

.NET Core with AI, Microservices



Module 1 – ASP.NET Core MVC, Web API & Angular (Full Stack)

Objective: Master modern full-stack development using ASP.NET Core MV, EF, WEB API and Angular.

Part A – ASP.NET Core MVC

- MVC Pattern, Controllers, and Razor Views
- Model Binding and Data Validation
- Middleware and Routing
- Dependency Injection and Logging
- Filters and Action Results
- Authentication and Authorization
- Configuration, Options Pattern
- **Mini Project:** Employee Management Portal

Part B – ASP.NET Core Web API

- Introduction to REST and Web API Concepts
- Building RESTful APIs with Controllers and Routing
- CRUD Operations with Entity Framework Core
- DTOs, Auto-Mapper, and Dependency Injection
- Securing APIs with JWT Tokens
- Versioning and CORS Configuration
- API Testing using Swagger and Postman
- **Mini Project:** Inventory Management API

Part C – Angular (Frontend Framework)

- Introduction to TypeScript and Angular CLI
- Components, Templates, and Data Binding
- Directives, Pipes, and Services
- Dependency Injection and Lifecycle Hooks
- Routing and Navigation

- Forms (Template-driven and Reactive Forms)
- HTTP Communication with Web API
- Building Angular Modules and Lazy Loading
- **Full Stack Project:** Digital Lending Platform (Personal Loan App) (ASP.NET Core + Web API + Angular + SQL Server)

Module 2 – Microservices with AI

Objective: Build scalable, distributed applications using .NET Microservices.

Part A - Microservices

- Microservices Principles and Design
- REST API Communication
- API Gateway with Ocelot
- Service Discovery using Consul
- Centralized Configuration & Health Checks
- Message Communication using RabbitMQ or Azure Service Bus
- Learning Circuit breaker, CQRS and SAGA Patterns

Part B – Artificial Intelligence Integration with .NET

- Overview of AI and ML Concepts
- Using ML.NET for Predictive Models
- Integrating Azure OpenAI APIs
- Natural Language and Sentiment Analysis
- **Enterprise Project:** AI-Powered Job portal with Support Chatbot to build resume

Module 5 – Cloud, DevOps, and Deployment

Objective: Learn real-world deployment of .NET and AI applications.

Topics:

- Git & GitHub for Version Control
- Docker Basics
- Kubernetes Basics
- Deploying application in Azure
- Learning Project Development Practices

- Understand BRD, FSD, Work Estimations, Spring Planning
- Learning Preparing Use case, Flow diagrams, DB diagrams
- Create Epic, Story, Task & Assing using JIRA



Suggested Duration: 3–4 Months