

CompuScholar, Inc.

Alignment to Tennessee **Web Design Foundations** Standards

Tennessee Course Details:

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| Course Name: | Web Design Foundations |
| Primary Career Cluster: | Information Technology (IT) |
| Course Code: | C10H16 |
| Credit: | 1 |
| Grade Level: | 10 |
| Standards Link: | cte_std_web_design_foundations.pdf |

CompuScholar Course Details:

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| Course Title: | Web Design |
| Course ISBN: | 978-0-9887070-3-0 |
| Course Year: | 2020 |

Note 1: Citation(s) listed may represent a subset of the instances where objectives are met throughout the course.

Note 2: Citation(s) for a "Lesson" refer to the "Lesson Text" elements and associated "Activities" within the course, unless otherwise noted. The "Instructional Video" components are supplements designed to introduce or re-enforce the main lesson concepts, and the Lesson Text contains full details.

Course Description

Web Design Foundations is a course that prepares students with work-related web design skills for advancement into postsecondary education and industry. The course is intended to develop fundamental skills in both theory and practical application of the basic web design and development process, project management and teamwork, troubleshooting and problem solving, and interpersonal skill development. Laboratory facilities and experiences simulate those found in the web design and development industry; where interaction with a "client" is indicated in the standards, it is expected that students' peers or the instructor may serve as mock clients in lieu of an actual relationship with an industry partner. Upon completion of this course, proficient students will be prepared for more advanced coursework in the Web Design program of study. Standards in this course are aligned with Tennessee State Standards for English Language Arts & Literacy in Technical Subjects and Tennessee State Standards in Mathematics.*

Course Standards

| Safety | CITATION(S) |
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| 1) Accurately read, interpret, and demonstrate adherence to safety rules, including rules published by the (1) National Science Teachers Association (NSTA), (2) rules pertaining to electrical safety, (3) Internet safety, (4) Occupational Safety and Health Administration (OSHA) guidelines, and (5) state and national code requirements. Be able to distinguish between rules and explain why certain rules apply. | Chapter 16, Lessons 1 and 2 for Internet safety and security; n/a for the rest. |

| Client Relations | CITATION(S) |
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| 2) Create a questionnaire and conduct an interview with a client to gather specific information to guide the web development project. Develop interview questions that will determine the purpose; target audience; branding and perception goals; content sources; and any factors that will affect the project schedule. | Supplemental Lesson 4 Supplemental Activity 4 |
| 3) Using the information gathered from the client interview, write a project brief that identifies the goals, audience profile, audience perception, primary message of the web site, and the competitive advantage of the client. Allow the client to review the project brief and make corrections based on client feedback. | Supplemental Lesson 4 Supplemental Activity 4 |
| 4) Research the specifications that will be required to produce a web site that meets the needs of the project brief. Using the findings, produce technical specifications for the web site. For example, the specifications should consider the screen resolution, browser compatibility, download time for the web site, and accessibility. | Supplemental Lesson 4 Supplemental Activity 4 |
| 5) Demonstrate an understanding of maintenance requirements for a web site that is aligned with the project brief. Develop a plan that thoroughly describes how the site will be consistently updated and reviewed. Write a text explaining the maintenance requirements and plan to a client. For example, a web site maintenance plan should include, but is not limited to, any automated processes for changing content, required training for content contributors, and assignments for specific updates (e.g., keyword, search engine, Meta data, and graphics). | Supplemental Lesson 4 Supplemental Activity 4 |

| Site Mapping | CITATION(S) |
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| 6) Conduct a brainstorming session to solicit a client's feedback on web site content. Create an outline that organizes the content into categories. Ensure that the outline is aligned with the project brief and that there is space for future expansion. Present the outline to the client for review and approval. For example, use a mind mapping process to capture all the ideas and topics for a web site development project. | Supplemental Lesson 4 Supplemental Activity 4 |

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| 7) Applying the content outline, develop a diagram that visually represents the web site structure. The site map (or web site wireframe) should show the interconnection of features such as the homepage, links, and content for each link. For example, use software like Google Drawings, Microsoft Visio, OmniGiraffe, Adobe Illustrator, or Microsoft Office to create a web site wireframe. | Chapter 13, Lesson 1 (Site Maps and Storyboards) Chapters 14 and 28 |
| 8) Convert the web site wireframes to individual web page wireframes. A wireframe should consider each element (e.g., navigation, images, content, functionality, and footer) and group the information of its corresponding page. | Chapter 10, Lesson 1 Chapter 13, Lesson 1 Chapters 14 and 28 |

| Copyright/Licensing | CITATION(S) |
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| 9) Explore the use of stock images and demonstrate an understanding of the various types of stock images like stock photography, microstock photography, and free (e.g., open source) images. Identify the advantages and disadvantages of using these images. | Chapter 11, Lesson 1 Chapter 16, Lesson 1 |
| 10) Compare and contrast royalty-free and rights-managed licensing and explain how each licensing affects the use of images. Research and describe the process to obtain permission to use copyrighted photography. | Chapter 11, Lesson 1 Chapter 16, Lesson 1 |
| 11) Investigate multiple photosharing services and how they embed metadata within images to assist in keyword searches. As a class, create a photosharing system (class use only) for student- created images that include embedded metadata. | n/a |

| Introduction to Design and Layout | CITATION(S) |
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| 12) Demonstrate an understanding for how specific characteristics affect the quality and size of a digital image. Define the following terminology and explain their effects on digital images: | See below |
| a. Pixels | Chapter 6, Lesson 2 Chapter 11, Lesson 1 |
| b. Color depth | Chapter 6, Lesson 2 Chapter 11, Lesson 1 |
| c. Resolution | Chapter 6, Lesson 2 Chapter 11, Lesson 1 |
| d. Palettes | Chapter 6, Lesson 2 Chapter 11, Lesson 1 |
| e. Dithering | Chapter 11, Lesson 1 |
| 13) Compare and contrast raster and vector graphics and provide scenarios when it is best to use each format. Further, explore their applications to vector-based drawing and paint programs. Describe advantages and disadvantages of using each program type. | Chapter 11, Lesson 1 |

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| 14) Research and identify the extensions of various image file formats like Bitmap, Tagged Image File Format, Windows Metafile, Joint Photographic Experts Group, Portable Network Graphics, and Graphics Interchange Format. Describe which file formats are supported by all browsers and which formats require special software or a plug-in to view an image. Explain when it is most appropriate to apply specific image file formats. | Chapter 11, Lesson 1 |
| 15) In teams, investigate image optimization and its importance. Describe how file formats influence image optimization and identify optimization guidelines and sources to apply to web graphics. | Chapter 11, Lesson 1 Chapter 11, Activity 1 |
| 16) Explain the graphic design concept of composition. Include various applications like visual hierarchy, grouping, visual cues, and integration of elements. | Chapter 10, Lesson 1 |
| 17) Explore the use of grid-based layout and why it is used to create coherent, organized web pages. Give examples of when it is suitable to use one-, two-, and three-column layouts to display content. For example, research and discuss how the golden ratio (golden mean) is used to create a design grid. | Chapter 10, Lesson 1 |
| 18) Drawing on multiple resources, demonstrate an understanding of typography, including related definitions like measure and lead. Explain a designer's application of the following typography characteristics to create balance and relationship between elements on a web page. | Chapter 10, Lesson 1 |
| a. Legibility | Chapter 10, Lesson 1 |
| b. Typeface | Chapter 10, Lesson 1 |
| c. Case | Chapter 10, Lesson 1 |
| d. Emphasis | Chapter 10, Lesson 1 |
| e. Type size and accessibility | Chapter 10, Lesson 1 |

| Composition | CITATION(S) |
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| 19) Conduct research to determine how various colors are perceived by specific audiences and cultures. Citing evidence from research findings, explain the following concepts: | Chapter 10, Activity 1 |
| a. Symbols, objects and images that attract or repel audiences | Chapter 10, Activity 1 |
| b. Color combinations that complement each other | Chapter 10, Activity 1 |
| c. Smooth color transitions and the effects on download time | Chapter 21, Lesson 2 |

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| 20) Demonstrate an understanding of the relationship between pixels and display color. Explain how black and white are each created using color schemes CMYK (cyan, magenta, yellow, and black) and RGB (red, green, blue) respectively. Furthermore, describe the differences between subtractive and additive colors and how they are applied to print media versus a computer monitor display. | Chapter 6, Lesson 2 |
| 21) Consider the two standardized numeric formats for color on the computer screen—RGB values and Hexadecimal code. Compare and contrast the format of values for each and briefly explain how they are applied to represent color. | Chapter 6, Lesson 2 |

| Writing, Critiquing, and Publishing Content for the Web | CITATION(S) |
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| 22) In teams, research writing styles on various web sites (include sites of well-known organizations and companies). Identify characteristics that are consistently used and include examples of what made the text memorable and easy to scan. Use the research findings to create guidelines for the class to apply to upcoming web design and development projects. During the survey of writing styles on the web, take notice of the following: | Chapter 14, Lesson 1 Chapter 17, Activity 1 |
| a. Location of important information on the page | Chapter 14, Lesson 1 Chapter 17, Activity 1 |
| b. Use of bulleted lists and tables | Chapter 14, Lesson 1 Chapter 17, Activity 1 |
| c. Length and simplicity of paragraphs | Chapter 14, Lesson 1 Chapter 17, Activity 1 |
| d. Headlines and introduction sentences | Chapter 14, Lesson 1 Chapter 17, Activity 1 |
| e. Tone and voice used | Chapter 14, Lesson 1 Chapter 17, Activity 1 |
| f. Accuracy of information (current or outdated) | Chapter 14, Lesson 1 Chapter 17, Activity 1 |
| 23) Given a specific topic from a web development project, write content for a web page and apply the class writing guidelines. Proofread and rewrite the content to align with the class guidelines. Give the writing assignment to multiple classmates for review. Revise the content based on reviewer feedback. Follow this multistep process until the written product is appropriate for publication on a web site. | Chapter 14, Lesson / Activity 2 Chapter 14, Lesson / Activity 3 Chapter 28 |

| Marketing, Branding, Identity, and eCommerce | CITATION(S) |
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| 24) Research various logos of well-known companies and organizations on the web. Identify shapes and colors that are consistently used and include examples of what made the logos unique, attractive, and memorable. | Chapter 10, Activity 1 |

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| 25) Drawing from various resources, identify several ways that a web designer can apply and strengthen brand management and identity. Consider the concepts consistent color and logo placement and explain the application of each. | Chapter 10, Activity 1 |
| 26) Investigate how to setup and implement a secure e-commerce site. Citing evidence from reliable resources, describe 1) measures to prevent shopping cart vulnerabilities, 2) pre-built shopping software, and 3) hosting options for shopping cart software. | n/a |
| 27) In teams, examine how demographics, psychographics, and audience data are used to market a product or service online. Using this information, create a questionnaire to survey people about a product or service. For example, the questionnaire could survey alternative promotion methods, market growth drivers and barriers. | n/a |
| 28) As a team, use the survey results and develop a marketing plan that identifies the following for a web development project. | n/a |
| a. Promotions for both global (mass) and niche (micro) markets | n/a |
| b. Web marketing strategies and goals | n/a |
| c. Market growth drivers and barriers | n/a |
| d. Product distribution and availability | n/a |
| e. Product or service pricing | n/a |
| f. Advertising options to be used (e.g., links, banner ads, viral marketing, social media) | n/a |

| Introducing Coding Skills | CITATION(S) |
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| 29) Research the history of markup languages; briefly describe the function of markup languages and why they are different from programming languages. | Chapter 1, Lesson 2 |
| 30) Explore the origin of the HTML standard and creation of the World Wide Web Consortium (W3C). Discuss the six versions of the HTML standard and how each differs from the other. Explain the role of standardization and provide examples of how it promotes universality for all web users. | Chapter 1, Lesson 2 |
| 31) Define HTML tags distinguishing between empty tags and container tags. Explain their application to web development, why Hypertext Markup Language (HTML) evolved, and provide examples of tags frequently used. Create a simple web page that consists of paragraph text, text hyperlinks, tables, and elements in frames. | Chapter 2, Lesson 3 Students will learn new tags and create multiple web pages throughout the course. |
| 32) Demonstrate understanding of Cascading Style Sheets (CSS). Investigate and report how CSS separate formatting elements from HTML and solve a number of design limitations like: | Chapter 6 |
| a. Proprietary HTML extensions | Chapter 6, Lesson 1 |

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| b. Text-to-image conversion to retain fonts | Chapter 6, Lesson 1 Chapter 20, Lesson 4 |
| c. Page layout using tables | Chapter 12 |
| d. Images controlling white space | Chapter 6, Lesson 1 |
| 33) Explore the use of Cascading Style Sheets (CSS) for page layout and cite evidence why CSS provides more flexible and precise layout capabilities than tables and frames. Explain and demonstrate coding for the following elements of CSS page layout. | Students will use CSS from Chapter 6 onwards in multiple coding projects. |
| a. CSS Box Model (e.g., inline, block) | Chapter 4, Lesson 1 |
| b. Document Flow and Positioning (e.g., static, relative, absolute, fixed, float, z-index) | Chapter 9 |
| c. CSS Positioning Schemes (e.g., two-column layout, three-column layout) | Chapter 9, Lesson 4 |

| Organization | CITATION(S) |
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| 34) As a class, define the guidelines for effective use of file and folder management techniques to maintain directory structure for forthcoming web site class projects. The guidelines should address efficient methods for maintaining site root and subfolders for assets (e.g., images, templates, CSS), as well as the correct way to use file paths for relative, site root relative, and absolute links. | Chapter 1, Lesson 3 Chapter 2, Lesson 1 Chapter 5, Lesson 2 Chapter 5, Lesson 4 Chapter 6, Lesson 5 Chapter 11, Activity 1 Chapter 25, Lesson 4 |

| Troubleshooting & Problem Solving | CITATION(S) |
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| 35) Troubleshooting and formal testing is a systematic quality assurance process and should be routinely completed throughout the life cycle of a web site. There are various multistep testing procedures for a web site. The following recommendations provide a general approach to testing: | Chapter 14, Lesson / Activity 3 Students are given troubleshooting tips throughout the course (e.g. Chapter 3, Lesson 2; Chapter 6 Activity; Chapter 12, Lesson 1; Chapter 25, Lesson 3) |
| a. Review the content for accuracy, spelling, and grammar | Chapter 14, Lesson / Activity 3 |
| b. Review site for broken links | Chapter 14, Lesson / Activity 3 Supplemental Lesson 9 |
| c. Test the functionality of the web site as defined by the project specifications | Chapter 14, Lesson / Activity 3 |

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| d. Validate the HTML and CSS coding | Chapter 14, Lesson / Activity 3 Supplemental Lesson 9 |
| e. Check the accessibility using automated tools | n/a |
| f. Test site on various browsers that the target audience uses | Chapter 14, Lesson / Activity 3 |
| g. Analyze the connection speed and size of web pages | Supplemental Lesson 9 |
| h. Conduct usability testing with target audience | Chapter 14, Lesson / Activity 3 |
| i. Work with the server administrator to conduct load testing | n/a |
| j. Conduct authentication testing and review file authorizations | n/a |
| As a class, develop a quality assurance plan that incorporates the above testing procedures, as well as outlines how the testing will be managed, how the issues will be prioritized, and how problems will be solved. | Chapter 14, Lesson / Activity 3 |

| From SECTION I(3) of the "Web Design Screening Instrument1-9-15": POSTSECONDARY AND CAREER READINESS | CITATION(S) |
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| A. Technical skills are promoted within the context of applicable industries and work environments. They are not presented in isolation or without meaningful connections to aligned careers. | Chapters 14 and 28 Supplemental Lesson 4 Supplemental Lesson 8 Supplemental Lesson 13 |
| B. Materials showcase a diversity of career and postsecondary opportunities for students upon completion of high school, including all applicable levels of postsecondary training (i.e., technical schools, community colleges, four-year universities, etc.). | Supplemental Lesson 8 Supplemental Lesson 13 |
| C. Connections to relevant certifications and other credentials are clearly explained, and their value in industry is communicated where appropriate. | Supplemental Lesson 8 |
| D. Materials provide opportunities for students to practice and reflect upon 21st century (or "soft") skills. | Chapters 14 and 28 Supplemental Lesson 4 Supplemental Lesson 8 Supplemental Lesson 13 |