

STRANDS AND STANDARDS

WEB DEVELOPMENT ADVANCED



Course Description

Web Development Advanced is a course designed to guide students in a project-based environment in the development of today's websites. Some concepts for discovery and mastery include: Front-end, PHP, Database, and Development Environment & Tools. Students will be introduced to 2D and 3D animation.

In this course you will use and build upon all the skills you have learned in Web Dev 1 and Web Dev 2.

Intended Grade Level	10-12
Units of Credit	1.0
Core Code	35.02.00.00.067
Concurrent Enrollment Core Code	35.02.00.13.067
Prerequisite	Web Development 2 or Web Development Projects
Skill Certification Test Number	9921
Test Weight	1.0
License Type	CTE and/or Secondary Education 6-12
Endorsement Qualifiers:	
Endorsement 1 OR	Web Development
Endorsement 2	Programming & Software Development

STRAND 1

Advanced Skills for Front-end Developers (Suggested time proportion 10%)

Standard 1

Search Engine Optimization (SEO) Code to a priority one Strand

- Create a sitemap.
- Understand the steps to submitting the site map to a browser.
- Read a robots.txt file to determine which pages the web crawler should not crawl.
- Title element should accurately describe each page with a brief but descriptive wording. <title> should be unique on every webpage of a website
- Use meta description tag on pages that interest and inform the users of the page content. Keep length of the descriptions easy to display by the search engine.
- Use heading tags like you are writing an outline for the webpage.
- Use brief but descriptive link text.
- Understand linking and link backs.
- Images should be optimized and include alt text.
- Use browser guidelines to create optimized pages using only white hat methods.

Standard 2

Webmaster tools

- Understand how to search queries.
- Understand how to prioritize design and navigation based on top pages.
- Create and submit an XML sitemap for your website.
- Understand how to use the security feature for hacked website and malware.

Standard 3

Understand the Purpose of nameservers to Domain Names

- Explain the steps to directing a name server to an IP address.
- Explain the steps to directing the name server on a shared server.

Standard 4

Understand the function of analytics for website development and web services decision making.

- Explain how to make a verified analytics account.
- Understand how to track the incoming data from your analytics.
- Insert the code for analytics tracking into an HTML page.

Standard 5

FTP file transmission protocol (optional)

- Students should upload a website to a server
- Students should understand the FTP protocol and Strand port number (20).

Standard 6

Understand appropriate file structure and naming conventions for teamwork purposes

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

Standard 7

Introduce Agile/Scrum project management tools to help the team with software methodology.

STRAND 2

Fundamentals of Advanced HTML5 (Suggested time proportion 10%)

Standard 1

Use form control attributes

- Demonstrate the ability to code number, date, time, calendar, and range.
- Create a form that can connect and submit to a database.
- Demonstrate the ability to code <datalist>, <keygen>, and <output>.

Standard 2

Use Advanced HTML5 elements.

- Demonstrate the ability to code: <address><button><details>, <dialog>, <progress>, and <svg>.
- Use Responsive Web design to form websites for tablets and mobile devices.
- Use a framework

Standard 3

Forms

- Input Types: color, date, datetime, datetime-local, email, month, number, range, search, tel, time, url, and week.
 - Input Attributes: autocomplete, autofocus, form, formaction, formenctype, formmethod, formnovalidate, formtarget, list, min and max, multiple, pattern (regexp), placeholder, required, and step.
 - Code a form that can submit to a server.

Standard 4

Syntaxes for attributes.

- Understand the four different syntaxes for attributes. Empty, unquoted, double quoted, and single quoted.
- Use good coding practice to create well-formed pages.

Standard 5

Understand and use APIs.

- Understand HTML Geolocation
- Understand HTML Drag and Drop
- Understand HTML Local Storage. Use Local storage as a replacement for cookies.
- Understand HTML Application Cache
- Understand HTML Web Workers
- Understand HTML SSE

Standard 6

Use version control in projects.

- Utilize tools like Git/Github, Tortoise SVN, ect.

STRAND 3

Advanced Cascading Style Sheets (CSS3) (Suggested time proportion 10%)

Standard 1

Apply CSS3.

- Add border border-radius and border-image.
- Add background-size, background-origin, background-image and background-clip.
- Add linear-gradient and radial-gradients.
- Add text-shadow and box-shadow.
- Add text properties: text-overflow, word-wrap, and word-break.
- Web based fonts:
 - rem - root element
 - vw - Relative to 1% of the width of the viewport*
 - em - Relative to the font-size of the element (2em means 2 times the size of the current font)
 - % - Relative to the parent element

Standard 2

Transitions

- Implement transition, transition-delay, transition-duration, transition-property, and transition-timing- function.

Standard 3

CSS3 Animations

- Use @keyframes and animation to create animations on your website.
- Use animation-delay property for the start of an animation
- Use animation-timing-function property with the following values:ease(this is default), linear, ease-in, ease-out, ease-in-out, and cubic-bezier(n,n,n,n).

Standard 4

CSS3 User interface

- Add resize
- Add outline-offset
- Understand user interface properties: ox-sizing, nav-down, nav-index, nav-left, nav- right, nav-up, outline-offset, and resize.

Standard 5

Use version control in projects.

- Utilize tools like Git/Github, Tortoise SVN, ect.

STRAND 4

Database Technology (Suggested time proportion 15%)

Standard 1

Understand Database Technology used in Web Development.

- Understand when to use a database.
- Connect website to database
 - Connect form submit button to database

Standard 2

Understand how to build and use a database

- Understand how mySQL can execute queries against a database,
- retrieve data from a database
- insert records in a database
- update records in a database
- delete records from a database
- create new databases
- create new tables in a database
- set permissions on tables, procedures, and views

STRAND 5

Java Script: Students will code using JavaScript. (Suggested time proportion 20%)

Standard 1

Code using JavaScript.

- Add interactivity to your website using JavaScript.
- Utilize JavaScript libraries to add interactivity to your website.
- Use JavaScript to change HTML5 content.
- Use JavaScript to change HTML5 attributes.
- Use JavaScript to change HTML5 styles.
- Use JavaScript to validate HTML5 form data.
- Code an object in JavaScript for use on a website.
- Code an event handler using JavaScript.

STRAND 6

PHP: Students will understand and use PHP programming. (Suggested time proportion 15%)

Standard 1

Understand PHP programming.

- Understand PHP can generate dynamic page content
- Code using proper php syntax
- Code using the “echo” and print ()function
- Understand variable names are case sensitive
- PHP can send and receive cookies
- PHP can be used to control user-access

Standard 2

PHP variables

- Understand local and global variables.
- Understand the following data types: String, Integer, Float, Boolean, Array, Object, NULL, and Resource.

STRAND 7

Introduction to UX/UI and website development (Suggested time proportion 20%)

Standard 1

UX Understand the purpose and audience for a website.

- Using a project management method prepare for producing a website. Agile or scrum is the recommended method adopted.
- Identify a Journey Map, Competitive Analysis, and a user persona.
- Research and Present information for a website project using information gathered using a Journey Map, Competitive Analysis, and User Persona.

Standard 2

UX Ideate

- Identify User Flow, Low and High fidelity mockup, Wireframe, and Prototype.
- Plan a website based on user flow based on the following questions
 - Who is the user?
 - What is the goal?
 - What steps do the users need to take to reach the goal? (finding information, buying a product, or connecting digitally)
- Create a mock-up for a website
 - Create a low fidelity mock-up for a website.
 - Create a high fidelity mock-up for a website for the client.
- Create a wireframe for a website for the developer to use to code the website.
- Create a Prototype for a website.
- Communicate with others (such as peers and clients) about design and content plans.
- Produce website designs that work on various devices and browser versions/configurations.

- Plan, communicate, or present a client’s website before, during or after website development.

Standard 3

Create a Style Guide or an Interface Inventory

- Include color scheme
- Typography- Headings, subheadings, lists, and text.
- Images-logo, icons, and images

Standard 4

Create content for website.

- Create and prepare graphic elements: <svg> and <canvas>.
- Prepare media elements using the: <audio>, <embed>, <source>, <track> and <video> and the supported file types.
- Optimize images for web content. Utilize vector images.
- Insert navigation bars, rollover images, or buttons.
- Add a favicon to a website

Standard 5

Uploading and maintaining a site.

- Understand and be able to describe the capabilities of web servers.
- Upload pages to a web server.
- Conduct basic technical tests such as validating the website (wc3 compliant), accessibility, SEO, etc.
- Identify methods for collecting site feedback, such as using analytics, comments, feedback, forums, Google Analytics, Google Webmaster Tools, etc.
- Provide site maintenance using bug reports, backups, and broken link detection.
- Document all aspects of website maintenance.
- Present web pages to others for quality assurances (QA) such as team members and clients for feedback and evaluation on technical merits and usability.
- Understand and be able to describe the capabilities of web servers.

STRAND 8

Exploration & Preparation for Careers in Web Development: Students will explore careers in Web Development and prepare a portfolio of projects created.

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.

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Standard 2

Create a responsive database driven website that uses HTML, CSS, JavaScript, and PHP

Standard 3

Create a student portfolio.

- Prepare an online portfolio of projects developed in the class.
- Prepare an online resume with references.
- Research the current job postings.
- Compare current skills to the skills required to be hired.
- Research Freelance Web Design.
- Develop a marketing plan for a web design business.

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 Advanced	895	2	4	3	5	12	10	7	0			43	40