

JavaScript

JavaScript is the enabling technology behind Web 2.0 and AJAX. Targeted for students already proficient in programming concepts, this course dives into the details of this rich, powerful, and mature language. Employing lecture, interactive demonstrations, and in-class programming exercises, the course covers the core language constructs, the document object model (DOM), and custom objects. Topics include function, date, array, string, RegExp, math, document, node, element, and attribute objects; HTML form manipulation; cookies; event binding and handling; prototype-based inheritance; DHTML; and multiple script debugging techniques.

Who should take this course?

This course is targeted for students already proficient in programming and Web concepts who wish to master the standard programming language of the Web browser.

Course Objectives

- Author a simple Web page using JavaScript to display a message to the user.
- Use branching and looping constructs.
- Recognize several syntaxes for referencing an object's properties for the four types of objects.
- Author functions that declare parameters and are called with arguments.
- Use Date, Math, and Array objects appropriately.

Course Details

- Length: 24 hours
- Format: Classroom
- Prerequisites: XHTML – Levels 1 and 2 and C# Programming: 1. Recommended: Cascading Style Sheets: Level 1.

The above prerequisites are considered to be the basic skills and knowledge needed prior to taking this class. Instructors will assume your readiness for the class materials and will NOT use class time to discuss prerequisite materials.



Course Contents

Introduction

- Who created and introduced the JavaScript language
- The purpose for which JavaScript was originally designed
- How JavaScript, JScript, and ECMAScript relate to one another
- Characteristics of JavaScript
- Differences between JavaScript and Java
- Sources of JavaScript reference documentation
- Author a simple Web page that uses JavaScript to display messages to the user

Nuts and Bolts

- The rules for creating identifiers
- JavaScript's data types
- JavaScript's operator set
- Use JavaScript's branching constructs
- Use three looping constructs

Overview of Objects

- Implementing JavaScript's features using objects
- The four types of objects in JavaScript
- JavaScript object (typically consists of properties and methods)
- Syntaxes for referencing an object's properties
- Iterate over the properties of an object using the for/in loop
- Use the with keyword when working with objects
- Creating objects in JavaScript: the interpreter automatically allocates memory, and automatically deallocates memory for the objects when they are no longer referenced
- The operation of the delete keyword



Course Contents, continued

Functions

- The difference between a function and a procedure
- Using the function keyword to define both functions and procedures
- Author functions that declare parameters and are called with arguments
- JavaScript functions: objects having both properties and methods
- Use a function's arguments array to resolve the quantity and values of arguments passed to the function when it is called
- Returning differing data types from the same function
- Parameters: passed to functions by value
- Pass functions as arguments to other functions

Core Objects

- Use the Date object's constructors
- The usage of several methods of the Date object
- The methods of the Math object
- Ways to create Array objects
- Use methods of the Array object to sort an array in ascending or descending order
- Use an Array object to perform the operation of a Stack and a Queue
- Use numerous methods of the String object
- The JavaScript string is immutable
- The RegExp object and its uses
- Several methods of the Global object
- The operation of the eval method



Course Contents, continued

Browser and DOM objects

- Adjusting vertical spacing
- Using a baseline grid
- Changing space above/below a paragraph
- Changing fonts and type style
- Changing paragraph alignment
- Adding decorative fonts, special characters, drop caps
- Adjusting letter and word spacing, kerning and tracking
- Paragraph and single-line composers
- Working with tabs
- Hanging indents
- Rules above/below paragraphs