Arkansas CTE

Web Design I: Grades 10, 11, 12

Adopted 2007

Web Design Process

1.1 Define terminology

1. Prepare a list of terms with definitions 1.1.1

1.2 Identify elements of the Web site development process

1. Examine job responsibilities and tasks of a Web designer or Web development team member 1.2.1
2. Demonstrate the collaborative nature of a Web development project 1.2.2
3. Develop a Web site vision statement 1.2.3
4. Develop a site strategy and identify strategy implementation tactics 1.2.4
5. Prepare a project evaluation, including acceptance, documentation, summary of technologies used, and project style guidelines 1.2.5
6. Create a Web page and site templates that fulfill design specifications 1.2.6
7. Compare and connect site project implementation factors (includes stake-holder input, time frame, scope, desired functionality, and required technologies) 1.2.7
8. Complete a Web project plan, including development timetable, site rollout plan 1.2.8
9. Examine Web site characteristics (e.g., interactivity, navigation, database integration) and the project resources they require 1.2.9

1.3 Identify customer expectations with Web site project and design

1. Relate customer needs and usability with with Web site project and site design principles and aesthetics design (includes distinguishing site design customer from site audience) 1.3.1
2. Explain potential customer expectations and feedback 1.3.2
3. Recommend plans and progress used to regularly ensure that completed project meets stakeholder/customer expectations 1.3.3
4. Classify changes in project scope (includes scope creep) 1.3.4
5. Examine changes in development plans 1.3.5
6. Prepare project tracking report 1.3.6

Web Site Layout

2.1 Define terminology

1. Prepare a list of terms with definitions 2.1.1

2.2 Identify Web design principles in order to evaluate and develop a site's aesthetic qualities and its ability to enhance viewer experience

1. Apply the mindmapping process to structure a Web site 2.2.1
2. Explain design goals appropriate for the business/organization represented by the site and the site's intended audience 2.2.2
3. Show a site metaphor 2.2.3
4. Examine site design and architecture specifications 2.2.4
5. Examine branding on the Web site 2.2.5
6. Classify and use common Web page design and layout elements (includes color, space, font size, and style, lines, logos, symbols, picturograms, images, and stationary features) 2.2.6
7. Compare ways that design helps and hinders audience participation (includes target audience, stakeholder expectations, and cultural issues) 2.2.7
8. Design space and content to create a visually balanced page or site that presents a coherent, unified message (includes symmetry, asymmetry, and radial balance) 2.2.8
9. Analyze the use of color to introduce variety, stimulate users, and emphasize messages. 2.2.9
10. Examine design strategies to control a user's focus on a page 2.2.10
11. Recommend strategies and tools visual consistency to Web pages and site (includes style guides, page templates, image placement, and navigation aids) 2.2.11
12. Examine a site's message, culture, and tone (professional, casual, formal, informal) using images, colors, fonts, and content style 2.2.12
13. Modify unnecessary elements that distract from a page's message 2.2.13
14. Design a plan to make Web content printer-friendly 2.2.14
15. Design for screen resolution issues in online content 2.2.15
16. Explain audience and end-user capabilities (includes lowest common denominator in usability) 2.2.16
17. Experiment with hexadecimal values to specify colors in X/HTML 2.2.17
18. Use image colors to determine effectiveness in various cultures 2.2.18

Web Site Usability and Accessibility

3.1 Define terminology

1. Prepare a list of terms with definitions 3.1.1

3.2 Identify issues that affect Web site usability

1. Examine audience usability tests 3.2.1
2. Classify and apply user-accessibility standards and laws, including W3C, WAI/WCAG, ADA Section 508, and International standards 3.2.2
3. Connect common user-accessibility challenges and solutions 3.2.3
4. Analyze site testing (functionality, usability, and browser compatibility) 3.2.4
5. Explain accessibility issues and solutions related to Web images and animation (includes text-reader capability, and captioning) 3.2.5
6. Perform site testing (functionality, usability, and browser compatibility) 3.2.6

Browsers and Navigation Concepts

4.1 Define terminology

1. Prepare a list of terms with definitions 4.1.1

4.2 Identify Web design principles to enable navigation, usability, and accessibility

1. Examine Web site hierarchy/architecture to enable navigation, usability, concepts (includes appropriate page depth and accessibility for content) 4.2.1
2. Explain common navigation conventions 4.2.2
3. Decide upon and apply a navigation action plan 4.2.3
4. Examine site strategies and technologies to avoid, including pop-up windows, single-browser sites, and spam 4.2.4
5. Explain functionality of pop-up/pop-under windows (includes creation, benefits, disadvantages, reasons to omit from your site) 4.2.5

Web Graphics and Multimedia

5.1 Define terminology

1. Prepare a list of terms with definitions 5.1.1

5.2 Identify image files and use images in X/HTML pages and site design

1. Explain the difference between vector and raster graphic types 5.2.1
2. Use appropriate image file formats, including browser-compatibility issues and lowest common denominator in audience usability (includes GIF 87a, GIF 89a, JPEG, JPEG 2000, PNG, BMP) 5.2.2

5.3 Identify multimedia and plug-in technologies to enhance a Web site

1. Examine multimedia Web design technologies to enhance a Web principles, and choose appropriate site multimedia technologies for a site based on usability criteria 5.3.1

Ethical and Legal Issues in Web Development

6.1 Define terminology

1. Prepare a list of terms with definitions 6.1.1

6.2 Identify ethical and legal issues relevant to Web development and design

1. Analyze the difference between legal and ethical issues 6.2.1
2. Discover using Web content text, graphics, code properly, including original content, misleading/inaccurate information, copyrighted content, licensing, and avoiding infringement 6.2.2
3. Examine site strategies and technologies to avoid, including pop-up windows, single-browser sites, and spam 6.2.3
4. Explain strategies to avoid violating end-user privacy and trust (includes refusing to share or sell end-user information, opt-in/opt-out for mailing lists) 6.2.4
5. Explain privacy disclaimers appropriate to site purpose and audience 6.2.5
6. Explain international legal issues, including fair use, trademarks, and contracts 6.2.6
7. Examine nature and purpose of site content (includes audience appropriateness, intended vs. unintended audience, potentially offensive content vs. legal content, and global and cultural perspectives) 6.2.7

HTML, XML, XHTML and the Evolution of Markup

7.1 Define terminology

1. Prepare a list of terms with definitions 7.1.1

7.2 Identify basic HTML and XHTML (X/HTML) to develop a series of Web pages

1. Explain the origins of HTML and XHTML, X/HTML standards, and distinguish among X/HTML versions 7.2.1
2. Use X/HTML code to create a static Web page with text and images 7.2.2
3. Use X/HTML to apply design principles and layout elements (including fonts, space, colors, lines, images) to Web pages 7.2.3
4. Examine non-standard X/HTML code and the ways that proprietary code affects Web development 7.2.4
5. Explain Extensible Markup Language (XML), and distinguish XML from HTML and XHTML 7.2.5
6. Explain and create a "well-formed" XML document 7.2.6

Web Page Structure – Tables and Framesets

8.1 Define terminology

1. Prepare a list of terms with definitions 8.1.1

8.2 Identify Web design principles to enable navigation, usability, and accessibility

1. Create X/HTML tables to appropriately format data (includes table design) 8.2.1
2. Create X/HTML framesets (include simple nested, combines, inline), and target frames correctly 8.2.2
3. Explain common user-accessibility challenges and solutions 8.2.3

Cascading Style Sheets

9.1 Define terminology

1. Prepare a list of terms with definitions `9.1.1`

9.2 Identify Web design principles to evaluate and develop a site's aesthetic qualities and its ability to enhance viewer experience

1. Show ways to apply Web page formatting with Cascading Style Sheets (CSS1 and CSS2) using various methods (includes linking, embedding, inline), and use style sheets to simplify Web site design `9.2.1`
2. Create an external style sheet and link it to an X/HTML document `9.2.2`
3. Explain strategies and tools for visual consistency to Web pages and site (includes style guides, page templates, image placement, and navigation aids) `9.2.3`

Site Content and Metadata

10.1 Define terminology

1. Prepare a list of terms with definitions `10.1.1`

10.2 Use X/HTML and extended technologies to enhance Web page structure, format, and usability

1. Develop or obtain written consent that conveys the site's message, including clear and concise writing, professional editing, style guides, consistency, jargon, voice, and tone `10.2.1`
2. Add metadata tags and content to X/HTML documents to influence search engine placement (includes refining meta tags in existing pages) `10.2.2`

Site Development with Microsoft FrontPage

11.1 Define terminology

1. Prepare a list of terms with definitions `11.1.1`

11.2 Discuss Web pages that use GUI site development applications

1. Connect site development using X/HTML text editors using GUI site management applications `11.2.1`
2. Use site development applications to develop W3C-compliant code, including XHTML 1.0 Transitional `11.2.2`
3. Apply adding images to web pages and create image maps using GUI site development applications `11.2.3`
4. Apply text, tables, and hyperlinks to Web pages using GUI site development applications `11.2.4`
5. Create Web forms using GUI site development applications `11.2.5`
6. Create page and site templates using GUI site development applications `11.2.6`
7. Apply CSS to page and site templates using GUI site development applications `11.2.7`
8. Apply page and site templates to new pages using GUI site development applications `11.2.8`
9. Discover and validate source code using GUI site development applications `11.2.9`
10. Use GUI site development applications to enforce compliance with accessibility standards `11.2.10`
11. Experiment with adding search capability to a Web site `11.2.11`

Site Development with Dreamweaver

12.1 Define terminology

1. Prepare a list of terms with definitions `12.1.1`

12.2 Identify Web pages that use GUI site development applications

1. Use site development applications to develop W3C-compliant code, including XHTML 1.0 Transitional 12.2.1
2. Add images to web pages and create image maps using GUI site development applications 12.2.2
3. Apply text, tables, and hyperlinks to Web pages using GUI site development applications 12.2.3
4. Create Web forms using GUI site development applications 12.2.4
5. Create page and site templates using GUI site development applications 12.2.5
6. Apply CSS to page and site templates using GUI site development applications 12.2.6
7. Apply page and site templates to new pages using GUI site development applications 12.2.7
8. Discover and validate source code using GUI site development applications 12.2.8
9. Use GUI site development applications to enforce compliance with accessibility standards 12.2.9
10. Create rollover images on a Web page 12.2.10

Web Pages with Homesite 5.5

13.1 Define terminology

1. Prepare a list of terms with definitions 13.1.1

13.2 Identify basic HTML and XHTML (X/HTML) to develop a series of Web pages

1. Identify X/HTML code to create a static Web page with text and images 13.2.1

13.3 Identify image files, and the use of images in X/HTML pages and site design

1. Insert image files in Web pages using X/HTML 13.3.1

13.4 Identify Web sites using GUI site development applications

1. Compare and connect site development site development using X/HTML text editors to using GUI site management applications 13.4.1
2. Explain site development applications to develop W3C-compliant code, including XHTML 1.0 Transitional 13.4.2

Image Editing with Fireworks

14.1 Define terminology

1. Prepare a list of terms with definitions 14.1.1

14.2 Examine image files in Fireworks

1. Use image-editing software to create functional images that complement your page/site 14.2.1
2. Perform common image manipulation functions (includes cropping, rasterizing, adding text to existing images, modifying height/width dimensions, modifying resolution, and choosing bit depths) 14.2.2
3. Create transparent and animated images (includes GIF and PNG) 14.2.3
4. Create images layers; insert image files in Web pages 14.2.4

Multimedia with Flash

15.1 Define terminology

1. Prepare a list of terms with definitions 15.1.1

15.2 Use multimedia and plug-in technologies to enhance a Web site

1. Examine Shockwave-Flash (SWF) technology features (includes animation, streaming, timelines, and layers) and authoring software 15.2.1
2. Use SWF-authoring software to create animations, add buttons, perform "tweening", create movie clips, and apply masks 15.2.2
3. Explain Scalable Vector Graphics (SVG) characteristics (includes XML-based, two-dimensional, searchable, scalable, and zoom support) 15.2.3
4. Experiment with adding SWF animation files and SVG files to X/HTML pages 15.2.4
5. Explain strategies and benefits of using SWF and SVG technologies in training industry/instructional design to facilitate 15.2.5
6. Apply plug-in/viewer technology to Web pages to support various files types industry/instructional design to facilitate (includes Portable Document Format [PDF], Scalable Vector Graphics [SVG], and Flash SWF technologies) 15.2.6

15.3 Identify client-side and server-side programming to enhance Web site functionality

1. Connect and contrast client-side and server-side technologies used to create dynamic content for Web pages 15.3.1
2. Use JavaScript to detect browsers, redirect pages, preload pages, and confirm user choices 15.3.2

JavaScript and DHTML Fundamentals

16.1 Define terminology

1. Prepare a list of terms with definitions 16.1.1

16.2 Identify client-side and server-side programming to enhance Website functionality

1. Connect and contrast client-side and server-side technologies used to create dynamic content for Web pages `16.2.1`
2. Explain common JavaScript objects, properties, and methods `16.2.2`
3. Use JavaScript to detect browsers, redirect pages, preload pages, and confirm user choices `16.2.3`
4. Use JavaScript dot notation to access X/HTML objects `16.2.4`
5. Create rollover images on a Webpage using scripting technology `16.2.5`
6. Explain Dynamic HTML (DHTML) and the technologies it requires, and identify browser-specific DHTML code for use with Microsoft Internet Explorer, Netscape, and Mozilla `16.2.6`
7. Use XML to create a basic Web application (e.g., Really Simple Syndication [RSS] newsfeed) `16.2.7`

Plug-Ins and Java Applets

17.1 Define terminology

1. Prepare a list of terms with definitions `17.1.1`

17.2 Use multimedia and plug-in technologies to enhance a Web site

1. Create an X/HTML link to a downloadable file `17.2.1`
2. Create rich media streaming ads and compare them to conventional online ads (includes considering bandwidth limitations) `17.2.2`
3. Examine Java applet functionality, and create an animated applet for display on a Web site `17.2.3`

HTTP Servers, Web Applications, and Database

18.1 Define terminology

1. Prepare a list of terms with definitions `18.1.1`

18.2 Identify client-side and server-side programming to enhance Website functionality

1. Connect and contrast client-side and server-side technologies used to create dynamic content for Web pages `18.2.1`

18.3 Identify client-side and server-side programming to enhance Website functionality

1. Explain how XML is used to create a basic side programming to enhance Web application (e.g., Really Simple Website functionality Syndication [RSS], newsfeed) 18.3.1
2. Explain Secure XML 18.3.2
3. Explain how Common Gateway Interface (CGI) is used to process Web Forms 18.3.3
4. Explain the use of cookies to enhance Web site functionality 18.3.4

18.4 Identify how to connect Web pages to a database

1. Explain the elements of a database and their functionality 18.4.1
2. Explain general database query types 18.4.2
3. Explain the three Database Management System (DBMS) types 18.4.3
4. Compare information types that can be contained in a database, including X/HTML, images, XML, and inventories 18.4.4
5. Connect to a Web page to a database using various methods 18.4.5

Web Site Publishing and Maintenance

19.1 Define terminology

1. Prepare a list of terms with definitions 19.1.1

19.2 Identify how to publish and maintain a production Web site

1. Explain how to use a staging/mockup server to test a site (includes advantages, hardware/software choices, and configurations) 19.2.1
2. Compare in-house Web site hosting to hosting with an Internet Service Provider (ISP) or Application Service Provider (ASP) 19.2.2
3. Publish a Web site using an FTP client 19.2.3
4. Create and configure Domain Name System (DNS) entries (includes subdomains, and shared domains) 19.2.4
5. Explain site security issues, including attacks (social engineering, denial of service, and brute force) and ways to thwart them 19.2.5
6. Explain how to maintain a Web site (includes user feedback, and auto and manual link checking) 19.2.6
7. Show how to document changes to a site 19.2.7