

# STRANDS AND STANDARDS

## WEB DEVELOPMENT 1



### Course Description

Web Development 1 is a course designed to guide students in a project-based environment in the development of up-to-date concepts and skills that are used in the development of today's websites. Students will learn the fundamentals of how the Internet works. They will learn and use the basic building blocks of the World Wide Web: HTML5 coding and Cascading Style Sheets (CSS). Students follow the steps to create a website by planning, designing, developing, deploying, and maintaining of the website projects. Students will learn and use different scripting technologies to create more dynamic and interactive websites. They will learn what it takes for a career in Web Development as they complete projects and create their own web site(s).

<b>Intended Grade Level</b>	9-12
Units of Credit	0.5
Core Code	35.02.00.00.060
Concurrent Enrollment Core Code	None
Prerequisite	None
Skill Certification Test Numbers	893, 943, 992, 993, 994, 9940
Test Weight	0.5
<b>License Type</b>	CTE and/or Secondary Education 6-12
<b>Required Endorsement(s)</b>	
Endorsement 1 or	Web Development
Endorsement 2 or	Multimedia
Endorsement 3	Programming & Software Development

## STRAND 1

**Digital Citizenship: Students will understand the basic principles of copyright, AUP, and ethical behavior. (Suggested time proportion 5%)**

### Standard 1

Demonstrate knowledge of standard copyright rules.

- Understand copyright for original creations.
- Understand the creative commons license.
- Understand when to obtain permission for non-original work.

### Standard 2

Identify the use and purpose of acceptable use policy (AUP).

- Comply to the AUP for your school.

### Standard 3

Understand ethical behavior as it relates to an AUP, Intellectual Property, Netiquette, Respecting Privacy, Anti-Spamming Laws, etc.

## STRAND 2

**Fundamentals of HTML5: Students will demonstrate creation of “well formed” web pages. (Suggested time proportion 40%)**

### Standard 1

Demonstrate knowledge required to develop an HTML document.

- Code the foundation for a webpage. Include the element tags DOCTYPE, html, head, title, and body.
- Structure the page using semantic and structural elements such as: header, nav, main, section, article, aside, footer, div, etc.

### Standard 2

Explain appropriate file structure and naming conventions.

- Use logical file structure to build websites.
- Incorporate appropriate naming conventions for website files.

### Standard 3

Use the DOCTYPE Declaration.

- Develop pages using the DOCTYPE declaration.

## Standard 4

Develop “well formed” web pages with appropriate HTML structure and according to W3C standards that can be validated.

- Demonstrate best practice by consistently using lowercase text for all element names.
- Properly nest elements.
- Use quotes on attribute values.

## Standard 5

Demonstrate the use of input elements and attributes.

- Create pages with tags and attributes at the block level. (html, head, body, style, header, nav, main, section, footer, div)
- Create pages with tags and attributes at the inline level. (DOCTYPE, title, h1, h2, h6, p, br, meta, etc.)
- Create web pages with text formatting, links, images, lists, tables (tabular data), etc.
- Relative Links are relative to the directory of the website. (images/photo.jpg)
- Absolute links are the exact location on the internet and contain a protocol. (http, https, ftp)
- Code special characters such as: &nbsp; &copy; &quot; &lt; &gt; &amp; &mdash;.
- Demonstrate the use of form, fieldsets, legend, buttons, text fields, checkboxes, radio buttons, and dropdown lists.

## Standard 6

Use meta tags for page documentation and search engine optimization (SEO).

- Specify page description, keywords, viewport, and author using meta tags.
- Declare encoding using meta tags.
- Understand principles of search engine optimization.

## STRAND 3

**Cascading Style Sheets (CSS): Students will format web pages using CSS.**

**(Suggested time proportion 35%)**

### Standard 1

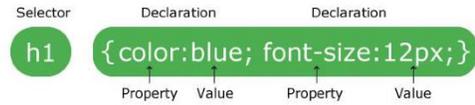
Apply CSS to your website.

- Apply CSS to an element using an inline style. (An inline style may be used to apply a unique style for a single element.)
- Apply CSS to a webpage using an internal style. (Internal style rules may be used to uniquely style a single page.)
- Apply CSS to a website using an external stylesheet. (Best Coding Practice - One file changes the entire website.)

## Standard 2

Apply essential syntax & CSS box model.

- Add style rule, declaration, selector, property value pair. Use correct css syntax : ;  
Example of a style rule.



### CSS Box Model



## Standard 3

Students will format web pages using CSS

- Modify background properties such as: color and image.
- Modify font properties such as: font-family, size, and color.
- Modify border properties such as: width, style, and color.
- Implement tags, id, & classes to modify an HTML element.
- Implement an id selector to modify a single element on the page.
- Implement selectors a: link, a:visited, a:active a:hover

## Standard 4

Format page layout using CSS.

- Use width, height, or auto to adjust the size.
- Use absolute and static to position elements.

## STRAND 4

**Site Planning: Students will plan, design, implement, and maintain website(s).**  
(Suggested time proportion 10%)

### Standard 1

Analyze Project requirements.

- Identify the purpose and audience for a website.
- Identify basic principles of website usability, readability, and accessibility.
  - Usability: Cross browser compatibility.
  - Readability: contrast, size, font, and color.
  - Accessibility standards that address the needs of people with visual and motor impairments, such as using alt tags, strong instead of bold, etc.
- Identify and follow steps in the website planning and development process.

## Standard 2

Users are the focus of all design.

- Design elements are easy to access, understand, and use.
- Keep the interface simple, create consistency, use common UI elements, placement in page layout, strategically use color and texture, use typography to help increase scannability, legibility and readability, and inform your users of location, actions, or errors.
  - Input Controls: buttons, text fields, checkboxes, radio buttons, dropdown lists
  - Navigational Components: breadcrumb, slider, search field, icons
  - Informational Components: tooltips, icons, progress bar, notifications, message boxes
- Plan a website by using sketches, wireframe, or site maps.

## STRAND 5

**The student will create and prepare images to integrate with website designs, using image editing software. (Suggested time proportion 5%)**

### Standard 1

Open, edit, and save an image for effective use on your website.

- Crop and resize various images.
- Optimize an image. (resize and change resolution for optimal load time)
- Enhance an image to improve photo quality. (red eye, auticolor, etc.)

### Standard 2

Incorporate a logo, header into Web page.

### Standard 3

Incorporate images into a Web page.

## STRAND 6

**Exploration & Preparation for Careers in Web Development: Students will explore careers in Web Development and prepare a portfolio of projects created. (Suggested time proportion 5%)**

### Standard 1

Explore IT Web Development careers.

- Identify job roles in the Information Technology (IT) industry as they apply to web development.
- Understand the responsibilities, tasks, and skills each job requires. Web Designer, Web Developer, UI/UX Designer, Front-end Web developer, Back-end Web Developer, and Full Stack Developer.

## Standard 2

Create a Student portfolio.

- Prepare an electronic portfolio of projects developed in the class.

## Performance Skills

Create a four-page website with the following minimum elements:

- Crop and resize various images
- Consistent look and feel throughout the website
- The same page heading, navigation bar, and footer on each page
- Layout with HTML5 tags (header, footer, section, article, nav, aside)
- Email link(s)
- Table(s) with table data (not used for layout)
- Background image(s) or Background color
- Hyper-link(s)
- Import graphics (jpeg/gif/png/svg)
- Form elements
- Page titles
- Font changes (color, size, style)
- Original CSS3 animation (optional)
- Add tag list
- Students should be familiar with the vocabulary list provided below.

## Workplace Skills

The following workplace skills should be discussed, taught, and re-enforced in the course:

- Communication
- Teamwork
- Critical and Creative Thinking
- Problem Solving
- Dependability
- Legal requirements / expectations

## Skill Certificate Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Web Development 1	893	2	18	14	4	2	2					42	34

## Vocabulary

<b>Strand 1 – Digital Citizenship</b>	
Creative Commons	A Creative Commons license is one of several public copyright licenses that enable the free distribution of an otherwise copyrighted "work".
AUP	(Acceptable Use Policy) A set of rules that define the way in which a network may be used.
Intellectual Property	Work that is the result of creativity to which one has rights and may apply for a copyright.
Netiquette	The correct or acceptable way of communicating on the Internet.
Anti-Spamming Laws	Commercial email messages clearly identifies that it is an advertisement, provides notice to the recipient of the ability to opt-out from further commercial email messages, and lists a valid address for a sender.
Privacy Laws	Information privacy laws or data protection laws prohibit the disclosure or misuse of information about private individuals.

<b>Strand 2 – HTML</b>	
HTML	Hypertext Markup Language. The coding scheme used to format text for use on the World Wide Web.
Semantic Elements	Clearly describes its meaning to both the browser and the developer. Example <footer>
Non-Semantic Elements	Tells nothing about its content. Example <span>, <div>, etc.
Validation (W3C)	Validating a website is the process of ensuring that the pages on the website conform to the norms or standards defined by various organizations
Elements	Is everything from the start tag to the end tag
Attributes	Attributes provide additional information about an element. Example name/value pairs like: name="value"
Tags	The HTML from < > the entire element and attribute combination.
Block Level Elements	Start on a new line and can contain other code
Inline Level Elements	Does not start on a new line and only takes up as much width as necessary
Relative Links	URLs that reference files on the same server within the same directory (folder). Does not contain a protocol (http, https, ftp, etc.)
Absolute Links	Complete internet address that takes one to the exact directory or file of a website. Starts with a protocol (http: https: ftp: etc. ) example: <a href="http://www.businessdictionary.com/definition/absolute-URL.html">http://www.businessdictionary.com/definition/absolute-URL.html</a>
Meta Elements	An HTML code that resides in the head section of a web page and includes information about the page, such as keywords, and descriptions.
Character Entities (Special Characters)	Are used to display reserved characters in HTML. Example & &nbsp;
Keywords	Are words or phrases that describe content. They can be used as metadata to describe images, text documents, database records, and Web pages.
Viewport	The viewport is the user's visible area of a web page. It varies with the device - it will be smaller on a mobile phone than on a computer screen.

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<b>Strand 3 – CSS</b>	
CSS	Used to control a web site’s text color, background colors, borders, spacing, headers, links and positioning of elements.
Inline Style	Used to apply a unique style for a single element
Internal Style	Used to uniquely style a single page
External Style	Best coding Practice   One file changes the entire website
Cascade Order	Controls which rule applies when there is a conflict. Inline, internal, external
Best Coding Practice	Are a set of informal rules set by the development community

<b>Strand 4 – Site Planning</b>	
Usability	Assesses how easy user interfaces are to use. The word "usability" also refers to methods for improving ease-of-use during the design process.
Readability	The ease with which a person can understand a passage of text. The complexity of your content, as well as the typographic elements used on your site.
Accessibility	Is the inclusive practice of ensuring there are no barriers that prevent interaction with, or access to, websites on the World Wide Web by people with physical disabilities, situational disabilities, and socio-economic restrictions on bandwidth and speed.
Cross Browser Compatibility	If your website is not tested and debugged on different platforms and browsers, it won't work the same on all of them.
Wireframe	A visual prototype of a web page that focuses on content, layout, and behavior.
UI (User Interface) Elements	They add interactivity to a user interface, providing touchpoints for the user as they navigate the website. Examples: buttons, scrollbars, menu items and checkboxes
Site Map	A list of pages of a web site.

<b>Strand 5 Image Editing</b>	
Image Resolution	To optimize an image so that it will run at its utmost capacity in terms of speed and efficiency.
Metadata	The detail an image holds. The term applies to raster digital images, film images, and other types of images. Higher resolution means more image detail. Image resolution can be measured in various ways.

<b>Strand 6 - Careers</b>	
UX (User Experience) Designer	Designers are primarily concerned with how the product feels. A given design problem has no single right answer. These designers explore many different approaches to solving a specific user problem.
UI (User Interface) Designer	Designers are particular about how the product is laid out. They are in charge of designing each screen or page with which a user interacts and ensuring that the design visually communicates the path that a UX designer has laid out.
Front End Web Developer	Person who uses CSS and image editing software to design the front end or public side of the website.
Back End Web Developer	Person who uses HTML, CSS, and JavaScript to develop Web sites.

## Code List

<!DOCTYPE html>	HTML5 Doctype	<a></a>	Inserts a link
<html></html>	Indicates the beginning and end of an HTML document.	 	Breaks a line of text at the point where the tag appears.
<title></title>	Indicates the beginning and end of the title; the title does not display in the body of the Web page but displays on the title bar of the browser.	<img>	Inserts an image
<head></head>	Indicates the beginning and end of a section of the document used for the title and other document header information.	<em></em>	For Italics for best accessibility
<body></body>	Indicates the beginning and end of the Web page body.	<strong></strong>	For Bold text and increased accessibility
<header></header>	The <header> element represents a container for introductory content.		
<footer></footer>	The <footer> tag defines a footer for a document or section. A <footer> element typically contains: authorship information, copyright information, contact information, sitemap, back to top links, and related documents	<b>Special Characters (Character Entities)</b>	
<main></main>	The <main> tag defines the main content of the page	&nbsp;	A non-breaking space is a space that will not break into a new line.
<section></section>	The <section> tag defines sections in a document, such as chapters, headers, footers, or any other sections of the document.	&copy;	©
<article></article>	The <article> tag specifies independent, self-contained content. An article should make sense on its own and it should be possible to distribute it independently from the rest of the site. Potential sources for the <article> element: Forum post, Blog post, News story, or Comment.	&quote;	"
<nav></nav>	The <nav> tag defines a set of navigation links.	&lt;	<
<aside></aside>	The <aside> tag defines some content aside from the content it is placed in. The aside content should be related to the surrounding content.	&gt;	>
<div></div>	Defines a division/section	&amp;	&
<h1></h1>	Largest Heading	&mdash;	-
<h2></h2>			
<h3></h3>		<b>CSS</b>	
<h4></h4>		Background Attributes	Color & Image
<h5></h5>		Font Attributes	type, size, and color
<h6></h6>	Smallest Heading	Border Attributes	width, style, and color
<p></p>	Paragraph	ID	Used 1 time per page
<li></li>	Indicates that the item that follows the tag is an item within a list.	Class	Used multiple times per page
<ol></ol>	Indicates the beginning and end of an ordered list.	a:link	Unvisited link
<ul></ul>	Indicates the beginning and end of an unordered (bulleted) list.	a:visited	Visited link
<table></table>	Inserts a table with data. Not to be used to format the page.	a:active	Selected Link
<td></td>	Table Data	a:hover	Selects links on mouse over
<tr></tr>	Table Row		
<th></th>	Table Header		
<hr>	Inserts a horizontal line.		