

## 20486 Developing ASP.NET Core MVC Web Applications

### Overview

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In this course, the professional web developers will learn to develop advanced ASP.NET Core MVC applications using .NET Core tools and technologies. The focus will be on coding activities that enhance the performance and scalability of the Web site application. This course will also prepare the student for exam 70-486.

### Prerequisite Comments

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Before attending this course, students must have a minimum of two to three years of experience developing web-based applications by using Microsoft Visual Studio and Microsoft ASP.NET, proficiency in using the .NET Framework, and some familiarity with the C# language.

Before attending this course, students must have:

Experience with Visual Studio 2017.

Experience with C# programming, and concepts such as Lambda expressions, LINQ, and anonymous types.

Experience in using the .NET Framework.

Experience with HTML, CSS and JavaScript.

Experience with querying and manipulating data with ADO.NET.

Knowledge of XML and JSON data structures.

### Target Audience

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This course is intended for professional web developers who use Microsoft Visual Studio in an individual-based or team-based, small-sized to large development environment. Candidates for this course are interested in developing advanced web applications and want to manage the rendered HTML comprehensively. They want to create websites that separate the user interface, data access, and application logic.

### Course Objectives

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After completing this course, students will be able to:

Describe the Microsoft Web Technologies stack and select an appropriate technology to use to develop any given application.

Design the architecture and implementation of a web application that will meet a set of functional requirements, user interface requirements, and address business models.

Configure the pipeline of ASP.NET Core web applications using middleware, and leverage dependency injection across MVC application.

Add Controllers to an MVC Application to manage user interaction, update models, and select and return Views.

Develop a web application that uses the ASP.NET Core routing engine to present friendly URLs and a logical navigation hierarchy to users.

Create Views in an MVC application that display and edit data and interact with Models and Controllers.

Create MVC Models and write code that implements business logic within Model methods, properties, and events.

Connect an ASP.NET Core application to a database using Entity Framework Core.

Implement a consistent look and feel across an entire MVC web application.

Write JavaScript code that runs on the client-side and utilizes the jQuery script library to optimize the responsiveness of an MVC web application.

Add client side packages and configure Task Runners.

Run unit tests and debugging tools against a web application in Visual Studio 2017.

Write an MVC application that authenticates and authorizes users to access content securely using Identity.

Build an MVC application that resists malicious attacks.

Use caching to accelerate responses to user requests.

Use SignalR to enable two-way communication between client and server.

Describe what a Web API is and why developers might add a Web API to an application.

Describe how to package and deploy an ASP.NET Core MVC web application from a development computer to a web server.

## Course Outline

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### 1 - Exploring ASP.NET MVC 5

Overview of Microsoft Web Technologies

Overview of ASP.NET

Introduction to ASP.NET MVC 5

Lab : Exploring ASP.NET MVC 5

### 2 - Designing ASP.NET MVC 5 Web Applications

Planning in the Project Design Phase

Designing Models, Controllers, and Views

Lab : Designing ASP.NET MVC 5 Web Applications

### 3 - Developing ASP.NET MVC 5 Models

Creating MVC Models

Working with Data

Lab : Developing ASP.NET MVC 5 Models

### 4 - Developing ASP.NET MVC 5 Controllers

Writing Controllers and Actions

Writing Action Filters

Lab : Developing ASP.NET MVC 5 Controllers

### 5 - Developing ASP.NET MVC 5 Views

Creating Views with Razor Syntax

Using HTML Helpers

Reusing Code in Views

Lab : Developing ASP.NET MVC 5 Views

### 6 - Testing and Debugging ASP.NET MVC 5 Web Applications

Unit Testing MVC Components

Implementing an Exception Handling Strategy

Lab : Testing and Debugging the ASP.NET MVC 5 Web Applications

## 7 - Structuring ASP.NET MVC 5 Web Applications

Analyzing Information Architecture  
Configuring Routes  
Creating a Navigation Structure  
Lab : Structuring ASP.NET MVC 5 Web Applications

## 8 - Applying Styles to ASP.NET MVC 5 Web Applications

Using Layouts  
Applying CSS to an MVC Application  
Creating an Adaptive User Interface  
Lab : Applying Styles to ASP.NET MVC 5 Web Applications

## 9 - Building Responsive Pages in ASP.NET MVC 5 Web Applications

Using AJAX and Partial Page Updates  
Implementing a Caching Strategy  
Lab : Building Responsive Pages in ASP.NET MVC 5 Web Applications

## 10 - Using JavaScript and jQuery for Responsive MVC 5 Web Applications

Rendering and Executing JavaScript Code  
Using jQuery and jQueryUI  
Lab : Using JavaScript and jQuery for Responsive MVC 5 Web Applications

## 11 - Controlling Access to ASP.NET MVC 5 Web Applications

Implementing Authentication and Authorization  
Assigning Roles and Membership  
Lab : Controlling Access to ASP.NET MVC 5 Web Applications

## 12 - Building a Resilient ASP.NET MVC 5 Web Application

Developing Secure Sites  
State Management  
Lab : Building a Resilient ASP.NET MVC 5 Web Application

## 13 - Implementing Web APIs in ASP.NET MVC 5 Web Applications

Developing a Web API  
Calling a Web API from Mobile and Web Applications  
Lab : Implementing Web APIs in ASP.NET MVC 5 Web Applications

## 14 - Handling Requests in ASP.NET MVC 5 Web Applications

Using HTTP Modules and HTTP Handlers

Using Web Sockets

Lab : Handling Requests in ASP.NET MVC 5 Web Applications

## 15 - Deploying ASP.NET MVC 5 Web Applications

Deploying a Web Application

Deploying an ASP.NET MVC 5 Web Application

Lab : Deploying ASP.NET MVC 5 Web Applications

## Related Courses, Certifications, Exams

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- MCSD: Web Applications
  - MCSD: SharePoint Applications
  - Exam 70-486 - Developing ASP.NET MVC 4 Web Applications
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