



Hands On Technology Transfer
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Advanced MVC: Building Web Applications Using the ASP.NET Web API with C# and .NET6

Duration: *(Face-to-Face & Remote-Live)*, or 35 Hours *(On-Demand)*

Price: £1,945 *(Face-to-Face & Remote-Live)*, or £1,145 *(On-Demand)*

Discounts: For multiple course purchases, please [contact us](#) for applicable discounts.

Delivery Options: Perform training at your own pace via our [on-demand training](#) option or attend regularly scheduled live courses via [remote-live attendance](#).

Students Will Learn

- Responsive Design with Bootstrap
- jQuery Functions, Selectors and Forms
- Asynchronous Programming using the JavaScript `fetch` API
- Creating Services and Middleware
- Implementing Custom Routing
- Creating and Using Entity Framework Models from an Existing Database
- Creating a Database and Migrating Schema using Entity Framework
- ASP.NET Web API

Course Description

This MVC programming course provides students with the skills needed to create sophisticated web applications using advanced features of ASP.NET MVC, the Entity Framework, Web API, the popular JavaScript library jQuery, and responsive design with Bootstrap. Students build several ASP.NET MVC web applications using Visual Studio and .NET 6 throughout the class to reinforce the skills they learn.

The course begins with an overview of ASP.NET MVC for experienced programmers. Students then learn how to use Bootstrap with MVC to make a web site responsive on any size of device.

Students learn how to integrate jQuery into an MVC application to provide dynamic client-side behavior. jQuery is also featured prominently in the asynchronous programming module. This learning also highlights how to integrate MVC Views as part of an overall async design pattern.

The course covers usage of the Entity Framework to provide a data access layer for an MVC application. The Database First strategy allows coders to use an existing database to create models and infrastructure. The Code First strategy lets coders create C# model classes, and then leverage Entity Framework to create and migrate the schema of a database the application creates.

Students will also learn about 2 strategies for creating custom routes: Convention-Based routing is configured in a central file, while Attribute Routing is done with attributes in controller classes.

Finally, students will learn how to use the Web API to build APIs that expose services and data via HTTP. These APIs can be used by a diverse set of clients including browsers, desktop applications and mobile devices.

Course Prerequisites

Prior experience building ASP.NET MVC web sites. Students who are not familiar with ASP.NET MVC or C# should take the [ASP.NET MVC Programming Using C# and .NET6](#) course instead.

Course Overview

Quick Review of ASP.NET MVC

- What is the MVC Design Pattern?
- Controllers, Action Methods and Routes
- Using Razor for Views
- Working with Layouts
- Working with HTML Forms
- Untyped vs Typed Views
- HTML Helpers
- Data Annotations for Models
- Advanced Controller Action Methods

Using jQuery

- The jQuery Function
- jQuery Selectors
- Working with the Document Object Model
- Working with Forms
- Getting and Setting Dimensions

Services and Middleware

- Service Lifetime
- Using a Service in an Action Method
- Investigating Built-In Middleware
- Middleware and Delegates
- Branching Logic with Middleware

Entity Framework Database First

- Entity Framework Basics
- Creating the Entity Data Model
- Using Stored Procedures

Responsive Design using Bootstrap

- Installing Bootstrap in a Project
- Managing Layout with Bootstrap
- Bootstrap CSS Classes
- Navigation Bars & Menus
- Icons & Badges
- Tables, Forms & Images

Async Programming

- Legacy async with Ajax
- Ajax and the Callback Pattern
- JavaScript `fetch` API
- `fetch` and the Promise Pattern
- Using Partial Views with `fetch`
- `fetch` notifications

Routing

- Serving Non-Routed Requests for Static Files
- Creating Convention-Based Routes
- Creating Attribute Routes
- Route Constraints for Type Safety
- Custom Route Constraint Classes
- Using Route Names in HTML Helpers

Entity Framework Code First

- Creating Model Classes
- Seeding the New Database
- Changing Schema at Dev Time with

Using LINQ to Work with Model
Collections

Code First Migrations

- Controller Scaffolding with Models

Working with Web API

- Designing for RESTful Services
- OpenAPI/Swagger for Documentation and Testing
- Using API Controllers
- Attributes for Model Binding
- Using HTTP GET, PUT, POST and DELETE Requests
- Consuming API Services in C# and JavaScript
- Customizing Data Response Types

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