

MULTIMEDIA AND WEB TECHNOLOGY

Course Structure

Part/Unit	Topics	Marks
A	Theory	70
1	Introduction to computer systems	15
2	Web development	25
3	Web scripting	20
4	Multimedia and authoring tools	10
B	Practical	30
Total		100

Course Syllabus

Unit 1: Introduction to Computer System

Chapter 1: Hardware Concepts

- Computer Organization (basic concepts):
 - CPU
 - Memory (Primary and Secondary)
 - I/O devices
- Input devices:
 - Keyboard
 - Mouse
 - Light pen
 - Touch Screen
 - Graphics Tablet
 - Joystick
 - Microphone
 - OCR
 - Scanner

- Smart Card reader
- Barcode reader
- Biometric sensor
- Web Camera
- Output Devices:
 - Monitor/Visual Display Unit (VDU)
 - LCD screen
 - Television
 - Printer (Dot Matrix Printer, Desk jet/ Inkjet/ Bubble jet Printer, Laser Printer)
 - Plotter
 - Speaker
- Secondary Storage Devices: Fixed and Removable Storage:
 - Hard Disk Drive
 - CD/DVD Drive
 - Pen Drive
 - Blue Ray Disk
 - Flash Drive
 - Memory cards
- Memory Concepts
- Units:
 - Bit
 - Byte
 - Kilo Byte ($2^{10}=1024$ Byte)
 - Mega Byte
 - Giga Byte
 - Tera Byte
 - Peta Byte
- Primary Memory:
 - Cache
 - RAM
 - ROM

Chapter 2: Software Concept

- Types of Software:
 - System Software
 - Utility Software
 - Application Software
- Operating System, Language Processors:
 - Compiler
 - Interpreter
 - Assembler
- Operating System:
 - Need for operating system
 - Functions of operating system (processor management
 - Memory management
 - File management and device management
- Commonly used operating systems:
 - UNIX
 - LINUX
 - Windows
 - Solaris
 - BOSS (Bharat Operating System Solutions)
 - Mobile OS - Android, Symbian
- Utility Software:
 - Anti-virus
 - File management tools
 - Compression tools and disk management tools:
 - disk cleanup
 - disk defragmenter
 - backup
- Application software: General Purpose Application software:
 - Office tools
 - Word processor
 - Presentation tool
 - Spreadsheet package
 - Database management system

- Specific Purpose Application software: Domain specific tools:
 - school management system
 - inventory management system
 - purchasing system
 - human resource management system
 - payroll system, financial accounting
 - hotel management
 - reservation system
 - weather forecasting system
- GUI Operating System
- GUI Components:
 - General features
 - Elements of desktop:
 - Taskbar
 - Icon
 - Start button
 - Shortcuts
 - Folder
 - Recycle bin
 - My computer
- Start Menu:
 - Program
 - Documents
 - Settings
 - Find/search
 - Help
 - Run
 - Shutdown/logoff
- Program Menu: Accessories
 - Calculator
 - Text editor
 - Image editor
 - Entertainment (such as sound recorder, media player)
- Control Panel:

- Add new hardware
- Add new software
- Printer installation
- Date/time settings
- Mouse and regional settings
- Customization of taskbar
- Start menu
- Display properties:
 - Wallpaper
 - Font settings
 - Color settings
 - Screen savers

Unit 2: Web Development

www, Hyper Text Transfer Protocol(HTTP), File Transfer Protocol(FTP), TCP/IP, PPP, Domain names, URL, IP Address, Website, Web browser, Web Server, Web Hosting;

Chapter 1: HTML

- Introduction
- Content creation
- Creating HTML document using a text editor
- Saving HTML document
- Editing an HTML document
- viewing HTML documents in a web browser
- switching between text editor and web browser windows to view changes

Chapter 2: Browsers

- Mozilla firefox
- Google chrome
- Internet explorer
- Netscape navigator

- Safari
- Opera

Chapter 3: Web Page Authoring Using HTML

- Basic Concepts:
 - Concept of tags and attributes
 - Difference between container tag and empty tag
- Structural Tags of HTML:
 - <HTML>, <HEAD>, <TITLE>, <BODY>;
 - Attributes of <BODY> (BGCOLOR, BACKGROUND, LINK, ALINK, VLINK, TEXT)
- Inserting Breaks:
 - Line break
, section break <HR>, Attributes of <HR> (WIDTH, ALIGN, SIZE, NOSHADE, COLOR)
- Creating Paragraphs:
 - <P>, Attributes of <P> (ALIGN)
- Formatting Tags of HTML:
 - <SMALL>, <BIG>, , <I>, <U>, , <BLOCKQUOTE>, <PRE>, <SUB>, <SUP>, <STRIKE>, <ADDRESS>, Adding Comments in HTML (<!-- -->), Heading tag (<H1>to <H6>), Attributes of Heading tag (ALIGN), tag, <BASEFONT>, Attributes of and <BASEFONT> (SIZE, COLOR, FACE)
- Creating Lists: Ordered Lists:
 - , , Attributes of (TYPE, START, VALUE); Unordered Lists: , , Attributes of ((TYPE-disc, circle, square)
- Definition List:
 - <DL>, <DT>, <DD>;
- Creating Links:
 - Internal linking using <A NAME> and <A HREF>, external linking using <A HREF>, e-Mail linking using <AHREF>
- Concept of URL:
 - Absolute URL
 - Relative URL
- Inserting Images:

- Inserting inline images using , Attributes of (SRC, ALIGN, WIDTH, HEIGHT, ALT, BORDER)
- Adding Music:
 - Adding music using <A HREF> and <EMBED>, Attributes of <EMBED> (SRC, ALIGN, WIDTH, HEIGHT, LOOP, AUTOSTART, HIDDEN)
- Creating Tables:
 - Creating Table using <TABLE>, Attributes of <TABLE> (BORDER, BGCOLOR, BACKGROUND, ALIGN, CELLSPACING, CELLPADDING, WIDTH, HEIGHT, BORDERCOLOR)
- Creating rows and columns in a table using <TH>, <TR>, <TD>, Attributes of <TH>, <TR>, <TD> (ALIGN, VALIGN, COLSPAN, ROWSPAN)
- Adding headings for a table using <CAPTION>, Attribute of <CAPTION>(ALIGN)
- Creating Frames:
 - Dividing the window into two or more frames using <FRAME> and <FRAMESET>, Use of percentage dimensions and relative dimensions while dividing the window, use of <NOFRAMES></NOFRAMES>;
 - Attributes of <FRAMESET> (ROWS, COLS, BORDER, FRAMEBORDER);
 - Attributes of <FRAME> (SRC, NAME, FRAMEBORDER, HEIGHT, WIDTH, MARGINHEIGHT, MARGINWIDTH, SCROLLING, NORESIZE)
- Creating Forms:
 - Forms for data collection which can be written to a file, submitted to a database or emailed to someone;
 - Creating Forms using <FORM>, Attributes of <FORM> (NAME, ACTION, METHOD);
 - Creating Form Interface elements - text box, password box, file selection box, hidden box, checkbox, radio button, button, submit button, reset button using the <INPUT>, Attributes of <INPUT> applicable with different interface elements (NAME, SIZE, VALUE, ALIGN, MAXLENGTH, CHECKED, TYPE);
 - Multiline text area using <TEXTAREA>, Attributes of <TEXTAREA> (NAME, ROWS, COLS, WRAP);

- Dropdown list or scrolling list using <SELECT> and <OPTION>, Attributes of <SELECT>(NAME, SIZE, MULTIPLE /SINGLE)
- Document Object Model:
 - Concept and Importance of Document Object Model, Static Vs Dynamic HTML documents
- Cascading Style Sheets:
 - Introduction to Cascading Style Sheet (CSS): Creating inline, embedded and external cascading style sheets using <STYLE>, <DIV>, and <LINK>; Attribute of <DIV> and (STYLE)
 - Attributes of <LINK> (REL, TYPE, HREF)
- Font Properties:
 - FONT-FAMILY, FONT-STYLE, FONT-SIZE, FONT-VARIANT, FONT-WEIGHT and COLOR
- Text Properties:
 - COLOR, WORD-SPACING, LETTER-SPACING, TEXT-DECORATION, VERTICAL-ALIGN, TEXT-TYPE, TEXT-TRANSFORM; TEXT-ALIGN, TEXT-INDENT, LINE-HEIGHT
- Background Properties:
 - BACKGROUND-COLOR, BACKGROUND-IMAGE, BACKGROUND-REPEAT
- Margin Properties:
 - MARGINS (all values)
- Padding Properties:
 - PADDING (all values)
- Border Properties:
 - BORDER (all values);
- Positioning:
 - Absolute
 - Relative
- Additional Features:
 - Assigning classes
- XML-eXtensible Markup Language:
 - Introduction, features, advantages
- Structure of XML:

- Logical structure, Physical structure
- XML Markup:
 - Element Markup (example: <foot>Hello</foot>), Attribute Markup (example: <! element.name property= "value">)
- Naming Rules:
 - Naming rules for elements, attributes and descriptors
- Components in XML:
 - Tags, Elements, Root element, Attributes, Entities
 - Comments in XML
- Developing DTD:
 - Element Declaration in a DTD: <!ELEMENT elementname (content-type)>
 - Entity Declarations, Declaring Empty Elements, Container Elements, Unrestricted Elements, Attribute Declarations
 - Element Content Model
 - Element Occurrence Indicators: ? ,*,+
 - Character Content: PCDATA (Parseable Character data) <! ELEMENT text(#PCDATA)>
 - Well Formed XML Documents, Valid XML Documents
 - Document Type Declaration (DTD) - Internal and External DTD
 - Validating an XML document using a DTD
 - Developing a DTD, Developing a DTD from XML Code, either automatically or manually
 - Viewing XML in Internet Explorer, Viewing XML using the XML Data Source Object

Unit 3: Web Scripting

- VBScript:
 - Introduction to client side scripting using <SCRIPT> tag,
- VBScript Variables:
 - Declaring variable, implicit and explicit declaration, naming restrictions, assigning values to variables, scalar variables and 1-D array, variant data type

- BScript Constants
- VBScript Operators:
 - VBScript Operators and Operator precedence;
 - Arithmetic Operators: +, - (Unary and Binary), *, /, \ (integer division), MOD, ^
 - Comparison Operators: <, >, <=, >=, <>, =
 - Logical Operators: AND, OR, NOT
 - String Operators: & and + (for concatenation)
- Control Structures in VBScript:
- Conditional statements:
 - If..Then..End if, If..Then..Else..End If, If..Then, Else If..Then..Else..End If Select..Case..End Select
- Loops:
 - For..Next, For Each.. Next, Do While..Loop, While.. Wend ,Do.. Loop While, Do Until.. Loop, Do..Loop Until
 - Entry controlled and Exit controlled loops
- Inbuilt Functions of VBScript:
- General Functions:
 - MsgBox function, Arguments of MsgBox function (Prompt, Buttons, Title), Return values of MsgBox function; InputBox function, Arguments of InputBox function (Prompt, Title, Default), Return values of InputBox function
- Conversion Functions:
 - Abs(), CBool(), CByte(), CInt(), CStr(), CSng(), CLng(), CDate()
- String Manipulation Functions:
 - Ucase(), Lcase(), Len(), Left(), Right(), Mid(), LTrim(), RTrim(), Trim(), InStr(), strreverse()
- Time & Date Functions:
 - Date(), Day(), Month(), Hour(), Minute(), Monthname(), Now()
- VBScript Procedures and Functions(User Defined):
 - Sub procedures, Functions, passing parameters/arguments
- Creating Dynamic Interface using VBScript
 - Using VBScript with HTML form controls

Unit 4: Multimedia and Authoring Tools

- Concept of Multimedia:
 - Picture/Graphics, Audio, Video
 - Digital Images and Digital Image representation, animation, morphing
- Image Formats:
 - TIFF, BMP, JPG/JPEG, GIF, PDF, PSD, PIC
- Applications:
 - Poster design
 - Still pictures
 - Colored layout
 - Designing of books
 - Magazines brochures:
 - Children's literature
 - Narrative text handling
 - Scripts in indian languages
 - Picture books
 - Comics
 - Illustrations with photographs
 - Scientific illustrations
 - Conceptual illustrations
 - Handling of assignment for the market
- Image Scanning with the help of scanner:
 - Setting up resolution
 - Size
 - File formats of images
 - Bitonal
 - Grey scale and color options
 - Preview the image
- Graphic Tools:
 - Image Editing Software (Photoshop / Coreldraw/GIMP)
- Basic Concepts of Image Creation:
 - Introduction
 - Interface elements of the tool:
 - Menus

- Toolbox
 - color control icons
 - mode control icons
 - window controls icons
- Creating new images, saving images and opening existing images
- Image Handling:
 - Cropping
 - Adjusting image size
 - Adjusting the size of the work canvas, rotating selections
 - Scaling an object
- Operations on Layers:
 - Adding new layers
 - Dragging and pasting selected objects on to layers
 - Dragging layers between files
 - Viewing
 - Hiding
 - Editing
 - Moving
 - Copying
 - Duplicating
 - Deleting
 - Merging layers
 - Preserving layers
 - Using adjustment layers
- Channels and Masks:
 - Channel palette:
 - showing and hiding channels
 - splitting channels in to separate images
 - merging channels
 - creating a quick mask
 - editing masks using quick mask mode
- Painting and Editing:
 - Brushes palette:
 - brush shape

- creating and deleting brushes
- creating custom brushes
- setting brush options
- saving
- loading
- appending brushes
- Options palette:
 - Opacity
 - Pressure
 - Exposure
 - Paint fade-out rate
 - Making
 - Adjusting
 - Moving
 - Copying
 - Extending
 - Reducing
 - Pasting and deleting selections using selection tools
 - Softening the edges of a selection
 - Hiding a selection border
- Sound:
 - Recording sound using Sound Recorder (Capture), sound capture through sound editing software (ex: Sound Forge), sound editing (noise correction, effect enhancement)
 - Importing audio files from external devices and saving them
 - Sound Quality: CD Quality, Radio Quality, Telephone Quality
- Voice Recording Software:
 - Audacity
 - Speech recorder
 - orex (Mono & Stereo)
- Sound File Format:
 - AIFF (Audio Input File Format from Apple Mac)
 - MIDI
 - WAV

- MP3
- ASF (Streaming format from Microsoft)
- Importing audio files from external devices and saving them