

Vijay Tutor

.NET Core

Intermediate to Advanced Syllabus

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Welcome
to the world of
Programming!

Let's start
a new journy with
VijayTutors !!!

.NET Core

Advanced Course Syllabus

Vijay Tutor

Week 1

Core Concepts and Web API

objective: Fundamentals & API Basics

- Understand the structure of an ASP.NET Core Web API project.
- Develop good habits like dependency injection, layered architecture.

Day 1

- Introduction to ASP.NET Core
- Understanding the Request Pipeline
- Project Structure (Startup.cs, Program.cs in .NET 5/6/7+)
- ASP.Net Core Project File

Day 2

- Creating a Basic ASP.NET Core Web API
- Understanding Controllers and Routing
- Attribute Routing vs Conventional Routing

Day 3

- Model in ASP.NET Core
- Controllers in ASP.NET Core

Day 4

- HTTP Methods (GET, POST, PUT, DELETE)
- Handling Query Strings and Route Parameters

Day 5

- Dependency Injection (Built-in DI Container)
- Services and Service Lifetimes (Transient, Scoped, Singleton)

Week 2

Database Connectivity and Entity Framework Core

Objective: Intermediate API Features

- Learn real-world API best practices.
- Implement important features like validations, and error handling.

Day 6:

- Introduction to Entity Framework Core (EF Core)
- Setting up DbContext and Connection String

Day 7:

- Code-First Approach
- Migrations (Add, Update, Remove)
- CRUD Operations with Database

Day 8:

- Repository Pattern and Unit of Work Pattern
- Best practices for Data Access Layer

Day 9:

- Handling Relationships (One-to-Many, Many-to-Many)
- Data Annotations and Fluent API Configurations

Day 10:

- LINQ Queries in EF Core (Basic to Advanced)
- Raw SQL Queries in EF Core

Week 3

API Features and Best Practices

Objective: Security and Advanced Topics

- Add security to your APIs.
- Understand and apply Authentication and Authorization.
- Prepare APIs for production.

Day 11

- DTOs (Data Transfer Objects) and AutoMapper
- Advance level mapping technics

Day 12

- Exception Handling in Web API
- Global Error Handling using Middleware

Day 13

- Logging in ASP.NET Core
- Using AppSettings and IConfiguration

Day 14

- Authentication and Authorization Basics
- Role-Based Authorization

Day 15

- JWT (JSON Web Token) Authentication
- Securing APIs with Bearer Tokens

Week 4

Advanced Concepts and Final Project

Objective: Real-World Development & Deployment Basics

- Connect the dots with real-world patterns.
- Learn the basics of hosting and deployment.

Day 16

- Testing Apis with Swagger and Postman
- Performance Improve in existing Apis

Day 17

- Filtering, Sorting, and Pagination in Web API
- Best Practices for API Development

Day 18

- Uploading and Downloading Files in Web API
- Content Negotiation (JSON, XML Support)

Day 19

- Building a Complete Real-world Project (API + Database)
- Project Structure Best Practices (Foldering, Layering)

Day 20

- Revision, Final Project Completion
- Interview Questions Discussion and Doubt Solving Session

Note:

This is a 4-week plan, but the duration may vary depending on the students' grasp and understanding.

The syllabus provides an overview of what you will learn; however, **we will be covering much more** than what is mentioned here.

Thank you !!!