

## Javascript Programming

### Course Summary

#### Description

JavaScript is a scripting language most often used for client-side web development. JavaScript is a dynamic, weakly typed, prototype-based language with first-class functions. JavaScript was influenced by many languages and was designed to have a similar look to Java, but be easier for non-programmers to work with. The language is best known for its use in websites (as client-side JavaScript), but is also used to enable scripting access to objects embedded in other applications. This course covers a broad introduction with practical code examples and applications.

#### Topics

- Introduction
- JavaScript Syntax and Trivia
- The Document Object Model
- Events
- The String and Regular Expressions
- Forms
- Form Field Validation
- Math and Date Objects
- Simple AJAX Application
- Error Handling

#### Prerequisites

Before attending this course, students should have advanced HTML experience.

#### Duration

Three days

## Javascript Programming

### Course Outline

#### I. Introduction

- A. Overview
- B. The Separation of Concerns
- C. The Three Layers of the Web
- D. Client Side JavaScript

#### II. JavaScript Syntax and Trivia

- A. Overview
- B. Where to Put the JavaScript?
- C. Using an External JavaScript
- D. Comments
- E. Write Text
- F. Lifetime of Variables
- G. Primitive Datatypes
- H. Type Conversion
- I. Literals
- J. Integers
- K. Array
- L. Reference Datatype
- M. Conditional Statements
- N. If Statement
- O. If...else Statement
- P. The JavaScript Switch Statement
- Q. Arithmetic Operators
- R. Functions
- S. How to define a Function
- T. Calling a Function
- U. The return Statement
- V. JavaScript Loops
- W. The for Loop
- X. The while loop
- Y. The do while loop
- Z. Object Oriented Programming
- AA. Objects
- BB. Properties
- CC. Methods
- DD. The new Operator
- EE. User-defined Objects
- FF. Create a Template of an Object

#### III. The Document Object Model

- A. Overview
- B. Example: HTML
- C. Example: DOM Representation
- D. Document Node
- E. The HTML DOM

- F. DOM Methods for Accessing Objects
- G. Accessing Parent Element
- H. Accessing Children Elements
- I. getElementByTagName
- J. The innerHTML
- K. Example

#### IV. Events

- A. What are events?
- B. Enable Event
- C. Examples
- D. Event Listener
- E. Mouse Rollover Effect
- F. Interface Event Handlers
- G. Key Event Handlers
- H. Mouse Event Handlers
- I. Form Event Handlers

#### V. The String and Regular Expressions

- A. Overview
- B. Properties and Methods
- C. Methods
- D. The split() Method
- E. The search() Method
- F. Regular Expressions and Patterns
- G. Regular Expression
- H. Example
- I. The replace() Method Global
- J. Comparing Strings
- K. Trimming White Spaces
- L. Escape Character

#### VI. Forms

- A. The Form Object
- B. Accessing Forms
- C. Form Properties and Methods
- D. Form Element Objects
- E. Form Elements Properties and Methods
- F. Example
- G. Getting a Value from a Form Object
- H. Setting a Value in a Form Object
- I. Using Radio Buttons
- J. Using Check Boxes
- K. Using Text Areas

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### **Course Outline (cont'd)**

#### **VII. Form Field Validation**

- A. Overview
- B. Common Validations
- C. Validating before Form Submission
- D. Example
- E. Validating On A by Entry Basis
- F. Validating Numeric Data
- G. Validating String Data
- H. Example

#### **VIII. Math and Date Objects**

- A. Math Object Properties
- B. Math Object Methods
- C. Round Example
- D. Random Example
- E. Max Example
- F. Date Object
- G. Date Object Methods
- H. Current Date
- I. Compare Two Dates
- J. Clock Example

#### **IX. Simple AJAX Application**

- A. HTML Page
- B. JavaScript File
- C. Application Layout
- D. Run Application
- E. Output

#### **X. Error Handling**

- A. try/catch/finally
- B. Syntax
- C. finally Block
- D. Example
- E. The Error Object
- F. Example
- G. Properties of the Error Object
- H. Example