
JavaScript: Programming

Course Length: 3 Days

Course Description

Overview: *JavaScript: Programming (Second Edition)* is a hands-on instruction book that will teach you how to program using this powerful Internet-oriented programming language.

Prerequisites: We designed *JavaScript: Programming* for the student who is an experienced developer of Web pages and who has had some exposure to JavaScript, probably through the use of scripts developed by others. If you are comfortable creating Web pages by writing HTML code, proficient with both Internet Explorer and Navigator, and have at least tried to use other people's scripts in your Web pages, then you are well matched to the prerequisites for this course. This is a serious programming course. So, if you have programmed in another language, you will likely excel.

To ensure your success, we recommend you first take the following Element K courses or have equivalent knowledge:

- *HTML 4.01: Web Authoring, Level 1*
- *HTML 4.01: Web Authoring, Level 2*
- *Introduction to Programming (Second Edition)*
- *Enhancing Web Pages With JavaScript*

Delivery Method: Instructor-led, group-paced, classroom-delivery learning model with structured hands-on activities.

Benefits: Students will learn how to write JavaScript programs that use the latest language techniques. Students will also learn how to write programs that are compatible with previous versions of the language and are cross-platform compatible.

Target student: Students enrolling in this course should have a strong understanding of HTML programming and should have a basic familiarity with JavaScript. They should have examined scripts written by others and have implemented other people's scripts on their Web pages. This is a serious programming course for those students who want to gain a full understanding of this powerful programming language.

Performance-Based Objectives

Lesson objectives help students become comfortable with the course, and also provide a means to evaluate learning. Upon successful completion of this course, students will be able to:

- Apply fundamental JavaScript scripting techniques by creating simple JavaScript scripts, interacting with browser error-handling features, testing JavaScript syntax, detecting the use of different language components, and evaluating coding best-practices guidelines.
- Interact with JavaScript variables and operators by examining data types and variable types supported by JavaScript; testing rules governing the creation, use, and manipulation of data types and variables; and testing the operators that manipulate data.
- Control the logical flow of your programs by writing scripts that use control structures.
- Create and use functions, examine object characteristics, use objects, instantiate objects, and create custom objects.
- Interact with the Window object by displaying and manipulating status bar messages, and manipulating browser windows (including opening and closing them).
- Interact with the Document object by entering code to write text to a document loaded in the browser window, creating dynamic documents, and examining incompatibility issues.
- Apply techniques for creating frameset documents, and access frames and the objects contained in them.
- Interact with the Form object by reading data from and writing data to form elements.
- Interact with the String and RegExp objects by using String object methods to correct common data entry errors, creating dynamic text effects by using substring methods, and building RegExp expressions to test and validate string values.
- Craft functionality that validates form data by building the main architecture for the form validation process, creating code that tests individual form elements, creating functions that prepare data for validation and display a dynamic validation report, and creating code that validates radio, checkbox, and select list objects.
- Use and manipulate instances of the Date object, and perform mathematical calculations with Math object methods.
- Recognize potential coding problems in a cross-browser environment by examining the compatibility landscape and techniques for dealing with incompatibilities, and by using browser detection to create code that works around platform incompatibilities.

Course Content

Lesson 1: Getting Started

Topic 1A: JavaScript Overview

Topic 1B: JavaScript Programming Basics

Lesson 2: Variables and Operators

Topic 2A: Variables and Data Types

Topic 2B: Using Variables and Literals

Topic 2C: Operators

Lesson 3: Control Statements

Topic 3A: Controlling the Flow: JavaScript Control Statements

Lesson 4: Functions and Objects

Topic 4A: Functions

Topic 4B: Objects

Lesson 5: The Window Object

- Topic 5A: The Window Object
- Topic 5B: Dialog Boxes
- Topic 5C: Status Bar Messages
- Topic 5D: Window Manipulations

Lesson 6: The Document Object

- Topic 6A: The Document Object
- Topic 6B: Writing to Documents
- Topic 6C: Dynamic Documents

Lesson 7: Frames

- Topic 7A: HTML Frames Review
- Topic 7B: Scripting for Frames

Lesson 8: Forms and Forms-based Data

- Topic 8A: The Form Object
- Topic 8B: Working With Form Elements and Their Properties

Lesson 9: The String and RegExp Objects

- Topic 9A: The String Object
- Topic 9B: Using String Object Methods to Correct Data Entry Errors
- Topic 9C: Creating Dynamic Effects With Substring Methods
- Topic 9D: The RegExp Object

Lesson 10: Form Validation

- Topic 10A: Form Validation: A Process
- Topic 10B: Testing Data
- Topic 10C: Preparing Data for Validation and Reporting Results
- Topic 10D: Validating Non-text Form Objects

Lesson 11: Dates and Math

- Topic 11A: The Date Object
- Topic 11B: Using and Manipulating Dates
- Topic 11C: The Math Object
- Topic 11D: Doing Math With JavaScript

Lesson 12: Cross-browser Compatibility

- Topic 12A: Examining the Compatibility Landscape
- Topic 12B: Detecting Browsers and Platforms