

# 20480 Programming in HTML5 with JavaScript and CSS3

## Course Overview

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This is a 5-day class

This course provides an introduction to 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. This course uses Visual Studio 2017, running on Windows 10.



## Who Should Attend

This course is intended for professional developers who have 6-12 months of programming experience and who are interested in developing applications using HTML5 with JavaScript and CSS3 (either Windows Store apps for Windows 10 or web applications).

## Course Objectives

After completing this course, students will be able to: - Explain how to use Visual Studio 2017 to create and run a Web application. - Describe the new features of HTML5, and 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 by using HTML5 attributes and JavaScript code. - Send and receive data to and from a remote data source by using XMLHttpRequest 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 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 by using Canvas elements, and by using 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.

## Course Outline

### 1 Overview of HTML and CSS

Overview of HTML  
Overview of CSS  
Creating a Web Application by Using Visual Studio 2017

### 2 Creating and Styling HTML Pages

Creating an HTML5 Page  
Styling an HTML5 Page

### 3 Introduction to JavaScript

Overview of JavaScript  
Introduction to the Document Object Model



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

Creating HTML5 Forms  
Validating User Input by Using HTML5 Attributes  
Validating User Input by Using JavaScript

## 5 Communicating with a Remote Server

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

## 6 Styling HTML5 by Using CSS3

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

## 7 Creating Objects and Methods by Using JavaScript

Writing Well-Structured JavaScript Code  
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 by 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 by Using SVG  
Drawing Graphics by Using the Canvas API

## 12 Animating the User Interface

Applying CSS Transitions  
Transforming Elements  
Applying CSS Keyframe Animations

## 13 Implementing Real-time Communication by Using Web Sockets

Introduction to Web Sockets  
Using the WebSocket API

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## 14 Performing Background Processing by Using Web Workers

Understanding Web Workers

Performing Asynchronous Processing by Using Web Workers

## 15 Packaging JavaScript for Production Deployment

Understanding Transpilers And Module bundling

Creating Separate Packages for Cross Browser Support