HTML5/CSS3/JavaScript Programming

Description: This class is designed for students that have experience with basic HTML concepts that wish to learn about HTML Version 5, Cascading Style Sheets Version 3, JavaScript and jQuery.

Prerequisites: Students should have basic HTML experience.

Audience: Web developers that want to learn HTML5, CSS3, JavaScript and jQuery.

Length: Five days.

Objectives:

After taking this course, you will be able to:

1. Use HTML5 to create the user interface for Web applications that run in modern browsers, including using HTML5 form elements and semantic elements.
2. Use CSS and CSS3 to style pages including effects such as transitions and animations.
3. Use CSS3 media queries to create responsive Web applications.
4. Write JavaScript programs that manipulate the Document Object Model (DOM).
5. Write jQuery programs that work with the DOM and Ajax
6. Write programs that use the jQuery UI and Angular.js libraries.

Topics

1. Introduction to the Course
 - HTML5, CSS3 and JavaScript Programming
 - Legal Information
 - HTML5, CSS3 and JavaScript Programming
 - Introductions
 - Course Description
 - Course Objectives
 - Sample Agenda
 - Sample Agenda, cont'd
 - Sample Agenda, cont'd
 - Sample Agenda, cont'd
 - Sample Agenda, cont'd
 - Course Logistics

2. HTML Concepts
 - HTML Concepts
 - HTML and HTTP
 - HTML Forms
 - Writing an HTML Form
 - Form Input Widgets
 - Sample HTML Form
 - HTTP Request Headers
 - HTTP Response Headers
 - GET versus POST
 - Javascript Fundamentals
 - Sample JavaScript
 - JavaScript Objects
 - Writing JavaScript Functions
 - JavaScript Variables
 - JavaScript Events
 - JavaScript Events Example
 - Using Javascript to Validate a Form
 - Validating a Form, cont'd
 - What are Cascading Style Sheets?
 - Defining Styles
 - Basic Style Syntax
 - Style Classes
 - Using Document-Level Styles
 - Using External Style Sheets
 - Text Properties
 - Font Properties
 - Margin Properties
 - Border Properties
 - Background Properties
 - Other CSS Properties
 - Maintaining State Across Requests
 - Cookies
 - Headers for Cookies
 - Chapter Summary

3. Introduction to HTML5

- Introduction to HTML5
- Introduction to HTML5
- HTML Version History at the W3C
- What’s New in HTML5
- HTML5 Specifications
- What About XHTML?
- The DOCTYPE
- The Root Element
- The Head Element
- Semantic Elements
- Semantic Elements, cont'd
- HTML5 Form Widgets
- HTML5 Form Widgets Example
- HTML5 Input Types
- HTML5 Input Types, cont'd
- Other HTML5 Features
- Other Related Technologies
- Browser Support
- Supporting Older Browsers
- Using Modernizr
- Sample Page Source
- Sample Page CSS
- Sample Page in Modern Chrome
- Sample Page in IE6, No Modernizr
- Sample Page in IE6, With Modernizr
- Chapter Summary

4. CSS Fundamentals
- CSS Fundamentals
- What are Cascading Style Sheets?
- CSS History
- Guidelines for Writing HTML for CSS
- Defining Styles
- Basic Style Syntax
- Using Document-Level Styles
- Using External Style Sheets
- Using Inline Styles
- Specifying Colors
- Selectors
- The Universal Selector
- Type Selectors
- Attribute Selectors
- Class Selectors
- ID Selectors
- Pseudo-Class and Psuedo-Element Selectors
- Pseudo-Class and Psuedo-Element Selectors, cont'd
- Grouping Selectors
- The Document Tree
- Using Child Selectors
- Descendent Selectors
- Style Inheritance
- The Cascade
- The Cascade Example
- Text Properties
- Font Properties
- Background Properties

- Using a CSS Validator
- Using a Reset Stylesheet
- Using a CSS Preprocessor and/or Framework
- Chapter Summary

5. The CSS Box Model and Layouts
- The CSS Box Model and Layouts
- What is the Box Model?
- Borders
- Borders, cont'd
- Padding
- Margins
- Inline vs Block Styles
- Floating Elements
- Left Floating Elements
- Right Floating Elements
- Floating Elements and Backgrounds
- Floating Elements and Backgrounds, cont'd
- Clearing the Float
- Clearing the Float Example
- Web Page Layouts
- Fixed-Width Layouts
- Fluid Layouts
- Creating a Two-Column, Fluid Layout
- Two Column Recipe
- Two Column Example
- Chapter Summary

6. Introduction to CSS3
- Introduction to CSS3
- What's New in CSS3?
- Browser Support
- Rounded Corners
- Text Shadows
- Box Shadows
- Transforms
- Transitions
- Transitions, cont'd
- Animations
- Animation Keyframes
- Applying the Animation
- Multiple Keyframes
- Complete Animation Example
- Introduction to Media Queries
- Chapter Summary

7. Designing Responsive Web Applications
- Designing Responsive Web Applications
- What is Responsive Design?
- Principles of Responsive Designs
- Strategies for Responsive Designs
- Alternatives to Responsive Designs
- Using Relative Measurements
- A Simple Calculation
- Applying the Formula: Font Size
- Applying the Formula: Block Elements

- Additional Responsive Concepts
- What are Media Queries?
- What Can You Query?
- Viewport vs Screen Size
- Defeating Mobile Device Scaling
- Media Query Breakpoints
- Minimizing Image Size
- Chapter Summary

8. Introduction to JavaScript
- Introduction to JavaScript
- What is JavaScript?
- Where Does JavaScript Run?
- JavaScript vs Java
- History of JavaScript
- ECMAScript Versions
- Browser Support for ECMAScript Versions
- JavaScript is Typically Interpreted
- Four Categories of JavaScript Functionality
- Try it Now!
- What is an Object?
- Object Terminology
- Objects Exercise
- Objects in JavaScript
- Client-Side JavaScript Objects
- Embedding JavaScript in HTML
- Using the script Tag
- Using an External File
- Defining Functions
- Chapter Summary

9. Data Types and Assignment
- Data Types and Assignment
- JavaScript Comments
- JavaScript Basics
- Variables
- Rules for Identifiers
- Reserved Words
- Numbers
- Booleans
- Truthy and Falsy
- Truthy and Falsy, cont'd
- Strings
- String Literal Escape Codes
- Dates and Times
- Scope of Variables
- Quick Practice
- Chapter Summary

10. Operators
- Operators
- Operators
- Math Operators
- Math Operators, cont'd
- Other Math Operations
- Quick Practice

- Compound Assignment Operators
- Increment and Decrement Operators
- Equality Operators
- Comparison Operators
- Boolean Logical Operators
- Conditional Operator
- String Concatenation
- Bitwise Operators
- Shift Operators
- Type Conversion
- Quiz
- Other Operators
- Chapter Summary

11. Flow Control
- Flow Control
- Defining Blocks
- Conditional Statements
- The if Statement
- The if else Statement
- The if else if Statement
- The if else if Statement, cont'd
- Quick Practice
- The while Loop
- The while Loop, cont'd
- The for Loop
- The for Loop, cont'd
- The for Loop, cont'd
- Breaking Out of a Loop
- The switch-case Statement
- The switch-case Statement, cont'd
- The switch-case Statement, cont'd
- Quick Practice
- Chapter Summary

12. JavaScript Objects
- JavaScript Objects
- What is an Object?
- JavaScript Objects
- Categories of Objects
- What Are Properties?
- Creating Objects
- Using Object Literal Syntax
- Using the new Operator
- Objects Are Reference Types
- Prototype Inheritance
- Working with Properties
- The for-in Lop
- The Global Object
- Deleting Properties
- Determining if a Property Exists
- Enumerating Properties
- Methods
- Defining Methods with Literal Syntax
- Method and Function Arguments
- The this Keyword

- Constructor Functions
- User-Defined Constructor Functions
- Chapter Summary

13. JavaScript Arrays
- JavaScript Arrays
- What is an Array?
- Creating an Array
- Array Indexes
- Iterating Arrays
- Appending Elements
- Inserting Elements at the Beginning
- Deleting Array Elements
- The splice() Method
- Using splice() to Insert
- Sparse Arrays
- Other Useful Array Methods
- Array-Like Objects
- Treating Strings as Arrays
- Chapter Summary

14. The JavaScript window and document Objects
- The JavaScript window and document Objects
- The JavaScript window Object
- Timers
- URLs and Navigation
- The navigator and screen Objects
- Functions for Dialog Boxes
- Opening and Closing Windows
- The JavaScript document Object
- The DOM Tree
- Accessing Nodes
- Finding HTML Elements by ID
- Finding Elements by Tag Name
- Finding Elements by CSS Class
- Finding Elements using CSS Selectors
- Element Content
- Inserting Nodes
- Replacing or Deleting Nodes
- Chapter Summary

15. JavaScript and CSS
- JavaScript and CSS
- What are Cascading Style Sheets?
- Defining Styles
- Basic Style Syntax
- JavaScript and CSS
- Changing an Element's CSS Class
- Changing CSS Class Example
- The CSSStyleDeclaration Object
- Changing an Element's Style Example
- Scripting Element Visibility and Display
- Changing the Visibility
- Changing the Visibility Example
- Changing the Display Style
- Changing the Display Style Example

- Chapter Summary

16. Introduction to jQuery
- Introduction to jQuery
- Why Do We Need a JavaScript Library?
- Introduction to jQuery
- jQuery Features
- More Features
- Getting Started with jQuery
- Basic jQuery Syntax
- Traversing Results of a Query
- The jQuery ready() Function
- Using an Anonymous ready() Function
- jQuery Methods
- jQuery Getters and Setters: Attributes
- jQuery Getters and Setters: CSS Properties
- jQuery Getters and Setters: Element Content
- Inserting or Deleting Elements
- jQuery Event Handlers
- Chapter Summary

17. Introduction to jQuery UI
- Introduction to jQuery UI
- What is jQuery UI?
- jQuery UI vs HTML5
- Getting Started with jQuery UI
- jQuery UI Animations
- jQuery UI Widgets
- jQuery UI Widgets, cont'd
- jQuery UI Themes
- Using jQuery UI and Modernizr.js
- Using jQuery UI and Modernizr.js, cont'd
- Chapter Summary

18. jQuery and Ajax
- jQuery and Ajax
- What is AJAX?
- Traditional Web Processing
- AJAX Processing
- AJAX Applications
- The XMLHttpRequest Object
- XMLHttpRequest: Raw JavaScript
- Sending a Request: Raw JavaScript
- Sending a Request: Raw JavaScript, cont'd
- Updating the Document: Raw JavaScript
- What is JSON?
- Basic JSON Syntax
- Using JSON in Raw JavaScript
- jQuery and Ajax
- Processing JSON
- Complete JSON Example
- jQuery and XML
- Complete XML Example
- Monitoring Ajax Requests
- Handling Errors
- Chapter Summary

19. Introduction to AngularJS
 - Introduction to AngularJS
 - What is AngularJS?
 - AngularJS vs jQuery
 - AngularJS Features
 - What is the MVC Architecture?
 - A Typical AngularJS Architecture
 - AngularJS Hello, World
 - The View in AngularJS
 - What is a Scope?
 - What is a Directive?
 - Using a Repeater
 - Two-Way Data Binding
 - What is a Controller?
 - Controllers Define a Scope
 - What is a Module?
 - AngularJS and Forms
 - AngularJS and Ajax
 - Complete Ajax Example
 - Chapter Summary

20. More AngularJS
 - What is a Module?
 - What is a Controller?
 - Using $scope in a Controller (Or Not)
 - Using a Service as a Model
 - Using Promises
 - Promises and Ajax in the Model
 - What is a Directive?
 - Directive Name Matching
 - Defining Markup Templates in Directives
 - Complete Example
 - Introduction to AngularJS v2
 - Preparing for AngularJS v2
 - Chapter Summary