BCA 1ST Semester

BCA - 101: COMPUTER FUNDAMENTALS AND PROGRAMMING

UNIT: 1
Computer Fundamentals : Introduction to Computers, History of Computers, Classification of Computers, Generations of Computers and their features, Fundamental units of Computer system- I/O devices, Primary and Secondary memories and their characteristics, Central Processing Unit.

UNIT: 2
Data Representation: Bits and Bytes, decimal, octal, binary and hexadecimal. Representation of integers, fixed and floating points, character representation: ASCII, EBSDIC.
Computer Software : Computer Programming Languages – Machine Language, Assembly Language, High Level Language, software and their classification System.

UNIT: 3
Programming Fundamentals: Algorithm development, Techniques of problem solving. Flowcharting, Stepwise refinement, Structured programming concepts; Top down Design, Development of efficient programs, Program Correctness, Debugging and testing of Programs.

UNIT: 4
Programming Using C: Representation of integers, float, characters Data types: constants and variables; scope of variables, C operators, Arithmetic Expressions, Decision Control Structures, Loop Control Structures, Standard C Library C Preprocessor.

UNIT: 5
Introduction of Array or subscripted variable, Type of array, Sorting and Searching Techniques. Manipulation of two dimensional arrays.

SUGGESTED READINGS:-
1. Computer Fundamentals by P.K. Sinha
2. Computer Fundamental and Concepts by V. Raja Raman
3. Let Us C by Yaswant P. Kanetkar
4. Programming in C by Dennis and Ritche
5. "Magic with C" AB Publication

BCA-102 : FUNDAMENTALS OF MANAGEMENT

UNIT : 1
Introduction, Concepts, Nature, Scope and Significance of Management, Evolution of Management thought– (Contribution Taylor, Weber and Fayol to Management) and Foundation of Management Theories.

UNIT : 2
Planning : Concept, Objectives, Nature, Limitation, Process of Planning, Importance, Forms, Techniques and Process of decision making.

UNIT : 3
Organising : Concept, Objectives, Nature of Organising, Types of Organisation. Delegation of authority. Authority and responsibilities, Centralisation and Decentralisation, Span of control.

UNIT : 4
Directing : Concept. Principal & Techniques of directing and Coordination, Concept of leadership-Meaning, Importance, Styles, Supervision, Motivation, Communication.

UNIT : 5
Controlling Concept, Principles, Process and Techniques of controlling, Relationship between planning and controlling.

UNIT : 6
Relevance of Computer Applications in Different Functional Areas of Management viz.: Financial Management, Production Management, Human Resources Management and Marketing Management.

SUGGESTED READINGS :
1. Parag Diwan & L.N. Agarwal, "Management Principles & Practices".
2. Fred Luthans, "Organisational Behaviour"
3. LM. Prasad, "Principles & Practices of Management"

BCA-103 LANGUAGE AND COMMUNICATION

UNIT: 1
Technical Documentation Presentation : Accuracy and Conciseness in Technical English, Structure Format etc. for Technical Reports & Thesis, Comparing and Contractive other aspects of short reports and long dissertations.

UNIT: 2
Communication Skills: Communication Process: Concept & importance, System of communication: Formal & internal. Barrier to effective communication.

UNIT: 3
Principles of Business Communication: Planning and conduction conversations, interviews and Discussion. The preparation of oral statements, effective listening, telephonic communication.

UNIT: 4
Written Communication: Guides to effective writing for business correspondence including letter and job application Memorandum, Office orders, Reports.

UNIT: 5
Non-Verbal Communication: Importance and Type-Cluster and congruency. Kinetics Voal CUes. Modern Forms of Communication: Telex, Fax, Telegram & Teleconferencing & E-mail.

UNIT: 6
Practical in Business Communication: Report writing, Public Speaking, Seminars, Presentation, Interview, Group Discussion, Effective Listening.

SUGGESTED READINGS:-
1. Lesikar " Business Communication" AITBC
2. S. M. Ray "Business Communication" HP

BCA - 104 MATHEMATICS – 1

UNIT : 1

BASIC CONCEPTS: Definition of Sets, Number systems, Relations Functions.

LIMIT CONTINUITY: Definition of limit, Limit of a function, Right and Left hand Limits, Algebra of limits, General principle for existence of limit, limit of inequalities, Method of finding limits, Continuity of functions, Cauchy's definition, graphical meaning of continuity, Kinds of discontinuities.

DIFFERENTIAL CALCULUS: Successive differentiation, Leibnitz theorem, Partial differentiation, Euler's Theorem, change of variables, Jacobian theorem.

UNIT : 2

INTEGRAL CALCULUS: Integration of rational and Irrational functions, Reduction Formulae, Definite Integral, Rectification; Quadrature, volumes and surfaces of Revolution, Simple applications of integration & simple problems of double and triple integrals.

UNIT : 3

DIFFERENTIAL EQUATION: Differential equations of first order, Differential equations of 2nd order, Differential of 2nd order with constant coefficients.

UNIT : 4

VECTOR CALCULUS AND ALGEBRA: Vectors, Differentiation and partial differentiation of vector functions, derivative of sum, Dot product and cross product of two vectors, gradient, divergence and curl.

UNIT : 5

COORDINATE GEOMETRY: Straight lines, Circles and the system of circles; standard equations and properties of Parabola. Ellipse and Hyperbolas, General equation of second degree in two variables, tracing of simple conic section.

Suggested Readings :
1. E. Kreyzig, "Engineering Mathematics".
2. B.S. Grewal, "Higher Engineering Mathematics"
3. Shanti Narayan, "Differential Calculus"
4. K.P. Gupta. "Vector Calculus"

BCA -105 Personal Computer Software

UNIT-I

Profiling an operating system, Booting sequence: operating system files and command processor, file, Definition of a file; file names, Booting from floppy and HDD, Warm and cold reboot, Type of DOS commands: Internal and External, Introduction to AUTOEXEC.BAT, Directory commands; DIR, MD, RD, TREE, PATH, SUBST, Different versions of MS-DOS, Wildcards definition, File management commands: COPY, XCOPY, DEL, RENAME, ATTRIB, BACKUP, RESTORE, FIND, SYS, General commands: TYPE, DATE, TIME, PROMPT, Disk organisation: Disk storage capacity, Sectors in a disk, Diskette compatibility, boot record, Disk partitioning and master boot record, File allocation Table (FAT), disk management commands: FORMAT, CHKDSK, DISKCOPY, LABEL, VOL, DISKCOMP, COMP, RECOVER.

UNIT II

Windows: Start windows, Using different windows simultaneously, Moving through windows and mouse, Maximize/Minimize windows, use of help feature, Exit windows, Use of Help Feature, Exit windows, Starting an application Run and manage multiple applications, Close applications, Using the Program Manager: Create/ Add Groups using Program Manager, Move/ Copy/ Delete program items, Change program item properties, Delete groups, Open file Manager, Expand compressed directories and files, Open and manage multiple directory windows, View and sort files, Save file Manager settings, Exit file Manager, File management through windows: Select file and directories, Copy, Move, Delete, File/ Directories, Creating directories, renaming files and directories, Disk operations using file Manager. Using essential accessories: starting and using Write, Type and Edit text in a document in Write, Insert pictures in a document in write, Format text in Write document, Save and Print a document file in write, Starting and using paintbrush, Printing a drawing. OLE Concepts.

UNIT III

Word Processing Package: Basics of word processing: Text selection, Opening documents and creating documents, Saving document / quitting documents, Cursor control, Printing documents, Using the interface, Editing Text, Finding and replacing text, Spell check feature / AutoCorrect feature, grammar facility, Retrieving Often used text: AutoText, Character formatting, Document Enhancement : Adding borders and shading, Adding headers and footers, Setting up multiple columns, sorting blocks, Adjusting margins and hyphenating documents, Creating master document, Creating data source, Merging documents, using mailmerge feature for label and envelopes, Graphics and using templates and wizards, Hands-on experience in word processing under DOS, Familiarity in word processing under Windows.

UNIT IV

Spreadsheet Package: Worksheet basics; Data entry in cell: entry of numbers, text and formulae, Moving data in worksheet, Moving around in a worksheet, Selecting data range, Using the interface, Editing basics, Working with workbooks, Saving and quitting, Cell referencing, Formatting and calculations: Calculations and worksheets- using AutoFill, Working with formulae, Efficient data display with data formatting(Number formatting, data formatting etc.), Working with ranges, Worksheet printing, Working with graphs and charts: Adding / formatting text data with autoformat, Creating embedded chart using ChartWizard, Sizing and moving parts, Updating charts, changing chart types, Creating separate chart sheets, Adding titles, legends and gridlines, Printing charts. Database management: Finding records with data form, Adding/ deleting records, Filtering records in a worksheet. Function and macros: Work sheet with worksheet function using function-wizard, Creating macros, Record macros, Running macros, Assigning macros to buttons, Defining macros from scratch, Multiple worksheets and scenarios.

An overview of selected packages:

Desktop publishing, Office automation, Popular packages on communications like CCMAIL, PRUCOMPLUS etc., E-Mail, Computer viruses, Presentation graphics features of Harvard Graphics, Print master, CorelDraw, PowerPoint etc.

formatting, data formatting etc.), Working with ranges, Worksheet printing. Working with graphs and charts: Adding / formatting text data with autoformat, Creating embedded chart using ChartWizard, Sizing and moving parts, Updating charts, changing chart types, Creating separate chart sheets, Adding titles, legends and gridlines, Printing charts. Database management: Finding records with data form, Adding/ deleting records, Filtering records in a worksheet. Function and macros: Work sheet with worksheet function using function-wizard, Creating macros, Record macros, Running macros, Assigning macros to buttons, Defining macros from scratch, Multiple worksheets and scenarios.

An overview of selected packages:

Desktop publishing, Office automation. Popular packages on communications like CCMAIL, PRUCOMPLUS etc., E-Mail, Computer viruses, Presentation graphics features of Harvard Graphics, Print master, CorelDraw, PowerPoint etc.

BCA 2ⁿᵈ Semester

BCA-201 DIGITAL ELECTRONICS

UNIT: 1
Information Representation : Number system, binary, Octal Hexadecimal system, integers and real numbers, Conversion from one number system to another number system, Data representation in a register, Signed and Unsigned numbers 2's Complement and 1's Complement representation and Operation on numbers(addition and subtraction),Floating point representation of numbers.

UNIT: 2
Switching Circuit Theory & Boolean Algebra: Introduction to digital Electronics, General Switching problems, algebra of relay contacts, Gates (OR, AND, NOR, NAND, XOR & XNOR), Truth tables, converting from Boolean Expression to logic gates. Venn diagrams theorems in Boolean algebra, Demorgan's laws, Boolean laws, Circuit Designing techniques (SOP, POS, K-Map).

UNIT: 3
Boolean Functions and Circuit Elements : Operation on Boolean function, Complementation, K-maps, Relation of NAND –NOR logic to AND-OR Logic, Mixed Logic, Half Adder and Full Adder circuit with truth tables, Binary to Decimal and Decimal to Binary Decoders, Multiplexers, Demultiplexer, Encoders.

UNIT: 4
Flip-Flops : Asynchronous & Synchronous flip-flops, The family of Flip Flop circuits- S-R Flip Flop, D Flip Flop, J-K Flip Flop, T Flip Flop, State table and Excitation Table, Race around condition & Master Slave Flip Flop and Propagation Time delay. Counters (Binary and UP-Down) and Registers (serial & parallel).

SUGGESTED READINGS:-
1. M.M. Mano, "Digital Logic and Computer Design" PHI 1998.
2. M.M. Mano, "Computer Architecture", PHI 1998.
3. Malvino and Leach, "Digital Electronics", TMH, 1998.
4. William Stallings, "Computer Organization and Architecture," PHI 1998.

BCA-202: DISCRETE MATHEMATICS

UNIT: 1

Mathematical Logic: Proposition & Propositional Form conditional and Bi-conditional Statements, Negation operation, Logic connectives and compound statements, conjunction, disjunction, truth tables, Duality conditional and in-conditional statements.

UNIT: 2

Boolean Algebra : Development of Boolean Algebra, Truth functions, The AND, OR, NOT operators, Laws of Boolean Algebras, Reducing Boolean Expressions, Boolean expressions and logic diagrams Universal Building blocks, Negative Logic Min terms, Truth tables and K-maps, Reduction of K maps Disjunctive normal form.

UNIT: 3

Graph theory: Definition of a graph, finite and infinite graphs, Incidence and degree, null graph, Subgraphs walks, Paths and circuits in a graph, connected graphs, Trees, Properties of Trees, Planner graphs. Incidence Matrix.

UNIT: 4

Function and Relation : Injective and surjective functions, composition of function, Inverse function, Use of function in coding theory, Relation composition of relation, Equivalence relation.

SUGGESTED READINGS:-

1. C.L. Liu, "Elements of Discrete Mathematics" Mc Graw Hill Book Co., 1985
2. N. Deop, "Graph Theory with applications to Engineering and Computer Science", PHI 1993.
3. B. Colman and Robert C. Busby, "Discrete Mathematical structure for Computer Science," PHI.
4. Olympia Nicodemi, "Discrete Mathematics" CBS Publication, Delhi.
5. M.N.S. Swamy and K. Thulasiraman, "Graphs, Networks and Algorithms," Wiley Inter Science, NY, 1989.

BCA-203 : MATHEMATICS-II

UNIT : 1
The real number system as a complete ordered filed neighborhood open and closed sets limit points of sets.

UNIT : 2
Limits and Continuity: Definition of Limit, Algebra of Limits, Right hand and Left hand Limits, Definition of Continuity, Types of Discontinuity and algebra of Continuous functions.

UNIT : 3
Infinite Series: Convergent series, Divergent series Oscillatory series, Leibnitz test(Alternating Series test), Positive term series test, p-series test, Comparison test, D'Almberts ratio test, Cauchy's nth root test and Rabbe's test.

UNIT : 4
Mean Value Theorems : Rolle's Theorem, Lagrange's Mean Value theorem, Cauchy's Mean Value theorem and Maclaurin series for Sin x, Cos x, Tan x, log(1-x), log(1+x)m, ex etc, Indeterminate forms, maxima and minima(Application of maxima or minima to simple problems).

UNIT : 5
Sequence : Sequence, Subsequence, Bounded Sequence, Convergent Sequence, Divergent Sequence, Monotonic Sequence, Cauchy Sequence.

Suggested Readings-
1. E. Kreyzing Engineering Mathematics
2. Gorakha Prasad Differential Calculus
3. Shanti Narayan Differential Calculus
4. Prof. P.N. Chatterji Infinite Series

BCA-204 PROGRAMMING IN 'C'

UNIT: 1
Introduction of data types, Storage class, Operators, Operator precedence and associativity, Input/Output Functions, Sequential approach problems, If-else statement, Nesting of if statement, compound conditional if statement, switch statement, nesting of switch statement, selected approach problems, goto statement, loop statements(while statement, do-while statement and for statement), repetitive structure problems. Nesting of while statement, Nesting of do-while statement, Nesting of for statement, break and continue statement, Multiple loop variable, comma operator.

UNIT: 2
Introduction of One Dimensional and Two dimensional array, Declaration, Initialization, manipulation of one dimensional array, Insertion, deletion of new element in array, sorting, searching and merging of one dimensional array. Matrix manipulation of two dimensional array.

UNIT: 3
Modular programming, user defined function, passing arguments by value and array parameter, local and global variable, nesting of function, Recursion. string manipulation by string handling functions. Structure and Union data type, nested structure, array of structure, passing structure to the function.

UNIT: 4
Introduction to Pointers, declaration, address arithmetic, pointer arithmetic, using pointer as function argument (call by reference), dynamic memory allocation and de-allocation.

UNIT: 5
File handling in C : creation of file, open a file, accessing, appending and deleting data of a file, updating data file, Defining and calling macros, standard c library and other standard c functions.

SUGGESTED READINGS:-
1. "Concept of 'C'" by Robert laffore, TMH Publication.
2. "Programming in 'C'" by E. Balaguruswami, TMH Publication
3. "Let Us C" by Yaswant P. Kanetkar, Narosa Publication
4. "Magic in C" AB Publication.

BCA-205 Managerial Economics

Meaning nature and scope of managerial economics, Micro economic theory of consumer behavior, Decision making process, Concept of demand, Law of demand and elasticity of demand and demand forecasting.
Cost Concept, Cost-Output relationship, production decisions managerial use of cost function.
Price-output decision under different market condition pricing policies and methods.
Nature and concept of profit in managerial economics.

BOOKS: MANAGERIAL ECONOMICS-P.L.MISHRA

BCA 3rd Semester

BCA-301 COMPUTER ORIENTED NUMERICAL ANALYSIS

Unit-I

Introduction: Numbers and their accuracy, Computer Arithmetic, Mathematical preliminaries, Errors and their Computation, General error formula, Error in a series approximation

Solution of Algebraic and Transcendental Equation:

Bisection Method, Iteration method, Method of false position, Newton-Raphson method, Methods of finding complex roots, Muller's method, Rate of convergence of Iterative methods, Polynomial equations.

Unit-II

Interpolation: Finite Differences, Difference tables, Polynomial Interpolation**:** Newton's forward and backward formula, Central Difference Formulae: Gauss forward and backward formula, Stirling's, Bessel's, Everett's formula. Interpolation with unequal intervals: Langrange's Interpolation, Newton Divided difference formula, Hermite's Interpolation,

Unit-III

Numerical Integration and Differentiation: Introduction, Numerical differentiation Numerical integration: Trapezoidal rule, Simpson's 1/3 and 3/8 rule, Boole's rule, Waddle's rule.

Unit-IV

Solution of differential Equations: Picard's Method, Euler's Method, Taylor's Method, Runge-Kutta Methods, Predictor Corrector Methods, Automatic Error Monitoring and Stability of solution

Unit-V

Statistical Computation: Frequency chart, Curve fitting by method of least squares, fitting of straight lines, polynomials, exponential curves etc, Data fitting with Cubic splines, Regression Analysis, Linear and Non linear Regression, Multiple regression, Statistical Quality Control methods.

References:

1. Rajaraman V, "Computer Oriented Numerical Methods", Pearson Education
2. Gerald & Whealey, "Applied Numerical Analyses", AW
3. Jain, Iyengar and Jain, "Numerical Methods for Scientific and Engineering Computations", New Age Int.
4. Grewal B S, "Numerical methods in Engineering and Science", Khanna Publishers, Delhi

BCA - 302: COMPUTER ORGANIZATION

UNIT: 1
Arithmetic For Computers: Introduction to number system, negative numbers, addition & subtraction, logical operation, constructing of A.L.U., Multiplication & division (with algorithms), floating point arithmetic.

UNIT: 2
Processor Design: Processor organization , information representation, Instruction format, Addressing Modes (Implied mode, immediate mode, register indirect mode, auto increment or Auto decrement mode, direct addressing mode, indirect addressing mode, relative addressing mode, Index Addressing mode), instruction types.

UNIT: 3
Memory Organization: Classification of memories (RAMs (Static & Dynamic), ROMs, PROMs, EPROMs, EEPROMs, Hard Disk, Floopy Disk and CD-ROM), Memory Hierarchy, Optimization of memory hierarchy, addressing scheme for main memory, segmented memory system, paged segment memory. High speed memories, Characteristics of Cache memory.

UNIT: 4
System Organization: Bus arbitration, Programmed I/O (IO addressing, IO instruction), DMA (Type & procedure), interrupts.

SUGGESTED READINGS:-
1. Computer System Architecture, By. M. Morris Mano, PHI.
2. Hamacher V.C., Viraesic Z.G. and Zaky S.G., "Computer Organization" Mc Graw Hill.
3. Computer Architecture and Organization , By John P. Hayes, McGraw Hill.
4. Computer Organization and Design, by John L. Hennessy & David A. Patterson, Morgan Kaufman.

BCA-303 DATA STRUCTURES

Unit - I
Introduction: Basic Terminology, Elementary Data Organization, Structure operations, Algorithm Complexity and Time-Space trade-off

Arrays: Array Definition, Representation and Analysis, Single and Multidimensional Arrays, address calculation, application of arrays, Character String in C, Character string operation, Array as Parameters, Ordered List, Sparse Matrices and Vectors.
Stacks: Array Representation and Implementation of stack, Operations on Stacks: Push & Pop, Array Representation of Stack, Linked Representation of Stack, Operations Associated with Stacks, Application of stack: Conversion of Infix to Prefix and Postfix Expressions, Evaluation of postfix expression using stack. Recursion.

UNIT - II
Queues: Array and linked representation and implementation of queues, Operations on Queue: Create, Add, Delete, Full and Empty, Circular queues, dequeues and Priority Queues**.**
Linked list: Representation and Implementation of Singly Linked Lists, Two-way Header List, Traversing and Searching of Linked List, Overflow and Underflow, Insertion and deletion to/from Linked Lists, Insertion and deletion Algorithms, Doubly linked list, Linked List in Array, Polynomial representation and addition.

UNIT – III
Trees: Basic terminology, Binary Trees, Binary tree representation, algebraic Expressions, Complete Binary Tree, Extended Binary Trees, Array and Linked Representation of Binary trees, Traversing Binary trees.
Searching and Hashing: Sequential search, binary search, comparison and analysis, Hash Table, Hash Functions, Collision Resolution Strategies, Hash Table Implementation.

UNIT – IV
Sorting: Insertion Sort, Bubble Sorting, Quick Sort, Two Way Merge Sort, Heap Sort, Sorting on Different Keys, Practical consideration for Internal Sorting**.**
Binary Search Trees: Binary Search Tree (BST), Insertion and Deletion in BST.

UNIT - V
Graphs: Terminology & Representations, Graphs & Multi-graphs, Directed Graphs, Sequential   Representations of Graphs, Adjacency Matrices, Traversal.

SUGGESTED READINGS:
1. Horowitz and Sahani, "Fundamentals of data Structures", Galgotia Publication Pvt. Ltd., New Delhi.
2. R. Kruse etal, "Data Structures and Program Design in C", Pearson Education Asia, Delhi-2002
3. A. M. Tenenbaum, "Data Structures using C & C++", Prentice-Hall of India Pvt. Ltd., New Delhi.

BCA-304: OBJECT ORIENTED PROGRAMMING USING C++

UNIT: 1
Object-Oriented Modeling and Design : Object Oriented Concepts, Objects and Classes, Characteristics of Objects Identity, abstraction, Classification, Polymorphism, Inheritance, Object Oriented Models, Object Model, dynamic Model, Functional Model, Links and Associations, Generalization, Grouping Constructs, Metadata, Object design, Other OOD Methodology as SA/SD, JSD.

UNIT: 2
Introduction to OOP: Advantages of OOP, Need of object-oriented programming, Procedure Oriented Vs Object Oriented Programming.
Introduction to C++ : C++ Programming Basics, Basic Program Construction of C++, Key words in C++, Input/Output in C++, Variables, Constants, Data Types and Operators in C++, Precedence of Operators, Storage Classes Arrays in C++.characteristics of object oriented languages, C++ and C.

UNIT: 3
Decision Making and Loops in C++ : Conditional statement, Switch Statement, Break Statement, Continue Statement, Go to Statement Loops in C++, While, Do-While, For loop.

UNIT: 4
Functions : User Defined Functions, library functions, General form of a function, scope rules of functions, function arguments(Call by value, Call by Reference), Recursion Calling Functions with arrays, Returning by reference, Friend Functions, Inline Functions, Structures and Unions in C++, Pointers in C++, Pointers with structure, Pointer with functions.

UNIT: 5
Objects and classes : Structure and Classes, Union and Class, friend classes, Scope resolution operator, specifying and using class and object, Constructors, objects and function arguments.
Inheritance: Base Class, Derived Class, access specifies Single Inheritance, Multiple Inheritance, Multilevel Inheritance.
Polymorphism: Compile time, Run time, Operator Overloading, Function Overloading, Virtual functions, Dynamic Binding, Static Binding

SUGGESTED READINGS:-
1. Herbort Schildt "The Complete Reference C++" TMH Publication.
2. E. Balaguruswami "Object Oriented Programming with C++" TMH Publication.
3. James Rambaugh "Object Oriented Modeling and Design" Pearson Publication.

BCA-305 Organizational Behavior

UNIT: 1
Concept, Nature, Characteristics, Conceptual Foundations and Importance, Models of Organizational
Behavior, Relationship with other fields.

UNIT: 2
Perception: Concept, Nature, Process, Importance. Management and Behavioural Applications of
Perception. Attitude: Concept, Process and Importance. Personality: Concept, Nature, Types and Theories.Learning:
Concept and Theories of Learning.

UNIT: 3
Motivation: Concepts and Their Application, Principles, Theories.
Leadership: Concept, Function, Style and Theories of Leadership- Trait, Behavioural and situational
Theories.

UNIT: 4
Group Dynamics: Definition, Stages of Group Development, Group Cohesiveness, Formal and informal
Groups, Group Processes and Decision Making, Dysfunctional Groups.
Conflict: Concept, Sources, Types, Functionality and Disfunctionality of Conflict, Classification of Conflict;
Intra-Individual, Interpersonal, Inter-group and Organizational, Resolution of Conflict.

UNIT: 5
Organizational Power and Politics: Concept, sources of Power, distinction Between Power and Politics,
Approaches to Power, Dysfunctional Uses of Power and politics.

SUGGESTED READING:-
1. Newstorm John W. – Organizational Behaviour : Human Behaviour at work(Tata Mc. Graw Hill,
12th Edition).
2. Luthans Fred- Organizational Behaviour(Tata Mc Graw hill)
3. Robbins Stephen P.- Organizational Behaviour(Pearson Education, 12th Edition)
4. Hersey Paul, Blanchard, Kenneth H and Jhonson Dewey E.- Management of Organizational
Behavior : Leading Human Resources (Pearson Education)
5. Davis, Keith – Human Behaviour at works – Tata Mc Graw Hill, New Delhi.

BCA-401: OPERATING SYSTEM

UNIT: 1
Introduction: Operating system and function, the evolution of OS, Operating System services, OS Components.
Operating Systems Types: Batch, Time Sharing, Multiprogramming, Multitasking, Multiprocessor, Distributed, Real Time, Network.

UNIT: 2
CPU Scheduling: Process concept, Process state transitions, schedulers (long term, short term, mid term), Scheduling concept, Performance criteria, Scheduling algorithms, multiple processor scheduling.

UNIT: 3
Deadlocks: System model, Deadlock characterization, prevention, avoidance detection and recovery from deadlock.

UNIT: 4
Memory Management: Resident monitor, multiprogramming with fixed Partition, multiprogramming with variable partition, paging, segmentation, paged segmentation, virtual memory, demand paging, thrashing.

UNIT: 5
File System: File support, access methods, allocation methods (Contiguous, linked and index allocation), Directory system (Single level, tree structured, acyclic graph and general graph directory), file protection.
Disk Scheduling: FCFS, C-Scan etc.

SUGGESTED READINGS:-
1. . Peterson & Silberschatz, "Operating System Concepts", Addison-Wesley company
2. Tenenbaum, A.S., "Modern Operating System", PHI Publication

BCA-402: INTRODUCTION TO DBMS—SQL

UNIT: 1
Overview of Database Management System : Introduction to Data and Database system, Elements of Database system, DBMS and its 3-tire architecture, Advantages of DBMS (including Data independence), Types of user, Type of Data Base Administrator and their functions.

UNIT: 2
Data Models: Type of Data Models, Detailed Study of Relational model (Properties of relational model, key and Integrity rules), Comparative study between different type of data models, advantage and disadvantages of data models.

UNIT: 3
Normalization and Functional Dependency: Normalization, Need of Normalization, Anomalies associated with Normalization, Functional Dependencies and its Properties, Normal form (1NF, 2NF, 3NF, BCNF).

UNIT: 4
SQL: Introduction, Data definition, views and queries in SQL, SQL construct, Type of SQL (Brief Overview), SQL Join: Multiple table queries, Built-in functions, Specifying constraints and indexes in SQL, Data Manipulation, Data maintenance, Multiple Table Operations, Transaction integrity facilities, Overview of ORACLE; (Data Type, DDL, DML, DCL).

UNIT: 5
Database Security, Integrity and Control: Security and Integrity threats, Defence mechanism, Integrity, Recent trends in DBMS, Distributed and Deductive databases.

SUGGESTED READINGS:
1. C.J. Date, "An introduction to Database system: Vol. 1, Addision Weseley.
2. Bipin Desai, "An introduction to Database system", Galgotia Publications, New Delhi.
3. Korth, "Database and its Concept", TMH.
4. DBMS, Katson Publication, New Delhi

BCA-403: MANAGEMENT INFORMATION SYSTEM

UNIT: 1
Foundation of Information Systems: Introduction to information system in business, fundamentals of information systems, solving business problems with information systems, Types of information systems, effectiveness and efficiency criteria in information system.

UNIT: 2
An Overview of Management Information Systems:
Definition of a management information system, MIS versus Data Processing, MIS & Decision Support Systems, MIS & Information Resources Management, End user computing, Concept of a MIS, Structure of a Management information system.

UNIT: 3
Concept of planning & Control:
Concept of organizational planning, The Planning Process, Computational support for planning, Characteristics of control process, The nature of control in an organization.

UNIT: 4
Business applications of information technology:
Internet & electronic commerce, Intranet, Extranet & Enterprise Solutions, Information System for Business Operations, Information System for Managerial Decision Support, Information System for Strategic Advantage.

UNIT: 5
Managing Information Technology:
Enterprise & global management, Security & Ethical challenges, Planning & Implementing changes.

UNIT: 6
Advanced Concepts in Information Systems:
Enterprise Resource Planning, Supply Chain Management, Customer Relationship Management and Procurement Management,

SUGGESTED READINGS:
1. O Brian, "Management Information System", TMH.
2. Gordon B.Davis & Margrethe H.Olson, "Management Information System", TMH.
3. Murdick, "Information System for Modern Management", PHI.
4. Jawadekar, "Management Information System," TMH.

BCA- 404 VISUAL BASIC

UNIT I

Basics of Visual Basic Language, Requirements for VB 6.0, Tool bars, Menu bars- file, edit, view, project, format, tools, Add- Ins menu, Project explorer, Properties Window, code, form, debug Windows, Immediate debug window, local debug window, watch debug window, tool box window, Adding removing custom control to toolbox, creating and saving a project, Visual Development and event driven Programming, OOPS, Object and classes, Properties, Methods and
events

UNIT II

Operators, control flow statements, decision making statements, select case statement, iterations: for loop structure, do-loops: do---Until Loops, do ----while, while---wend, With–End With statements, arrays : accessing array elements, double dimensional or multidimensional arrays, dynamic arrays, redimensioning an array Lbound and Ubound statements, option base statements, collections. Procedures and sub procedures. Interacting with the basic controls: Forms, forms collection, controlling one form within another-MDI forms, command buttons, label controls, text box controls, capturing the key strokes, list box controls, combo box controls, lab assignments More controls: Radio buttons, scrollbars, example program, timer control, running lights application, image control, drive list box, searching a drive, the directory list box, file list box copying a file, deleting a file , renaming a file, moving a file, lab assignments.

UNIT III

Creating menu based applications: Menus and the menu editor, designing menus, programming menu commands, manipulating menus at runtime, creating a menu's control array, dialog boxes: message box; visual basic constants for the message box; using the input box. Procedures and functions: Introduction to procedures, types procedures: sub procedure general procedures event procedures function procedures, creating new procedures, selecting existing procedures, calling sub procedures, calling function procedures, calling procedures in other modules, passing arguments to procedures, passing arguments by value; passing arguments by reference, using optional arguments, using an indefinite number of arguments.

UNIT IV

Using new ActiveX controls: Rich text box control, key state control, status bar control, common dialog control, File dialog box, color dialog box, font dialog box, print dialog box, List view control, tree view control, example program, outline control, flat scrollbars, month view, tabbed dialog control, Date Time Picker control.

UNIT: V

Built-in functions/user defined functions and procedures. Arrays, grids and records, Sorting and searching of records. Database Connectivity. Bound Control and Unbound Control, Record set, Types of Connectivity (DAO, ADO, RDO), Introduction to Data Report, Design Data Report, Group Report, Crystal Report.

SUGGESTED READINGS:-

1. Visual Basic for Windows : Gary Cornell, Tata McGraw Hill.
2. "Complete Reference Visual Basic", Tata McGraw Hill
3. Visual Basic ,PHI

BCA-405 System Analysis and Design

UNIT I Introduction
System definition and concepts: Characteristics and types of system, Manual and automated systems
Real-life Business sub-systems: Production, Marketing, Personal, Material, Finance
Systems models types of models: Systems environment and boundaries, Realtime and distributed systems, Basic principles of successful systems
UNIT 2 Systems analyst
Role and need of systems analyst ,Qualifications and responsibilities ,Systems Analyst as and agent of change,
UNIT 3 System Development cycle
Introduction to systems development life cycle (SDLC) :
Various phases of development : Analysis, Design, Development,
Implementation, Maintenance, **Systems documentation considerations:** Principles of systems documentation , Types of documentation and their importance,Enforcing documentation discipline in an organization .

UNIT 4 System Planning
Data and fact gathering techniques: Interviews, Group communication, Presentations, Site visits.
Feasibility study and its importance, Types of feasibility reports, System Selection plan and proposal, Prototyping,
Cost-Benefit and analysis: Tools and techniques
5. Systems Design and modeling
Process modeling, Logical and physical design, Design representation, Systems flowcharts and structured charts , Data flow diagrams , Common diagramming conventions and guidelines using DFD and ERD diagrams. Data Modeling and systems analysis , Designing the internals: Program and Process design ,Designing Distributed Systems .
6. Input and Output
Classification of forms: Input/output forms design, User-interface design, Graphical interfaces
7. Modular and structured design Module specifications ,Module coupling and cohesion , Top-down and bottom-up design .
8. System Implementation and Maintenance Planning considerations, Conversion methods, producers and controls, System acceptance Criteria, System evaluation and performance, Testing and validation, Systems qualify Control and assurance, Maintenance activities and issues.
9. System Audit and Security
Computer system as an expensive resource: Data and Strong media
Procedures and norms for utilization of computer equipment, Audit of computer system usage, Audit trails,
Types of threats to computer system and control measures: Threat to computer system and control measures, Disaster recovery and contingency planning
TEXTS BOOKS
1. System analysis and design – Elias M.Awad.
REFERENCES
1. System analysis and design –Perry Edwards
2. Analysis and design of information systems – James A.Senn

BCA 5th Semester

BCA-501: COMPUTER GRAPHICS AND ANIMATION

UNIT: 1
Introduction: Development of Computer graphics, basic graphics and standards. Raster scan and Random scan graphics, continual refresh and storages displays, display processors and character generations. Color display techniques, frame buffer and Bit Operations concepts in raster graphics.

UNIT: 2
Drawing Techniques : Point, lines and curves, scan conversion, line drawing algorithms, circle and ellipse generation, polygon filling, conic –section generation, ant aliasing.

UNIT: 3
Two– dimensional: Two- dimensional viewing, basic transformations, coordinate system, windowing and clipping, segments, interactive picture construction techniques, interactive input and output devices.

UNIT: 4
Three–dimensional: Three- dimensional concepts, 3-D representation and transformation, 3-D viewing, algorithms for 3-D volumes spline curves and surfaces.

UNIT: 5
Animation, Tweeking, morphing, Introduction to GKS primitive, Multimedia application

SUGGESTED READINGS:
1. Newman W.M. & Spraull R.F. "Principles of Interactive Computer Graphics", Mc Graw Hill, 1981.
2. Harington, "Introduction to Computer Graphics," Mc Graw Hill.
3. Hannen & Backer, Computer Graphics, PHI.

BCA-502: COMPUTER NETWORK

UNIT 1

Computer networks, Network Hardware—Local Area networks, Metropolitan Area networks,, Wide Area networks, Wireless networks, Internetworks, Network Software: Protocol Hierarchies, Design and Issue for layers, Interfaces and services, Connection oriented and Connection less Services. OSI reference model, and its Evolution, TCP/IP model.

UNIT 2

The Physical Layer: Transmission media, twisted pair, Base band and Broadband coaxial cable, Fiber optics, unguided media. MODEM, ISDN services, Switching Message, Packet Circuit switching TDM, and FDM.

UNIT 3

Data Link Layer, Error detection and Correction, Protocols: Simplex Stop and wait protocols, One bit sliding window protocol, Using Go-Back N. Flow control, Sliding Window Protocol, Channel Allocation Problem, Multiple Access Protocol: ALOHA, CSMA protocol, Collision Free protocol, Polling, FDM, TDM, Network layer: Routing Algorithm, Congestion Control Algorithm, IP Protocol, IP Addresses, subnets,

UNIT: 4

The Medium Access Sub Layer : Framing, Static and Dynamic Channel Allocation in LANs and MANs, IEEE Standard 802.3, and Ethernet IEEE standard 802.4 and token Ring, IEEE Standard 802.5, Token Bus, Bridges : Bridges from 802.x to 802.y, transport bridges, Source Routing Bridges, Gateways, Routers, ISDN, ATM, X.25.

UNIT: 5

The Network Layer : Network layer design issue, shortest path routing, Flooding, Flow-based routing, Broadcast routing, Congestion control and prevention policies; Internet working connectionless internetworking, tunneling Internet work, Routing, Fragmentation, Firewall, IP address, Internet Controls Protocols.

UNIT 6

Transport layer: Addressing, Establishing and releasing a connection, Multiplexing, Crash Recovery; TCP service Model, TCP protocol, The Application Layer: Network Security, Domain Name System, Email: Architecture and Services, Message formats, Message transfer.

SUGGESTED READINGS

1. Tanenbaum, A.S. "Computer Networks," PHI, 1990.
2. Stallings, W: Data and Computer Communication, Prentice Hall of India.
3. Fororuzan "Data Communication and Networking" TMH.

BCA-503 INTRODUCTION TO INTERNET PROGRAMMING

UNIT I

Java programming language overview, Referring to applets and applications, The first step in writing Java application, Basic Java application, Primary application components, Class code block, Data (variables), Method code block (main in example program), Using semicolons and braces, Compiling and running a program, Requirement for your source file, Compiling,

Running the program

UNIT II

Java Primitive Types and Reference Types: Integral primitive types, Floating point primitive types, Textual primitive types: char, Logical primitive types: Boolean, Variable identifier conventions and rules, Picking a variable identify, Variable identifier naming rules, Variable identifier naming conventions, Using variables in a program, Constants, How primitives and constants are stores in memory, Using the string class as a data type, Using string and the new modifier, Using string without the new modifier, Values you can assign to string, How string are stores in memory, Using string reference variables, Using the main method.

UNIT III

Object References, Declaring an Object Reference, Creating Objects, Using Object Reference, Strings, Encapsulation, Inheritance, Using Inheritance, Containment Classes Abstract classes and Inheritance, Java2 Platform Class Library packages, Grouping classes in packages, Coding structure, Source file layout, Filenames, Java Methods & Object Interaction, Java Methods, Declaring methods, Invoking Methods, Types of methods, Passing Arguments, Method overloading, Constructors, Writing constructor, Object Interaction, Association, Composition, Composition and lifetime, Association and lifetime, Custody of an object, Typecasting, Promotion of expressions, Logical operations Arithmetic Conceptions, Arithmetic operators, Operators precedence, Increment and decrement operators, The if construct, The while loop, The for loop, while versus for, The do loop, The switch construct, The break statement, The continue statement, Java keywords

UNIT IV

Graphical user interface development, The Java. AWT Package Class Hierarchy, GUI Project, Frame, Adding a button, Creating panels and complex lay out, ActiveX Technologies & Implementation, ActiveX-based architecture, ActiveX controls, ActiveX documents, ActiveX code components, Implementing Client-Side Solutions, Introduction to scripting, Client-side scripting, Implementing ActiveX controls, Implementing Server-side Solutions, Introducing server-side scripting, Authoring active server pages (ASP), Reading a hypertext transfer protocol (HTTP) request, Creating an HTTP response, Saving user information, Using ActiveX server components, Using ActiveX design-time controls, Programming Interfaces, Other application programming interfaces (APIs), Messaging API (MAPI), Systems network architecture (SNA') APIs, Crypto API, Telephony API, License Service API, Speech API

SUGGESTED READINGS:-

1. "Complete reference". By Patric Naughton, Tata McGraw Hill.
2. Core Java Volume-I, Horstman and Cornell, Pearson Education
3. "Programming in java" by E. Balaguruswamy. TMH Publication.

BCA-504 : SOFTWARE ENGINEERING

UNIT I

The Evolution of software, Software Crisis, Software Engineering Paradigms The Changing Nature of Software Development, The Role of the Software Engineer, The software life cycle, The relationship of software engineering to other areas of computer science, Programming Languages, Operating Systems, Database, The evolving role of software, An Industry Perspective, Some Initial Solutions

UNIT II

Requirements Analysis, Analysis Tasks, The Analyst, Problems in Requirements Analysis, Communication Techniques, Analysis Principles, Requirements Analysis Methods, Data Structure Oriented Methods, Formal Specification techniques, Automated Techniques for Requirement Analysis, Important qualities of software product and process, Correctness, Reliability, Robustness, User Friendliness, Verifiability, Maintainability, Reusability, Portability, Data Abstraction, Modularity, Principles of software engineering

UNIT III

Structured Methodologies, Major Influencing factors, Evolution of End-User Computing, Emergence of CASE Tools, Use of Prototyping 4GL Tools, Relational Databases, Using the methodology, Choosing the Right Methodology, Implementing a Methodology, Current generations of software Development tools, Fourth Generation, Fifth Generation, Fourth Generation Languages, End –user computing, Prototyping, Non-procedural, Considerations in applications development, Problem in Applications Development, Limitation Of 4GLS, Impact OF 4GLS, Why study systems investigations?, The life cycle of an information system , Phase of Systems investigation, The people involved in a system investigation, Problems in System Investigations, General Principles of Systems Investigations

UNIT IV

Program Evaluation Review Technique (PERT), Methodology and standards, Expression of a Need, Perception of a Problem, Defining the problem, Relating the Problem to the domain of the Computer, Formalizing the Need, Stages in the Systems development life cycle, Specification Of Requirements, System Design, Programming, System Testing, Implementation, System Review, What is wrong with current development methods? Software and its increasing cost, Software errors and their impact, An Engineering Approach to Software, Case Tools, Generation of CASE Tools, Categories of CASE Tools, Selecting Case Tools, Deft Case Tools, Factors Affecting Software Development.

SUGGESTED READING:
1. Pressman. "A Practitioner approach to Software engineering"
2. Pnkaj Jalote. "An introduction to Software Engineering".

BCA-505 Advanced Computer Architecture

1. Introduction to Parallel Processing :
Parallelism in uniprocessor systems; Parallel computer structures; Architectural classification schemes.
Data driven computing and languages: Control Flow versus Data Flow Computers.

2. Memory Input-Output subsystems :
Memory Hierarchy, Addressing Schemes for Main Memory, Characteristics of cache memory ; Cache
Memory Organization; Characteristics of inputoutput subsystems.

3. Pipelining and Vector Processing :
Pipelining: Principles of Linear Pipelining, Classification of Pipeline Processors, General Pipelines and
Reservation Table Design of instruction pipelined units; Arithmetic Pipeline Design Examples, Job
sequencing and collision prevention; Characteristic of Vector Processing, Vector supercomputers;
Scientific attached processor; Architecture of star-100 and TI-ASC.

4. Structures and Algorithms for Array Processors :
SIMD array processor, SIMD interconnection networks: Illiac, Cube, Shuffle Exchange, Omega, Modified
Omega, Barrel Shifter, Parallel algorithms for array processor: SIMD Matrix Multiplication, Parallel sorting
on Array Processor.

5. Multiprocessor Architecture and Programming :
Functional structures : Loosely Coupled Multiprocessors, Tightly Coupled Multiprocessors;
Interconnection Networds : UMA, MUMA, COMA, Time shared, Crossbar switch and Multiport Memories;
Multiprocessor Operating Systems: Classification of Multiprocessor Operating Systems, Exploiting
Concurrency for multiprocessing : Language features, Matrix multiplication on concurrent processor;
Multiprocessor Scheduling Strategies: Dimensions of Multiple processor Management.

6. RISC and Superscalar Architecture :
Instruction set architectures, RISC Scalar processors; SPARC architecture, window register concept,
Superscalar processors

References :
1. K. Hwang and F.A. Briggs, "Computer Architecture and Parallal Processing"
Mc Graw Hill Book Co. NY.
2. M.J. Flynn, "Computer Architecture : Pipelined And Parallel Processor
Design". Naros Publishing Co.
3. K. Hwang "Computer Architecture" Mc Graw Hill Co. NY.

BCA-601: MULTIMEDIA CONCEPTS & APPLICATION

UNIT I
Multimedia concepts, Introduction to basic techniques of multimedia development and delivery, Process of multimedia Production, Hardware/Software requirement for multimedia, Components of multimedia: Textual information, images, Animation, Digital Audio, Digital Video, Planning and Design of Multimedia, Production of multimedia, Distribution of Multimedia

UNIT II
Multimedia development Tools, Features of Software required for Multimedia: Integrating Multimedia Elements, Script Language Programs, Icon based programs, DLL, Hypertext, Cross Platform Capability, Runtime player for distribution, Authoring tools: author ware, Everest Authoring System, Icon author, Image Q, QuickTime

UNIT III
Elements of Hypertext: Nodes, Links, Annotations, Buttons, Editors, Browsers, Trails; Application of Hypertext: Business Applications, Computer Applications, Educational Applications, Entertainment and Leisure Applications; Planning Multimedia Program/Application: Goal, Outlining, Logic Flowchart, Program Story board, Creation of Building blocks, Copyright issue and management

UNIT IV
Developing multimedia building blocks: Text, Graphics, Sound and Video in multimedia applications, Application areas of Multimedia: Entertainment, Edutainment, Business Communications, Public Access, Knowledge transfer; Multimedia- an interactive system for Teaching and Learning: Simulations, Composition; Multimedia- as a technological challenge for developers.

SUGGESTED READINGS:

1. Tay Vaughan. "Multimedia make it work". 5th ed, TMH 2001.

BCA – 602: ARTIFICIAL INTELLIGENCE

UNIT -I

Introduction
Introduction to Artificial Intelligence, Simulation of sophisticated & Intelligent Behavior in different area problem 3OIving in games, natural language, automated reasoning, visual perception, heuristic algorithm versus solution guaranteed algorithms.

UNIT - II
Understanding Natural Languages.
Parsing techniques, context free and transformational grammars, transition nets, augmented transition nets, Fillmore's grammars, Shanks Conceptual Dependency, grammar free analyzers, sentence generation, and translation.

UNIT III
Knowledge Representation
First order predicate calculus, Horn Clauses, Introduction to PROLOG, Semantic Nets, Partitioned Nets, Minskey frames, Case Grammar Theory, Production Rules Knowledge Base, The Interface System, Forward & Backward Deduction.

UNIT - IV
Expert System
Existing Systems (DENDRAL, MYCIN) domain exploration Meta Knowledge, Expertise Transfer, Self Explaining System

UNIT - V
Pattern Recognition
Introduction to Pattern Recognition, Structured Description, Symbolic Description, Machine perception, Line Finding, Interception Semantic & Model, Object Identification, Speech Recognition.
Programming Language
Introduction to programming Language, LISP, PROLOG

References:

1. Charnick "Introduction to A.I.", Addision Wesley
2. Rich & Knight, "Artificial Intelligence"
3. Winston, "LISP", Addision Wesley
4. Marcellous, "Expert System Programming", PHI
5. Elamie, "Artificial Intelligence", Academic Press
6. Lioyed, "Foundation of Logic Processing", Springer Verlag

BCA-603: WEB TECHNOLOGY

UNIT: 1
History of the Internet and World Wide Web, Growth of the Web, Protocols- HTTP,FTP, SMTP, POP3, MIME,IMAP, Choosing an ISP, Introduction to Internet Services, E-mail concepts, Sending and Receiving secure E-Mail, Introduction to XML.

UNIT: 2
Web project, Web Team, Communication Issues, the Client, Multi- departmental & large scale Websites, Quality Assurance and Testing, Technological advances and Impact on Web Teams, Overview of Static or Dynamic Web page, Portal, Search engine.

UNIT: 3
HTML: Concept of Hypertext, Versions of HTML, Elements of HTML, Formatting Tags, Links, Hyperlinks, Image & Image map, List, Tables, Frames, Forms, Style sheets, Background and Color Controls.
DHTML: Introduction to DHTML, Advanced Netscape DHTML, Advanced Microsoft DHTML & Cross browser DHTML.

UNIT: 4
The .NET framework : Introduction, Common Language Runtime, Common Type System, Common Language Specification, The Base Class Library, The .NET class library, Intermediate language, Justin-Time compilation, garbage collection, Application & Assemblies, Web Services, Unified classes.

UNIT: 5
ASP.NET: Features of ASP.NET, Differences between ASP and ASP.NET, Create an ASP.NET Web application, ASP.NET Web forms, ASP.NET Controls- Validation Controls, Web Server Controls, ADO.NET.

SUGGESTED READINGS:-
1. Burdman, "Collaborative Web Development", Addison Wesley.
2. Sharma & Sharma, "Developing E-Commerce Sites", Addison Wesley.
3. Ivan Bayross, "Web Technologies Part II", BPB Publications.
4. "ASP.NET 21 Days", TMH.
5. "Web Technology", Laxmi Publication.
6. DOT NET Framework with ASP.NET & C#", Dhanpat Rai Publication
7. Magic with HTML, DHTML and Javascript", Laxmi Publication

BCA-604 Introduction to .NET

UNIT 1

An overview of the .NET framework. Common Language Runtime (CLR), the .NET Framework class library (FCL), ASP.NET to support Internet development and ADO.NET to support database applications. Languages supported by .NET., An introduction to Visual Studio .NET.

UNIT 2

An introduction to C#, Program structure., Basic IO, including output to the console and messages boxes., Data types, Arithmetic operations and expressions, Relational and logical operations, Control structures. These include "if", "while", "do-while", "for", and "switch", Namespaces and methods supplied by the FCL. Writing methods. Recursion and overloading Scoping rules.Arrays and data representation.Class definitions.Properties, indexers, and access control.Inheritance and polymorphism.Delegates.Exception handling.

UNIT 3

GUI Programming. This section will involve the use of forms to build GUI applications. The concept of event handling will be introduced. The creation of various dialog boxes and menus will be discussed.

UNIT 4

Files. This is an important topic beyond its obvious purpose. The same tools that allow us to access file data also allow use to read data from internet sites and databases.

UNIT 5

The Framework Class Library (FCL) , Containers. Multithreading. Graphic programming.

SUGGESTED READINGS

1. Dietel et al. **Visual C# 2008 How to program.** Prentice-Hall Inc, 2009.