

**PELLISSIPPI STATE COMMUNITY COLLEGE  
MASTER SYLLABUS**

**ACCESSIBLE WEB DESIGN & COMPLIANCE  
WEB 2401**

**Class Hours: 3.0**

**Credit Hours: 3.0**

**Laboratory Hours: 0.0**

**Revised: Fall 2013**

Note: This course is not designed for transfer credit.

**Catalog Course Description:**

This advanced course teaches authoring and design of Web pages and sites that comply with various standards, guidelines, and regulations. It examines legal requirements and emphasizes best practices and techniques for industry and e-commerce solutions. Web sites are reviewed for accessibility and usability. Students learn to apply POUR principles and universal-design concepts to their own creations, with exercises and projects that -accommodate individuals with assorted disabilities. (e.g., visual, mobility, auditory, cognitive). Case studies will be reviewed and online resources for creating and accessing Web content will be used. Site conformance, assessment, maintenance and testing will be addressed in the context of the W3C WAI Web Content Accessibility Guidelines (WCAG), Section 508, Telecommunications Act, and the ADA.

**Entry Level Standards:**

Students taking this course should be proficient in Windows XP, Vista, and/or 7, have a good working knowledge of the Internet, possess Web page development skills including HTML markup and Cascading Style Sheets, utilize an HTML editor such as Dreamweaver or FrontPage, and have experience in Adobe Acrobat document preparation. Students should be knowledgeable of Web file types, be able to submit files via email, and be prepared to upload files to a server using FTP.

**Prerequisites:**

WEB 1600 or WEB 2703 or consent of program coordinator

**Textbook(s) and Other Course Materials:**

Joshua O-Connor. *Pro HTML5 Accessibility* (2012), 1<sup>st</sup> edition, Apress, ISBN-13: 9781430241942.  
and  
Cunningham, Kate. *Accessibility Handbook* (2012), 1<sup>st</sup> edition. O'Reilly Media. ISBN-13:  
9781449322854.

**Supplementary Materials:**

Student should purchase portable storage (flash drive, CDs) to save back-ups of their work separate from their computer hard drive.

**I. Week/Unit/Topic Basis:**

<b>Week</b>	<b>Topic</b>
1	Understanding Web Accessibility

2	Introduction to Standards, Guidelines, Recommendations
3	Overview of Assistive Technologies
4	Special Topics (Project) Web Technologies
5	Accessible Web Content
6	Accessible Web Navigation
7	Accessible Data input
8	Using CSS to maximize accessibility
9	Interactive Design elements
10	Publishing and Maintaining Accessible Web Sites
11	Adobe Acrobat Accessibility
12	Designing Accessible Forms
13	Multimedia, Audio/Video, Captioning
14	Accessibility Testing, Retrofitting, Case studies
15	Final Exam, Projects and Evaluations

## **II. Course Goal\*:**

The course will:

- A. Understand accessibility issues and factors that influence accessible web design. V
- B. Understand the principles of Universal Design and implement strategies to promote universal access. III,V
- C. Learn how Assistive Technologies assist disabled users in accessing the Web. V
- D. Understand and apply W3C recommendations in creating accessible Web content. II, III, IV,V
- E. Use Cascading Style Sheets to separate content from presentation. I, II
- F. Write usable, accessible and standards-compliant X/HTML markup. I, III, IV
- G. Understand Web accessibility in the realm of business and e-commerce. I, V
- H. Use Adobe Acrobat to create accessible PDF documents and forms. I, II, III
- I. Create accessible multimedia and effective alternative content. I, II, III, IV
- J. Utilize assessment tools and techniques to verify Web content. II, IV
- K. Understand US and International Accessibility Law as it applies to Internet. V

\*Roman numerals after course objectives reference goals of the Web Technology program.

### III. Expected Student Learning Outcomes\*:

The student will be able to:

1. Create valid, well-formed, standards-compliant web pages. D,F
2. Understand the barriers to access of various disability groups including blind, deaf, vision and mobility-impaired, and learning disabled users. A,B,C,D
3. Understand assistive technologies utilized by users with disabilities. A,B,C,D
4. Implement consistent, predictable, and accessible site navigation. B,D,F
5. Create tagged PDF documents. H
6. Design accessible PDF and XHTML forms. D,F,H
7. Set accessibility features in Adobe Reader and Adobe Acrobat. H
8. Distinguish accessible and inaccessible web pages via markup. B,G
9. Design ADA and Section 508 compliant web sites. A,B,D,K
10. Understand User Agent and Authoring Tool Accessibility Guidelines. A,B,D,K
11. Distinguish between WCAG 1.0 and WCAG 2.0 (Working Draft) Recommendations. D
12. Design for various screen sizes, display devices and alternate-input devices. A,D
13. Understand basic captioning for several popular multimedia formats. C,J,K
14. Recognize SMIL and SAMI files. I
15. Interpret W3C Recommendations for Web technologies and apply them to Web content. D
16. Use and understand assistive technology terminology and acronyms. C
17. Be familiar with worldwide accessibility initiatives. D,K
18. Use appropriate alternative text to describe non-text content. D,G
19. Use CSS to separate content from presentation. F
20. Explain the technical and financial benefits of designing accessible websites. H
21. Learn how disabled users access web content using assistive technologies. C,J,K
22. Describe color considerations in Web Design. B
23. Ensure sufficient color contrast for users with color deficits. B,J
24. Use metadata and markup to facilitate searches and optimize page rank. E,G,H
25. Use semantic markup to achieve meaningful and identifiable web content. K
26. Understand usability testing methods. B

27. Adjust accessibility options in various User Agents and Authoring Tools. B,G
28. Understand accessible JavaScript techniques. A,F
29. Learn techniques to create and publish accessible Microsoft Office documents to the Web. A,I
30. Create a simple XML document, RSS feed, and podcasts using free applications. I
31. Extend the functionality of several browsers using extensions and add-ins to assist in analyzing web pages for accessibility. J,K
32. Use effective link text and headings to assist navigation. A,B
33. Evaluate web pages/sites for accessibility and prioritize repairs. J
34. Learn to retrofit inaccessible web pages. A,B, D
35. Implement accessible markup for XHTML content (tables, forms, objects, etc.). D,F
36. Use XHTML form elements and attributes to create accessible forms. D,F
37. Use XHTML table elements and attributes to create accessible data tables. D,F
38. Create web pages using relative font sizes and utilize appropriate fonts and font properties to attain maximum usability. A,B,F,G
39. Review case law as it applies to the Web. G,K
40. Learn the financial and consumer benefits to e-Commerce in constructing accessible web sites. G,K
41. Understand the benefits of Cascading Style Sheet (CSS) positioning over layout tables. E
42. Create and apply CSS rules and media-specific stylesheets. E
43. Understand how screen readers "read the Web." C
44. Understand AJAX accessibility issues. A,D
45. Create a style guide to effect usability. E,F
46. Understand the fundamentals of Web graphics. A,B
47. Use headings, lists, breadcrumbs, and "skip links" to improve usability and navigation. A,B,F
48. Ensure web pages linearize logically with coherent reading order. A,B
49. Learn how to use automated evaluation tools to check for validity and well-formedness. J,K
50. Plan the Information Architecture of a site to enhance usability. A,B
51. Understand the benefits and drawbacks of frames. A,B,D
52. Create accessible framed web pages. A,B

- 53. Avoid screen flicker for users with seizure disorders. A,B,D
- 54. Understand techniques for producing accessible rich media. J
- 55. Explain the difference between captions, subtitles, and dubbing. A,B,J

\* Capital letters after Expected Student Learning Outcomes reference the course goals listed above.

**IV. Evaluation:**

A. Testing Procedures:

25 percent of grade. Weekly quizzes will be built into the course. Due to security issues in online testing, the weighting of the quizzes will be minor in relation to the overall grade for the course. The purpose of the online quizzes is to encourage the student to work through the exercises and to become familiar with the textbook chapter content. The quiz items will be randomly generated from a bank of quiz items; each student may receive a different set of quiz questions over a specific topic.

B. Laboratory Expectations:

N/A

C. Field Work:

N/A

D. Other Evaluation Methods:

- Projects/Assignments: 60 percent of grade. Students will be given 8-10 chapter-based projects and 2 broad-based projects. The projects will be completed in the course of reading and working through the textbook. The files will be sent weekly through the online course delivery dropbox utility or uploaded to the server.
- Online Communication Tools: 15 percent of grade. Students will use email and course discussion board to communicate with the instructor and with each other. Discussion topics will enhance course material in the context of real-world applications and current events.

E. Grading Scale:

A	90-100%
B+	85-89%
B	80-84 %
C+	75-79%
C	70-74 %
D	60-69 %
F	0-59 %

**V. Policies:**

A. Attendance Policy:

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75

percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of the Learning Division, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of Academic Affairs.

#### B. Academic Dishonesty:

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices:

- Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.
- Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
- Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented as one's own work.
- Taking an exam for another student.
- Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
- Any of the above occurring within the Web or distance learning environment.

Please see the Pellissippi State Policies and Procedures Manual, Policy 04:02:00 Academic/Classroom Conduct and Disciplinary Sanctions for the complete policy.

#### C. Accommodations for disabilities:

Students that need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by sending email to [disabilityservices@pstcc.edu](mailto:disabilityservices@pstcc.edu), or visiting Goins 127, 132, 134, 135, 131. More information is available at <http://www.pstcc.edu/sswd/>.

#### D. Other Policies:

**Facilities:** Students must have a valid Pellissippi ID to be presented on demand to gain access to Pellissippi facilities.

#### **Hardware/Software Requirements for this Course**

##### **PC criteria:**

###### Hardware:

- Intel Pentium 4, Intel Centrino, Intel Xeon, or Intel Core Duo (or compatible) processor.
- Microsoft Windows XP with Service Pack 2 or Windows Vista Home Premium, Business or Windows 7
- 1 GB of RAM

- 5 GB of available hard-disk space
- 1024 x 768 monitor resolution with 16-bit video card
- CD-ROM drive (DVD preferred)
- High-speed Internet connection such as cable modem or DSL recommended
- Speakers

Software:

- Internet Explorer 6.0 (or higher) with Outlook Express
- Shockwave and Flash players.
- Adobe Acrobat Reader 8.0 or better.

**Macintosh criteria:**

Hardware:

- Power G4 or G5 or multicore Intel processor
- Mac OS X v.10.4.8 (or higher)
- 1 GB of RAM
- 7 GB of available hard-disk space
- 1024 x 768 monitor resolution with 16-bit video card
- CD-ROM (DVD preferred)
- High-speed Internet connection such as cable modem or DSL recommended
- Speakers

Software:

- QuickTime 7.0.4 or better
- Adobe Acrobat Reader 8 or better.
- Adobe Flash player

Free Open Source Software (FOSS): Students will be required to download and install various free programs, extensions/add-ins to their personal computer.

**Internet access is required for full implementation of the courseware**