Web Development 1

Exam Information

Exam number
893

Items
32

Points
40

Prerequisites
None

Recommended course length
One semester

National Career Cluster
Information Technology

Performance standards
Included (Optional)

Certificate available
Yes

Description

The Web Development 1 industry certification exam assesses learners on their understanding of current concepts and skills in website development. The exam evaluates knowledge of how the Internet functions and proficiency in using HTML5 and Cascading Style Sheets (CSS). Learners demonstrate their understanding of how to plan, design, develop, deploy, and maintain website projects. The assessment includes knowing how to use various scripting technologies to create dynamic and interactive websites, as well as an understanding of the requirements for a career in web development through the completion of projects and creation of their own websites.

Exam Blueprint

Standard	Percentage of exam
1. Digital Citizenship	5%
2. Fundamentals of HTML5	43%
3. Cascading Sheets Style (CSS)	38%
4. Site Planning	8%
5. Image Editing	3%
6. Careers in Web Development	5%

Standard 1

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

Objective 1 Demonstrate knowledge of standard copyright rules.

1. Understand copyright for original creations.
2. Understand the Creative Commons license.
3. Understand when to obtain permission for non-original work.

Objective 2 Identify the use and purpose of acceptable use policy (AUP).

1. Understand the AUP for your school.

Objective 3 Understand ethical behavior as it relates to an AUP, intellectual property, netiquette, respecting privacy, anti-spamming laws, etc.

Standard 1 Performance Evaluation included below (Optional)

Standard 2

Fundamentals of HTML5: Students will create a multi-page website using good coding practice (Such as those found in W3Schools.) (Suggested time proportion 40%).

Objective 1 Demonstrate the knowledge required to develop an HTML document.

1. Code the foundation for a webpage. Include the element tags DOCTYPE, html, head, title, and body.
2. Structure the page using semantic and structural elements such as: header, nav, main, section, article, aside, footer, div, etc.
3. Use meta tags for page documentation.
4. Use appropriate comments.

Objective 2 Explain appropriate file structure and naming conventions.

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

Objective 3 Use the DOCTYPE Declaration.

1. Develop pages using the DOCTYPE declaration.

Objective 4 Code a website with an appropriate HTML structure and according to W3C standards that can be validated.

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

Objective 5 Demonstrate the use of input elements and attributes.

1. Create pages with tags and attributes at the block level. (HTML, head, body, style, header, nav, main, section, footer, div).
2. Create pages with tags and attributes at the inline level. (DOCTYPE, title, h1, h2, h6, p, br, meta, etc.).
3. Code a website with text formatting, links, images, lists, tables (tabular data), etc.
4. Relative Links are relative to the directory of the website. (images/photo.jpg).
5. Absolute links are the exact location on the internet and contain a protocol. (HTTP, https, ftp).
6. Code special characters such as: © " < > & —.
7. Demonstrate the use of HTML forms, buttons, text fields, checkboxes, and radio buttons. (Form does not need to submit to an actual database or email.).

Standard 2 Performance Evaluation included below (Optional)

Standard 3

Cascading Style Sheets (CSS): Students will format websites using CSS. (Suggested time proportion 35%).

Objective 1 Apply CSS to your website.

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

Objective 2 Apply essential syntax & CSS box model.

1. Add style rule, declaration, selector, property value pair. Use correct css syntax:
    a. Example of a style rule.
    b. CSS Box Model.

Objective 3 Students will format websites using CSS

1. Modify background properties such as: color and image.
2. Modify font properties such as: font-family, size, and color.
3. Link to and use an online font. (i.e.: Google Fonts, Adobe Fonts, etc.).
4. Modify margin and padding size around elements.

5. Code id & class tags within HTML.
6. Within CSS use id & class tags to modify a HTML elements.
7. Implement an id selector to modify a single element on the page.
    a. Unique id tags are only used one time per page.
    b. “Classes” can be used one or more times per page.
8. Implement selectors pseudo class elements (i.e.: a:link, a:visited, a:active a:hover).
9. Use appropriate comments throughout your CSS.

Objective 4 Format page layout using CSS.

1. Use width, height, or auto to adjust the size.
2. Use CSS Grid to lay out the websites.

Standard 3 Performance Evaluation included below (Optional)

Standard 4

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

Objective 1 Analyze Project requirements.

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

Objective 2 Users are the focus of all design.

1. Plan a website by using sketches, wireframes, or site maps.
2. Design elements are easy to access, understand, and use.
3. 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.

Objective 3 Code and design a minimum three-page website. (This is integrated into every Strand.)

Standard 4 Performance Evaluation included below (Optional)

Standard 5

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

Objective 1 Open, edit, and save an image for effective use on your website.

1. Crop and resize various images.
2. Optimize an image. (Resize and change resolution for optimal load time.).
3. Enhance an image.

Objective 2

1. Incorporate a logo and header into a webpage.
2. Incorporate images into a website.

Standard 5 Performance Evaluation included below (Optional)

Standard 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%).

Objective 1 Explore IT web development careers.

1. Identify job roles in the Information Technology (IT) industry as they apply to web development.
2. Understand the responsibilities, tasks, and skills each job requires.
    a. UI designer, UX designer, front-end web developer, back-end web developer, and full stack developer.

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

Web Development 1

Performance assessments may be completed and evaluated at any time during the course. The following performance skills are to be used in connection with the associated standards and exam. To pass the performance standard the student must attain a performance standard average of 8 or higher on the rating scale. Students may be encouraged to repeat the objectives until they average 8 or higher.

Student's Name: _____

Class: _____

Vocabulary

Standard 1- Digital Citizenship

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.

Standard 2- Fundamentals of HTML5

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 , , 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: http://www.businessdictionary.com/definition/absolute-URL.html
Meta Elements	An HTML code that resides in the head section of a webpage and includes information about the page, such as keywords, and descriptions.
Character Entities (Special Characters)	Are used to display reserved characters in HTML. Example &
Keywords	Are words or phrases that describe content. They can be used as metadata to describe images, text documents, database records, and webpages.
Viewport	The viewport is the user's visible area of a webpage. It varies with the device - it will be smaller on a mobile phone than on a computer screen.

Standard 3- Cascading Sheets Style (CSS)

CSS	Used to control a website'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.

Standard 4- Site Planning

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 webpage that focuses on content, layout, and behavior.
UI (User Interface)	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 website.

Standard 5- Image Editing

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.

Standard 6- Careers in Web Development

UX (User Experience) Developer	UX Designers are primarily concerned with how the product feels. Designers who consider all the visual, interactive elements of a product interface—including buttons, icons, spacing, typography, color schemes, and responsive design.
UI (User Interface) Developer	UI Designers are particular about how the product is laid out. Designers who develop the interaction between the user and a website- including prototypes, wireframes, and testing.
Front End Web Developer	Developer who uses HTML, CSS, and JavaScript to develop websites.
Back End Web Developer	Developer who uses dynamic content, databases, and PHP to develop websites.

Code List

<!DOCTYPE html>	HTML5 Doctype	<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 webpage 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.		For Italics for best accessibility
<body></body>	Indicates the beginning and end of the webpage body.		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,		**Special Characters (Character Entities)**
<main></main>	The <main> tag defines the main content of the page.		A non-breaking space is a space that will not break into a new line.
<main></main>	The <main> tag defines the main content of the page		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.	©	©
<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.	<	<
<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:	>
	Defines a division/section	&	&
	Largest Heading	—	-
			CSS
		Background Attributes	Color & Image
		Font Attributes	type, size, and color
	Smallest Heading	Border Attributes	width, style, and color
	Paragraph	ID	Used 1 time per page
	Indicates that the item that follows the tag is an item within a list.	Class	Used multiple times per page
	Indicates the beginning and end of an ordered list.	a:link	Unvisited link
	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.		

Performance standards rating scale

0	Limited skills	2	→	4	Moderate skills	6	→	8	High skills	10

Standard 1 – Digital Citizenship **Score:**

- Understand copyright as it applies to you.
- Understand a basic AUP agreement.

Standard 2 – Fundamentals of HTML5 **Score:**

- Students will code a website with:
  - HTML5 semantic tags (header, footer, section, article, nav, aside).
  - Meta tags.
  - Use special characters.
  - Hyperlink(s) and Email link(s).
  - Table(s) with tabular data (not used for layout).
  - Image link.
  - Lists.
  - Form elements.

Standard 3 – Cascading Sheets Style (CSS) **Score:**

- Students will be able to make the following changes to a website:
  - Background image(s) or Background color.
  - Import graphics (jpeg/gif/png/svg).
  - Font changes (color, size, style).
  - Original CSS3 animation (optional).

Standard 4 – Site Planning **Score:**

- Students will be able to:
  - Build a mock-up, sketch, or wireframe of a website.
  - Check for cross browser compatibility, readability, and accessibility.

Standard 5 – Image Editing **Score:**

- Students will be able to:
  - Add an enhanced image to your website.
  - Optimize an image for quick loading on a website.

Performance standard average score:

Evaluator Name: _____

Evaluator Title: _____

Evaluator Signature: _____

Date: _____