MOC 20480 C Programming in HTML5 with JavaScript and CSS3

Course Summary

Description

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.

Objectives

After taking this course, students will be able to:
- Explain how to use Visual Studio 2012 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 XMLHTTP 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 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.

Topics

- Overview of HTML and CSS
- Creating and Styling HTML Pages
- Introduction to JavaScript
- Creating Forms to Collect Data and Validate User Input
- Communicating with a Remote Source
- Styling HTML5 by Using CSS3
- Creating Objects and Methods by Using JavaScript
- Creating Interactive Pages using HTML5 APIs
- Adding Offline Support to Web Applications

- Implementing an Adaptive User Interface
- Creating Advanced Graphics
- Animating the User Interface
- Implementing Real-Time Communications by Using Web Sockets
- Performing Background Processing by Using Web Workers
- Packaging JavaScript for Production Deployment

MOC 20480 C Programming in HTML5 with JavaScript and CSS3

Course Summary (cont'd)

Audience

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).

Prerequisites

This course is intended for students who have the following experience:
- 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.

Before attending this course, students must have at least three months of professional development experience. In addition to their professional experience, students who attend this training should have a combination of practical and conceptual knowledge related to HTML5 programming. This includes the following prerequisites:
- Understand the basic HTML document structure:
- How to use HTML tags to display text content.
- How to use HTML tags to display graphics.
- How to use HTML APIs.
- Understand how to style common HTML elements using CSS, including:
- How to separate presentation from content
- How to manage content flow.
- How to control the position of individual elements.
- How to implement basic CSS styling.
- Understand how to write JavaScript code to add functionality to a web page:
- How to create and use variables
- How to use arithmetic operators to perform arithmetic calculations involving one or more variables
- How to use relational operators to test the relationship between two variables or expressions
- How to use logical operators to combine expressions that contain relational operators
- How to control the program flow by using if … else statements.
- How to implement iterations by using loops.
- How to write simple functions.

Duration

Five Days

MOC 20480 C Programming in HTML5 with JavaScript and CSS3

Course Outline

I.   Overview of HTML and CSS
This module reviews the basic of HTML and CSS, and introduces the tools that this course uses to create HTML pages and style sheets.
A.   Overview of HTML
B.   Overview of CSS
C.   Creating a Web Application by Using Visual Studio 2017
Lab: Exploring the Contoso Conference Application

II.   Creating and Styling HTML Pages
This module introduces HTML5.
A.   Creating an HTML5 Page
B.   Styling an HTML5 Page
Lab: Creating and Styling HTML5 Pages

III. Introduction to JavaScript
This module introduces the JavaScript programming and DOM.
A.   Overview of JavaScript
B.   Introduction to the Document Object Model
Lab: Displaying Data and Handling Events by Using JavaScript

IV. Creating Forms to Collect Data and Validate User Input
This module describes how to define input forms by using the new input types available in HTML5.
A.   Creating HTML5 Forms
B.   Validating User Input by Using HTML5 Attributes
C.   Validating User Input by Using JavaScript
Lab: Creating a Form and Validating User Input

V.   Communicating with a Remote Data Source
This module describes how to handle asynchronous tasks with the Promise object.
A.   Async programming in JavaScript
B.   Sending and Receiving Data by Using XMLHTTPRequest
C.   Sending and Receiving Data by Using the Fetch API
Lab: Communicating with a Remote Data Source

VI. Styling HTML5 by Using CSS3
This module describes how to define in SCC3 and use the pseudo-classes.
A.   Styling Text by Using CSS3
B.   Styling Block Elements
C.   Pseudo-Classes and Pseudo-Element
D.   Enhancing Graphical Effects by Using CSS3
Lab: Styling Text and Block Elements using CSS3

VII. Creating Objects and Methods by Using JavaScript
This module explains how to write well-structured JavaScript code by using language features.
A.   Writing Well-Structured JavaScript Code
B.   Creating Custom Objects
C.   Extending Objects
Lab: Refining Code for Maintainability and Extensibility

MOC 20480 C Programming in HTML5 with JavaScript and CSS3

Course Outline (cont.)

VIII. Creating Interactive Pages using HTML5APIs
This module describes how to create interactive HTML5 web applications that can access the local file system.
A. Incorporating Multimedia
B. Interacting with Files
C. Reacting to Browser Location and Context
D. Debugging and Profiling a Web App
   Lab: Creating Interactive Pages by Using HTML5 APIs

IX.   Adding Offline Support to Web Applications
This module describes how to use these technologies to create robust web apps that can continue running even when a network connection in unavailable.
.A. Reading and Writing Data Locally
B.   Adding Offline Support by Using the Application Cache
   Lab: Adding Offline Support to a Web Application

X. Implementing an Adaptive User Interface
This module describes how to build a website that adapts the layout and functionality.
A. Supporting Multiple Form Factors
B. Creating an Adaptive User Interface
   Lab: Implementing an Adaptive User Interface

XI. Creating Advanced Graphics
This module describes how to create advanced graphics in HTML5 by using SVG.
D. Creating Interactive Graphics by Using SVG
E. Programmatically Drawing Graphics by Using the canvas API
   Lab: Creating Advanced Graphics

XII. Animating the User Interface
This module describes how to enhance web pages by using CSS Animation
F. Applying CSS Transitions
G. Transforming Elements
H. Applying CSS Key-frame Animations
   Lab: Animating User Interface Elements

XIII.Implementing Real-Time Communications by Using Web Sockets
This module explains Web Sockets.
A.   Introduction to Web Sockets
B.Sending and Receiving Data by Using Web Sockets
   Lab: Implementing Real-Time Communications by Using Web Sockets

VIIII.Creating a Web Worker Process
This module describes how Web Worker operate and how to use them in web apps
I.   Understanding Web Workers
J.   Performing Asynchronous Processing by Using a Web Worker
   Lab: Creating a Web Worker Process

XV. Packaging JavaScript for Production Deployment
This module describes how to write ECMAScript6 code**.**
A. Understanding Transpilers and Module bundling.
B. Creating separate Packages for Cross Browser Support**.**
   Lab: Setting Up Webpack Bundle for Production.