

## **20486 Developing ASP.NET MVC 5 Web Applications**

In this course, students will learn to develop advanced ASP.NET MVC applications using .NET Framework tools and technologies. The focus will be on coding activities that enhance the performance and scalability of a web application. ASP.NET MVC will be introduced and compared with Web Forms so that students know when each should/could be used. This course will also prepare the students for exam 70-486.

### **Prerequisites**

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.

### **Target Audience**

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**

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.
- Create MVC Models and write code that implements business logic within Model methods, properties, and events.
- Add Controllers to an MVC Application to manage user interaction, update models, and select and return Views.
- Create Views in an MVC application that display and edit data and interact with Models and Controllers.
- Run unit tests and debugging tools against a web application in Visual Studio and configure an application for troubleshooting.
- Develop a web application that uses the ASP.NET routing engine to present friendly URLs and a logical navigation hierarchy to users.

- Implement a consistent look and feel, including corporate branding, across an entire MVC web application.
- Use partial page updates and caching to reduce the network bandwidth used by an application and accelerate responses to user requests.
- Write JavaScript code that runs on the client side and utilizes the jQuery script library to optimize the responsiveness of an MVC web application.
- Implement a complete membership system in an MVC web application.
- Build an MVC application that resists malicious attacks and persists information about users and preferences.
- Describe how to write a Microsoft Azure web service and call it from an MVC application.
- Describe what a Web API is and why developers might add a Web API to an application.
- Modify the way browser requests are handled by an MVC application.
- Describe how to package and deploy an ASP.NET MVC web application from a development computer to a web server for staging or production.

## Course Outline

### 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

## 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