MULTIMEDIA AND WEB TECHNOLOGY (Code 067)

Class XII (Theory)

Duration: 3 hours				Total Marks: 70				
Unit No.	o. Unit Name			Periods			Marks	
		Th	Pr	Tot	Th	Pr	Tot	
1	DATABASE CONCEPTS	10	10	20	05	5	10	
2	NETWORKING AND OPEN SOURCE							
	SOFTWARE	20	0	20	10	0	10	
3	WEBPAGE DEVELOPMENT	50	35	85	40	15	55	
4	MULTIMEDIA AND AUTHORING TOOLS	30	25	55	15	10	25	
		110	70	180	70	30	100	
Unit 1: Introduction	Database Concepts on to database concepts and its need.	3	+					
Database	Terminology:							
Data, Reco	ord/Tuple, Table, Database							
Concept	of Keys:							

Unit 1: Database Concepts

Database Terminology:

Concept of Keys:

Candidate Key, Primary Key, Alternate Key, and Foreign Key;

Database Tool:

Using any tool, Creating and Saving Table, Defining Primary Key, Inserting and Deleting Column, Renaming Column, Inserting records, Deleting Records, Modifying Records, and Table Relationship

Unit 2: NETWORKING AND OPEN SOURCE SOFTWARE

Communication Technologies

Evolution of Networking: ARPANET, WWW, Internet, Interspace

Different ways of sending data across the network with reference to switching techniques (Circuit, Message and Packet switching)

Data Communication terminologies

Concept of Channel and Data transfer rate (bps, Kbps, Mbps, Gbps, Tbps)

Transmission media

Twisted pair cable, coaxial cable, optical fiber, infrared, radio link, microwave link and satellite link

Network devices

Modem, RJ11 and RJ45 connectors, Ethernet Card, Hub, Switch, REPEATER, Gateway

192

Network Topologies:

Bus, Star, Tree;

Network Types

PAN, LAN, WAN, MAN

Network Protocol

HTTP, TCP/IP, File Transfer Protocol (FTP), PPP, Remote Login (Telnet), Internet

Electronic mail protocols such as SMTP, POP3

Wireless/Mobile Communication protocol such as GSM, CDMA, GPRS, WLL, SMS, VOICE MAIL, EMAIL, Chat and Video Conferencing, VoIP

Mobile Telecommunication Technologies:1G, 2G and 3G

Wireless Protocols: Wi-Fi and WiMax

Network Security Concepts

Threats and prevention from Viruses, Worms, Trojan horse, Spams

Use of Cookies, Protection using Firewall;

India IT Act, Cyber Law, Cyber Crimes, Hacking, IPR issues(Copyright and Design).

Open Source Concepts:

Proprietary and Open Source Software, Freeware, Shareware, FLOSS/FOSS, GNU,FSF, OSI, W3C.

Common FOSS/FLOSS examples (e.g. Gnu/Linux, Firefox, OpenOffice, Linux, Mozilla web browser, Apache server, MySQL, Postgres, Pango, Tomcat, PHP, Python)

[Note: Teacher can introduce the students to these websites www.sourceforge.net, www.openrdf.org, www.opensource.org, www.linux.com, www.linuxindia.net, www.gnu.org.]

Multimedia Application:

Education (use of CAL tool), Entertainment, Edutainment, Virtual Reality, Digital Libraries, Information Kiosks, Video on Demand, Web Pages Video phone, Video conferencing and Health care.

Unit 3: Web Page Development

Review Of HTML/DHTML, VBScript covered in Class XI.

Installation and Managing WEB-Server:

Internet Information Server (IIS) / Personal Web Server (PWS).

Active Server Pages (ASP):

Concept of ASP, features of ASP, other equivalent tools - JSP, PHP;

Constants:

String and Numeric;

Data types:

Integer, Floating Point (Single, Double), String, Date, Boolean, Currency, Variant, Object;

Variables:

Explicit and Implicit Declaration of variables

Operators:

Arithmetic:+, - (Unary and Binary), *, /, \(integer division) mod, ^;

Comparison: <, >, <=, >=, <>, =;

Logical: AND, OR, NOT, XOR, EQV, IMP;

String Operator: & or + (for Concatenation);

Functions:

Conversion functions: Abs(), CBool(), CByte(), CInt(), CStr(), CSng(), CLng(), CDate();

String Manipulation Functions: UCase(), LCase(), Len(), Left(), Right(), Mid(), LTrim(), InStr(), RTrim(), Trim();

Time & Date Functions: Date(), Day(), Hour(), Minute(), Month(), Monthname(), Now();

Arrays:

Declaration and use of 1 dimensional arrays;

Controls:

If..Then, If..Then..Else..End If, If..Then, Else If..Then..Else..End If Select..Case..End Select,

For..Next, For Each.. Next, Do While. Loop, Do.. Loop While, Do Until.. Loop, Do..Loop Until;

Procedures and Functions:

Passing parameters/arguments;

Concept of object model structure

(client to server and server to client);

Objects:

Properties, Methods, Events, Setting Object properties, Retrieving Object properties, calling objects/methods;

Types of Objects:

Response, Request, Application, Session, Server, ASPError;

Response Object:

Write Method, AddHeader, AppendToLog, BinaryWrite, Using Shortcuts <%=value/expr%>, Controlling information: Buffer, Flush Clear, End;

Request Object:

Request Object Collection: QueryString, Form, ServerVariables, Cookies, ClientCertificate;

194

Server Variables:

HTTP_User_Agent, REMOTE_ADDER, REMOTE_HOST, SERVER_NAME;

Application :

Contents, Lock, Unlock, Remove, RemoveAll;

ASP Components:

AD Rotator, Content Rotator, Counter, Page Counter, Permission Checker;

Text Files:

Open, Read and display content from a text file;

Working on Database:

Connecting with Databases: Creation of DSN, using OLE DB

Inserting, Retrieving, Modifying/Updation of records from Tables in Databases using server objects (ADODB.Connection, ADODB.Recordset); stoda

Unit 4: Multimedia and Authoring Tools

Movie File Formats:

AVI, MPEG, SWF, MOV, DAT;

Embedding

Audio/Video on the web page;

Multimedia Authoring Using Macromedia Flash

Making of Simple Flash Movie, Setting Properties, Frame Rate, Dimensions, and

Background Color;

Movie Frames:

Concept of Frame, Frame Buffer, and Frame Rate, Creating a Key Frame;

Scene:

Concept of Scene, Duplicate Scene, Add Scene, Delete Scene, and Navigating between Scenes;

Layers:

Concept of Layer, Layer Properties, Layer Name, Show/Hide/Lock layers, Type of Layer - Normal/ Guide/Mask, Outline Color, Viewing Layer as outline, Layer Height, Adding/deleting a layer;

Inserting Text Into the Frame, Inserting Graphical Elements into the frame, Converting Text/Graphics to Symbol, Inserting Symbol into the Frame, Setting Symbol Property (Graphics/Button/Movie), Inserting Blank Frame, Inserting Blank Key Frame, Inserting Key Frame into the Blank frame, Selecting all/Specific frames of a Layer, Copying/Pasting selected Frames;

Special Effects:

Motion Tweening, Shape Tweening, Color effect, Inserting Sound Layer;

195

Testing a Scene and Movie;

Import/Export (Movie/Sound and other multimedia objects);

Publishing:

Publishing A Flash Movie; Changing publish Settings; Producing SWF(Flash Movie) for a HTML page in any of the possible formats like GIF image, JPEG Image (*.jpg), PNG Image, Windows Projector (*.exe), Macintosh Projector (*.hqx), Quick Time (*.mov), Real Player (*.smil);

Testing with Publish Preview;

www.studiestoday.com

196

MULTIMEDIA AND WEB TECHNOLOGY (Code 067)

Class XII (Practical)

Total Marks: 30

15

05

1. Hands on Experience

Duration: 3 Hours

A website based on a particular topic has to be to be developed by each student using various commands covered in HTML, VBScript and ASP with at least 4 web pages.

Web page should be designed with following features.

- HTML Basic Tags (html/head/title/body/B/I/U/BR/HR)
- Functions
- Conditional and Control Statements
- Objects: Response/Request / Application/Session /Server /ASP error
- Image Editing using Photo Shop /Corel draw
- Merging layers /Moving and Copying Layers
- Use of Multimedia Authoring (Using Macromedia Flash)
- (Note: Output as Web page/Flash Movie/Windows Projector/Quick Time)

2. Practical File

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

- Make a Simple web page containing almost all the tags of HTML and View that web page on the Browser.
- Develop a Home page for Income Tax department (Simple and Textual) and store it in the directory used for Web Services on the Web-Server.
- Enhance the home page by providing links to other sample pages (e.g. Income Tax Zone)
- Income Tax Detail Form for an individual, Income Tax Notification, Income Tax News etc.)
- Embed Time and Date on the home page.
- Further enhance the website by providing User Registration Page. Collect the user details and Display a new web page showing Thanks For Registration. Also write appropriate functions to validate form inputs.
- Give a login facility to the user with Anonymous name and maintain the session till the user logs out.
- For user log in attempts, maintain a visitor count.
- Change the login module of the web page and now connect it to the IncomeTax User database on the server. This is to be done to store the registration detail and facilitate login to the user.

- The login page is to be made in a way that it should also provide facility to change password, if user forget password.
- Store some of the created or edited sound files on the Web-Server and provide links to play it.
- Change the appearance of the web page using pictures at appropriate places (e.g. Logo of Income Tax Department, Photograph of Income Tax Building etc.)
- Visit websites (State Govt./ Local language newspaper) and get 5 different printouts in local language.

(Note: Student can also improve the case studies from class XI and enhance it further with database and multimedia support)

3. Project based on case study

Case Studies are to be divided into following parts:

Case study Part 1(Collection, Editing and Creation of Website Resources):

Create an electronic movie with various pictures, audio clipping, movie clippings, and factual text related to school/organisation;

- Introduction to 3D Animation (Using 3D Studio)
- Embedding video and audio in web pages.
- An introduction to interactive walk-through.
- Embedding walk-through into web pages.

Case Study Part 2(Development of Web Content with resources):

Case studies covered in class XI with database support with Login, Online Registration, Booking and/ or ordering facility.

Sample Case Study

(Note: Other similar type of case studies can also be used for the project work)

Mr. Verma is the CEO of copsi soft drinks (I) Ltd. His company is having a wide network of distributors for copsi branded soft drinks. With the increase in sales and distribution network, it is required to adopt a new technological intervention in the existing system. He wants that the company should have a global presence over the widely popular medium, called World Wide Web. Assume that you are appointed as the senior person of the development team. You are required to collect the company information and its current requirement. For your easiness we had collected the details of the company and are as follows:

The company Information:

Name of the Company: copsi soft drinks (I) Ltd.

Zone: East, West, North and South

Distributors: All over the world.

Downloaded from www.studiestoday.com

05

Mr. Verma said that the web site should be able to reflect company in terms of :

- Home Page
- Product & Promotion Page
- Distributor Login Page / Password Recovery Page
- Distributor Specific Details Page
- Registration Page for Distributor-ship
- Company News and Flashes
- Company Profile

Technical Details:

Web site Introduction is to be made in flash.

A proper database is to be maintained for the distributor information.

Note:

For developing the above sites/movies collect the actual 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.

4. Viva Voce

Five questions from topics covered in the curriculum

05

Downloaded from www.studiestoday.com

199

GUIDELINES FOR PROJECTS (Class XI and XII)

1. **Preamble**

- 1.1 The academic course in Multimedia And Web Technology includes one Project in each year. The Purpose behind this is to consolidate the concepts and practices imparted during the course and to serve as a record of competence.
- A group of 2-3 students as team may be allowed to work on one project. 1.2

2. **Project Content**

- 2.1 Project for class XI can be selected from the topics mentioned in the syllabus or domains on the similar lines
- 2.2 Project for class XII should ensure the coverage of following areas of curriculum:
 - Web page development using HTML, CSS a. oday.c
 - b. DHTML, VBScript, ASP
 - Image Editing Software c.
 - d. Data Base Handling
 - Movie making and animation e.
 - f. Embedding sound and movie

Theme of the project can be selected from any topic mentioned in syllabus or domains on the similar lines.

Also students can work on the same project that they initiated in Class XI and upgrade the same.

SUGGESTED REFERENCE BOOKS / WEB RESOURCES **COMPUTER FUNDAMENTALS**

- 1. Rajaraman, FUNDAMENTALS OF COMPUTERS, Prentice Hall of India.
- 2. Peter Norton, INTRODUCTION TO COMPUTER, Tata McGraw Hill

WEB PAGE DEVELOPMENT

- 1. Sybex, HTML Complete, BPB
- 2. Maccoy, MASTERING WEB DESIGNING, BPB
- 3. Russell, MASTERING ACTIVE SERVER PAGES, BPB
- 4. Sybex, ASPADO AND XML COMPLETE, BPB
- 5. Simon, VBSCRIPT Interactive Course: Waite Group, BPB

200

COMMUNICATION AND OPEN SOURCE CONCEPTS

- 1. A.S. Tanenbaum, COMPUTER NETWORK, Prentice Hall of India P. Ltd.
- 2. Williams Stalling, DATA COMMUNICATION AND NETWORKS, Prentice Hall of India P. Ltd.
- 3. Hancock, NETWORK CONCEPT AND ARCHITECTURES, BPB Publications.

Web References - www.opensource.org, www.w3schools.com

ANNEXURE

Tentative Inventors and their salient contributions in the field of Information Technology

Name	Contribution / Field of Contribution					
Alan Turing	Turing Machine					
Andrew S. Tanenbaum Bjarne Stroustrup	Operating Systems, MINIX C++					
Claude Shannon	Information Theory					
Dennis Ritchie	C (Programming Language), UNIX					
Edgar F. Codd George Boole James Gusling James Hendler	Formulated The Database Relational Model Boolean Logic Jvl Semantic Web					
John Hopcroft	Compilers					
John von Neumann	Early Computers, Von Neumann Machine					
Leonard Kleinrock Linus Torvalds Peter Wegner	ARPANET, Queueing Theory, Packet Switching, Hierarchical Routing Linux Kernel, Git Object-Oriented Programming, Interaction (Computer Science)					
Raj Chandel	Hacking					
Raj Reddy	Artificial Intelligence, Robotics					
Richard Stallman Robert E. Kahn Sabir Bhatia Seymour Cray	Gnu Project TCP/IP Hotmail Cray Research, Supercomputer					
Tim Berners-Lee	World Wide Web					
Vinod Dham	Pentium Processor, AMD K6 Processor					
Vinton Cerf	Internet, TCP/IP					

201