16. MULTIMEDIA AND WEB TECHNOLOGY (Code 067)

Learning Objectives:

1.   To get proficient in Web page Development

2.   To be able to write server & client scripts and manage website

5.   To design Graphical images using Image, Audio and Video Editing tools

Competencies:

The student will develop competencies in the following:

1.   Developing and Managing web-site

2.   Managing of a web portal

3.   Creating, Editing and Embedding Images, Audio and Video clips in Webpages.

Class XI (Theory)

Duration: 3 hours   **Total Marks: 70**

Unit No.	Unit Name	Marks
1.	COMPUTER SYSTEM	15
2.	WEB PAGE DEVELOPMENT	25
3.	WEB SCRIPTING	20
4.	MULTIMEDIA AND AUTHORING TOOLS	10

Unit 1:   Computer System

Introduction to Computer, Input Devices – Keyboards, Mouse, Joy stick, Mic, Camera; Output Devices – Monitor, Printer, Speaker, Plotter; Memory Units – Byte, Kilobyte, Megabyte, Giga byte, tera byte; Primary Memory – RAM and ROM; Secondary Storage devices – Floppy Disk, Hard disk, CD ROM, DVD, Zip Drive, DAT Drive; Power devices – UPS; Software – System Software, Application Software, Utility Software; Working on computers – switching on computer, booting computer; icons, shortcuts, taskbar, mouse pointer; typing, saving and printing a simple text file, drawing simple picture using MSPaint, using calculator option, customizing desktop, windows explorer, managing folders (creating, moving, deleting, renaming); using floppy disk drive, using CD/DVD drives; managing files (copying, moving, deleting, renaming); playing audio and video;

GUI Operating System

Important: Students/Teachers can also perform similar operation on any operating system. It is advised that the teacher while using any one operating system, give a demonstration of equivalent features for the other operating system.

GUI Windows

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;

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Customization of Taskbar, Start menu, Display properties (Wallpaper, Font Settings, Color Settings, Screen Savers);

Program Menu: Accessories - Calculator, Notepad, Paint, Word pad, Entertainments (CD Player, Sound Recorder, Media Player, Volume Controller);

Browsers: Mozila Firefox, Internet Explorer, Netscape Navigator;

Control Panel: Add new hardware; Add new Software, Printer Installation, Date/Time, Mouse, and Regional Settings;

Documentation

Purpose of using word processing software, opening a new/existing document, closing a document, typing in a document, saving a document, print preview, printing a document, setting up of page as per the specifications, selecting a portion of document, copying selected text, cutting selected text, pasting selected text; changing font, size, style, color of text; Inserting symbol; Formatting: Alignment – Left, Right, Center; Justification;

Unit 2: Webpage Development

WebPages; Hyper Text Transfer Protocol (HTTP); File Transfer Protocol (FTP) Domain Names; URL; Protocol Address; Website, Web browser, Web Servers; Web Hosting.

HTML

Introduction, Objectives, Introduction to Universal Resource Identifier (URI) - Fragment Identifiers and Relative URI's, evolution of HTML, SGML, Structure of HTML/DHTML Document, Switching between opened Windows and browser (Container tag, Empty tag, Attribute);

Basic Tags of HTML: HTML, HEAD, TITLE, BODY (Setting the Fore color and Background color, Background Image, Background Sound), Heading tag (H1 to H6) and attributes (ALIGN), FONT tag and Attributes (Size: 1 to 7 Levels, BASEFONT, SMALL, BIG, COLOR), P, BR, Comment in HTML (<! >), Formatting Text (**B**, *I*, U, EM, BLOCKQUOTE, PREFORMATTED, SUB, SUP, STRIKE), Ordered List- OL (LI, Type- 1, I, A, a; START, VALUE), Unordered List - UL (Bullet Type- Disc, Circle, Square, DL, DT, DD), ADDRESS Tag;

Creating Links: Link to other HTML documents or data objects, Links to other places in the same HTML documents, Links to places in other HTML documents;

Anchor Tag <A HREF> and <A NAME>, Inserting Inline Images <IMG ALIGN, SRC, WIDTH, HEIGHT, ALT, Image Link>, Horizontal Rules <HR ALIGN, WIDTH, SIZE, NOSHADE>;

Web Page Authoring Using HTML

Tables: Creating Tables, Border, TH, TR, TD, CELLSPACING, CELLPADDING, WIDTH, COLSPAN, CAPTION, ALIGN, CENTER;

Frames: Percentage dimensions, Relative dimensions, Frame – Src, Frameborder, height and width, Creating two or more rows Frames <FRAMESET ROWS >, Creating two or more Columns Frames <FRAMESET COLS >, <FRAME NAME SRC MARGINHEIGHT MARGINWIDTH SCROLLING AUTO NORESIZE>, <NOFRAMES>, </NOFRAMES>;

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Forms: Definition, Use – Written to a file, Submitted to a database such as MSAccess or Oracle, E-mailed to someone in particular, Forms involving two-way communication;

Form Tags: FORM, <SELECT NAME, SIZE, MULTIPLE / SINGLE> <OPTION> ... </SELECT>, <TEXTAREA NAME ROWS COLS > , , </TEXTAREA>, METHOD, CHECKBOX, HIDDEN, IMAGE, RADIO, RESET, SUBMIT, INPUT <VALUE, SRC, CHECKED, SIZE, MAXLENGTH, ALIGN>;

Document Object Model

Concept and Importance of Document Object Model, Dynamic HTML documents and Document Object Model.

Cascading Style Sheets

Introduction to Cascading Style Sheet (CSS), three ways of introducing the style sheets to your document. Basic Syntax; Creating and saving cascading style sheets. <STYLE> tag.

Examples showing the linking of external style sheet files to a document; Inline and Embed, <DIV> tag; COLOR, BACKGROUND-COLOR, FONT-FAMILY, FONT-STYLE, FONT-SIZE and FONT-VARIANT; FONTWEIGHT, WORD-SPACING, LETTER-SPACING, TEXTDECORATION, VERTICAL-ALIGN, TEXT-TRANSFORM; TEXT-ALIGN, TEXT-INDENT, LINEHEIGHT,

Introduction to Margin, Padding and Border;

MARGINS (all values), MARGIN-PROPERTY, PADDIND (all values), PADDINGPROPERTY; BORDER (all values), BORDER-PROPERTY, BACKGROUNDIMAGE, BACKGROUNDREPEAT; Additional Features, Grouping Style Sheets, Assigning Classes; Introduction to Layers, <LAYER>, <ILAYER> tag;

eXtensible Markup Language (XML)

XML: Introduction;

Features of XML: XML can be used with existing protocols, Supports a wide variety of applications, Compatible with SGML, XML documents are reasonably clear to the layperson; Structure of XML: Logical Structure, Physical Structure;

XML Markup: Element Markup i.e (<foo>Hello</foo>), Attribute Markup i.e. (<!element.name property="value">) ;

Naming Rules: used for elements and attributes, and for all the descriptors, Comments Entity

Declarations :<! ENTITY name "replacement text">;

Element Declarations: <!ELEMENT name content>;

Empty Elements: <!ELEMENT empty.element EMPTY>;

Unrestricted Elements: <!ELEMENT any.element ANY>;

Element Content Models : Element Sequences i.e. <!ELEMENT counting (first, second, third, fourth)>, Element Choices <!ELEMENT choose(this.one | that.one)>, Combined Sequences and Choices;

Element Occurrence Indicators :-Discussion of Three Occurrence Indicators

? (Question Mark)

* (Asterisk Sign)

+ (Plus Sign)

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Character Content: PCDATA (Parseable Character data) <!ELEMENT text(#PCDATA),
Document Type Declaration (DTD) and Validation;
Developing a DTD: Modify an existing SGML DTD, Developing a DTD from XML Code, either automatically or manually;
Viewing XML in Internet Explorer, Viewing XML using the XML Data Source Object.
XSL (Extensible Style Sheet Language) or CSS (Cascading Style Sheet);

Unit 3:   Web Scripting
VBScript

Introduction, Adding VBScript code to HTML page, VBScript Data type-Variant subtypes, VBScript Variables: (Declaring variable, Naming restrictions, Assigning value to variables, Scalar variables and 1-D Array), VBScript Constants, VBScript Operators, and Operator precedence;
MsgBox: functions of message box (Prompt, Buttons, Title, Helpline, Context), Return values of MsgBox function, button argument setting.
Conditional statements: If..Then.. Else, Select case;
Loops: Do loops, While.. Wend, For.. Next, For..Each..Next;
VBScript variables: Sub procedures, Function procedures;
Using VBScript with HTML form controls, Data handling functions, String functions, Date and Times functions;

Unit 4:   Multimedia And Authoring Tools

Graphics Devices: Monitor display configuration, Basics of Graphics Accelerator Card and its importance;
Basic concepts of Images: Digital Images and Digital Image Representation
Image Formats :TIFF, BMP, JPG/JPEG, GIF, PIC. PDF, PSD;
Theory of design, form, line, space, texture, color, typography, layout, color harmony, unity, balance, proportion, rhythm, repetition, variety, economy, still life, light and shade, Poster Design;
Still life, colored layout, Poster Design, 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; image preview, Bitonal, Grey Scale and color options; Significance of PDF- creation, modification;
Animation, Morphing and Applications
Graphic Tools: Image Editing Software (Photoshop / Coreldraw)
Basic Concepts: An Introduction, creating, Opening and saving files, Menus, Toolbox, Color control icons, Mode control icons, Window controls icons; creating new images, Image capture (TWAIN) from scanner other files;
Image Handling: Cropping an image, adjusting image size, increasing the size of the work canvas, saving an image;
Layers: Adding layers, dragging and pasting selections on to layers, dragging layers between files,

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viewing and hiding layers, Editing layers, rotating selections, scaling an object, preserving layers transparency, moving and copying layers, duplicating layers, deleting layers, merging layers, using adjustment layers;

Channels and Masks: Channel palette, showing and hiding channels, splitting channels in to separate image, 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 and appending brushes, Options palette;

Opacity, pressure, or exposure, paint fade-out rate, making selections, using selection tools, adjusting selections, softening the edges of a selection, hiding a selection border, moving and copying selections, extending and reducing selections, pasting and deleting selections, Image tracing (CorelDraw).

Concept of Multimedia: Picture/Graphics, Audio, Video;

Sound: Recording Sound using Sound Recorder (Capture), Sound capture through sound editing software (ex: Sound forge), Sound editing, Noise correction, Effect enhancement ;

Voice Recognition Software Philips/Dragon, MIDI Player, Sound Recorder, MONO & Stereo. Sound File Format: AIFF (Audio Input File Format from Apple Mac) , MIDI, WAV, MP3, ASF (Streaming format from Microsoft).

Importing audio and saving audio from Audio CD.

Sound Quality: CD Quality, Radio Quality, Telephone Quality;

MULTIMEDIA AND WEB TECHNOLOGY (Code 067)

Class XI (Practical)

Duration: 3 Hours   **Total Marks: 30**

1.   Hands on Experience   15

A topic based homepage has to be to be developed by each student using various commands covered in HTML and VBScript

Web page should be designed with following features.

●   HTML Basic Tags (html/head/title/body/B/I/U/BR/HR)

●   Anchor/Image insertion/Linking

●   Tables/Frame/Form

●   CSS

●   XML Markup / Declarations / Element Content Model

●   Element Occurrence Indicators

●   Buttons/Combo Box/Check Box/Text Box using VBScript

2.   Practical File with following case studies   10

The practical file should be made on the following domain specific area (with supported documents and printout)

●   Make a web page for Crime against Poor Community,

●   Link few more pages to the developed page, containing information about Crime and Steps taken by Government. (Use HTML tags to make a Static web page)

●   Use inline styling to change appearance of contents of the web page.

●   Use Style sheets (embedding or linking) to change the appearance of all the pages developed in the above case.

●   Enhance the above web page by providing data in sheet format.

●   At this step of web page development add dynamic features such as adding time and current date to the web page

●   Collect user information using forms, for registration. Display the collected user details using message box, saying thank you for registration. (Use VB Script)

Case Studies:

(These case studies can also be used to experiment the concepts learned during the course. Knowledge domain: HTML, CSS, VB Script, and Image Editing Software's)

1.   Website of a student containing personal information about student such as email address, photograph, likes, dislikes, hobbies, class, school name, achievements, favourite restaurant, favorite tourist places, ultimate aim of life, message to mankind, role model.

2. Website of a School providing information of a school containing Motto of school, photograph of school, brief description of school, name of the principal, facilities and infrastructure, labs, sports, faculty and departments information, results and achievements of students.

3. Website of a Restaurant providing information about types of food items, brief description about each item with pictures, price list, and availability timings.

4. Website of a Travel Agency to provide the information about various tourist places, various modes of journey available, types of hotels available.

5. Your blog in English/other local language

Note:

● For developing the website collect real information from various sources.

● It is advised to break up the above-mentioned case studies into smaller modules as per coverage of the course.

● Teachers can provide alternative case studies also of similar kind.

3.   Viva Voce   05

Five questions from topics covered in the curriculum