

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.

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.

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.

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.



## BCA 302 MULTIMEDIA TOOLS

Multimedia: Needs and areas of use, Development platforms for multimedia DOS, Windows, Linux. Identifying Multimedia elements Text, Images, Sound, Animation and Video, Making simple multimedia with PowerPoint. Text Concepts of plain & formatted text, RTF & HTML texts, using common text preparation tools, Conversion to and from of various text formats, using standard software, Object Linking and Embedding concept, Basics of font design, overview of some fonts editing and designing tools, Understanding & using various text effects.

Images importance of graphics in multimedia, Vector and Raster graphics, image capturing methods scanner, digital camera etc. various attributes of Images size, color, depth etc, Various Image file format BMP, DIB, EPS, CIF, PEX, PIC, JPG, TGA, PNG and TIF format their features and limitations, graphic file formats conversions, processing images with common software tools such as Photoshop, Paint Shop pro, Corel draw etc..

Sound: Sound and its Attributes, Mono V/s Stereo sound, Sound channels, Sound and its effect in multimedia, Analog V/s Digital sound, Basics of digital sounds-Sampling, Frequency, Sound Depth, Channels, Sound on PC, Sound standards on PC, Capturing and Editing sound on PC, Overview and using some sound recording, editing software. Overview of various sound file formats on PC WAV, MP3, MP4, Ogg Vorbis etc.

Animation: Basics of animation, Principle and use of animation in multimedia, Effect of resolutions, pixel depth, Images size on quality and storage. Overview of 2-D and 3-D animation techniques and software- animation pro, 3D studio & Paint Shop pro animator.

Animation on the Web features and limitations, creating simple animations for the Web using GIF Animator and Flash.

Video: Basics of Video Analog and Digital Video, How to use video on PC. Introduction to graphics accelerator cards, DirectX Introduction to AV/DV and IEEE1394 cards, Digitization of analog video to digital video, Interlacing and non-interlacing, Brief note on various video standards NTSC, PAL, SECAM, HDTV, Introduction to video capturing Media & instrument Videodisk, DVCAM, Camcorder, Introduction to digital video compression techniques and



various file formats AVI, MPEG, MOV, Real Video.

Multimedia on the Web: Bandwidth relationship, broadband technologies, Text in the web Dynamic and embedded font technology, Audio on the Web Real Audio and MP3/MP4, Audio support in HTML, Graphics HTML safe color palate, Interlaced V/s Non interlaced model, Graphics support in HTML, Image Map, Video on the Web Streaming video, Real Video, MPEG and SMIL, Virtual Reality on the Web.

### BCA 303 COMPUTER NETWORKS

Principles of Data Communication: General features and tasks of a communication system, The need for modulation, theory of amplitude modulation, general principles of frequency modulation and phase modulation, Evolution of computer networks, elements of LAN, WAN, MAN

Networking Architecture: ISO-OSI, IBM SNA architecture, their functions and implementation. Concepts of circuit switching, packet switching and network switching. Introduction to serial communication standards and parallel communication interfacing.

Data communication concepts: Types of signals encoding and decoding techniques, signal bandwidth requirements, signal formats used in LAN., switching, and broadcast techniques, modulation, multiplexing, switching, network protocols.

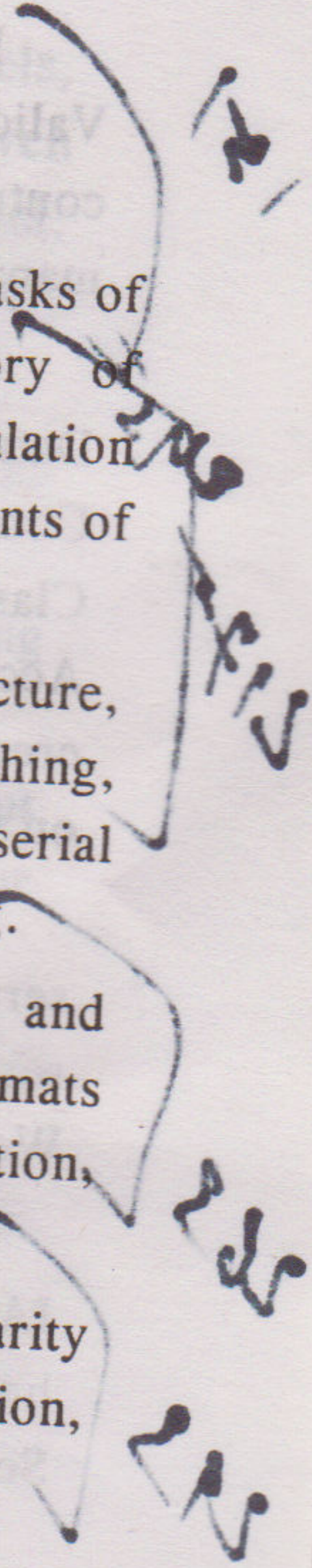
Error detection and correcting codes: Hamming codes, parity generation and detection, single error detection and correction, double correction codes. CRC

Transmission media, twisted pair, coaxial cable, optical fibre.

LAN topologies: STAR, BUS and RING network

LAN access techniques: ALOHA, CSMA, token ring and token bus.

Issues related with network reliability and security.





## BCA 304 WEB TECHNOLOGY

Overview of ASP.NET framework, Understanding ASP.NET Controls, Applications Web servers, installation of WS. 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.

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.

Architecture of ADO.NET, Connected and Disconnected Database, Create Connection using ADO.NET Object Model, Connection Class, Command Class, Data Adapter Class, Dataset Class. Display data on data bound Controls and Data Grid. Database Accessing on web applications: Data Binding concept with web, creating data grid, inding standard web server controls. Display data on web form using Data bound controls.

Writing datasets to XML, Reading datasets with XML. Web services: Introduction, Remote method call using XML, SOAP, web service description language, building & consuming a web service, Web Application deployment.

Overview of C#, C# and .NET, similarities & differences from JAVA, Structure of C# program. Language features: Type system, boxing and unboxing, flow controls, Classes, interfaces, Serialization, Delegates, Reflection.

## BCA 305 SYSTEM ANALYSIS AND DESIGN

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.



**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.

**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.

**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.

## BCA 306 COMMUNICATION SKILLS

### ORIENTATION

Concept of Motivation

Types of Motivation

People Skills

General Awareness

### MEMORY MANAGEMENT

Memory and Retention Techniques

Mind Mapping



Reading Skills  
Listening Skills  
Revision Techniques  
Examination Skills

### ***COMMUNICATION EFFECTIVENESS***

Fluency Enhancement  
Removal of barriers to communication  
Group Discussion  
Role Play  
Anchoring  
Voice Modulation Management

### ***COMPREHENSIVE COMMUNICATION***

Principles of Communication  
Art of effective Public Speaking  
Written Communication Skills  
Principles of Effective Writing  
Reading Habit Development  
Oral Presentation Skills

### ***PRESENTATION SKILLS***

Techniques of Presentation  
Methods of preparing Presentation  
Removal of stage fear  
Tools of Presentation (Transparencies, Slides & Audio-Visual Tools)

## **BCA 307 JAVA PROGRAMMING LAB**

NOTE: All programs should be done using DOS editor

1. write a program that products the following output:-

Hello World

This Is Java.

Good Buy.



2. Write a program that prints all integer between 0 and 36.
3. Create an array of 4 random numbers.
4. Generate Fibonacci series up to 10 numbers.
5. Write a program to calculate income tax for the given income of user as per rules.
6. Write a program that reads two numbers from command line and print all the prime numbers between them.
7. Write a program that prints command line arguments in reverse order.
8. Write a program that reads two numbers from the command line, the number of hours worked by an employee and their basic pay rate. Then output the total pay due. Add warning messages to the payroll program if the pay rate is less then the minimum wage(\$ 4.35 an hour as of mid 1996) or if the employee worked more then the number of week.
9. give your circle a getarea method that calculates its area, and a printinfo method that prints out the radius and area. Make a test case that tries capabilities out.
10. make a program that create an array of 10 circle, each with a random radius. Print out the sum of area of the 10 circles. Also print the biggest and smallest areas.
11. create a rectangle class that contains width and height fields also give it a getarea method again. Make a few test cases.
12. create a square class with width and getarea. Then, give both square and circle setarea methods that let you specify a desire area. Make a few test cases.
13. Write an application program in Java to implement the different uses of static keyword.
14. Write an application program in Java to implement the different uses of final keyword.
15. Write an application program in Java to implement the different uses of super keyword.
16. write a program to demonstrate multiple inheritance using interface.
17. write a program to demonstrate multi threading in JAVA.



## BCA 308 ASP .NET LAB

1. Design a web form using HTML controls and change the controls properties.
2. Design a form to create account in website using following fields
  - First name
  - Last name
  - Username
  - Password
  - Confirm Password
  - Gender
  - Birthday
  - Mobile Number
  - Security Question
  - Answer
  - Location
  - Terms and condition
3. Validate the account form using validation control
  - Required field Validation
  - Range Validation
  - Compare Validation
  - Regular Expression Validation
  - Summary Validation
4. Design multiform web project with following menus.
  - Home
  - Courses
  - Departments
  - Staff profile
  - Alumni
  - Downloads
5. Write a program to retrieve data from one web form and display it to another web form.



6. Design a web form using calendar control and display the monthly events(holidays).
7. Design a web form using Adrotator control and display advertisements on form.
8. Design a webform using Navigation Controls.
9. Design a web form using File Upload control.
  - (I) Write the code to save the file in to the uploads folder.
  - (II) Write the code to display the information of uploaded file.
    - Name of file
    - Type of file
    - Size of file
10. Design a web form using Image Map and redirect form using following:
  - Navigate
  - PostBackUrl
11. Design a web form using following controls:
  - Wizard control.
  - Panel Control
  - Multiview Control
12. Create a XML file and display its data on web form.
13. Create a database college and create following tables:  
Login  
Department  
Staff  
Student
14. Create a program to connect the web form to Database College.

**BCA 309 PROJECT WORK**

**BCA 310 SEMINAR**

