

# Course Outline



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## JavaScript Introduction

### Course Description:

JavaScript is a mature, standards-based and widely available scripting language, embedded in many browsers, used mainly to add flexibility and interactivity to web pages without necessarily requiring further server interaction. In addition to its built-in-facilities, there are freely-accessible libraries of JavaScript code to help build typical applications.

This three-day course provides a comprehensive introduction to the major aspects of the JavaScript scripting language and its application particularly to client-side applications. It covers the basic techniques and programming structures provided by the language, and how those are applied to the browser's view of the page's elements.

### Pre-requisites:

This course is for Web developers and designers looking to extend the functionality of their web pages beyond pure (X)HTML. Students should be thoroughly with the techniques of creating web pages using (X)HTML, including forms. They should be comfortable in using one or more web browsers such as Internet Explorer, Firefox, Opera and Google Chrome.

Attendees should have some programming understanding, preferably some experience with any language that uses C-like syntax such as C, C++, C#, PHP, Java or Perl. Attendees should in any case have an understanding of the concepts and use of literals and variables, expressions and operators, including precedence and associativity, if/else statements and looping statements using both while and for keywords. For one organisation, for those without such experience, the initial topics can be covered at a less challenging pace.

### Course Content:

- **Introduction**
  - JavaScript origins and antecedents
  - JavaScript and related standards
  - Embedding client-side JavaScript in (X)HTML
  - Script structure
  - Basic output methods

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- **Basics**
  - Basic syntactical structures
  - Basic input methods
  - Event handlers
  - Errors and diagnostics
  - eval
- **Data types, expressions, operators**
  - Integers, floats, strings
  - Variables and assignment
  - Creating expressions using operators
  - Conversions
- **Basic control structures**
  - Relational expressions
  - Conditional processing: if and else
  - switch
  - Logical operators
  - Looping: while, for
- **Arrays**
  - Defining normal arrays
  - Assigning and extracting values
  - Iterating across arrays
  - Array dimensions
  - Extending and reducing arrays
  - Sorting and reversing arrays
- **Functions basics**
  - Creating your own functions
  - Invoking functions
  - Passing and receiving arguments
  - Variable scope
  - return value(s)
- **Object basics**
  - Creating objects and new keyword
  - Accessing values of an object
  - Constructors

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- **Object basics**
  - Class and instance methods
  - prototype property
  - with
  
- **Core built-in objects**
  - Number, string and boolean types
  - String objects and properties
  - Simple string methods
  - Mathematics
  - Date and time handling
  - Regular expression basics
  - The Prototype library
  
- **Error and exception handling**
  - Identifying and fixing errors
  - Syntax and runtime errors
  - Debugging
  - Anticipating errors
  - onerror
  - try...catch....finally
  
- **Regular expressions**
  - The Regexp object
  - String and Regexp methods
  - Pattern matching facilities
  - Replacing text
  
- **Browser and document object model**
  - Representing the browser
  - W3C
  - The DOM
  
- **Window and timer techniques**
  - Opening new windows
  - Directing content to windows
  - Accessing the status bar
  - Timers and Prototype's PeriodicalExecuter class

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- **The DOM in practice**
  - Level 0 and IE4 model and events
  - Dynamic content, innerHTML, etc
  - Level 1 and 2 techniques
- **Forms and JavaScript**
  - Form objects and properties
  - Form elements, properties and methods
  - Named sets
- **Form validation**
  - onSubmit and onReset event handlers
  - onBlur and individual element validation
  - Form.submit() and Form.reset()
  - Generic validation
- **Images and sound**
  - Rollovers
  - Pre- and post-loading
  - The Image object
  - Image maps
  - Sounds

**Course Duration:**

**3 Days**

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