evolutionary development models, Iterative Enhancement Models.

Unit II: Software Requirement Specification (SRS)

Requirement Engineering Process: Elicitation, Analysis, Documentation, Review and Management of User Needs, Feasibility Study, Information Modeling, Data flow Diagrams, Entity Relationship Diagrams, Decision Tables, SRS Document, IEEE Standards for SRS.
Software Quality Assurance (SQA): Verification and Validation, SQA Plans, software quality frameworks, ISO 9000 models

UNIT III: Software Design

Basic Concept of Software Design, Architectural Design: Software Architecture, Data Design, Architectural Styles, Mapping Requirements into Software Architecture
Low Level Design: Modularization, Design Structure, Charts, Pseudo Codes, flow Charts, Coupling and Cohesion Measures
Design strategies: Function Oriented Design, Object oriented Design, Top –Down and Bottom-UP design

UNIT IV: Software Testing and Maintenance

Top-Down and Bottom-Up Testing Strategies: Test Drivers and Test Stubs, White Box Testing, Black Box Testing, Test Data Preparation
Software as an entity, Need for Maintenance, Categories of maintenance: Preventive, Corrective and perfective maintenance, cost of maintenance, Software Re-Engineering, Reverse Engineering.

UNIT V: Software Project Management

Software configuration management Activities: Change control Process, Software Version Control, An Overview of CASE Tools
Estimation: Cost, Efforts, Schedule/Duration, Constructive cost Models, Resource Allocation Models, Software Risk Analysis and Management

Reference Books:

1. R.S Pressman “Software Engineering: A Practitioners Approach”, McGraw Hill.
2. James Peter, “Software Engineering, an Engineering Approach” John Wiley.
3. Rajib Mall, Fundamentals of Software Engineering, PHI Publication.
4. K.K Agarwal and Yogesh Singh, Software Engineering, New Age International Publishers.

BCA-602-Web Design Concept

UNIT – I

Concepts of Hypertext, HTML introduction, features, uses & versions Using various HTML tags, Elements of HTML syntax, Head & Body Sections, , Inserting texts, Text alignment, Using images in pages, Hyperlinks – text and images, bookmarks, Backgrounds and Color controls, creating and using Tables in HTML, and presentation, Use of font size & Attributes, List types and its tags.
Cascading Style sheets – defining and using simple CSS.

UNIT-II

Introduction to WYSIWYG Design tools for HTML, Overview of MS FrontPage, Macromedia Dream weaver, and other popular HTML editors, designing web sites using MS FrontPage (using at least FrontPage 2000)
Use of Frames and Forms in web pages, Image editors, Issues in Web site creations & Maintenance,
Web Hosting and publishing Concepts, Hosting considerations, Choosing Web servers – Linux Vs Windows
Web servers, Choosing Domain names, Domain name Registration, Obtaining space on Server for Web site,
FTP software for upload web site. Add your website on search engines.

UNIT-III

Javascript Overview, JavaScript and the WWW, JavaScript vs. VBScript, JavaScript vs. Java, JavaScript versions, Script element,
Functions: Functions introduction, Calling functions, JavaScript Comments, Variables: Variables overview, declaring variables, Types of variables, Casting variables, Alert box , Prompt & confirm.
Expressions: Arithmetic operators, Assignment operators, Logical operators, Expressions and precedence,
Statements: If statement, For statement, While statement, Break/Continue
Creating arrays/event handlers, JavaScript Object model, Object and Events in JavaScript – OnClick, On MouseOver, On Focus, OnChange, OnLoad etc. Getting data with forms

UNIT-IV

Overview of ASP.NET framework, Understanding ASP.NET Controls, Applications
Web servers, installation of IIS.
Web forms, web form controls -server controls, client controls, web forms & HTML, Adding controls to a web form ,Buttons, Text Box , Labels, Checkbox, Radio Buttons, List Box, etc.
Running a web Application, creating a multiform web project

UNIT-V

. Form Validation: Client side validation, server Side validation, Validation Controls : Required Field
Comparison Range. Calendar control, Ad rotator Control, Internet Explorer Control.
State management- View state, Session state, Application state,

TEXT BOOKS & REFERENCE BOOKS

1. ***VB.NET Black Book*** by steven holzner –dreamtech
2. ***ASP.NET Unleashed***
3. ***C# programming*** – wrox publication
4. ***C# programming Black Book*** by Matt telles