

ASP.NET Core Syllabus

Overview:

All .NET Beginner(s)/Professional(s) who are keen to develop modern, light weight and cloud based web applications should go for this course. ASP.NET Web form and ASP.NET MVC available because of its age is considered to be very matured for web application development, it is because of the popularity of ASP.NET Core Framework and many exclusive features of ASP.NET Core that today it is dominating over Web Forms and MVC are first choice for large sized enterprise web application development.

Course Objectives:

- ❖ Understand the benefits of MVC design over traditional ASP.NET Web Forms.
- ❖ Acquiring sufficient knowledge on role of Model, View and Controller in integrating them to develop complete web application
- ❖ Understand how Routing API maps requests to action methods in controller.
- ❖ Learn how to reuse code rendering HTML using custom HTML Helper methods and Tag Helpers.
- ❖ Building Custom Model Binders for typical conditions in which built-in default binders are not usable.
- ❖ Understanding and applying validation framework for both client and server validations.
- ❖ Access databases and performing CRUD operations using LINQ and Entity Framework
- ❖ Implement security in ASP.Net Core applications.
- ❖ Use Ajax and partial page updates and rendering and executing JavaScript code from ASP.NET Core.
- ❖ Modularize using Areas.
- ❖ Compress the output using bundling and minification features.
- ❖ Develop Service Oriented RESTful services using Web API feature of ASP.NET Core.
- ❖ Build and deploy ASP.NET Core application to the production server.

Pre-requisite / Target Audience: Anyone who wants to learn ASP.NET Core with Angular4 development should have a basic knowledge of C# and HTML.

Tools/SDK/IDE:

- ❖ Visual Studio 2017 or higher, SQL Server 2012 or higher, LINQ Pad 5
- ❖ LINQ, Entity Framework and SQL Server for database related operations.

Module 1:- Introduction to ASP.NET Core

In this module you learn what is ASP.NET Core and its features. Also you find here the advantages of ASP.NET Core framework over the existing frameworks for developing a web application.

- ❖ Introduction
- ❖ What is ASP.NET Core?
- ❖ ASP.NET Core Features
- ❖ Advantages of ASP.NET Core
- ❖ MVC Pattern
- ❖ Understanding ASP.NET Core MVC
- ❖ ASP.NET Core vs. ASP.NET MVC vs. ASP.NET Web Forms

Module 2:- ASP.NET Core First Application

In this chapter you get knowledge about how to create an ASP.NET Core application and setting up project initials with basic web page example.

- ❖ ASP.NET Core Environment Setup
- ❖ ASP .NET Core First Application
- ❖ Project Layout
- ❖ Understanding Life Cycle of ASP.Net Core Request

Module 3:- Controllers & Action Methods

In this chapter you will know what is a controller and action method and the responsibilities of a controller, the basic functionality of filters with few examples.

- ❖ Controllers Overview
- ❖ Action Methods and IActionResult object
- ❖ Passing data from Controller to View
- ❖ Understanding Action Selectors
- ❖ Action Filters
- ❖ Building Custom Action Filters
- ❖ Middleware
- ❖ Asynchronous Action Methods

Module 4:- Views

This deals with what is a view, razor syntax and different types of views with examples.

- ❖ Introducing Razor View
- ❖ Advantages of Razor View
- ❖ Razor Syntax
- ❖ Types of Views
- ❖ Partial Views

- ❖ Layout Pages
- ❖ Special Views
- ❖ View Categorization based on Model

Module 5:- Helpers

In this chapter we have different types Helper used to reduce number of key strokes when writing the html content in views and writing reusable components.

- ❖ Html Helpers
- ❖ Built-In Html Helpers
- ❖ URL helpers
- ❖ Tag Helpers
- ❖ Custom Tag Helpers

Module 6:- Model Binding

This module contains the model binding examples that describes how a form bind to its corresponding action method with when the form is submitted.

- ❖ Html Form behavior
- ❖ Model Binder Overview
- ❖ DefaultModelBinder
- ❖ Binding to Complex Classes
- ❖ IFormCollection Model Binding
- ❖ IFormFile Model Binder
- ❖ Bind Attribute
- ❖ TryUpdateModelAsync

Module 7:- Validations & Data Annotations

In this chapter you will learn Build application with proper error messages in minimum code.

- ❖ Data Annotations and Validations Overview
- ❖ Validations with Data Annotation
- ❖ Server Side and Client Side Validation
- ❖ Custom Server side validation
- ❖ Model level validation using IValidatableObject
- ❖ Custom unobstrive Client side Validation
- ❖ Remote Validation

Module 8:- State management Techniques

In this chapter you will find how data can be maintained temporarily in different locations and used that for multiple requests.

- ❖ Cookies
- ❖ Sessions

Module 9:- Security

In this chapter you will learn how to implement security for a web application using ASP.NET Identities which is recommended by Microsoft for all web applications.

- ❖ Authentication and Authorization
- ❖ Implementing Security using ASP.NET Core Identity

Module 10:- MVC and Entity Framework Core

In this you will learn how perform simple database operations like add, update, delete and retrieve the data from SQL database using entity framework.

- ❖ Basic CRUD Operations using Entity Framework
- ❖ Separation of work using BO Classes
- ❖ Writing Generic Class / Repository
- ❖ Caching in Repository

Module 11:- ASP.NET Core - Web Caching

In this chapter you will learn how to improve the performance of a web application by storing the frequently used data using different caching techniques.

- ❖ Cache Tag Helpers
- ❖ Memory Caching Introduction
- ❖ In-Memory Caching
- ❖ Response Cache
- ❖ Distributed Cache

Module 12:- Routing

In this chapter you learn how the URL is mapping to controller action methods for rendering the particular web page and the examples for customizing the URL.

- ❖ Url Routing Overview
- ❖ Custom Routes
- ❖ Attribute Routing
- ❖ Routing Constraints

Module 13:- Module Development

In this chapter you will learn the concept of splitting a large web app into multiple modules so that maintains will be easy by using Areas.

- ❖ Understanding Areas
- ❖ Adding Areas
- ❖ Defining Area Routes
- ❖ Linking between Areas

Module 14:- Web API and JQuery Ajax

In this chapter you will learn how Web API works as web service which delivers json/xml data that can be used with JQuery Ajax client side calls for applying asynchronous behavior in any type of application.

- ❖ Introduction to Web API
- ❖ AJAX implementation using JQuery
- ❖ Calling the Web API with JQuery Ajax
- ❖ Creating a Web API that Supports CRUD Operations using EF

Module 15:- Bundling & Minification

In this module you will learn how Bundling and Minification is used for reducing the amount data transferred from the web app while rendering to improve the performance of your web app.

- ❖ What is Bundling and Minification in ASP.net Core?
- ❖ Bundler and Minifier Extension
- ❖ How to Bundle your files
- ❖ How to minify your Bundles
- ❖ Convert to Gulp

Real-time Project involving most of the above concepts with following will be provided

- Product Abstract Document
- Requirement Specification Document
- **Step-by-Step procedure for building the project from ground up**
- Complete Source Code
- Database Script with Sample data
- Instructions to Setup the Project on a Development box
- Instruction to Deploy the project on Production Box / Microsoft Azure

At the end of the course participants will be able to

1. Design Responsive UI using Html, CSS and Bootstrap.
2. Develop secure web application based on user roles.
3. Develop performance based web applications using caching and Ajax calls.
4. Create REST Service using Web API.
5. Handle Errors in ASP.NET Core.
6. Implement Repository, Unit of Work and Dependency Injection Design Pattern.
7. Write and Debug Unit Test cases using xUnit, MS Test, Moq.