

Programming with HTML, CSS and JavaScript (55320A)

Module 1: A Quick Overview of Web Development

Lessons

- HTML is Part of a Team
- Client-side Programming
- Server-side Programming
- Web Development Technologies

Lab 1: None

Module 2: Introduction to HTML

Lessons

- Exercise: A Simple HTML Document
- Getting Started with a Simple HTML Document
- HTML Elements, Attributes, and Comments
- The HTML Skeleton
- Viewing the Page Source
- Special Characters
- HTML Elements and Special Characters
- History of HTML
- The lang Attribute

Lab 1: Getting Started

- A Simple HTML Document
- After completing this module, students will be able to:
- Create a simple HTML page.
- Understand HTML elements and attributes.
- Understand how whitespace is treated in HTML.
- Add special characters to HTML pages.
- Explain the general history of HTML.

Module 3: Paragraphs, Headings, and Text

Lessons

- Paragraphs
- Heading Levels
- Breaks and Horizontal Rules
- Exercise: Paragraphs, Headings, and Text

- The div Tag
- Creating an HTML Page
- Quoted Text
- Preformatted Text
- Inline Semantic Elements
- Exercise: Adding Inline Elements

Lab 1: Exercises included throughout lesson

- Creating an HTML Page
- Adding Inline Elements
- After completing this module, students will be able to:
- Add paragraphs to HTML pages.
- Add headings to HTML pages.
- Add breaks and horizontal rules.
- Add quoted text.
- Add preformatted text.
- Add phrase elements to call out or identify textual elements on the page.
- Understand the meaning of semantic content.

Module 4: HTML Links

Lessons

- Links Introduction
- Text Links
- Absolute vs. Relative Paths
- Targeting New Tabs
- Email Links
- Exercise: Adding Links
- Lorem Ipsum
- The title Attribute
- Linking to a Specific Location on the Page
- Targeting a Specific Location on the Page

Lab 1: Exercises included throughout lesson

- Adding Links
- After completing this module, students will be able to:
- Add basic text links.
- Understand the difference between absolute and relative paths.
- Add links that open in new tabs or windows.
- Add links that open up an email client.
- Add links to specific locations on the page.

Module 5: HTML Images

Lessons

- Inserting Images
- Image Links
- Adding Images to the Document
- Exercise: Adding Images to the Page
- Providing Alternative Images

Lab 1: Exercises included throughout lesson

- Adding Images to the Page
- After completing this module, students will be able to:
- Add images to an HTML page.
- Create image links.
- Make images accessible.

Module 6: HTML Lists

Lessons

- Unordered Lists
- Ordered Lists
- Definition Lists
- Exercise: Creating Lists

Lab 1: Exercises included throughout lesson

- Creating Lists
- After completing this module, students will be able to:
- Create unordered (bulleted) lists.
- Create ordered (numbered) lists.
- Create definition lists.

Module 7: Crash Course in CSS

Lessons

- Benefits of Cascading Style Sheets
- CSS Rules
- Selectors
- Combinators
- Precedence of Selectors
- How Browsers Style Pages
- CSS Resets

- CSS Normalizers
- External Stylesheets, Embedded Stylesheets, and Inline Styles
- Exercise: Creating an External Stylesheet
- Exercise: Creating an Embedded Stylesheet
- Exercise: Adding Inline Styles
- div and span
- Exercise: Styling div and span
- Media Types
- Units of Measurement
- Inheritance

Lab 1: Exercises included throughout lesson

- Creating an External Stylesheet
- Creating an Embedded Stylesheet
- Adding Inline Styles
- Styling div and span Elements
- After completing this module, students will be able to:
- Understand the benefits of CSS.
- Redefine how elements are formatted.
- Create and use CSS selectors.
- Create and use CSS combinators.
- Understand the CSS cascade.
- Understand the role of CSS resets and normalizers.
- Create and use external and embedded stylesheets.
- Add inline styles to HTML elements.
- Use the div and span elements.
- Understand media types.
- Understand and use the viewport tag.
- Understand and select proper units of measurement.
- Understand inheritance in CSS.

Module 8: CSS Fonts

Lessons

- font-family
- @font-face
- font-size
- font-style
- font-variant
- font-weight
- line-height
- font shorthand

- Exercise: Styling Fonts

Lab 1: Exercises included throughout lesson

- Styling Fonts
- After completing this module, students will be able to:
- Use the font-family property.
- Use the font-size property.
- Use the font-style property.
- Use the font-variant property.
- Use the font-weight property.
- Use the line-height property.
- Use shorthand properties, such as font.

Module 9: Color and Opacity

Lessons

- About Color and Opacity
- Color and Opacity Values
- color
- opacity
- Exercise: Adding Color and Opacity to Text

Lab 1: Exercises included throughout lesson

- Adding Color and Opacity to the Text
- After completing this module, students will be able to:
- Use the color property.
- Use the opacity property.

Module 10: CSS Text

Lessons

- letter-spacing
- text-align
- text-decoration
- text-indent
- text-shadow
- text-transform
- white-space
- word-break
- word-spacing

- Exercise: Text Properties

Lab 1: Exercises included throughout lesson

- Text Properties
- After completing this module, students will be able to:
- Use the letter-spacing property.
- Use the text-align property.
- Use the text-decoration property.
- Use the text-indent property.
- Use the text-shadow property.
- Use the text-transform property.
- Use the white-space property.
- Use the word-break property.
- Use the word-spacing property.

Module 11: JavaScript Basics

Lessons

- JavaScript vs. EcmaScript
- The HTML DOM
- JavaScript Syntax
- Accessing Elements
- Where Is JavaScript Code Written?
- JavaScript Objects, Methods, and Properties
- Exercise: Alerts, Writing, and Changing Background Color

Lab 1: Exercises included throughout lesson

- Alerts, Writing, and Changing Background Color
- After completing this module, students will be able to:
- Understand the HTML Document Object Model
- Understand the JavaScript syntax rules.
- Write inline JavaScript.
- Write JavaScript within script blocks.
- Create external JavaScript files.
- Work with JavaScript objects, methods, and properties.
- Reference HTML elements with JavaScript.

Module 12: Variables, Arrays, and Operators

Lessons

- JavaScript Variables
- A Loosely Typed Language

- Google Chrome DevTools
- Storing User-Entered Data
- Exercise: Using Variables
- Constants
- Arrays
- Exercise: Working with Arrays
- Associative Arrays
- Playing with Array Methods
- JavaScript Operators
- The Modulus Operator
- Playing with Operators
- The Default Operator
- Exercise: Working with Operators

Lab 1: Exercises included throughout lesson

- Working with Arrays
- Working with Operators
- After completing this module, students will be able to:
- Create, read, and modify variables in JavaScript.
- Create JavaScript arrays.
- Use JavaScript operators.

Module 13: JavaScript Functions

Lessons

- Global Objects and Functions
- Exercise: Working with Global Functions
- User-defined Functions
- Exercise: Writing a JavaScript Function
- Returning Values from Functions

Lab 1: Exercises included throughout lesson

- Working with Global Functions
- Writing a JavaScript Function
- After completing this module, students will be able to:
- Understand JavaScripts global functions and objects.
- Create custom JavaScript functions.
- Return values from functions.

Module 14: Built-In JavaScript Objects

- Lessons
- Strings
- Math
- Date
- Helper Functions
- Exercise: Returning the Day of the Week as a String

Lab 1: Exercises included throughout lesson

- Returning the Day of the Week as a String
- After completing this module, students will be able to:
- Work with JavaScript's built-in String object.
- Work with JavaScript's built-in Math object.
- Work with JavaScript's built-in Date object.

Module 15: Conditionals and Loops

Lessons

- Conditionals
- Short-circuiting
- Switch / Case
- Ternary Operator
- Truthy and Falsy
- Exercise: Conditional Processing
- Loops
- while and do...while Loops
- for Loops
- break and continue
- Exercise: Working with Loops
- Array: forEach()

Lab 1: Exercises included throughout lesson

- Conditional Processing
- Working with Loops
- After completing this module, students will be able to:
- Write if / else if / else conditions.
- Write switch / case statements.
- Create for and while loops.

Module 16: Event Handlers and Listeners

Lessons

- On-event Handlers
- Exercise: Using On-event Handlers
- The addEventListener() Method
- Anonymous Functions
- Capturing Key Events
- Exercise: Adding Event Listeners
- Benefits of Event Listeners
- Timers
- Typing Test

Lab 1: Exercises included throughout lesson

- Using On-event Handlers
- Adding Event Listeners
- Creating a Typing Test
- After completing this module, students will be able to:
- Understand on-event handlers.
- Identify and use commonly-used on-event handlers.
- Create eventListeners.

Module 17: The HTML Document Object Model

Lessons

- CSS Selectors
- The innerHTML Property
- Nodes, NodeLists, and HTMLCollections
- Accessing Element Nodes
- Exercise: Accessing Elements
- Dot Notation and Square Bracket Notation
- Accessing Elements Hierarchically
- Exercise: Working with Hierarchical Elements
- Accessing Attributes
- Creating New Nodes
- Focusing on a Field
- Shopping List Application
- Exercise: Logging
- Exercise: Adding EventListeners
- Exercise: Adding Items to the List
- Exercise: Dynamically Adding Remove Buttons to the List Items
- Exercise: Removing List Items
- Exercise: Preventing Duplicates and Zero-length Product Names
- Manipulating Tables

Lab 1: Exercises included throughout lesson

- Accessing Elements
- Working with Hierarchical Elements
- Logging
- Adding EventListeners
- Adding Items to the List
- Dynamically Adding Remove Buttons to the List Items
- Removing List Items
- Preventing Duplicates and Zero-length Product Names
- After completing this module, students will be able to:
- Access specific nodes within the HTML DOM.
- Identify nodes by tag name, class name, and CSS selector.
- Access nodes hierarchically.
- Create and remove nodes.
- Dynamically create an HTML page with JavaScript.

Module 18: HTML Forms

Lessons

- How HTML Forms Work
- The form Element
- Form Elements
- Buttons
- Exercise: Creating a Registration Form
- Checkboxes
- Radio Buttons
- Exercise: Adding Checkboxes and Radio Buttons
- Fieldsets
- Select Menus
- Textareas
- Exercise: Adding a Select Menu and a Textarea
- HTML Forms and CSS

Lab 1: Exercises included throughout lesson

- Creating a Registration Form
- Adding Checkboxes and Radio Buttons
- Adding a Select Menu and a Textarea

Module 19: JavaScript Form Validation

Lessons

- Server-side Form Validation

- HTML Form Validation
- Accessing Form Data
- Form Validation with JavaScript
- Exercise: Checking the Validity of the Email and URL Fields
- Checking Validity on Input and Submit Events
- Adding Error Messages
- Validating Textareas
- Validating Checkboxes
- Validating Radio Buttons
- Validating Select Menus
- Exercise: Validating the Ice Cream Order Form
- Giving the User a Chance

Lab 1: Exercises included throughout lesson

- Checking the Validity of the Email and URL Fields
- Validating the Ice Cream Order Form
- After completing this module, students will be able to:
- Access data entered by users in forms.
- Validate text fields, textareas, radio buttons, checkboxes, and select menus.
- Write clean, reusable validation functions.

Module 20: Regular Expressions

Lessons

- Getting Started
- Regular Expression Syntax
- Backreferences
- Form Validation with Regular Expressions
- Cleaning Up Form Entries
- Exercise: Cleaning Up Form Entries
- A Slightly More Complex Example

Lab 1: Exercises included throughout lesson

- Cleaning up Form Entries
- After completing this module, students will be able to:
- Use regular expressions for advanced form validation.
- Use backreferences to clean up form entries.