**JavaScript**

**Module - 1**

JavaScript Introduction

Visual studio

Programming in JavaScript

Conditional Statements and Loops

**Module – 2**

Arrays

Objects and functions

Bugs and Errors

**Module – 3**

Programming paradigms

Scoping

Object oriented programming

Advanced JS

Data Structure

Spread and rest

JavaScript in a browser

Practice excise

**Module – 4**

Testing

Jest

Test – driven development and testing challenges

JavaScript Environments

**Module -1**

19 Videos

22 Readings

8 Quizzes

Introduction to Programming with JavaScript

* How is JavaScript used in the real world?
* Setting up VS code
* Introduction to programming
* Why JavaScript?
* Programming in JavaScript
* Variables
* Data types
* Operators
* Numbers
* Strings
* Booleans
* Writing statements
* Working with conditional statements
* Looping constructs
* For loop
* While loop
* Nested loops
* Module summary: Introduction to JavaScript

**22 Readings**

* Course syllabus
* How to be successful in this course
* How to Position Yourself for a New Career
* How to uncover job opportunities
* Writing your first Javascript code
* Exercise: Declaring variables
* Declaring variables (solutions)
* Operators in depth
* Exercise: Advanced use of operators
* Advanced use of operators (solutions)
* JavaScript improvements
* Additional resources
* Conditional examples
* Exercise: Practice conditional statements
* Practice Conditional Statements (solutions)
* Exercise: Repetitive tasks with loops
* Repetitive tasks with loops (solutions)
* Loops and nested loops
* Uses of loops
* Exercise: Working with conditionals and loops
* Working with conditionals and loops (solution)
* Additional resources for Conditionals and Loops

**8 Quizzes**

* Self review: Declaring variables
* Self Review - Advanced use of operators
* Knowledge check: Welcome to Programming
* Self review: Practice conditional statements
* Self review: Repetitive tasks with loops
* Self review: Working with conditionals and loops
* Knowledge check - Conditionals and loops
* Module quiz: Introduction to JavaScript

**Module -2**

10 Videos

18 readings

7 practice exercises

**The Building Blocks of a Program**

* [Functions](https://www.coursera.org/lecture/programming-with-javascript/functions-ScS8u)
* Storing data in arrays
* Introduction to objects
* Math object
* A closer look at strings
* Typeof
* Bugs and errors
* Try catch blocks
* Undefined, null and empty values
* Module summary: The Building Blocks of a Program

**18 readings**

* Building and calling functions
* Exercise: Practicing with functions
* Practicing with functions (solution)
* Object Literals and the Dot Notation
* Object Literals and the Brackets Notation
* Arrays are Objects
* Math object cheat sheet
* String cheat sheet
* Exercise: Creating arrays and objects
* Creating arrays and objects (solutions)
* Object Methods
* Additional resources
* Syntax, logical and runtime errors
* Exercise: Error prevention
* Error prevention (solution)
* Exercise: Defensive programming
* Defensive programming (solution)
* Additional resources

**7 practice exercises**

* Self review: Practicing with functions
* Self review: Creating arrays and objects
* Knowledge check: Arrays, Objects and Functions
* Self review: Error prevention
* Self review: Defensive programming
* Knowledge check: Error handling
* Module quiz: The Building Blocks of a Program

**Module – 3**

20 Videos

21 readings

9 practice exercises

**Programming Paradigms**

* [Introduction to functional programming](https://www.coursera.org/lecture/programming-with-javascript/introduction-to-functional-programming-KTOth)
* Function calling and recursion
* Introduction to scope
* Scoping with var, let and const
* Comparing var, let and const
* Introduction to object-oriented programming
* Classes
* Inheritance
* De-structuring arrays and objects
* For- of loops and objects
* Working with template literals
* Data Structures
* Spread operator
* Rest operator
* JavaScript modules
* JavaScript DOM manipulation
* JavaScript selectors
* Event handling
* JavaScript Object Notation - JSON
* Module summary: Programming Paradigms

**21 readings**

* Return values from functions
* The functional programming paradigm
* Visual Studio Code on Coursera
* Additional resources
* Object Oriented Programming principles
* Constructors
* Creating classes
* Default Parameters
* Designing an OO Program
* Additional resources
* For of loops and objects
* Template literals examples
* Data Structures examples
* Using Spread and Rest
* Additional resources
* JavaScript interactivity
* Exercise: Web page content update
* Exercise: Capture Data
* Capture Data (Solution)
* Moving data around on the web
* Additional resources

**9 practice exercises**

* Self review: Build a functional program
* Knowledge check: Introduction to Functional Programming
* Self review: Building an object-oriented program
* Knowledge check: Introduction to Object-Oriented Programming
* Self review: Array and object iteration
* Knowledge check: Advanced JavaScript Features
* Self review: Capture data
* Knowledge Check - JavaScript in the browser
* Module quiz: Programming Paradigms

**Module – 4**

7 Videos

2 readings

3 practice exercises

[Other JavaScript environments - node & NPM](https://www.coursera.org/lecture/programming-with-javascript/other-javascript-environments-node-npm-JbVyq)

* What is testing?
* Types of testing
* Introduction to Jest
* Writing tests with Jest
* TDD (Test-Driven Development)
* Module summary: Testing

**2 readings**

* Installing Node and NPM
* Additional resources

**3 practice exercises**

* Self review: Writing a Unit Test
* Knowledge check: Introduction to testing
* Module quiz: Testing