



## Programming in HTML5 with JavaScript and CSS3:

### **COURSE OVERVIEW**

This course introduces HTML5, CSS3, and JavaScript. This course helps students gain basic HTML5/CSS3/JavaScript programming skills. This course is an entry point into both the Web application and Windows Store apps training paths. The course focuses on using HTML5/CSS3/JavaScript to implement programming logic, define and use variables, perform looping and branching, develop user interfaces, capture and validate user input, store data, and create well-structured application. The lab scenarios in this course are selected to support and demonstrate the structure of various application scenarios. They are intended to focus on the principles and coding components/structures that are used to establish an HTML5 software application.

### **WHAT YOU'LL LEARN**

- Explain how to use Visual Studio 2017 to create and run a Web application.
- Describe the new features of HTML5; create and style HTML5 pages.
- Add interactivity to an HTML5 page by using JavaScript
- Create HTML5 forms by using different input types and validate user input using HTML5 attributes and JavaScript code
- Send and receive data to and from a remote data source by using XML HTTP Request objects and Fetch API
- Style HTML5 pages by using CSS3
- Create well-structured and easily-maintainable JavaScript code
- Write modern JavaScript code and use babel to make it compatible to all browsers
- Use common HTML5 application programming interfaces (APIs) in interactive Web applications
- Create web applications that support offline operations
- Create HTML5 web pages that can adapt to different devices and form factors
- Add advanced graphics to an HTML5 page using Canvas elements and Scalable Vector Graphics
- Enhance the user experience by adding animations to an HTML5 page
- Use web sockets to send and receive data between a web application and a server

- Improve the responsiveness of a web application that performs long-running operations by using web worker processes
- Use WebPack to package web applications for production

## **OUTLINE**

### **1. Overview of HTML and CSS**

- Overview of HTML
- Overview of CSS
- Creating a Web Application Using Visual Studio 2012

### **2. Creating and Styling HTML5 Pages**

- Creating an HTML5 Page
- Styling an HTML 5 Page

### **3. Introduction to JavaScript**

- Overview of JavaScript
- Introduction to the Document Object Model

### **4. Creating Forms to Collect Data and Validate User Input**

- Creating HML Forms
- Validating User Input Using HTML5 Attributes
- Validating User Input Using JavaScript

### **5. Communicating with a Remote Data Source**

- Async programming in JavaScript
- Sending and Receiving Data by Using XMLHttpRequest Object
- Sending and Receiving Data by Using the Fetch API

### **6. Styling HTML5 Using CSS3**

- Styling Text by Using CSS3
- Styling Block Elements
- Pseudo-Classes and Pseudo-Elements
- Enhancing Graphical Effects Using CSS3

### **7. Creating Objects and Methods by Using JavaScript**

- Writing Well-Structured JavaScript
- Creating Custom Objects
- Extending Objects

### **8. Creating Interactive Pages Using HTML5 APIs**

- Interacting with Files

- Incorporating Multimedia
- Reacting to Browser Location and Context
- Debugging and Profiling a Web Application

### **9. Adding Offline Support to Web Applications**

- Reading and Writing Data Locally
- Adding Offline Support Using the Application Cache

### **10. Implementing an Adaptive User Interface**

- Supporting Multiple Form Factors
- Creating an Adaptive User Interface

### **11. Creating Advanced Graphics**

- Creating Interactive Graphics Using Scalable Vector Graphics
- Drawing Graphics by Using the Canvas API

### **12. Animating the User Interface**

- Applying CSS Transitions
- Transforming Elements
- Applying CSS Key-Frame Animations

### **13. Implementing Real-Time Communications Using Web Sockets**

- Introduction to Web Sockets
- Using the WebSocket API

### **14. Performing Background Processing by Using Web Workers**

- Understanding Web Workers
- Performing Asynchronous Processing Using a Web Worker

## **PREREQUISITES**

- 1 – 3 months experience creating Web applications, including writing simple JavaScript code
- 1 month experience creating Windows client applications
- 1 month of experience using Visual Studio 2017
- Knowledge of common style HTML elements using CSS, including:
  - Separating presentation from content
  - Managing content flow
  - Managing positioning of individual elements
  - Managing content overflow
  - Basic CSS styling
  - Programming Fundamentals of Web Applications (10958)

## **WHO SHOULD ATTEND**

- Developers who have at least six months of professional experience and who are interested in developing applications using HTML5 with JavaScript and CSS3 (either Windows Store apps or IE10 apps for the web)
- Developers who have more than five years programming experience may find that portions of this training are fundamental in nature when presenting the syntax associated with certain programming tasks