

# CIW JavaScript Specialist v3



## Certification Exam: 1DO-835

The JavaScript Specialist course introduces students to key concepts and techniques for building interactive, dynamic websites using JavaScript. Students will explore variables, functions, arrays, objects, DOM manipulation, event handling, form validation, and asynchronous communication with AJAX and JSON. The course also covers modern web APIs, such as web storage, geolocation, and canvas, which enhance web applications using built-in browser features.

Through hands-on projects and real-world scenarios, students will develop the skills to build responsive user interfaces, handle client-side data processing, and integrate external data and services into web pages. By the end of the course, students will be equipped with the practical knowledge and technical foundation required for careers in web development and prepared to take on advanced learning in front-end or full-stack development environments.

Prior experience with HTML and CSS is suggested.

## Candidate Profile

The CIW JavaScript Specialist v3 certification and courseware serve a wide range of learners seeking practical, industry-relevant JavaScript skills, including:

### High School Students

- Grades 9 – 12 or recent graduates with basic tech literacy and HTML/CSS exposure.
- Those interested in college pathways (computer science, software development) or improving job prospects after graduation.

### Adults

- Non-technical roles (e.g., marketing, design) expanding into software development.
- Junior developers seeking certification for career growth.
- Career changers entering tech from other fields.
- Participants in corporate upskilling, reskilling, or workforce development programs.

## Career Profile

This course aligns with the Department of Labor Standard Occupational Classification for the following:

### SOC: 15-1252 Software Developer

Software developers design, code, test, and maintain software and applications. They analyze user needs, resolve issues, develop and update software, and collaborate with teams to ensure systems run efficiently and meet requirements.

### SOC: 15-1254 Web Developers

Web developers design, build, and maintain websites and web applications. They write and test code, ensure sites function properly, fix issues, and collaborate with team members to meet user and business needs.

### SOC: 15-1255 Web and Digital Interface Designers

Web and Digital Interface Designers design the layout, visuals, and user experience of websites and digital applications. They create wireframes and prototypes, ensure interfaces are visually appealing and easy to use, and collaborate with developers to implement designs that meet user and business requirements.

## Topics

### Lesson 1: Introduction to JavaScript

- Introduction to Scripting
- JavaScript Characteristics
- JavaScript and Common Programming Concepts
- JavaScript Flavors and Versions
- Technologies Based on JavaScript
- Server-Side vs. Client-Side Applications
- Annotating Your Code with Comments
- Expanding the Role of JavaScript

### Lesson 2: Working with Variables and Data in JavaScript

- Using JavaScript to Communicate with the User
- Tools for Debugging Code
- Using Data More Than Once: Variables
- JavaScript Operators
- JavaScript Expressions
- JavaScript Alerts and Prompts
- Simple User Events and Basic Event Handlers
- JavaScript Keywords and Reserved Words

### Lesson 3: Functions, Methods, and Events in JavaScript

- Introduction to Functions
- Defining a Function
- Calling a Function
- Methods as Functions
- Types of Functions
- User Events and JavaScript Event Handlers

### Lesson 4: Debugging and Troubleshooting JavaScript

- What is Debugging?
- Tools for Debugging Code
- Testing Code in Various Browsers
- Debugging Logic Errors
- JavaScript and Mobile Devices

### Lesson 5: Controlling Program Flow in JavaScript

- Controlling Decision Program Flow
- The *if...else* Statement
- The *while* Statement
- The *for* Statement
- The *break* Statement
- The *continue* Statement
- The *switch* Statement

### Lesson 6: The JavaScript Document Object Model (DOM)

- The JavaScript Document Object Model (DOM)
- The *window* Object
- The *document* Object
- The *image* Object
- The *history* Object
- The *location* Object
- The *navigator* Object
- The Virtual DOM

### Lesson 7: JavaScript Language Objects

- Introduction to JavaScript Language Objects
- The *String* Object
- Evaluating Strings
- JavaScript Regular Expressions
- The *Array* Object
- The *forEach()* Method
- The *map()* Method
- The *Date* Object
- Setting and Extracting Time Information
- The *Math* object

### Lesson 8: Custom JavaScript Objects

- Creating Custom Objects
- Creating a JavaScript Object: The Constructor
- Creating an Instance of a Custom Object
- Creating Object Methods
- Creating Functions for Your Objects
- Concept of Classes
- Iterators and Generators

### Lesson 9: Changing HTML on the Fly

- Changing HTML on the Fly
- Using the *getElementById* Method
- Using the *getElementsByName* Method
- Using the *getElementsByTagName* Method
- Using the *getElementsByClassName* Method
- Modifying Attributes within the DOM
- Appending Text to the DOM

### Lesson 10: Developing Interactive Forms with JavaScript

- Interactive Forms
- Overview of *Form* Elements
- The *form* Object
- The *input* Elements and *text* Objects
- The *textarea* Object
- The *select* Object and *select* Element
- Form Validation
- Common Form Security Errors

### Lesson 11: JavaScript Security

- Introduction to JavaScript Security Issues
- Browser vs. Operating System
- Browser-Specific Security Issues
- Browser Compatibility and Feature Detection
- Script Blocking
- Malicious and Accidental Coding
- Security Issues with Frames
- Cross-Site Scripting (XSS)
- Cookies and Security in JavaScript
- Ethics in Collecting, Storing, Using, and Protecting User Data
- Creating Secure JavaScript Code

### Lesson 12: JavaScript Libraries and Frameworks

- Introduction to JavaScript Libraries and Frameworks
- Choosing a Code Library
- External and Pre-Made Scripts
- Loading Your First Library
- Using JavaScript Library Plugins
- Using Frameworks
- Best Practices with JavaScript Libraries and Frameworks
- Copyright Issues and JavaScript

### Lesson 13: JavaScript and AJAX

- Introduction to AJAX
- Handling Data and Content Types
- Interactions Among JavaScript, Data, and HTML
- Using AJAX Scripts
- AJAX and Servers
- AJAX and Databases
- Usability Issues with AJAX
- Combining AJAX with Libraries

## **Lesson 14: Introduction to Web APIs**

Web Application Programming

Interface (API)

The Web Storage API

The Geolocation API

The Canvas API