Advanced Web Development | HTML5, CSS3, UI Patterns, JQuery and More

Course Summary

Description

Advanced Web Development is an in-depth web development training course geared for software developers who need to understand what the latest in web technologies, performance, optimization, and user interface design patterns and best practices 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.

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

- Understand what HTML5 is, what is new, and how it is used within the context of web applications
- Understand what CSS3 is, what is new, and how it is used within the context of web applications
- Understand the wide variety of options, tools, and approaches that can be used in conjunction with the web design and implementation
- Work with the Dojo toolkit and JSON

Topics

- HTML5
- HTML5 JavaScript API
- CSS3 Overview
- CSS3 Advanced Selectors
- CSS3 Visual Effects
- Download Options
- Optimization & Profiling
- Memory Management
- UI Patterns Overview
- Navigation Patterns
- Selection Patterns
- Rich Interaction Patterns
- Challenges of Mobile
- jQuery
- JSON Objects
- JSON Syntax and Processing
- Dojo

Audience

This course is designed for experienced Web Developers.

Prerequisites

This is an intermediate 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.

Students should have previous experience or working knowledge of developing software applications. Basic HTML and CSS development skills are required. This is a programming class. Familiarity with an object-oriented language is helpful, and real world programming experience is a must.

Duration

Four days

Due to the nature of this material, this document refers to numerous hardware and software products by their trade names. References to other companies and their products are for informational purposes only, and all trademarks are the properties of their respective companies. It is not the intent of ProTech Professional Technical Services, Inc. to use any of these names generically

Advanced Web Development | HTML5, CSS3, UI Patterns, JQuery and More

Course Outline

I. HTML5

A. HTML5 Overview
   1. Status of HTML5
   2. Building with HTML5
   3. Support for HTML5 in different browsers
   4. HTML5 Web Applications
   5. HTML5 Graphics & Embedded Content
   6. HTML5 Forms Inputs
   7. HTML5 Design Principles
   8. HTML5 – New Features

B. DOCTYPE Tag
C. HEAD and BODY
D. Basic HTML5 Structure
E. HTML5 Semantic Tags
F. HTML5 Structural Markup Using Semantic Tags
G. New Tag <header>
H. New Tag <footer>
I. New Tag <article>
J. New Tag <section>
K. New Tag <aside>
L. New Tag <nav>
M. New Tag <figure>
N. New Tag <hgroup>
O. HTML5 Forms
   1. HTML5 Forms – New Features
   2. New Input Type: email
   3. New Input Type: URL
   4. New Input Type: number
   5. New Input Type: tel
   6. New Input Type: range
   7. New Input Type: color
   8. New Input Type: date
   9. More Input Types
   10. autofocus Attribute
   11. autocomplete Attribute
   12. placeholder Attribute
   13. <datalist> Tag
   14. required Attribute
   15. multiple Attribute
   16. pattern Attribute
   17. More Attributes
   18. min and max attributes
   19. form Child Outside <form>

P. HTML5 Media
   1. Drawing on the Canvas
   2. Define canvas and 2D Context
   3. Drawing into the Canvas
   4. Canvas 2D Drawing Example
   5. Drawing Paths
   6. Drawing Gradients and Patterns
   7. Pixel-Based Manipulation
   8. Audio and Video
   9. Embedding Media in Earlier HTML
   10. Embedding Media in Earlier HTML - Issues
   11. New Video tag
   12. New Audio tag
   13. src and loop attributes
   14. autoplay and controls Attributes
   15. preload Attribute
   16. height, width and poster Attributes
   17. Video Codecs
   18. Audio Codecs
   19. Playing Media in Multiple Browsers
   20. Multiple <source> Elements
   21. Legacy Browsers
   22. Media API Methods
   23. Media API Events
   24. Audio and Video Challenges

II. HTML5 JavaScript API

A. Drag and Drop API
B. Drag and Drop Components
C. Draggable Objects
D. Draggable Object Events
E. Draggable Object Event Handlers
F. Drop Area
G. Bind Events
H. dataTransfer
I. Messaging API
J. postMessage and onMessage
K. Sending Messages Cross-Domain
L. Message Event Listener
M. Web Storage API
N. Web Storage API Methods
O. setItem() and getItem() Methods
P. key() Method
Q. Removing Data
R. Offline with Application Cache
S. Cache Manifest File
T. applicationCache

Due to the nature of this material, this document refers to numerous hardware and software products by their trade names. References to other companies and their products are for informational purposes only, and all trademarks are the properties of their respective companies. It is not the intent of ProTech Professional Technical Services, Inc. to use any of these names generically

Advanced Web Development | HTML5, CSS3, UI Patterns, JQuery and More

Course Outline (cont'd)

III. CSS3 Overview
- A. What is CSS3?
- B. CSS3 New Features
- C. CSS3 Advantages
- D. CSS3 Browser Support
- E. CSS3 Selectors Support
- F. CSS3 Properties Support

IV. CSS3 Advanced Selectors
- A. Attribute Selectors
  1. CSS3 New DOM Attribute Selectors
  2. Beginning Substring Attribute Value Selector
  3. Ending Substring Attribute Value Selector
  4. Arbitrary Substring Attribute Value Selector
  5. The General Sibling Combinator
- B. Structural Pseudo-Classes
  1. The nth-* Pseudo-Classes
  2. nth-child and nth-of-type
  3. nth-last-child and nth-last-of-type
  4. first-of-type, last-child, and last-of-type
  5. only-child and only-of-type
- C. Pseudo-Class Selectors
  1. empty Selector
  2. root Selector
  3. not Selector
  4. target Selector
  5. UI Selectors

V. CSS3 Visual Effects
- A. 2D Transformations
- B. Transform Property
- C. Rotate Function
- D. Translate Functions
- E. Skew Function
- F. Scale Function
- G. Transitions
- H. Transition Property - Duration
- I. Transition Property – Timing Function
- J. Transition Property - Delay
- K. Font and Color in CSS3
- L. @font-face
- M. Opacity Color
- N. The Alpha Channel in RGBA Color
- O. The Alpha Channel in HSLA Color
- P. Border and Box Effects
- Q. border-radius
- R. border-image
- S. box-shadow

VI. Download Options
- A. Ajax and Traditional Web Apps
- B. Bandwidth
- C. User Experience on Page Load
- D. Multi-Stage Downloading
- E. Deciding How to Divide the Data
- F. Predictive Fetching
- G. Predictive Fetching Pitfalls
- H. Pre-Fetching Variant: Server Notification
- I. On-Demand Downloading
- J. JavaScript and CSS Minification

VII. Optimization & Profiling
- A. Code Optimization
- B. Adding Elements to a Page
- C. JavaScript Verbosity Tradeoffs
- D. Minimizing Dot-Notation
- E. CSS and Reflow Minimization
- F. Minimizing Reflow Times

VIII. Memory Management
- A. JavaScript Memory
- B. Tools for Measuring Memory Footprint
- C. Removal of DOM Nodes
- D. Cyclic References
- E. Reusing DOM Nodes
- F. Interactions Between Techniques

IX. UI Patterns Overview
- A. User Interface/Interaction Design Patterns
- B. Categories from Yahoo! Design Pattern Library
- C. Web Application Design Principles
  1. Design Principles: Keep It Direct
  2. Design Principles: Provide Live Feedback
  3. Design Principles: Offer an Invitation
  4. Design Principles: Cross Borders with Care
  5. Design Principles: Leave a Light Footprint
  6. Design Principles: Show Transitions
  7. Design Principles: Think in Objects

Due to the nature of this material, this document refers to numerous hardware and software products by their trade names. References to other companies and their products are for informational purposes only, and all trademarks are the properties of their respective companies. It is not the intent of ProTech Professional Technical Services, Inc. to use any of these names generically

Advanced Web Development | HTML5, CSS3, UI Patterns, JQuery and More

Course Outline (cont'd)

X. Layout Patterns
- A. Page Grids

XI. Navigation Patterns
- A. Accordion
- B. Alphanumeric Filter Links
- C. Breadcrumbs
- D. Item Pagination
- E. Search Pagination
- F. Module Tabs
- G. Navigation Tabs
- H. Top Navigation Bar
- I. Left Navigation Bar
- J. Progress Bar

XII. Selection Patterns
- A. AutoComplete
- B. Calendar Picker
- C. Carousel

XIII. Rich Interaction Patterns
- A. Invitations
- B. Cursor Invitation
- C. Drop Invitation
- D. Hover Invitation
- E. Tool Tip Invitation
- F. Transitions
- G. Animate Transition
- H. Brighten Transition
- I. Collapse Transition
- J. Cross Fade Transition
- K. Dim Transition
- L. Expand Transition
- M. Fade In Transition
- N. Fade Out Transition
- O. Self Healing Transition
- P. Slide Transition
- Q. Spotlight Transition
- R. Drag and Drop Modules
- S. Optional Topics

XIV. Challenges of Mobile Development
- A. What is the Difference?
- B. Mobile Web Applications
- C. Mobile Web Key Benefits
- D. Mobile Web Key Drawbacks
- E. Native Code Generators
- F. Native Code Generator Key Benefits
- G. Native Code Generator Key Drawbacks
- H. Native Web Runtime (NWR)
- I. NWR Key Benefits
- J. NWR Key Drawbacks
- K. Unique Mobile Device Distribution
- L. Apple iOS
- M. Android
- N. Blackberry
- O. Design Tools
- P. DroidDraw
- Q. jQuery ThemeRoller
- R. User-Base Considerations
- S. Data and Feature Constraints
- T. REST
- U. JSON, or JavaScript Object Notation
- V. JSON compared to SOAP
- W. JSON Supported languages
- X. Yahoo! Query Language (YQL)
- Y. SQLite
- Z. SQLite Adoption
- AA. Security
- BB. OpenID
- CC. OAuth
- DD. OAuth Architecture
- EE. Client-Side XSS by innerHTML
- FF. JavaScript eval() and parse()
- GG. Encryption

XV. jQuery
- A. Introducing jQuery
- B. Getting Started with jQuery
- C. Using jQuery from Web Page
- D. Register a Ready Event
- E. jQuery Functionalities
- F. jQuery Selectors
- G. Basic Selectors
- H. ID Selector ("#id")
- I. Class Selector (".class")
- J. Multiple Selector
- K. Selecting by Order
- L. Selecting Attributes
- M. Selecting from Forms
- N. Selecting Parent and Children
- O. DOM Traversal
- P. Manipulating DOM elements
- Q. Getting and Setting Attributes
- R. Removing Attributes
- S. Changing HTML and Text content

Due to the nature of this material, this document refers to numerous hardware and software products by their trade names. References to other companies and their products are for informational purposes only, and all trademarks are the properties of their respective companies. It is not the intent of ProTech Professional Technical Services, Inc. to use any of these names generically

Advanced Web Development | HTML5, CSS3, UI Patterns, JQuery and More

Course Outline (cont'd)

T. Managing Elements
U. Effects and animations
V. Hide and Show
W. Slide Up and Down
X. Fade In and Fade Out
Y. Utility Methods

XVI. JSON Objects

A. JSON Overview
B. Arrays
C. Arrays in Objects
D. Objects in Arrays

XVII. JSON Syntax and Processing

A. JSON Syntax
B. JSON Parsers
C. Sending Data
D. HTML: Using JSON
E. Server: Using JSON
F. JSON vs. XML
G. Advantages
H. Disadvantages

XVIII. Dojo

A. JavaScript Frameworks
B. Selecting a Framework
C. Dojo
D. Using Dojo
E. Request Object Properties
F. Using Dojo

Due to the nature of this material, this document refers to numerous hardware and software products by their trade names. References to other companies and their products are for informational purposes only, and all trademarks are the properties of their respective companies. It is not the intent of ProTech Professional Technical Services, Inc. to use any of these names generically