

# JavaScript

## CURRICULUM

Seven modules

3 hours/module

JavaScript (JS) has grown to be a language of choice for not only front-end development, but also server-side coding. Its ubiquitous nature has made it an essential skill for any web developer worth his salt.

This bootcamp will help you master the basics as well as advanced features of JS. This bootcamp takes you through the essentials of JS. Once the basics are cemented, you will move to advanced topics like prototypes & object-oriented JS, promises, observables, ES2015 features and TypeScript. These topics will lay a strong foundation for you to get started with frameworks like React and Angular that are currently very much in demand in the industry.

## PREREQUISITES

(Apart from those common to other offerings)

- Knowledge of a programming language like C, C++ or Java.
- Basic algorithms knowledge
- Comfortable with HTML

# CHAPTERS AND TOPICS

## LANGUAGE BASICS

### *Introduction to JavaScript Language Fundamentals*

- Variables and Primitive Data Types
- Variable Scopes, Scope chain and Hoisting
- Using Arrays
- Expressions, Operators and Operator Precedence
- Control flow - Branching and Looping

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## FUNCTIONS

### *Introduction to Functions*

- Function Declaration and Usage
- Function Hoisting
- Handling Variable Number of Arguments and Types
- Callbacks - Passing Functions as Arguments
- Returning Functions
- Closures

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## OBJECTS

### *Introduction to Objects*

- Object Declaration using Literal Syntax
- Accessing Properties and Methods
- Adding and Deleting Properties
- The Module Pattern

### *The “Class” in JavaScript*

- Functions context (*this* keyword) and the Constructor Function
- Introduction to the Object Prototype and Prototype Chain
- Establishing Inheritance

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## BUILT-IN CLASSES AND OBJECTS

### *Introduction to Built-in Classes and Objects in the JavaScript Language*

- Object
- Function - Functions as Objects

Array  
Date  
JSON  
Primitive Type Wrappers - Number, Boolean, String

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## **ERROR HANDLING**

### ***Introduction to Handling error scenarios***

Strict Mode Execution  
Error Handling using `onerror`  
Error Objects  
Exception Handling using *`try..catch..finally`* and *`throw`*

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## **BROWSER OBJECTS AND THE DOM**

### ***Introduction to Objects the Browser Creates***

window  
document  
navigator  
location  
history

### ***The Document Object Model (DOM)***

The DOM Tree, Nodes and Node Types  
Node Relationships and DOM Tree Traversal  
Node properties and methods for DOM Manipulation

### ***Event Handling***

Various Browser Events  
The Event Flow - Event Bubbling  
Different Ways to Handle Events  
Event Object Properties and Methods

### ***jQuery Basics***

Introduction to Basics of jQuery  
Why jQuery?  
DOM Manipulation in jQuery  
Event Handling in jQuery  
Ajax Requests using jQuery  
Important Utility Methods

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## ADVANCED TOPICS

### *Topics That Serve as Next Steps in Learning JS and Web Development*

ES2015 Features and the Babel Transpiler

let, const Keywords and Block-level Scope

Object and Array Destructuring

Arrow Functions

Default Parameters, Rest and spread

Strings and Templating

Arrays, Maps and Sets

Classes and Modules

Promises, Iterators and Generators

Reactive Extensions Library - RxJS

Brief Introduction to the TypeScript Language Features