



## JavaScript course curriculum

### Some of the main objectives of this course include helping you understand:

- What JavaScript is and where it is used
- Basic programming concepts like variables, data types and conditional statements
- What functions are and why they're useful
- Build and use logical statements to make decisions within your code
- Build JavaScript programs leveraging functions, loops and iterative programming constructs
- Make your web pages come to life with Interactive Content
- Handle data and updating page content without page refreshes using JSON and AJAX
- Incorporating JavaScript into your HTML pages

- How to troubleshoot programming problems
- The syntax of the JavaScript programming language
- Implement and maintain hypertext-based Web sites using authoring and scripting languages
- Create Web content
- Use Web management tools and digital media tools
- Apply human-factor principles to design
- Get a strong foundation in JavaScript to become ready for Full Stack Web Development using frameworks like Angular and Node.js
- Proceed on your journey for MEAN/MERN web developer career tracks

### **Course Content**

#### ***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

#### ***Working with Variables and Data in JavaScript***

- Using JavaScript to Communicate with the User

- Using Data More Than Once: Variables
- JavaScript Operators
- JavaScript Expressions
- JavaScript Alerts and Prompts
- Inline Scripting, Simple User Events and Basic Event Handlers
- JavaScript Keywords and Reserved Words

### ***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

### ***Debugging and Troubleshooting JavaScript***

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

### ***Controlling Program Flow in JavaScript***

- Controlling Decisional Program Flow
- The if...else Statement

- The while Statement
- The do...while Statement
- The for Statement
- The break Statement
- The continue Statement
- The switch Statement

***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

***JavaScript Language Objects***

- Introduction to JavaScript Language Objects
- The String Object
- Evaluating Strings
- JavaScript Regular Expressions
- The Array Object
- The for Each Method
- The Map Method

- The Date Object
- Setting and Extracting Time Information
- The Math Object

***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
- Call, apply and bind

***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

***Developing Interactive Forms with JavaScript***

- Interactive Forms
- Overview of Form Elements

- Referring to Form Elements
- The form Object
- The input Elements and text Objects
- The textarea object
- The select Object
- Form Validation
- Common form Security Errors

### ***JavaScript Security***

- Introduction to JavaScript Security Issues
- Browser vs. Operating System
- Browser-Specific Security Issues
- Browser Compatibility and Client-Side Detection
- Script Blocking
- Differences in document.write Among Browsers
- Malicious and Accidental Coding
- Frame-to-Frame URL Changing
- Signed Scripts
- Cross-Site Scripting (XSS)
- Cookies and Security in JavaScript
- Ethics in Collecting, Storing, Using and Protecting User Data
- Creating Secure JavaScript Code

### ***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 Plug-ins
- Using Frameworks
- Best Practices with JavaScript Libraries and Frameworks
- Copyright Issues and JavaScript

***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

***Introduction to Web APIs***

- Web Application Programming Interface (API)
- The Web Storage API
- The Geolocation API
- The Canvas API