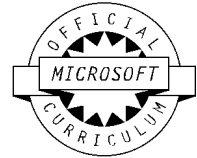


## Course Outline

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### 20486-Developing ASP.NET MVC 4 Web Applications

**Duration:** 5 days (30 hours)



#### 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.

#### 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.

#### Topics Covered:

- Module 1: Exploring ASP.NET MVC 4
  - Overview of Microsoft Web Technologies
  - Overview of ASP.NET 4.5
  - Introduction to ASP.NET MVC 4
    - Lab : Exploring ASP.NET MVC 4
      - Exploring a Photo Sharing Application
      - Exploring a Web Pages Application
      - Exploring a Web Forms Application
      - Exploring an MVC Application

After completing this module, students will be able to:

- describe the Microsoft Web Technologies stack and select an appropriate technology to use to develop any given application.
- Module 2: Designing ASP.NET MVC 4 Web Applications
  - Planning in the Project Design Phase
  - Designing Models, Controllers, and Views
    - Lab : Designing ASP.NET MVC 4 Web Applications
      - Planning Models
      - Planning Controllers
      - Planning Views
      - Architecting an MVC Application

After completing this module, students will be able to:

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

➤ Module 3: Developing ASP.NET MVC 4 Models

- Creating MVC Models
- Working with Data
  - Lab : Developing ASP.NET MVC 4 Models
    - Creating an MVC Project and Adding a Model
    - Creating a New SQL Azure Database in Visual Studio
    - Adding Properties and Methods to MVC Models
    - Using Display and Edit Annotations in MVC Models

After completing this module, students will be able to:

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

➤ Module 4: Developing ASP.NET MVC 4 Controllers

- Writing Controllers and Actions
- Writing Action Filters
  - Lab : Developing ASP.NET MVC 4 Controllers
    - Adding an MVC Controller and Writing the Actions
    - Writing the Action Filters in a Controller
    - Using the Photo Controller

After completing this module, students will be able to:

- add Controllers to an MVC Application to manage user interaction, update models, and select and return Views.
- Module 5: Developing ASP.NET MVC 4 Views
  - Creating Views with Razor Syntax
  - Using HTML Helpers
  - Reusing Code in Views
- Lab : Developing ASP.NET MVC 4 Views
  - Adding a View for Photo Display
  - Adding a View for New Photos
  - Creating and Using a Partial View
  - Adding a Home View and Testing the Views

After completing this module, students will be able to:

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

➤ Module 6: Testing and Debugging ASP.NET MVC 4 Web Applications

- Unit Testing MVC Components
- Implementing an Exception Handling Strategy
  - Lab : Testing and Debugging the ASP.NET MVC 4 Web Applications
    - Performing Unit Tests
    - Configuring Exception Handling

After completing this module, students will be able to:

- run unit tests and debugging tools against a web application in Visual Studio 2012 and configure an application for troubleshooting.

➤ Module 7: Structuring ASP.NET MVC 4 Web Applications

- Analyzing Information Architecture
- Configuring Routes
- Creating a Navigation Structure
  - Lab : Structuring ASP.NET MVC 4 Web Applications
    - Using the Routing Engine
    - Building Navigation Controls

After completing this module, students will be able to:

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

➤ Module 8: Applying Styles to ASP.NET MVC 4 Web Applications

- Using Template Views
- Applying CSS to an MVC Application
- Creating an Adaptive User Interface
  - Lab : Applying Styles to ASP.NET MVC 4 Web Applications
    - Using Template Views
    - Applying a Consistent Look and Feel to an MVC Application
    - Adapting Webpages for Different Browsers

After completing this module, students will be able to:

- implement a consistent look and feel, including corporate branding, across an entire MVC web application.

➤ Module 9: Building Responsive Pages in ASP.NET MVC 4 Web Applications

- Using AJAX and Partial Page Updates
- Implementing a Caching Strategy
  - Lab : Building Responsive Pages in ASP.NET MVC 4 Web Applications
    - Using Partial Page Updates
    - Configuring ASP.NET Caches

After completing this module, students will be able to:

- use partial page updates and caching to reduce the network bandwidth used by an application and accelerate responses to user requests.

➤ Module 10: Using JavaScript and jQuery for Responsive MVC 4 Web Applications

- Rendering and Running JavaScript Code
- Using jQuery and jQueryUI
  - Lab : Using JavaScript and jQuery for Responsive MVC 4 Web Applications
    - Using jQuery to Respond to Users
    - Using jQueryUI to Build a User Interface

After completing this module, students will be able to:

- write JavaScript code that runs on the client-side and utilizes the jQuery script library to optimize the responsiveness of an MVC web application.
- Module 11: Controlling Access to ASP.NET MVC 4 Web Applications
  - Implementing Authentication and Authorization
  - Assigning Roles and Membership
    - Lab : Controlling Access to ASP.NET MVC 4 Web Applications
      - Configuring Authentication
      - Controlling Access to Resources
      - Providing User Account Facilities

After completing this module, students will be able to:

- implement a complete membership system in an MVC 4 web application.
- Module 12: Building a Resilient ASP.NET MVC 4 Web Application
  - Developing Secure Sites
  - State Management
    - Lab : Building a Resilient ASP.NET MVC 4 Web Application
      - Storing User Preferences
      - Using User Preferences in the Photo Gallery

After completing this module, students will be able to:

- build an MVC application that resists malicious attacks and persists information about users and preferences.
- Module 13: Using Windows Azure Web Services in ASP.NET MVC 4 Web Applications
  - Introduction to Windows Azure
  - Designing and Writing Windows Azure Services
    - Consuming Windows Azure Services in a Web Application
    - Lab : Using Windows Azure Web Services in ASP.NET MVC 4 Web Applications
      - Creating and Coding a Windows Azure Service
      - Consuming Data from a Windows Azure Service
      - After completing this module, students will be able to:
      - describe how to write a Windows Azure web service and call it from an MVC application.
- Module 14: Implementing Web APIs in ASP.NET MVC 4 Web Applications
  - Developing a Web API
  - Calling a Web API from Mobile and Web Applications
    - Lab : Implementing Web APIs in ASP.NET MVC 4 Web Applications
      - Developing a Web API in MVC 4
      - Adding Routes and Controllers to Handle REST Requests
      - Calling RESTful services from Client-Side Code

After completing this module, students will be able to:

- describe what a Web API is and why developers might add a Web API to an application.
- Module 15: Handling Requests in ASP.NET MVC 4 Web Applications
  - Using HTTP Modules and HTTP Handlers
  - Using Web Sockets
    - Lab : Handling Requests in ASP.NET MVC 4 Web Applications
      - Writing a Web Handler that Uses Web Sockets

- Building a Chat Room in the Photo Sharing Application

After completing this module, students will be able to:

- modify the way browser requests are handled by an MVC application.

➤ Module 16: Deploying ASP.NET MVC 4 Web Applications

- Deploying Web Applications
- Deploying MVC 4 Applications
  - Lab : Deploying ASP.NET MVC 4 Web Applications
    - Deploying an Application to Windows Azure
    - Testing the Completed Application

After completing this module, students will be able to:

- describe how to package and deploy an ASP.NET MVC 4 web application from a development computer to a web server for staging or production.