BCA (w.e.f June 2010-11)

I Year			**Instructional System**								
Course Code	**SLM Code**	**Name of Subject**	**PCP**	**AW**	**VGD**	**PDP**	**PEC**	**PPW**	**IIL**	**Credits**	**Marks**
BCA-1	C-101	Computer Fundamentals & Programming in C	√	√	√		√			04	100
BCA-2	C-106	Mathematics	√	√	√					04	100
BCA-3	C-104	Data Structure through C	√	√	√		√			04	100
BCA-4	C-103	Data Base Management System	√	√	√		√			04	100
BCA-5	C-107	Discrete Mathematics	√	√	√					04	100
BCA-6	M-201 M-203	(A) Principles of Management (B) Business Communication	√	√	√	√				08	100
BCA-7	C-108	Computer Organization	√	√	√					04	100
BCA-8	-	Practical covering BCA-1, 3 & 4					√			06	150
Total										**38**	**850**

II Year			**Instructional System**								
Course Code	**SLM Code**	**Name of Subject**	**PCP**	**AW**	**VGD**	**PDP**	**PEC**	**PPW**	**IIIL**	**Credits**	**Marks**
BCA-9	C-121	Computer Oriented Statistical & Optimization Methods	√	√	√					04	100
BCA-10	C-120 C-130	(A) Operating System (B) Introduction to Assembly Language	√	√	√		√			04 02	100
BCA-11	C-112	Visual Basic	√	√	√		√			04	100
BCA-12	C-119	Computer Network	√	√	√					04	100
BCA-13	C-111	System Analysis & Design	√	√	√					04	100
BCA-14	C-125	Computer Oriented Financial Management	√	√	√					04	100
BCA-15	C-105	Object Oriented Programming & C + +	√	√	√		√			04	100
BCA-16	-	Practical covering BCA-10,11,& 14					√			06	150
Total										**36**	**850**

BCA III Year

III Year			Instructional System								
Course Code	**SLM Code**	**Name of Subject**	**PCP**	**AW**	**VGD**	**PDP**	**PEC**	**PPW**	**IIIL**	**Credits**	**Marks**
BCA-17	C-122 C-123	(A) Computer Graphics (B) Multimedia	√	√	√		√			08	100
BCA-18	C-126	Introduction to Internet Programming(Java)	√	√	√		√			04	100
BCA-19	C-132	Client Server Technology	√	√	√					04	100
BCA-20	C-124	Software Engineering	√	√	√					04	100
BCA-21	H-306	General Socio Economic & Scientific Studies	√	√	√					06	100
BCA-22	-	Practical covering BCA-17 & 18					√			04	100
BCA-23	-	Project				√	√	√	√	06	250
Total										**38**	**850**

I Year

COMPUTER FUNDAMENTAL AND PROGRAMMING IN C
C-101

SECTION A

Number System: Decimal, Octal, Binary & Hexadecimal, Representation of Integer, fixed and floating points, character representation : ASCII, EBCDIC.

SECTION B

Functional Units of Computer : I/O devices, primary and secondary memories.

SECTION C

Programming Fundamental : Algorithm development, techniques of problem solving, flowcharting, stepwise refinement, algorithm for searching sorting exchange and insertion merging of order lists.

SECTION D

Representation of integers, character, reals, data types, constants and variables, arithmetic expression, assignment statement logical expression, sequencing, alteration and iteration, arrays, string processing, sub program, recursion, files and pointers testing and debugging of program.

MATHEMATICS
C-106

SECTION A

Set Theory : Set Notation, Operation on sets , subsets, Venn diagrams, Method of proof for sets ,Laws of sets theory, Partition of sets, Minsets, Duality Principle. Relation: one-to-one, one-to-many, Many-to-many relations, onto relations, inverse relations. Function: Defining functions, range, domain, functions and relations, Inverse of a function, Composite Functions. Combinatorics : Rules of products, Permutations, Combinations and power sets.

SECTION B

Limit Continuity, Differentiation: Derivaties of Polynomial equations, Trigonometric function, Inverse Trigonometric function, Application of Derivatives, Tangent, Normal, Maxima, Minima, Ralle's Trigonometric function, LMV Theorem, Introduction to Partial Derivative.

SECTION C

Integration of Polynomial equation, Trigonometric function, Inverse Trigonometric function Standard Function, Definite Integral, Limit of Sum method, Area under the curve.

SECTION D

Laws of Matrix algebra, System of Linear equation; Matrix inversion, Eigen valves, Eigen vectors, Characteristics equation, Diagonalization.

DATA STRUCTURE THROUGH 'C'
C-104

SECTION A

1. Problem solving concepts, top down and bottom up design structured programming.
2. Concept of data type and data structure, differences between data type and data structures, view of data structures at logical level, implementation level and application level, built-in-data structures and user defined data structures.

SECTION B

3. Concepts of dynamic variables, difference between static and dynamic variables, concepts of pointer variables.
4. Study of the following user define data structures using static and variables.
    - Built-in data structures like arrays, records.
    - User defends data structures like stacks, queues, linked. User defend data structures like stacks, queues, linked lists, circular linked lists, doubly linked list.

SECTION C

5. Non-linear data structures: trees, terminology of trees, concepts and applications of binary trees, tree traversal techniques and algorithms.

SECTION D

6. Sorting and searching algorithms and their efficiency considerations.
7. Considerations for choice of proper data structure.

DATABASE MANAGEMENT SYSTEM
C-103

SECTION-A

Database Concept : What is Database? Need of Database , Function of the Database; Types Database; Relational Database Management System, Relational Model – Key Concept; Domain Constraint , Integrity Constraints; Foreign Key.

SECTION-B

Database Development Process, Database Modeling & Database Design. E-R Model, Attributes, Relationship, Logical Database Design, Normalization , First Normal Form, Second Normal Form, Third Normal Form, Translating E-R Diagram to Relation, Physical Database design.

SECTION-C

Relational Algebra & SQL Relational Database Commands. Data-types Create Table , Drop Table , Alter Table , Insert Table, Insert into , Delete from, Update , General Query Syntax (Select), Create View, Drop View, Set Operators – Union , Intersect , Minus Function, Group Functions, Join Sub Queries.

SECTION-D

Data Administration, Client/Server and Distributed Database. Data Administration Functions, Data Administration tools – Repositories , CASE Tools, Concurrency Control, Database Security , Database Recovery. Database Applications : Financial Systems, Marketing System, Foreign Trade , Inventory Information Systems

DISCRETE MATHEMATICS
C-107

BLOCK 1: ALGEBRAIC STRUCTURES

Unit 1: Fundamental Concepts & Vectors

Groups, Rings, Fields, Spaces – Linear, Dependence of Vector, Linear Transformation, Bilinear forms, Eigen values and Eigen Vectors.

BLOCK 2: GAPH THEORY

Unit 1: Fundamental Concepts ,Algorithm & Applications

Basic terminologies of graph theory, Multigraphs and weighted graphs, Path and circuits,
Planar graphs, Trees and rooted trees, Spanning trees and cut sets, coloring covering and portioning, directed graphs, enumeration of graphs, ideas on graphs theoretic algorithm and applications.

PRINCIPLES OF MANANGEMENT
M-201

SECTION –A : PLANNING AND ORGANIZING MANAGEMENT

Unit-I: Definitions of Management

Its Nature and Purpose, Management as a Science and art, the Elements of science, Patters of Management Analysis-System Approach to Operational Management.
Function of managers.
Management and Society - Social Responsibility and Ethics with Reference to Indian and EN India. Operating in a Pluralistic Society, Social Responsibility of Manager, and ethics in Managing. A Broad Overview of the Different Forms of Business Enterprises in India.

Unit-II: Nature and Purpose of Planning

Types of Plans; Steps in Planning, The Planning Process- A rational Approach to Goal Achievement.
Objectives- The Nature of Objectives, Evolving Concepts in Management by Objectives (MBO), The Process of MBO, Setting Objectives, Benefits and weakness of MBO .The Nature and Purpose of Strategies Planning Process, The TOWS matrix, The portfolio Matrix, Major kinds of Strategies and Policies, The Three Generics Competitive Strategies by Porter, Effective Implementation of Strategies, Premising and Forecasting.
Decision Making- The importance and limitations of Rational Decision Making. Evaluation of Alternatives, Selecting a Alternative, Programmed and Non- Programmed Decisions, Decision Making Under Certainty and Risk, Modern Approaches to Decision Making under Uncertainty, Evaluating the Importance of a Decision, Other Actors in Decision Making, Decision Support Systems, Systems Approach and Decision making.

Unit-III: Nature and Purpose of Organizing

Formal and Informal Organization,
Organizational Division—The Department, Organization Level and the Span of Management, Factors Determining an Effective Span, Organizational Environment for Entrepreneur and Entrepreneur, The Structure and Process of Reorganizing.

Departmentation by Simple Member, by Time, by Enterprise function, by Territory or Geography by Customer, by Process or Equipment, and by Product. Matrix Organization, Strategic Business Unit, Choosing the Pattern of Departmentation. Authority and Power, Line and Staff concepts, Functional Authority, Benefits and Limitations of Staff, Decentralization and Delegation of Authority, art of Delegation, Balance as a key to Decentralization.

SECTION – B : FUNCTIONAL METHODOLOGY

Unit – I: Human Resource Management and Selection

Definition of Staffing, Defining the Managerial job, System Approach to HRM- an overview the staffing Function, Situational Factors Affecting Staffing, Selection- Matching the Person with the Job, Systems Approach, Position Requirements and Job Designs, Skills and Personal Characteristics Required by Managers, matching Qualifications with Position Requirements, Selection- Process , Techniques and Instruments, Orienting and Socializing New Employees.

Performances Appraisal- Purposes and uses of Appraisal , Problem of Management Appraisal, Choosing The Appraisal Criteria, Traditional, Traits Appraisals, Apprising Managers Against Verifiable Objectives , Appraising Managers as Managers, Rewards and Stress of Managing , Formulating the career Strategy.

Manager Development Process and Training, Approaches to Manager Development, on – the- job Training and Internal and External Training, Managing Changes, Organizational conflict, Organizational Development.

Unit – II: Controlling the Basis Control Process

Critical control points and Standards, Control as a feedback, Real-time information and Control feed Forward Control, Requirements for Effective Controls.

Budget—Traditional non-budgetary control devices, Time-event Network analysis, information technology, use of computer in handling information, Challenges created by information technology.

Control of overall performances, budget Summaries and report, profit and loss control, Control through return investment, Direct Control vs. Preventive Control, developing Excellent Managers.

BUSSINESS COMMUNICATION
M-203
SECTION –A: BUSINESS COMMUNICATION AND SELF DEVELOPMENT

Unit-1 : Introducing Business Communication

Basics Forms of Communication, Communication models and processes, Effective Communication, Theories of communication, Audience analysis.

Unit-2: Self Development and Communication

Development of positive personal attitudes, SWOT analysis, Vote's Model of interdependence, Whole Communication.

Unit-3: Corporate Communication

Formal and Informal Communication Networks, Grieving, Miscommunication (Berries),Improving Communication.

SECTION –B: PRINCIPLES OF EFFECTIVE COMMUNICATION

Unit-1: English Grammar

The Noun, The Pronoun, Articles, The Adjectives, The Verb.

Unit-2: Practices in Business Communication

Group Discussions, Mock Interview, Seminars, Effective Listening Exercises, Individual and Group Presentation and Reports Writing.

Unit-3 : Writing Skills

Planning Business Messages , Rewriting and Editing, The First Draft, Reconstructing the Final Draft, Business Letters, Sales Letters, collection Letters, Collection Letters, Office Memorandum.

SECTION –C : REPORT WRITING AND PRESENTATION SKILLS

Unit-1: Report Writing

Introduction to Proposal, Short Report and Format Report, Report Preparation.

Unit-2 : Oral Presentation

Principal of Oral Presentation, Factors Affecting Presentation, Sales Presentation, Training Presentation, Conducting Surveys, Speeches to Motivate, Effectives Presentation Skills, Interviewing Skills: Appearing in Interviews, Conducting Interviews, Writing Resumes and Letter of Application.

COMPUTER ORGANISATION
C-108

Section A

Number System, Binary arithmetic, Gray Code, BCD, Logical Gates, Boolean Algebra, K-Map simplification, SOP forms, POS forms, Half adder, Full adder, Flip-Flops (SR, JK, D & T), Counters, Registers.

Section B

Basic Computer architecture, Functional Organization, Register organization, Arithmetic and logic unit, pipeline, Central Processing unit, Instruction formats, Addressing modes, Data transfer and manipulation, Interrupts, RISC/CISC architecture.

Section C

Register transfer and micro-operations, Register transfer language (RTL), Arithmetic, Logic and Shift micro-operations, Micro-program Control Organization, Control memory, address sequencing, Micro-program sequencer, Addressing Mode.

Section D

Memory and storage; Processor V/s Memory speed, High-speed memories, Cache memory, Direct mapping Set Associative Mapping, Fully Associative Mapping, Associative memory, interleaved memory, Virtual memory and memory management hardware. Input/output Organization: Peripheral devices, I/O interface, Asynchronous Data Transfer : Strobe control, Handshaking Data transfer schemes (Programmed, Interrupt Initiated, DMA transfer), I/O processor.

II Year

COMPUTER ORIENTED STATISTICAL & OPTIMIZATION METHODS (C– 121)

Unit-I

Collection of Data, Sampling & sampling designs, Classification and tabulation of Data Graphical representation of Data.

Unit-II

Measure of Central values, measure of dispersal, Skew, moments and kurtosis correlation and regression.

Unit-III

Probability & Probability and distributions (Normal, Poisson's, Binomial)

Unit-IV

Linear Programming, Graphical Methods, Simplex methods (Simple Applications)

Unit-V

Transportation problems, Assignments problems, Game theory.

OPERATING SYSTEMS (C-120)

Unit - I

Operating Systems and Resource Manager, Operating system classifications, simple monitor, multiprogramming, timesharing, real time systems, multiprocessor systems, operating systems services.

Unit - II

File System : File supports, access methods, allocation methods-contiguous linked and index allocation; directory systems single level, tree-structure, a cyclic graph and general graph directory, file protection.

Unit - III

CPU Scheduling: Basic scheduling concepts, Process overviews, process states, multiprogramming, Schedulers, and Scheduling algorithms, multiple- processor scheduling.

Unit - IV

Memory Management: Bare machine approach, resident monitor, Partition, Paging and segmentation, virtual memory, demand paging.

Deadlocks : Deadlock Characterizations, deadlock prevention, avoidance detection and recovery.

Unit - V

Resource Protections : Mechanisms, Policies & domain of protection, Access matrix and its implementation, dynamic protection structures.

Case Study of Windows-NT: Design Principle; System components, Environment subsystem; File System, Programmer Interface.

Introduction to Assembly Language (C-130)

UNIT 1: Microprocessor Architecture

- Microcomputer Architecture
- Structure of 8086 CPU
    - The Bus Interface Unit
    - Execution Unit (EU)
    - Register Set of 8086
- Instruction Set of 8086
    - Data Transfer Instructions
    - Arithmetic Instructions
    - Bit Manipulation Instructions
    - Program Execution Transfer Instructions
    - String Instructions
    - Processor Control Instructions
- Addressing Modes
    - Register Addressing Mode
    - Immediate Addressing Mode
    - Direct Addressing Mode
    - Indirect Addressing Mode

UNIT 2: Introduction to Assembly Language Programming

- An Introduction of Assembly Language
- The Need and Use of the Assembly Language
- Assembly Program Execution
- An Assembly Program and its Components
    - The Program Annotation
    - Directives
- Input Output in Assembly Program
    - Interrupts
    - DOS Function Calls (Using INT 21H)
- The Types of Assembly Programs
    - COM Programs
    - EXE Programs
- How to Write Good Assembly Programs

VISUAL BASIC
C-112

SECTION-A

Visual basic environment and overview
Overview of main screen, menu bar, tool bar, tool box using menus, customizing a form, building user control, command buttons text boxes, labels images controls.

SECTION-B

Statements in visual basic, writing codes, dialog box, variable, type of variable string numbers,

SECTION-C

Writing procedures, VB programs structure, projects. Forms, modules, and frames, project with multiple forms displaying information on form, picture boxes, textboxes.

SECTION-D

Printer objects controlling program flow. Built in function user defined function and procedures. Arrays, grids & records. Object oriented programming, creating object, building classes.

COMPUTER NETWORKS (C-119)

Unit-I

Introduction: Uses of networks, goals and applications. OSI reference model. Example Network-Novell Network, ARPNET, NSFNET, The Internet.

Unit-II

The Physical Layer: Transmission media: Twisted pair, Baseband and Broadband coaxial cable, Fiber optics; Wireless Transmission: Radio transmission, Microwave transmission, Infrared and light wave transmission; ISDN services; Virtual Circuits versus Circuit Switching Transmission in ATM Networks, Paging System, Cordless Telephones, Cellular telephones; Communication Satellite.

Unit-III

The Data Link Layer: Framing, Error control, Flow control; Error detection and Correction; Protocols: Simplex stop and wait protocols, One bit sliding window, Using Go-Back n, Example: The Data Link Layer in the Internet.

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 Bus, IEEE 802.4 and token Ring; Bridges; Bridges from 802 x to 802 y, Transparent Bridges, Sources Routing Bridges.

Unit-IV

The Network Layer: Network layer design issues, shortest path routing. Flooding, Flow based routine, Broadcast routine, Congestion control and prevention policies; Internet working; connectionless Internet working, Tunneling Internet work Routing, Fragmentation, firewalls, IP address, Internet control protocols.

Unit-V

The Transportation Layer: The transport service; Transport protocols: Addressing, Establishing and releasing a connection; The internet transport protocols: TCP.
The Application Layer: Network Security, Electronic mail.

SYSTEM ANALYSIS AND DESIGN
C-111

SECTION A

1.Introduction

Concepts of a systems, examples of systems, types of systems – open and closed, static and dynamic with examples.

2.Overview of system analysis and Design

System development life cycle, brief introduction to analysis, implementation and testing and maintenance.

SECTION B

3.Preliminary Investigation

Project selection, scope definition and preliminary investigation.

4.Feasibilty study

Technical and economic and operational feasibility, cost and benefit analysis.

SECTION C

5.Requirement Specification and analysis

Fact finding techniques, data flow diagrams, data dictionaries, decision trees and tables.

6.Detailed Design

Module Specification, file design, database design.

SECTION D

7.Testing and Quality Assurance

Maintenance, unit and integration testing techniques, design objectives, quality factors such as reliability correctness etc.

8.User Education and Training

Issues in user education and training, method of educating and training the user.

COMPUTER ORIENTED FINANCIAL MANAGEMENT (C-125)

Unit-I: Introduction to Accounting

- Meaning of Accounting,
- Advantage of Accounting,
- Uses of Financial Statements,
- Double Entry System of Financial Accounting.
- Generally Accepted accounting Principles,
- Concepts Underlying Profit & Loss Accounts, Balance Sheet.

Unit-II: Accounting Mechanics

- Cash Books
- Special Journals,
- Rules of Debit and Credit,
- General Ledger,
- Bank Reconciliation Statement.

Unit-III: Preparation of Financial Statement

- Preparation of Trial Balance,
- Reconciliation of Trial Balance,
- Preparation of Financial Statements (Including Adjustments).

Unit-IV: Capital Budgeting and Working Capital Management

- Capital Budgeting: Basic Principles and Techniques,
- Working Capital Management: An over all view.

Unit-V: Capital Structure: Planning and Analysis

- Ratio Analysis,
- Fund Flow Statement,
- Cash Flow Statement.

OBJECT ORIENTED PROGRAMMING AND C++
C-105

SECTION A

OOP paradigm, Advantages of OOP, Comparison between functional programming and OOP approach, characteristics of object oriented Language objects, class, Inheritance, Polymorphism, and abstraction, encapsulation, Dynamic Binding, Message passing.
Introduction to C++, Identifier and Keywords, constants, C++ Operators, Type conversion, Variable declaration, Statement, expression, User defined data types, conditional expression (For, While, Do-While, Do-While) loop statement, breaking control statements (Break, continue).

SECTION B

Defining a function, types of functions, Inline functions, Call by value and Call by reference, Preprocessor, Header files and standard functions, Structures, Pointers and structures, Unions, Enumeration.

SECTION C

Classes, Member function, Objects, Array of objects, Nested classes, Constructors, Copy constructors, Destructors, Inline member functions, static class member, friend functions, Dynamic memory allocation.
Inheritance: Single inheritance, Multi – level inheritance, Hierarchical, Virtual base class, Abstract classes, Constructors in Derived classes, Nesting of classes.

SECTION D

Function overloading, Operator overloading, Polymorphism, Early binding, Polymorphism with pointers, Virtual functions, Late binding, Pure virtual functions, Opening and closing of files, Stream member functions, Binary file operations, classes and file operations, Random access file processing.

III Year

COMPUTER GRAPHICS (C-122)

Unit - I

Development of computer graphics, basic graphics system & standards. Raster scan & Random scan graphics, continual refresh and storages displays, display processors and character generators.

Unit - II

Color display techniques, frame buffer and Bitbit operations concepts in raster graphics.
Points/lines and curves/scan conversion/line drawing algorithms/circle and ellipse Generation / polygon filling/conic-section generation, antialising.

Unit - III

Two-dimensional viewing, basic transformations, coordinate systems, windowing and clipping, segments, interactive picture construction techniques, interactive input/output devices.

Unit - IV

Three-dimensional concepts, 3-D representation and transformations, 3-D viewing, algorithms for 3-D volumes.

Unit - V

Spline curves and surfaces, Fractals, Quad tree and Ochre data structures.
Hidden lines and surfaces, Rendering and Animation.

MULTIMEDIA (C-123)

Unit - I

Introduction and Hardware: Definition of Multimedia, CD-ROMs and Multimedia applications, Multimedia requirements-Hardware, Software, Creativity and organization, Multimedia skills and training Macintosh verses PC, the Macintosh platform,, PC platform, Connections, Memory and storage devices, input devices, output hardware, Communication devices.

Unit - II

Multimedia Software: Basic tools, painting and drawing tools, OCR software, Sound editing programs, Animation devices and digital movies and other accessories, Linking multimedia objects, office suites, word processor, spreadsheets presentation tools, Types of Authoring tools card and page based, icon based and time based authoring tools, object oriented tools.

Unit - III

Production Building Blocks: Test-using test in Multimedia, Computers and Text, Font editing and Design tools, Hyper media and Hyper text, Sounds-multimedia system sounds MIDI verses Digital Audio, Audio file formats, Working with sound in Windows, Notation interchange file format (NIFF), Adding sound.

Unit - IV

Production Tips: Image-creation, making still images, images colors, Image, File format, Animation-principles of animation, making workable animations Video, using video, Broadcast video, Standard, Integrating Computer and TVs, shooting and editing Video, using Recording formats, Video tips, Video Compression.

Introduction to Internet Programming (Java) (C-126)

FUNDAMENTALS OF JAVA PROGRAMMING

Unit 1 Introduction to Java

1.1 Applets and Applications
1.2 Java Buzzwords
1.3 The Java Plateform
1.4 Java Libraries
1.5 Starting With Java

UNIT 2 DATA TYPES, OPERATORS AND ARRAYS

2.1 Data Types In Java
2.2 Operators
2.3 Java Keywords
2.4 Mixing Datatypes
2.5 Type Casting
2.6 Programming Constructors in Java
2.7 Arrays

UNIT 3 CLASSES AND OBJECTS IN JAVA

3.1 Classes and Objects
3.2 Constructor
3.3 Subclassing
3.4 The Extends Keyword
3.5 The instance of Operator
3.6 Static Variables and Methods
3.7 The Final Keyword
3.8 Access Control
3.9 Method Overriding
3.10Abstract Classes
3.11Inner Classes

UNIT 4 EXCEPTION HANDLING

4.1 Exception Classes
4.2 Using Try and Catch
4.3 Handling Multiple Exceptions
4.4 Sequencing Catch Blocks
4.5 Using Finally
4.6 Built –in Exception
4.7 Throwing Exceptions
4.8 Catching Exceptions
4.9 User Defined Exception

UNIT 5 PACKAGES AND INTERFACES

5.1 Creating Packages
5.2 Adding Classes to Existing Packages
5.3 Interface
5.4 Creating Interfaces
5.5 Exceptions

ADVANCED CONCEPTS

UNIT 6 MULTITHREADED PROGRAMMING

6.1 Multithreading: an introduction
6.2 The Main Thread
6.3 Java Thread Model
6.4 Thread Priorities
6.5 Synchronization in Java
6.6 Interthread Communication

UNIT 7 I/O IN JAVA

7.1 I/O Basics
7.2 Streams and Stream Classes
  7.2.1 Byte Stream Classes
  7.2.2 Character Stream Classes
7.3 The Predefined Streams
7.4 Reading form, and Writing to, Console
7.5 Reading and Writing File
7.6 The Transient and Volatile Modifiers
7.7 Using Native Methods

UNIT 8 APPLETS

8.1 The Applet Class
8.2 Applet Architecture
8.3 An Applet Skeleton: Initialization and Termination
8.4 Handling Events
8.5 HTML Applet Tag

UNIT 9 GRAPHICS AND USER INTERFACE

9.1 Graphics Contexts and Graphics Objects
  9.1.1 Color Control
  9.2.1 Fonts
  9.3.1 Coordinate System
9.2 User Interface Components
9.3 Building User Interface with AWT
9.4 Swing – Based GUI
9.5 Layouts and Layout Manager
9.6 Container

CLIENT SERVER TECHNOLOGY (C-132)

Unit – I

Client-Server Technology and its uses, historical development, client-server technology and heterogeneous computing, Distributed Computer, Computing plate forms.

Unit - II

Microprocessor integration and client server computing, implementations and scalability. Fundamentals of client server design, division of labor.

Unit - III

Transition to client-server programming; Interaction of client and server communication Techniques and protocols, implementing client server applications, multitasking with process and threads.

Unit - IV

Scheduling implementations, schedular internals, preemptive Vs non-preemptive systems; synchronization-understanding and using semaphores, semaphore implementation in Novell Netware, windows NT and UNIX, Memory-management, Allocation, sharing and manipulating,

Unit - V

Client server computing with ORACLE-Overview of DBMS, client server relationships, ORACLE and client server computing, using SQL with SQL, *DBS, the ORACLE tools and design aids, SQL windows & Power Builder.

SOFTWARE ENGINEERING (C-124)

Unit - I

Software Engineering : Definition and paradigms, A generic view of software engineering.

Unit - II

Requirements Analysis : Statement of system scope, isolation of top level processes and entitles and their allocation to physical elements, refinement and review. Analyzing a problem, creating a software specification document, review for correctness, consistency, and completeness.

Unit - III

Designing Software Solutions : Refining the software Specification; Application of fundamental design concept for data, architectural and procedural designs using software blue print methodology and object oriented design paradigm; creating design document : Review of conformance to software requirements and quality.

Unit - IV

Software Implementation: Relationship between design and implementation: Implementation issues and programming support environment; Coding the procedural design, Good coding style & review of correctness and readability.

Unit - V

Software Maintenance: Maintenance as part of software evaluation, reasons for maintenance, types of maintenance (Perceptive, adoptive, corrective), designing for maintainability, techniques for maintenance. Comprehensive examples using available software platforms/case tools.

Introduction to Indian Polity & Socio Economic Studies
(H-306)

Chapter 1: National Resources and their Management

Broad Coverage of the Physical, economics and Social geography of India, Main features of Indian agriculture and natural resources. Environmental issues, zoological preservation and conservation of natural resources.

Chapter 2: Human Resources Management and Social Welfare

Social system in India. Community development and panchaytiraj, Socially, economically, physically and culturally challenged and excluded section of Indian Society. Management of Public health and health education. Human rights, Probability in public life.

Chapter 3: Indian Polity-Construction and Public Administration

Broad Features of Indian Constitutional, legal, administrative and other issues emerging from the politico-administrative system of India, Principle of good governance. Main features of India administration. Law enforcement, internal security and preservation of communal harmony.

Chapter 4: Indian Polity-Theories & International Relations

Political system of India, India's relationship with the World in the sphere of foreign affair with special emphasis on India's relations with neighboring countries and in the region. Security and defense related matters. Nuclear policy, issues and conflicts. The Indian Diaspora and its contribution to India and the World, International organization.

Chapter 5: General Economic Theories and Role of Financial Institutions

Fundamental concepts in economics. Theories relating to planning, mobilization of resources. Relevance of classical economic theories to Indian Situation. Role of Banks and Financial institutions.