Course file

WEB ENGINEERING (CS-802)

Semester: 8th

(Computer science department)

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TERM WORK
1. At least ten practical experiments based on above syllabus and a mini project is desirable to be completed by a group of three that cover following tools.
   • HTML
   • DHTML
   • PHP-XML
   • Java Script, CGI, PERL
   • ASP

Recommended Books:
4. NEIL GRAY “Web server Programming” Wiley
5. CHRIS BATES Web Programming :Building Internet applications Wiley
9. Ivan Bay Ross, “HTML,DHTML,Java script,Perl CGI”, BPB
# Chapter-2: Theory Lecture Plan (50-60 Lectures)

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<th>Unit No.</th>
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<td>1-2</td>
<td>An Introduction to Web Engineering, History of web Development, Time line, Motivation, Categories of Web Applications, Characteristics of Web Applications.</td>
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<td>Models, Software Engineering v/s Web Engineering .World Wide Web:</td>
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<td>4-5</td>
<td>Introduction to TCP/IP and WAP, DNS, Email, TelNet, HTTP and FTP.</td>
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<td>6-7</td>
<td>Introduction to Browser and search engines, Search fundamentals, Search strategies, Directories search engines and Meta search engines, Working of the search engines , Miscellaneous Web Browser details,</td>
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<td>8-10</td>
<td>Introduction to Web Servers: Features of web servers, caching, case study-IIS, Apache, Configuring web servers.</td>
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<td>2</td>
<td>11-12</td>
<td>Information Architecture: The role of the Information Architect, Collaboration and Communication, Organizing Information, Organizational Challenges, Organizing Web sites parameters</td>
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<td>18-19</td>
<td>Process of Web Publishing. Phases of Web Site development, enhancing your web-site, submission of website to search engines</td>
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<td>20-22</td>
<td>Web security issues, security audit of websites, Web effort estimation, Productivity, Measurement, Quality usability and reliability.</td>
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<td>25 Technologies for Web Applications: HTML and DHTML, HTML Basic Concepts, Static and dynamic HTML,</td>
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<td>26 Structure of HTML documents, HTML Elements, Linking in HTML, Anchor Attributes, Image Maps,</td>
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<td>27-28 Meta Information, Image Preliminaries, Layouts, Backgrounds, Colors and Text, Fonts, Tables, Frames and layers, Audio and Video Support with HTML</td>
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<td>29-30 Database integration, CSS, Positioning with Style sheets, Forms Control, Form. Elements.</td>
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<td>31 Introduction to CGI PERL, JAVA SCRIPT, PHP, ASP , Cookies Creating and Reading Cookies</td>
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<td>31-33 Technologies for Web Applications: Introduction of XML, Validation of XML documents, DTD, Ways to use XML, XML for data files,</td>
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<td>34 HTML Vs XML, Embedding XML into HTML documents, Converting XML to HTML for Display,</td>
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<td>35-38 Displaying XML using CSS and XSL, Rewriting HTML as XML, Relationship between HTML, SGML and XML, web personalization, Semantic web, Semantic Web Services, Ontology.</td>
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<td>39-40 E- Commerce, E-commerce Business Models, The Internet and World Wide Web: E-commerce Infrastructure, Building an E-commerce Web Site ,</td>
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<td>41-43 Electronic Commerce environment and opportunities. Modes of Electronic Commerce, Approaches to safe Electronic Commerce ,Electronic Cash and Electronic Payment Schemes ,</td>
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<td>47-48</td>
<td>Privacy and Security Topics: Introduction, Web Security, Encryption schemes,</td>
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**Chapter-3: Practical Lecture Plan / Lab Demo (15 Lectures)**

1. Demonstration of FTP Server and FTP Client (FileZilla)
2. Demonstration of Telnet, HTTP
3. Demonstration of Search Engine
4. Demonstration of Configuration of Browsers
5. Demonstration of Apache Web Server
6. Demonstration of Tomcat Web Server
7. Demonstration of IIS Web Server
8. Demonstration of HTML, CSS, Form Controls
9. Demonstration of CGI, PERL
10. Demonstration of XML and XSL
11. Demonstration of Web Services
12. Demonstration of Java Script
13. Demonstration of Ajax
14. Demonstration of Secure Webs
15. Demonstration of Digital Signature
Chapter-4: Theory Assignment (At Least 20 Questions)

Q-1: Define Web Engineering. Draw a diagram to categorize web applications.
Q-2: What are the characteristics of Web Applications?
Q-3: Differential Software Engineering with Web Engineering?
Q-4: Write the steps to show how search engine works.
Q-5: What are main organizational challenges to develop a web site.
Q-6: Explain the steps to develop design of a web site. What are the main characteristics of a good web design?
Q-7: How SEO works can be done? What are web security issues? Explain in brief.
Q-8: Give the list with definition of HTML components. How CSS can be used to change the view.
Q-9: Write short notes on CGI and Perl. Why they are popular?
Q-10: What are advantages and disadvantages of using Java Script?
Q-11: Explain all the usages of Cookies. Also describe its drawbacks.
Q-12: How XML is different from HTML? Are they complementing to each other?
Q-13: Define DTD, XSL and XSLT. How CSS can be integrated.
Q-13: What is web personalization? What are various ways to personalize the page?
Q-14: Define the term semantic web and Ontology.
Q-15: Write the steps to implement Web Services in any language.
Q-16: What is e-Commerce? Draw a rough sketch of E-Commerce infrastructure?
Q-17: What are various models of E-Commerce?
Q-18: What are various online payment methods? Explain their security issues.
Q-19: How internet advertisement is published on various web? What are its business aspects?
Q-20: Write brief notes on Digital Signature.
Chapter-5: Lab Assignment (At Least 15 Questions)

Q-1: Develop a home page of an organization of your choice using HTML, CSS and Java Script. It must have navigational menus etc.
Q-2: Develop at least three CSS template for menu design and table design.
Q-3: Prepare snapshot for FTP server and FTP client installation/usage. (FileZilla)
Q-4: Prepare stepwise snapshot to configure Tomcat Web Server for your application
Q-5: Prepare stepwise snapshot to configure Apache Web Server for your application
Q-6: Prepare stepwise snapshot to configure IIS Web Server for your application
Q-7: Design a table using XML and XSL etc.
Q-8: Explain structure of web.xml and server.xml in Tomcat
Q-9: Explain structure of xml in ORM tool like hibernate
Q-10: Develop a simple application to know student detail from any web site via web services
Q-11: Develop a login application using Ajax and Java script to drop down values in Text Box when user clicks on user name.
Q-12: Prepare snapshot to configure browser for security settings
Q-13: Develop a complete User Management System using in Java HTML/ JavaScript/Servlet / JSP
Q-14: Design a home page using flash etc
Q-15: Prepare an application to personalize the web page.

Chapter-6: RGPV Papers (At least 2 Years Old Question Papers)

Note: It will be available soon.

Chapter-7: Viva-Voce Questions (30-50 Questions)
Chapter-8: Web Reference(s)

1. http://www.w3schools.com/
5. www.w3.org/Style/Examples/011/firstcss.en.html

Chapter-9 Multiple Choice Questions

Java Script Section

1. What language defines the behavior of a web page?
   - HTML
   - CSS
   - XML
   - Java Script

2. Which of the following is the tainted property of a window object in Java Script?
   - Pathname
   - Protocol
   - Defaultstatus
3. How to append a value to an array of Java Script?

- arr[arr.length] = value
- arr[arr.length+1] = new Arrays()
- arr[arr.length-1] = value
- arr[arr.length*1] = value

4. Why so Java and Java Script have similar name?

- Java Script is a stripped-down version of Java
- The syntax of Java is loosely based on Java syntax
- They both support Object Oriented Programming
- None of the above

5. Which machine actually executes the Java Script?

- The web server
- The machine which is running a web browser
- Java Script engine
- Both A and C

6. Is it possible to declare a variable in Java Script along its type?

- Yes
- No

7. Which of the following are capable of Java Script functions?

- Returning multiple values
8. How does Java Script store dates in objects of Date type?

☐ The number of days since January 1st, 1900
☐ The number of seconds since January 1st, 1970
☐ The number of milliseconds since January 1st, 1970
☐ The number of picoseconds since January 1st, 1970

9. Which attribute is used to hold the Java Script version?

☐ SCRIPT
☐ VERSION
☐ LANGUAGE
☐ VER

10. Which of the following is correct to write “Hello World” on the web page?

☐ System.out.println(“Hello World”)
☐ print(“Hello World”)
☐ document.write(“Hello World”)
☐ response.write(“Hello World”)

11. Which of the following syntax is correct to refer an external script called “formValidation.js”?

☐ <script href = “formValidation.js”>
☐ <script source = “formValidation.js”>
☐ <script name = “formValidation.js”>
12. What type of image maps could be used with Java Script?

☐ Client-side image maps
☐ Server-side image maps
☐ Both A and B
☐ Localhost image maps

13. Which of the following is the correct way for writing Java Script array?

☐ var salaries = new Array( 1:39438, 2:39839 3:83729)
☐ var salaries = new (Array:1=39438, Array:2=39839, Array:3=83729)
☐ var salaries = new Array(39438,39839,83729)
☐ var salaries = new Array() values=39438,39839,83729

14. What is the purpose of <noscript> tag in Java Script?

☐ Prevents scripts on the page from executing.
☐ Enclose text to be displayed by non-JavaScript browsers
☐ Suppresses the result to be displayed on the web page
☐ None of the above

15. Java Script entities start with ____________ and end with ______________

☐ Semicolon, colon
☐ Semicolon, Ampersand
☐ Ampersand, colon
☐ Ampersand, semicolon

16. Which of the following is a server-side Java Script object?
17. Which of the following is a client-side Java Script object?
- File
- Function
- FileUpload
- Date

18. Which of the following method is used to evaluate a string of Java Script code in the context of the specified object?
- Eval
- ParseDoule
- ParseObject
- Efloat

19. What is the event that fires when the form elements: `<button>`,`<textarea>` loses the focus?
- Onclick
- Ondblclick
- Onfocus
- Onblur

20. Which of the following is used to capture all click events in a window?
- `window.captureEvents(Event.CLICK);`
- `window.routeEvents(Event.CLICK);`
HTML SECTION

1. Is .htm and .html the same?

☐ No
☐ Yes

2. What is the difference between XML and HTML?

☐ HTML is used for exchanging data, XML is not.
☐ XML is used for exchanging data, HTML is not.
☐ HTML can have user defined tags, XML cannot
☐ Both b and c above

3. Which tags are most commonly used by search engines?

☐ Heading
☐ Title
☐ Paragraph
☐ All of above

4. What is the <br> tag for?

☐ Space
☐ Paragraph break
☐ Line break
Word break

5. What is the attribute for <image> tag?

- pt
- url
- path
- src

6. Can a data cell contain images?

- Yes
- No

7. Each list item in an ordered or unordered list has which tag?

- list tag
- ls tag
- li tag
- ol tag

8. Which of the following tags below are used for a multi-line text input control?

- textml tag
- text tag
- textarea tag
- Both b and c above

9. <meta> tag cannot be defined in the <head> tag.

- False
- True
10. Which of the following attributes below are used for a font name?

- fontname
- fn
- font
- face

11. Is width="100" and width="100%" the same?

- No
- Yes

12. What are <div> tags used for?

- To replace paragraphs. i.e. p tags
- To logically divide the paragraphs
- To logically divide the document
- To provide space between tables

13. What is cell padding?

- Used to separate cell walls from their contents.
- Used to set space between cells
- Both a and b above
- Used to provide width to a cell

14. Can I play audios in HTML?

- No
- Yes

15. What attribute is used to specify number of rows?
CSS Section

1. Which of the following ways below is correct to write a CSS?

- p {color:red;text-align:center};
- p {color:red;text-align:center}
- p {color:red;text-align:center;}
- p (color:red;text-align:center;)

2. The _____________ selector is used to specify a style for a single, unique element

- id
- class
- text
- bit

3. ID name should not start with a number

- False
- True

4. Which of the following statements is TRUE for CSS

- An external style sheet is ideal when the style is applied to many pages
- An inline style sheet should be used when a single document has a unique style
Both and b above
☐ An external style sheet can be written in HTML.

5. Multiple external style sheets cannot be referenced inside a single HTML document

☐ True
☐ False

6. __________ property specifies an image to use as the background of an element

☐ backg-img
☐ backg-image
☐ background-img
☐ background-image

7. The __________ property is mostly used to remove underlines from links

☐ text-trans
☐ text-transformation
☐ text-decoration
☐ text-deco

8. __________ property can be used Increase or decrease the space between words

☐ space
☐ word-spacing
☐ word-space
☐ Both b and c above

9. The font-size value can be an absolute, or relative size

☐ True
10. To specify table borders in CSS, _________ property is used
   - tbl-border
   - table-border
   - tb-border
   - border

11. element-width propety can be used to set the width of an element
   - True
   - False

12. which of the following statements is/are true?
   - Hiding an element can be done by setting the display property to "none"
   - Hiding an element can be done by setting visibility property to "hidden"
   - Both a and b above
   - Hiding an element can be done by setting block property to "hidden"

13. Elements in CSS cannot be positioned unless the position property is set first
   - True
   - False

14. The ___________ property specifies the stack order of an element
   - d-index
   - s-index
   - x-index
   - z-index
15. What is CSS Float?

☐ allows other elements to wrap around an element
☐ element can be pushed to the left or right
☐ both a and b above
☐ element can be pushed to any direction