Mastering Web Development using HTML5, CSS3, and jQuery

Course Summary

Description

Mastering Web Development using HTML5, CSS3 and jQuery is an in-depth web design and development course geared for software developers who need to understand what the latest in web technologies, performance, optimization, and responsive design practices that are central to targeting the entire spectrum of user platforms and browsers. This comprehensive course provides a balanced mixture of theory and practical labs designed to take students through HTML5, CSS3 and related technologies. Students who attend this course will leave this course armed with the new skills to design, implement, and deploy robust, flexible, and safe web applications.

This course provides indoctrination in the practical use of the umbrella of technologies that are on the leading edge of web development. This course is "skills-focused", designed to train attendees in advanced web development and design skills, coupling the most current, effective techniques with the soundest practices. Throughout the course, students will be led through a series of progressively advanced topics, where each topic consists of lecture, group discussion, comprehensive hands-on lab exercises, and lab review.

Objectives
At the end of this course, students will be able to:

- How to effectively meet requirements using the full range of HTML5 semantic and structural elements
- To work with technologies such as web storage, application caching, and cross-domain messaging to improve performance and the user experience
- What features CSS3 supports and how they can be effectively used with HTML5 and other technologies
- How to adapt to varying degrees of browser support for HTML5 and CSS3
- The problems and needs that jQuery addresses
- How to use the full spectrum of jQuery selection and filtering capabilities
- Best practices for using jQuery so that it works unobtrusively and maintains compatibility across browsers
- How to support data interoperability between JavaScript and the server-side using JSON
- To work with sets of objects represented with the JSON syntax
- How jQuery methods can be used to process JSON, script, XML, HTML, and other content
- What is needed to effectively debug these web technologies
- How to use both browser-based and proxy-based debuggers and tools
- The various options for managing content delivery
- Techniques and best practices for maximizing the use of available bandwidth and browser resources
- To work with Responsive Web Design to effectively adapt to varying screen sizes and delivery channels
- Various layout, navigational, and selection techniques can be used to address common challenges for delivering content and supporting web flow in a responsive manner
- Optionally explore the issues, requirements, components and best practices for web accessibility and assistive technologies
- Optionally survey the challenges and options available for mobile web development

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Topics

- HTML5
- CSS3
- jQuery
- JavaScript Object Notation (JSON)
- Web Application Performance
- Web Design
- Advanced Web Topics (Optional)

Audience

This course is designed for experienced web developers. This is an intermediate and beyond level web development course, designed for experienced developers who need to extend their knowledge of web design and development or need to reinforce sound HTML and CSS coding practices, immediately.

Prerequisites

This is a hands-on programming class. Attendees should have previous experience or working knowledge of developing software applications, as well as basic HTML and CSS. Real world programming experience is a must. Students should have working knowledge of basic HTML and CSS, or should attended the Web Essentials: HTML and CSS course as a prerequisite.

Duration

Four days

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Course Outline

I. HTML5
- A. HTML5
    1. HTML5: Status and Support
    2. Semantic Structure and Tags
    3. Forms, Input Types, and Data Qualification
    4. Handling Complex Media Options
    5. Working with Legacy Browsers
- B. HTML5 JavaScript API
    1. Cross-Domain Messaging
    2. Working with Web Storage
    3. Offline with Application Cache
    4. Geolocation: What, Why, and How

II. CSS3
- A. CSS3 Overview
    1. CSS3: Status and Support
    2. CSS3 Features
    3. Reasons to Use CSS3
- B. CSS3 Advanced Selectors
    1. Selecting Using Attributes
    2. Selecting Using DOM Structure
    3. Complex Selecting using Pseudo-Classes
    4. Selecting Using UI Components and State
- C. CSS3 Visual Effects
    1. Font Options, Opacity, and Color
    2. Distributing Content Across Columns
    3. Working with Borders and Boxes
    4. Working with Vendor Prefixes
    5. Functional Techniques

III. jQuery
- A. Why jQuery?
    1. JavaScript Evolution
    2. Why jQuery?
    3. jQuery Usage
    4. Downloading jQuery

- B. Basic jQuery
    1. jQuery: Operational Overview
    2. jQuery Capability Overview
    3. Selector Options
    4. Combining Selections
    5. Selecting by Order
- C. Manipulating the DOM
    1. Working with Attributes and Properties
    2. Working with Elements and Content
    3. Wrapping and Unwrapping
    4. Increasing Cross-Browser Compatibility with Event Methods
- D. More on Element Selection
    1. Selecting Based on Structure
    2. Filtering Selection Results
    3. Traversing Structure for Selection
    4. Processing Results of a Selection

IV. JavaScript Object Notation (JSON)
- A. JSON Objects
    1. Exchanging Data using JSON
    2. Representing Objects
    3. Working with Arrays
- B. JSON Syntax and Processing
    1. Client-Side and Server-Side Usage
    2. Sending Data: Stringify to JSON
    3. Consuming Data: Parse JSON
    4. JSON vs XML
- C. jQuery, JSON, and AJAX
    1. Types of Content to be Processed
    2. Processing JSON with jQuery
    3. Processing Scripts with jQuery
    4. Processing HTML/XML with jQuery

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Course Outline (cont'd)

V. Web Application Performance
  A. Debugging Tools
    1. Debugging Needs and Models
    2. Proxy-Based Debugger and Developer Tools
    3. Browser-Based Debugger and Developer Tools
  B. Improving Response Time
    1. Multi-Stage Downloading
    2. Predictive Fetching
    3. On-Demand Downloading
    4. JavaScript and CSS Minification
  C. Improving Execution Time
    1. Code Optimization
    2. Reducing Bandwidth and Execution Requirements
    3. Minimizing Reflow Times
    4. Detecting Performance Issues
  D. Improving Memory Utilization
    1. JavaScript Memory Management
    2. Efficient DOM Manipulations
    3. Breaking Cyclic References

VI. Web Design
  A. Responsive Web Design (RWD)
    1. Adapting to Varying Screen Sizes
    2. Scaling Page and Text Content
    3. Scaling and Adapting for Media
    4. Options for Adjusting Media
  B. User Interface Principles
    1. Design Principles
    2. Improving Interactions with Users
    3. Matching Web Flow to User Expectations

  C. Layout Techniques
    1. Page Layout Considerations
    2. Stacking Content
    3. Handling Excessive Content
    4. Providing Consistency Across Web Presence
  D. Navigation Techniques
    1. Handling Excessive Content
    2. Providing Context and State Feedback
    3. Navigation Placement and Techniques
  E. Selection Techniques
    1. Improving Text Input
    2. Improving Enumerated Input
    3. Accessibility Considerations

VII. Advanced Web Topics (Optional)
  A. Web Accessibility
    1. Accessibility and Assistive Components
    2. Web Accessibility Principles and Guidelines
    3. Best Practices for Supporting Assistive Technologies
  B. Challenges for Mobile Development
    1. Native Applications
    2. Mobile Web Applications
    3. Implementation Options
    4. Handling Data
    5. Security Considerations