

DETAILED SYLLABI

SYLLABUS

Basic Computers and Internet

Paper I

1. Introduction to computer

- 1.1 What is computer?
 - Characteristics of Computers
 - Basic Applications of Computer
- 1.2 Components of Computer System
 - Central Processing Unit (CPU)
 - VDU, Keyboard and Mouse
 - Other input/output Devices
 - Computer Memory
 - Concepts of Hardware and Software
- 1.3 Classifications of computers
 - Representation of data/Information concepts of data processing
 - Definition of Information and data
 - Basic data types
 - Storage of data/Information as files

Tutorial: The student is allowed to enumerate in what ways he can use the computer for his own purpose/business.

Practical: The student needs to be exposed/shown various components and supposed how to switch on a computer. This applies to the next few chapters also.

2. Introduction to Windows

- 2.1 What is an operating system and basics of Windows
- 2.2 The User Interface
 - Using Mouse and Moving Icons on the screen
 - The My Computer Icon
 - The Recycle Bin
 - Status Bar, Start and Menu & Menu-selection
 - Running an Application
 - Windows Explorer Viewing of File, Folders and Directories
 - Creating and Renaming of files and folders
 - Opening and closing of different Windows
- 2.3 Windows Setting
 - Control Panels
 - Wall paper and Screen Savers
 - Setting the date and Sound
 - Concept of menu Using Help 2.4
- 2.4 Advanced Windows
 - Using right Button of the Mouse
 - Creating Short cuts
 - Basics of Window Setup
 - Notepad
 - Window Accessories

Practical: More stress is on practical. Allow the student freely the computer experience each command rather than explaining in a theory class.

3. Elements of Word Processing

3.1 Word Processing Basic

An Introduction to Word Processing

Opening Word Processing Package

The Menu Bar

Using the Help

Using the Icons below menu bar

3.2 Opening Documents and Closing documents

Opening Documents

Save and Save AS

Page Setup

Printing of Documents

Display/Hiding of Paragraph Marks and Inter

Word Space

3.3 Moving Around in a Document

Scrolling the Document

Scrolling by line/paragraph

Fast Scrolling and Moving Pages

3.4 Using a Document/Help Wizard

3.5 Text Creation and Manipulation

Paragraph and Tab Setting

Text Selection

Cut, copy and paste

Font and Size selection

Bold , Italic and Underline

Alignment of Text: Center, Left, right and Justify

3.6 Formatting the Text

Changing font, Size and Color

Paragraph indenting

Bullets and Numbering

Use of Tab and Tab setting

Changing case

3.7 Handling Multiple Documents

Opening and closing of multiple documents

Cut, Copy and Paste across the documents

Saving of Clip boards

3.8 Table Manipulation

Concept of table: Rows Columns and Cells

Draw Table

Changing cell Width and Height

Alignment of Text in Cell

Copying of cell

Delete/insertion of row and columns

Borders for Table

3.9 Printing

Printing

Print Preview

Print a selected page

4. Database and Ms-Access

4.1 Introduction to database

Database Management System

- Designing a database
- Elements of database
- 4.2 Relational Database Management System
 - Relationships
 - Introduction to Microsoft Access
 - Design View of table
 - Data Types In Ms- Access
 - Properties of fields and Primary Key
- 4.3 Forms Queries and Reports
 - Working with forms
 - Form Wizard Columnar /Tabular
 - Creation of forms using design View
 - Creating a query
 - Simple Query wizard
 - Duplicate Query wizard
 - Unmatched Query Wizard
 - Working with Reports
- 4.4 Ms- Front Page/ Ms- Publisher
 - 4.4.1 An Introduction to Front Page
 - Front Page Components
 - Creating a Web, Wizard of front Page
 - Front Page Editor, Database Connectivity
 - Other Front Page options
 - 4.4.2 Introduction to Ms- Publisher,
 - Critiquing a publication, Strengthening
 - Publication text, rearranging elements, modifying objects
 - Integrating with Office Programs,
 - Importing a word document
 - Creating Web documents,. Creating a Web Site
 - Testing a Web Site, Publishing a Web Site, Converting a Publication to a Web Page

5. Computer Communication and Internet

- 5.1 Introduction to Internet
 - 1. Internet, Growth of Internet, owners of the Internet, anatomy of Internet, ARPANET and Internet history of the World Wide Web. Basic Internet Terminology, net etiquette.
 - 2. Internet Applications — Commerce on internet, Impact of Internet on Society —Crime on / through the Internet.
- 5.2 Basic of Computer Networks
 - LAN, WAN.
 - Internet Protocols, TCP/IP
 - Different Type of Topologies.
- 5.3 Service on Inter Net
 - WWW and web-sites
 - Electronic mails
 - Communication on Internet
- 5.4 WWW and Web Browsers
 - Web browsing software
 - Internet Explorer
 - Netscape Communicator

5.5 Surfing the Internet

- Giving the URL address
- Search
- Moving Around in a web-site
- Printing or saving portion of web pages
- Down loading

5.6 Chatting on Internet, Email, Basic of electronic mail

- What is an Electronic mail
- Email addressing
- Mailbox: Inbox and outbox
- Viewing an email
- Sending an Email
- Saving mails
- Sending same mail to various users

5.7 Document handling

- Sending soft copy as attachment
- Enclosures to email
- Sending a Portion of document as email

Reference Books

1. C.S. French "Data Processing and Information Technology", BPB Publications 1998
2. P.K Sinha 'Computer Fundamentals', BPB Publications, 1992
3. Guy Hart-Davis "The ABCs of Microsoft Office 97 Professional edition", BPB Publications, 1998
4. Karl Schwartz, "Microsoft Windows 98 Training Guide", 1998

Assignments: Student may be asked to do assignments

Relational Database Management System

Paper II

UNIT I

Introduction to Database Management System

1. Why Database, Characteristics of Data in Database
2. DBMS, Types of DBMS
3. What is a database, Advantage of DBMS?
4. Database Architecture and Modeling
 - 4.1 Conceptual, Physical and Logical database models.
 - 4.2 Role of DBA, Database Design.
5. Relational DBMS
 - 5.1 RDBMS Terminologies
 - 5.2 Relational Data Integrity (Entity Integrity and Referential Integrity).
 - 5.3 Relational Data Manipulation
 - 5.4 Codd's Twelve Rules.

UNIT II

Database Normalization

1. Keys ,Relationships
2. What is Normalization, Need for Normalization.
3. First Normal Form
4. Functional Dependencies (like Full, Partial, Transitive, Multi valued, Join dependencies).
5. Second Normal Form.
6. Third Normal Form.
7. BCNF (Boyce-Codd Normal Form).
8. Fourth Normal Form.
9. Fifth Normal Form, Domain Key Normal Form

UNIT III

Entity Relationship Model, Relational Algebra, Relational calculus

1. Introduction and Components of ER model.
2. ER Modeling Symbols.
3. Super class and Sub Class Types.
4. Attribute Inheritance.
5. Specialization, Generalization, Categorization.
6. Relational Algebra
 1. Relational Algebraic operations
 2. like Select , Project
 3. Set operations (union, intersection, difference, Cartesian product).
 4. Different types of joins (Equi, Theta, Natural, Outer).
 7. Relational Calculus, Tuple Relational Calculus.

UNIT IV

Introduction to SQL (Structured Query language)

1. Introduction , History of SQL , Characteristics and Advantages of SQL
2. Types of SQL (Interactive, Embedded SQL).
3. SQL Data Types and literals

4. Types of SQL Commands (Data Definition Language , Data Manipulation Language, Data Control Language)
5. SQL operators and their precedence.
6. Creation of table views and indexes with Integrity Constraints.
7. Alter Table command (Add, Modify, Drop option).
8. Insert, Update, and Delete, Drop operations.
9. Queries and Sub Queries (SQL constructs SELECT...FROM WHEREgroup BY...HAVING...ORDER BY.....GROUP BY)
10. Aggregate, Arithmetic, Character, Date Functions.
11. Joins, Unions, Intersection and Minus.
12. Sequences and using of Sequence on Table, Synonyms.
13. Cursors in SQL (Implicit, Explicit, Handling Cursors).
14. Creation of Users, Granting and Revoking Privileges to Users.
15. Procedures, Functions.

UNIT V Backup and Recovery

1. Database Backups, Why to plan Backups?
2. Hardware Protection and Redundancy.
3. Transaction Logs.

Multimedia System

Paper IV

UNIT I: Adobe Photoshop

Introduction to Multimedia and Photoshop

1. What is multimedia, text, graphics, Animation, Audio, Images, Video
2. Applications of Multimedia in Education, entertainment, marketing.
3. Getting started with Photoshop
4. Introduction to Photoshop and Image Ready
5. Uses of different types of objects
6. Optimizing Photoshop Projects
 - 6.1 How to build a contact sheet
 - 6.2 Use of file Browser, Multiple Views.
7. Selection Techniques
 - 7.1 Selection of Geometric Areas , color Range
 - 7.2 Select Areas using quick mask ,paths
 - 7.3 Modification, Save and Load of Selections.
8. Converting Files
 - 8.1 Save files in other formats.
 - 8.2 Move files from Mac to windows. 8.3 Building of GIF files for the web.
 - 8.4 Build JPEG files for the web.
9. Working with Tone
 - 9.1 Measuring and Comparing Pixel Values.
 - 9.2 Optimizing the tonal range
 - 9.3 Use of Dodge, Burn and Sponge Tools.
 - 9.4 Sharpening of Images

UNIT II: Adobe Photoshop

Drawing, Image Editing Building Web Files and Special Effects of Photoshop

1. Working with color
 - 1.1 Work with Color Variations.
 - 1.2 Global Color corrections.
 - 1.3 Subtle color changes.
 - 1.4 Build Duotones, Tritones, and Quadtones for the web.
2. Image Editing Basics
 - 2.1 Resize, Crop, Rotate of an Image
 - 2.2 Adding of Canvas, Silhouette an image.
3. Drawing Painting and filling with color.
4. Using Types
 - 4.1 Add Type to an image, Create 3D Text.
 - 4.2 Create typographical Style Sheets, filtered text effects.
 - 4.3 Build Filtered Text, wrapping of text.
5. Using Paths like (Straight — Edge Path, curved Path, Stroke Paths, and Clipping Paths).
6. Working With Layers
 - 6.1 Creation, Moving and Linking of layers. 6.2 Group layers, creation of Layer sets.
 - 6.3 Transformation and adjustment of layers. 6.4 Add a layer Mask, merging and Flatten of Layers.
7. Building Web Files
 - 7.1 Preview files in Browsers and Platforms. 7.2 Slice Images for the Web, Build Image maps.
 - 7.3 Filter Based GIF Animations.
 - 7.4 Building of JavaScript Rollovers and Web Gallery.
8. Special Effects Like (Blending, Glow effect, Lighting effects, Radial Blur, Adding Texture).

UNIT III Corel Draw

Introduction to Corel Draw and Basic Drawing

1. Introduction to Corel draw.
2. Corel Draw Terminology
3. Creating Artistic Text
4. Working with Shapes and Curves
5. Controlling the Corel Draw Page Environment
6. Setting Up Page Layout
7. Defining Outlines, Mixing up with Fills
8. Drawing and Editing FreeHand Curves, Bezier Curves

UNIT IV Corel Draw

Working With Images and World Wide Web

1. Working with Bitmap Images.
2. Lenses and Power Clips.
3. Blends and Contours.
4. Working with Perspective.
5. Designing with Paragraph Text.
6. Managing Layers and Pages.
7. Importing, Exporting Printing Objects.
8. From CorelDraw to the World Wide Web
 - 8.1 Driving into Photo paint
 - 8.2 Painting Text, Bitmap
 - 8.3 Working with Objects, Bitmap

UNIT V Ms-Flash

Introduction to Flash

1. Working with Flash ,Working with Graphics , Working with symbols
2. Embedding In HTML.
3. Building Graphic Elements for a Flash Project
4. Basic animation, Animation in Flash ,Types of Animation
5. Shape tweening , staggering animation effect, Working in the timeline
6. Animation Review Break apart and distribute, Intro to Motion Guide.
7. Sound in Flash
8. Video in Flash, Visual Elements in Flash
9. Adding Multimedia to Flash Projects
10. Types of Interactivity
11. Active Learning
12. Action Script in Flash ,Components in Flash
13. Adding Interactivity to Flash Projects , Publishing.

Reference Books

1. Lourekas, "Photoshop7- Visual Quick Start Guide", BPB Publications.
2. Kelby, "Photoshop 7- Killer Tips ", BPB Publications
3. Ulrich, "Madro Media Flash 5 for Windows and Macintosh", Pearson
4. Schwartz, "Coreldraw 11 for Windows", Pearson
5. Kogent Solutions, "Corel draw ", Willey Publications
6. Daniel, "How to use Adobe Photoshop ", BPB Publications.
7. Bauer, "Using Adobe Photoshop 7 - Special Edition.

Assignments: Student may be asked to do assignments

HTML/DHTML/JAVA SCRIPT/BSCRIPT

Paper III

UNIT I

INTRODUCTION TO HTML

1. Hyper Text Markup Language (HTML) HTML Tags, Paired Tags
2. Information Files Creation
 - 2.1 Web Server, Web Client /Browser
 - 2.2 Understanding how a Browser communicates with a Web Server
3. Commonly Used Html Commands
 - 3.1 The structure of an HTML program
 - 3.2 Document Head
 - 3.3 Document Body
4. Titles And Footers
5. Text Formatting
 - 5.1 Paragraph breaks
 - 5.2 Line Breaks
6. Emphasizing Material In a Web Page
 - 6.1 Heading Styles
 - 6.2 Drawing Lines
7. Text Styles (Bold, Italics, Underline),
 - 7.1 Other Text effects (Centering Text, Images etc)
 - 7.2 Spacing (Indenting Text)
8. Lists
 - 8.1 Types of Lists
 - 8.2 Unordered lists (Bullets) Ordered Lists (Numbering), Definition Lists.
9. Adding Graphics to HTML Documents
 - 9.1 Using the Border attribute
 - 9.2 Using the WIDTH and HEIGHT attribute. 9.3 Using the ALIGN, ALT

attribute

UNIT II

USE of TABLES, FRAMESETS, FORMS and HYPERLINKS

1. TABLES
 - 1.1 Introduction
 - 1.2 Header, Data rows, the caption Tag.
 - 1.3 Using the WIDTH and BORDER attribute.
 - 1.4 Using the CELLPADDING attribute.
 - 1.5 Using the CELLSPACING attribute. 1.6 Using the BGCOLOR attribute.
 - 1.7 Using the COLSPAN and ROWSPAN attributes.
2. Linking Documents
 - 2.1 Links
 - External Document References
 - Internal Document References
 - 2.2 Images as Hyperlinks
 - Image Maps
3. FRAMES
 - 3.1 Introduction to Frames
 - 3.2 The <FRAMESET>tag
 - 3.3 The <FRAME> tag
 - 3.4 Targeting Named Frames
4. Use of Forms
 - 4.1 The Form Object
 - 4.2 The Form Objects Methods

The Text, Password, Button, Submit (Button), Reset (Button), The Checkbox, Radio, the Text Area, Select, Option, Multichoice, Select Lists element

Practical: More stress is on practical. Allow the students to prepare Projects based on basic HTML.

UNIT III

DYNAMIC HTML

1. Cascading Style Sheets
 - 1.1 Font attributes
 - 1.2 Color and Background attributes
 - 1.3 Text attributes, border attributes, Margin Related Attributes.
 - 1.4 List Attributes.
2. CLASS
 - 2.1 Using the ... TAG
 - 2.2 External Style Sheets
3. Working with JavaScript style Sheets [JSSS]
4. Using the <DIV> </Div> TAG.....
 - Inflow Layers

UNIT IV JAVA SCRIPT

1. Introduction To Java Script
 - 1.1 Advantages of JavaScript
 - 1.2 Limitations of JavaScript
 - 1.3 Differentiate between JavaScript and Java
 - 1.4 Writing JavaScript into HTML
2. Building up JavaScript into HTML
 - 2.1 Basic Programming Techniques
 - 2.2 Data Types and Literal.
 - 2.3 Type casting
 - 2.4 Creating and incorporating variables in a Script.
 - 2.5 The Java Script Array, the Elements of an Array.
 - 2.6 The Java Script array and its length property.
3. Operators and Expressions in JavaScript
 - 3.1 Arithmetic, Logical, Comparison, string, Assignment operator.
4. JavaScript Programming Constructs
 - 4.1 Conditional checking If then --else
 - 4.2 Super Controlled—Endless Loops (For loop)
5. Functions In java Script
 - 5.1 Built —in — Functions.
 - 5.2 User Defined Functions.
6. Java Script Style Sheets. [JSSS]

UNIT V

VB SCRIPT

1. Introduction to VB Script
 - 1.1. Advantages of VBScript.
 - 1.2 Limitations of VBScript.
 - 1.3 Differentiate between VBScript and Visual Basics.
 - 1.4 Writing VBScript into HTML.
2. Basic Programming Elements
 - 2.1 Variable
 - 2.2 Data Types like Integer, String, Date, Boolean, Currency, Object, Variant Variables
 - 2.3 Explicit and Implicit Declarations In VBScript.
 - 2.4 Constants, Arrays
 - 2.5 Different types of Operators VBScript.
3. Understanding VBScript Control Structures

3.1 What is a Control Structure?

3.2 Types of Control Structure

a) Conditional Logic, Looping Logic, Branching Logic

3.3 Control Structure Examples.

4. Functions in VBScript

4.1 Built In Functions (Math, Date, String)

4.2 User defined Functions.

Reference Books

1. Young, " Internet Complete Reference", Tata Mc Graw Hill.

2. Paul Wilton, " Beginning Java Script ", Willey Publications

3. Nicholas C. Zakas, "Professional JavaScript for Web Developers" second Edition , Wrox Publications

4. Ramesh Bangia , "Internet and Web designing ", Firewall Media .

5. Ivan Bayross, "HTML/DHTML/JavaScript, PERL CGI", BPB Publications.

Assignments: Student may be asked to do assignments

PHP (Personal Home Pages)

Paper V

UNIT I :

- 1.1 Installing and Configuring PHP
- 1.2 Installing PHP Files on Windows
- 1.3 php.ini Basics
- 1.4 The Basics of PHP Scripts
- 1.5 Basic Language Element
- 1.6 The Building Blocks of PHP 1.7 Variables
- 1.8 Data Types
- 1.9 Operators and Expressions 1.10 Constants

UNIT II :

- 2.1 Flow Control Functions in PHP
- 2.2 Switching Flow
- 2.3 Loops
- 2.4 Code Blocks and Browser Output
- 2.5 What is a Function
- 2.6 Calling Function
- 2.7 Defining a Function
- 2.8 Returning Values from User-Defined Functions. 2.9 Variable Scope

UNIT III :

- 3.1 Working with Strings
- 3.2 Formatting Strings with PHP
- 3.3 Working with Dates and Times
- 3.4 Using Date and Time Functions in PHP 3.5 Working with User Sessions
- 3.6 Session Function Overview
- 3.7 Starting a Session
- 3.8 Working with Session Variables
- 3.9 Destroying Sessions and Unsetting Variables.

UNIT IV:

- 4.1 Working with Forms 4.2 Predefined Variables 4.3 Creating a Simple Input Form
- 4.4 Accessing Form Input with User-Defined Arrays
- 4.5 Combining HTML and PHP Code on a Single Page
- 4.6 Using Hidden Fields to Save State
- 4.7 Redirecting the User
- 4.8 Including Files with include()
- 4.9 Include once ()

UNIT V :

- 5.1 Connecting to MySQL with PHP
- 5.2 Working with MySQL Data
- 5.3 Working with Files
- 5.4 Creating and Deleting Files
- 5.5 Opening a File for Writing, Reading, or Appending
- 5.6 Reading from Files
- 5.7 Writing or Appending to a File.

Reference Books :-

- 1. Vaswani, Vikram, "PHP: A Beginners Guide". Tata MacGraw Hill

2. Vaswani, Vikram, "PHP: Programming Solutions:", Tata MacGraw Hill.
3. Ed Lecky Thomsons & others "Professional PHPS" Wloox publications
4. W Jason Guilmord "PHP and MySQL" Willey Pub.
5. Vaswani, "XHL and PHP" Peaseen

Assignment : Students may ask to do assignment

ASP.NET

Paper VI

1. **Introduction**
 - 1.1 The NET Framework
 - 1.2 Common Language Runtime
 - 1.2.1 Intermediate Language
 - 1.2.2 Execution
 - 1.2.3 Processing
 - 1.2.4 Assemblies
 - 1.3 NET Framework Classes
 - 1.4 ASP NET Languages
2. **ASP.NET Pages**
 - 2.1 Introduction to ASP.NET Pages
 - 2.2 Code Declaration block
 - 2.3 Code Render Blocks
 - 2.4 ASP.NET Syntax
 - 2.5 ASP.NET Page Directives
 - 2.6 ASP.NET Page Life Cycle
3. **ASP.NET Language**
 - 3.1 Variables
 - 3.1.1 Variable Types
 - 3.1.2 Declaring Variables
 - 3.1.3 Naming Variables
 - 3.1.4 Initializing and storing values in variables.
 - 3.2 Arrays
 - 3.3 Operators
 - 3.3.1 Various types of operators
 - 3.3.2 Operator precedence
 - 3.4 Conditional Logic
 - 3.4.1 If Else statements
 - 3.4.2 Switch and Select statement
 - 3.4.3 Loops
 - 3.4.3.1 While
 - 3.4.3.2 Do - while
 - 3.4.3.3 For next
 - 3.5 Branching Logic
 - 3.5.1.1 Subroutines
 - 3.5.1.2 Functions
 - 3.5.1.3 Parameters
 - 3.6 Break and continue statements
 - 3.7 Classes
 - 3.8 Throwing and catching exceptions
4. **ASP.NET Controls**
 - 4.1 Introduction to Web Forms
 - 4.2 Sever Controls
 - 4.3 Control Events
 - 4.4 HTML Server Controls
 - 4.5 Validation Controls
 - 4.5.1 Customising Validation Controls
 - 4.5.2 Error Messages
 - 4.5.3 Displaying Validation Summary
5. **ADO.NET**
 - 5.1 Introduction to ADO.NET
 - 5.2 Managed providers
 - 5.2.1 Connection
 - 5.2.2 Command
 - 5.2.3 Data Reader

5.3 Dataset Object

5.3.1 Data Adapter

5.3.2 Data Table

5.3.3 Data View

5.4 Data Binding Controls

5.4.1 Repeater

5.4.2 DataList

5.4.3 DataGrid

Reference :

1. Chris Villam, John Hauffuam Cris Hill, David Sussman, "Beginning ASP.NET