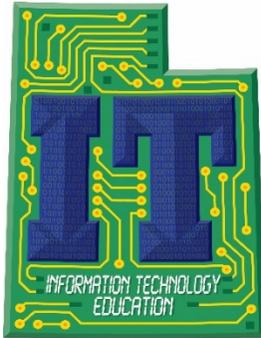


STRANDS AND STANDARDS

WEB DEVELOPMENT CAPSTONE



Course Description

Web Development 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. Some concepts for discovery and mastery include: Front-end (HTML5, CSS3, Bootstrap, JavaScript, jQuery, jQuery mobile), Foundation paradigms (OOPS, Design Patterns, Object Modelling, JSON, AJAX), MEAN Stack (MongoDB, Express Framework, AngularJS, Node.js) Data Exchange (HTTP, Websockets), Development Environment & Tools, DISHA (Resume & Interview prep package)

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 1, Web Development 2, or HTML5
Skill Certification Test Number	9921
Test Weight	1.0
License Type	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Web Development, or
Endorsement 2	Computer Science Level 1, or
Endorsement 3	Computer Science Level 2

STRAND 1

Internet Skills for Webmasters

Standard 1

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

- Code the title and the h1 the same.
- Use keywords five times on the index/home page one time in bold.
- Use the keyword as the title/alt on at least one image on the index/home page.
- Understand linking and link backs.
- Understand the use of social media to increase page rank
- 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

Differentiate between types of IP addresses.

- Describe a static IP address.
- Describe a Dynamic IP address.
- Differentiate between ipv4 and ipv6.

Standard 5

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 6*

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 7

Demonstrate knowledge of Strand copyright rules.

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

Standard 8

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

- Understand the AUP for your school.
- Demonstrate ethical behavior as described in the AUP.

STRAND 2

Fundamentals of HTML5: Students will demonstrate creation of “well formed” web pages.

Standard 1

Demonstrate knowledge required to create a valid HTML5 website.

- Use HTML5 Semantic elements like <header>, <footer>, <nav>, <sidebar>,<article>, <main>, and <section>structure elements to code a website.
- Non-Semantic elements tell nothing about the content. Examples <div> and .

Standard 2

Understand appropriate file structure and naming.

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

Standard 3

Understand and use the DOCTYPE Declaration (DTD) in the types of HTML5.

- Validate code according to the DOCTYPE used. Know and use the rules to create “well formed” web pages with appropriate HTML structure and Strands that can be validated. (W3C)
- Use Character set <meta charset="UTF-8">

Standard 4

Use form control attributes

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

Standard 5

Use Advanced HTML5 elements.

- Demonstrate the ability to code: <details>, <dialog>, <menuitem>,<progress>, and <summary>.
- Use Responsive Web design to form websites for tablets and mobile devices.
- Use a framework (bootstrap, jQuery, jQuery Mobile, Foundation Paradigms, MEAN

Stack (MongoDB), Express, Angular JS, Node.js, or current technology) to form websites for tablets and mobile devices.

- Introduction to Bootstrap
- Bootstrap Basics
- Bootstrap Grids
- Bootstrap Themes
- Bootstrap CSS
- Bootstrap JS
- Introduction to jQuery
- jQuery Syntax
- jQuery Selectors
- jQuery Events
- jQuery Effects
- jQuery HTML
- jQuery Traversing
- jQuery AJAX & Misc
- Introduction to jQuery Mobile
- jQuery Mobile Pages
- jQuery Mobile Transitions
- jQuery Mobile Buttons
- jQuery Mobile Icons
- jQuery Mobile Popups
- jQuery Mobile Toolbars
- jQuery Mobile Navbars
- jQuery Mobile Panels
- jQuery Mobile Collapsibles
- jQuery Mobile Tables
- jQuery Mobile Grids
- jQuery Mobile Lists
- jQuery Mobile Forms
- jQuery Mobile Themes
- jQuery Mobile Events
- Introduction to Foundation Paradigms
- OOPs
- Design Patterns
- Object Oriented Design
- JSON
- DOM
- AJAX
- Introduction to MongoDB
- MongoDB Environment
- MongoDB Create Database

- MongoDB Drop Database
- MongoDB Create Collection
- MongoDB Drop Collection
- MongoDB Read Operations
- MongoDB Write Operations
- MongoDB Data Modelling
- MongoDB Administration
- MongoDB Security
- MongoDB Aggregation
- MongoDB Indexes
- MongoDB Storage
- MongoDB Replication
- Introduction to Express Framework
- Introduction to Nodejs
- What is Nodejs
- Express Routing
- Implementing MVC in Express
- Middleware
- Using Template Engines
- Error Handling
- API Handling
- Debugging
- Developing Template Engines
- Using Process Managers
- Security & Deployment
- Introduction to AngularJS
- AngularJS Expressions
- AngularJS Modules
- AngularJS Data Binding
- AngularJS Scopes
- AngularJS Directives & Events
- AngularJS Controllers
- AngularJS Filters
- AngularJS Services
- AngularJS HTTP
- AngularJS Tables
- AngularJS Select
- Fetching Data from MySQL
- AngularJS Validation
- AngularJS API
- AngularJS Animations
- AngularJS i18n and i10n

- Node Core
- Node Modules
- File System
- Debugger
- Automation and Deployment

Standard 6

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 (regex), placeholder, required, and step.
- Code a form that can submit to a server.

Standard 7

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.

STRAND 3

Cascading Style Sheets (CSS3): Students will format web pages using CSS3.

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.
- Understand and add the fonts: TrueType Fonts (TTF), OpenType Fonts (OTF), The Web Open Font Format (WOFF), The Web Open Font Format (WOFF 2.0), SVG Fonts/Shapes, and Embedded OpenType Fonts (EOT).

Standard 2

Apply CSS3 transformations to your website.

- Apply CSS3 2D transformations using transform and transform-origin. Use the following 2D transformation methods: translate(), rotate(), scale(), skewX(), skewY(), and matrix().
- Apply CSS3 3D transformations transform, transform-origin, transform-style, perspective, perspective- origin, and backface-visibility. use the following 3D transformation methods: rotateX(), rotateY(), and rotateZ().

Standard 3

Transitions

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

Standard 4

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 5

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.

STRAND 4

Site Planning and Design: Students will plan, design, implement, and maintain website(s).

Standard 1

Analyze Project requirements.

- Identify the purpose and audience for a website.
- Demonstrate knowledge of material design
- Identify and follow steps in the website planning and development. Using a project management method. Agile or scrum is the recommended method adopted.

Standard 2

Planning site design and page layout.

- Demonstrate knowledge of best practices for designing a website.
- Demonstrate effective web development and design principles.
- Identify basic principles of website usability, readability, and accessibility.
- Plan a website by using sketches, website hierarchy, or a site map.
- 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 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.
- Identify when to use v
- Optimize images for web content. Utilize vector images.
- Insert navigation bars, rollover images, or buttons created in graphics editor.
- Understand the use of favicons.

Standard 4

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.
- Present web pages to others for quality assurances (QA) such as team members and clients for feedback and evaluation on technical merits and usability.
- Identify methods for collecting site feedback, such as using counters, feedback forums, Google Analytics, Google Webmaster Tools.
- Provide site maintenance using bug reports, backups, and promotion. g. Document all aspects of website maintenance.

STRAND 5

Java Script: Students will code using JavaScript.

Standard 1

Demonstrate the use Javascript.

- Add interactivity to your website using JavaScript.
- Add JQuery or other scripting libraries 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.

STRAND 5

PHP: Students will understand and use PHP programming.

Standard 1

Understand PHP programming

- Understand PHP can generate dynamic page content, PHP can create, open, read,

write, delete, and close files on the server, PHP can collect form data, PHP can send and receive cookies, PHP can add, delete, modify data in your database, PHP can be used to control user-access, and PHP can encrypt data.

- Code PHP using proper syntax
- Understand local and global variables.
- Use output echo and print
- Understand the following data types: String, Integer, Float, Boolean, Array, Object, NULL, and Resource.

Standard 2

Understand Database Technology used in Web Development.

- Understand when to use a database.
- Understand how SQL 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, and set permissions on tables, procedures, and views.

STRAND 6

HTML5 API's (Application Programming Interfaces) for App Development.

Standard 1

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

STRAND 7

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.

Standard 2

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.

WEB DEVELOPMENT CAPSTONE

- *Compare current skills to the skills required to be hired.
- *Research Freelance Web Design.
- *Develop a marketing plan for a web design business.

*optional

Skill Certificate Test Points by Strand

Coming Soon.