

Mastering JavaScript & JQuery (TT4675)

Modality: Virtual Classroom

Duration: 5 Days

About this course:

Learning jQuery and JavaScript offers an intro to and experience interacting with the programming language of JavaScript in the environment it is mostly used in the browser. JavaScript is elegant and simple, but it is also tough to work with and it is so distinct from the programming languages in which most developers operate.

This program also discusses jQuery and offers hands-on and practical experience in developing rich web apps with the chosen JavaScript library. If you create for the web, mastering jQuery can improve the way JavaScript is written, operating through multiple platforms and browsers.

A JavaScript Developer's average salary is \$103,001 per annum.

Course objective:

Working inside a dynamic, realistic learning environment, directed by our team of experts, participants will:

- Know about the DOM Application programming interface enough to turn it to your will
- Understand closures and use them effectively
- Discover what is jQuery and learn how to add it to your apps
- Create rich web pages that discuss user experiences
- Examine a diverse range of plugins and figure out how to compose your own
- Get both experienced with and confident enough to interact with the language in any way
- Make possible contact between client and server
- Comprehend how the object model in JavaScript varies from the traditional object-oriented programming languages model
- Using jQuery to pick complex sets of DOM-Elements
- Using Ajax to communicate with your server Code
- Check your apps to ensure that your JavaScript is as good as most of your code

Audience:

- It is an introductory web development program intended for experienced Web/JavaScript developers who want to expand their web development and design skills.

Prerequisite:

- In designing simple software apps, the participants should have a comprehensive working knowledge.

Course Outline:

Module 1: Core JavaScript

Lesson: JavaScript Basics

- JavaScript Defined
- Variables and Operators
- Flow Control and Conditionals
- Exercise: JavaScript Basics

Lesson: Debugging Tools

- Using the strict mode and setting breakpoints
- Browser debugging tools
- Monitoring resource usage and performance
- Emulating devices Exceptions in JavaScript
- Exercise: JavaScript Debugging

Lesson: JavaScript Functions

- Functions in JavaScript
- Invoking Functions
- Function Constructor
- Function Scope and Closures

Lesson: JavaScript Arrays, Math and Date

- JavaScript Literals
- JavaScript Arrays
- Working with Numbers and Dates
- Exercise: JavaScript Built-in Objects

Lesson: JavaScript Event Handling and the DOM

- Events and Event Handling
- HTML Document Object Model

- Accessing the DOM
- Dynamically Working with the DOM
- DOM Challenges
- Exercise: Using Events and the DOM

Lesson: Object-Oriented JavaScript

- JavaScript “Objects” and “Classes”
- Constructors and Prototypes
- Prototypes
- Extending Classes with Prototype
- Reusable, Flexible Classes
- Exercise: Working with Classes

Module 2: jQuery

Lesson: Why jQuery?

- JavaScript Evolution
- Why jQuery?
- jQuery Usage
- Downloading jQuery

Lesson: Basic jQuery

- jQuery: Operational Overview
- jQuery Capability Overview
- Basic Selectors
- Multiple Selector
- Selecting by Order
- Exercise: Installing and Testing jQuery

Lesson: Manipulating the DOM

- Attributes vs. Properties
- CSS Box Model Properties
- Element Content
- Manipulating Children
- Wrapping and Unwrapping
- Effects (Basic Animation)
- Effects Queues
- Exercise: CSS Selection

Lesson: More On Element Selection

- Hierarchical Selectors (Combinators)
- Attribute Selectors

- Basic vs. Child Filters
- Filtering Methods
- Traversing Methods
- Exercise: Delving Into jQuery

Module 3: Working with jQuery

Lesson: Attributes, Forms, and DOM

- Selecting from Forms
- Selecting Parent and Children
- Automatic DOM Traversal
- Manipulating DOM Elements
- Getting and Setting Attribute Values
- Removing Attributes
- Exercise: Dynamic DOM

Lesson: More jQuery!

- The jQuery Function
- The jQuery Object
- Some jQuery “Static” Methods
- Utility Methods
- Exercise: jQuery Practice

Lesson: Event Handling

- Binding Multiple Events to Same Handler
- Multiple Events to Different Handlers
- Event Targets
- Triggering Events
- Custom Events
- Live Events
- Exercise: jQuery Events

Lesson: More On Elements!

- Changing HTML Content
- Changing Text Content
- Managing Elements
- Introduction to Animations

Lesson: Ajax

- Posting Data
- Global Ajax Handlers
- JSONP

- Serialization
- Deferred Objects
- Promises and Piping
- Chaining Tasks
- Exercise: jQuery Selectors and Content Manipulation

Module 4: jQuery Plugins and Enhancements

Lesson: jQuery Plugins

- jQuery Validation Plugin
- jQuery Form plugin
- jQuery BBQ (Back Button & Query) Plugin
- jQuery Hotkeys Plugin
- jQuery Color Plugin
- Exercise: jQuery Plugins

Lesson: jQuery UI

- jQuery UI Effects
- Advanced Easing
- Interactions
- Position Utility
- Widgets
- Icons
- Exercise: jQuery UI

Lesson: Templates

- Micro Templates
- jQuery Template Plugin
- Compiling Templates Template Items

Module 5: JavaScript Object Notation (JSON)

Lesson: JSON Objects

- Understand JavaScript's literal syntax for creating arrays and objects
- Understand object literals
- Understand arrays
- Understand arrays in objects
- Understand objects in arrays

Lesson: JSON Syntax and Processing

- Understand JSON Syntax

- Understand JSON Parsers
- Read and write object and array literals in JavaScript
- How to use JSON in an Ajax application
- Understand the advantages of using JSON
- Understand the disadvantages of using JSON
- How to use JSON in an Ajax application
- How to transfer data to and from the server

Lesson: jQuery, JSON, and AJAX

- jQuery AJAX Utility Method
- jQuery and JSON
- jQuery and Other Data Types
- Serialization
- Deferred Objects
- Promises and Piping
- Chaining Tasks
- Exercise: Implementing JSON

Module 6: Advanced JavaScript Topics

Lesson: ES6: The Next Step

- ES6 Defined
- ES6 Default and Rest Parameters
- IIFE and Closures
- ES6 Importing/Exporting Modules
- Arrays, ES6 Maps, and ES6 Sets
- Working Arrays with ES6
- Working Strings with ES6 Strings
- ES6 Constructs and Inheritance
- ES6: Getters and Setters
- Exercise: Working with ES6

Lesson: HTML5 JavaScript API

- Cross-Domain Messaging
- Working with Web Storage
- Offline with Application Cache
- Geolocation: What, Why, and How
- Exercise: Using the Web Storage API
- Exercise: Using the ApplicationCache API

Lesson: TypeScript

- Strong Data Typing
- Compiling TypeScript to JavaScript

- TypeScript Datatypes
- TypeScript Classes and Interfaces

Lesson: JavaScript Best Practices

- Code Conventions for the Lifecycle
- Resolving Shared Resources
- Constructs to Use
- Constructs to Avoid
- Memory Considerations

Lesson: JavaScript Scheduling, Execution, and Security

- Timers and Scheduling
- Execution Contexts
- Same Origin Policy and JavaScript
- Security Considerations

Lesson: Performance and Optimization

- Code Optimization
- JavaScript Verbosity Tradeoffs
- Memory Considerations
- Cyclic References

Lesson: Download Options

- Explain the basic principles underlying web application performance optimization
- Understand the role of downloading options in smoothing bandwidth usage
- Understand how caching can reduce bandwidth usage

Lesson: Security

- Security: The Complete Picture
- Unvalidated Input
- Injection Flaws
- XSS
- Spoofing
- How Attackers See JavaScript Applications
- OWASP Top Ten for 2017

Module 7: Web Design

Lesson: Responsive Web Design

- Adapting to Varying Screen Sizes
- Scaling Page and Text Content

- Scaling and Adapting for Media
- Options for Adjusting Media
- Exercise: Make a Responsive Page

Lesson: User Interface Principles

- Design Principles
- Improving Interactions with Users
- Matching Web Flow to User Expectations

Lesson: Layout Techniques

- Page Layout Consideration
- Stacking Content
- Handling Excessive Content
- Providing Consistency Across Web Presence
- Exercise: Design: Using Responsive Web Design Patterns

Lesson: Navigation Techniques

- Handling Excessive Content
- Providing Context and State Feedback
- Navigation Placement and Techniques
- Exercise: Design: jQuery Events Project

Lesson: Selection Techniques

- Improving Text Input
- Improving Enumerated Input
- Accessibility Considerations