# Web Design Foundations

Level 2: Student may have explored previously; first pathway specific course
Pathway(s): Web Design

## Description

This course allows for advanced work in the Coding Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student. It may include project based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor in collaboration with the individual student.

## Student Learning Outcomes

### Digital Citizenship

1) Engage in online activities that follow appropriate behavioral, communication, and privacy guidelines, including ethics, personal security, appropriate language d to be used by the intended audience, and ethical use of files and file sharing
2) Implement online security guidelines, including identity protection, limited personal information sharing, and password protection of a secure website
3) Engage in safe, legal, and responsible use of information and technology
4) Understand and respond to local, state, national and global issues to ensure appropriate cross-browser and cross-platform usability
5) Interpret, use, and develop a safe online sharing computing environment
6) Identify legal, ethical, appropriate, and safe multimedia usage, including video, audio, graphics, animation, and emerging trends
7) Analyze the impact of the World Wide Web on society

### Client Relations

8) Gather specific information, (e.g., purpose, target audience, branding and perception goals, content sources, any factors that might affect the project schedule) to guide a web development project
9) Write a project brief that identifies goals, audience perception, primary message of the web site, and the competitive advantage of the client.
10) Produce technical specifications for a web site (e.g., screen resolution, browser compatibility, download time, and accessibility) based on a project brief.
11) Demonstrate an understanding of maintenance requirements for a web site (e.g., automated processes for changing content, required training for content contributors, assignments for specific updates)

### Site Mapping

12) Use a mind mapping process (or similar process) to capture all the ideas and topics for a web site development project
13) Create a web site wireframe/site map that shows interconnection of features such as the homepage, links, and content for each link

14) Convert a web site wireframe into individual web page wireframes considering each element (e.g., navigation, images, content, functionality, and footer) and group the information of its corresponding page

## Copyright/Licensing

15) Explore the use of stock images and demonstrate an understanding of the various types of stock images like stock photography, microstock photography, and free images. Identify the advantages and disadvantages to using these images
16) Compare and contrast royalty-free and rights-managed licensing and explain how each licensing affects the use of images.
17) Describe the process to obtain permission to use copyrighted photography
18) Investigate photosharing services and how they embed metadata within images to assist in keyword searches

## Introduction to Design and Layout

19) Demonstrate an understanding how specific characteristics affect the quality and size of a digital image, such as pixels, color depth, resolution, palettes, and dithering.
20) Compare and contrast raster and vector graphics and provide scenarios when it is best to use each format.
21) Research and identify the extensions of various 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 for which formats require special software or a plug-in to view an image.
22) Investigate image optimization and its importance
23) Explain the graphic design concept of composition. Include various applications like visual hierarchy, grouping, visual cues, and integration of elements.
24) Explore the use of grid-based layouts 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.
25) 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
    a. Legibility
    b. Typeface
    c. Case
    d. Emphasis
    e. Type size and accessibility

## Composition

26) Determine how various colors are perceived by specific audiences and cultures. Explain the following concepts
    a. Symbols, objects and images that attract or repel audiences
    b. Color combinations that complement each other
    c. Smooth color transitions and the effects on download time

27) Demonstrate an understanding of the relationships 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. Further describe the differences between subtractive and additive colors and how they are applied to print media versus a computer monitor display

28) 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.

## Writing, Critiquing, and Publishing Content for the Web

29) Research writing styles on various web sites. Identify characteristics that are consistently used and include examples of what make text memorable and easy to scan. Take notice of
   a. Location of important information on the page
   b. Use of bulleted lists and tables
   c. Length and simplicity of paragraphs
   d. Headlines and introduction sentences
   e. Tone and voice used
   f. Accuracy of information

30) Write content for a web page and revise based on reviewer feedback.

31) Follow the multistep process until the written product is appropriate for publication on a web site

## Marketing, Branding, Identity, and eCommerce

32) 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

33) Identify several ways that a web designer can apply and strengthen brand management and identity

34) Investigate how to setup and implement a secure e-commerce site. Describe
   a. Measures to prevent shopping cart vulnerabilities
   b. Pre-built shopping software
   c. Hosting options for shopping cart software

35) Examine how demographics, psychographics, and audience data are used to market a product or service.

36) Develop a marketing plan that identifies the following for a web development project
   a. Promotions for both global (mass) and niche (micro) markets
   b. Web marketing strategies and goals
   c. Marketing growth drivers and barriers
   d. Production distribution and availability
   e. Product or service pricing
   f. Advertising options to be used (e.g., links, banners ads, viral marketing, social media)

## Introducing Coding Skills

37) Describe the function of markup languages and why they are different from programming languages.

38) 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.
39) 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.
    a. Create a simple web page that consists of paragraph text, text hyperlinks, tables, and elements in frames
40) Demonstrate an understanding of Cascading Style Sheets (CSS). Investigate how CSS separate formatting elements from HTML and solve a number of design limitations like
    a. Proprietary HTLM extensions
    b. Text-to-image conversions to retain fonts
    c. Page layout using tables
    d. Images controlling white space
41) Explore the use of Cascading Style Sheets (CSS) for page layout. Explain and demonstrate coding for the following elements of CSS page layout
    a. CSS Box Model (e.g., inline, block)
    b. Document Flow and Positioning (e.g., static, relative, absolute, fixed, float, z-index)
    c. CSS Positioning Schemes (e.g., two-column layout, three-column layout)

## Organization
42) As a class, define the guidelines for effective use of file and folder management techniques to maintain directory structure for web site 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

## Troubleshooting & Problem Solving
43) Routinely complete troubleshooting and formal testing throughout the development of a web site. Develop a quality assurance plan that incorporates a testing procedure similar to the following
    a. Review the content for accuracy, spelling, and grammar
    b. Review site for broken links
    c. Test the functionality of the web site as defined by the project specifications
    d. Validate the HTML and CSS coding
    e. Check the accessibility using automated tools
    f. Test site on various browsers that the target audience uses
    g. Analyze the connection speed and size of web pages
    h. Conduct usability testing with target audience
    i. Work with server administrator to conduct load testing
    j. Conduct authentication testing and review file authorization