KOENIG step forward

Microsoft Solutions Partner
Microsoft Cloud Training Services

KOENIG SOLUTIONS · COURSE OUTLINE

Dot NET with C# and ASP.NET API Development

Learn to build C# applications and ASP.NET Core Web APIs, from language fundamentals to controllers, Razor Pages and CRUD operations.

13	43	7
MODULES	TOPICS	HANDS-ON EXERCISES

COURSE OVERVIEW

This course introduces .NET and its ecosystem before covering C# syntax, language constructs, methods, exception handling, structs, enums, collections, events, classes, interfaces, generics, inheritance and polymorphism. It then addresses file input/output, serialization and streams. The course moves on to ASP.NET Core Web API concepts including RESTful services, HTTP methods and JSON/XML formats, before building Web API projects with controllers, routing and endpoints. It closes with minimal APIs, Razor Pages, HTTP operations, rendering API responses and creating a full CRUD Web API with a data store.

WHO THIS COURSE IS FOR

C# Developers | **API Developers** | **Software Engineers** | **Backend Developers** | **Web Developers**

LEARNING OBJECTIVES

- Explain the .NET ecosystem and its core components
- Apply C# syntax, data types and language constructs
- Implement methods, method overloading and exception handling
- Use structs, enums, collections and events in C#
- Build classes, interfaces and generics in C#
- Apply inheritance and polymorphism in C# programs
- Implement file input/output, serialization and streams
- Develop ASP.NET Core Web APIs with controllers and CRUD operations

COURSE SYLLABUS

13 Modules, 43 Topics

01

Introduction to .NET

TOPICS

What is .NET? · Components of .NET · .NET ecosystem · How to use .NET · Build your first app by using .NET · When to use .NET

02

C# Syntax

TOPICS

- **Lesson 1:** Writing Applications in C# and .NET
- **Lesson 2:** Types of Data and Expressions
- **Lesson 3:** C# Language Constructs

03

C# Language Concepts

TOPICS

- Lesson 1: Methods
- **Lesson 2:** Method Overloading
- **Lesson 3:** Exception Handling
- Lesson 4: Monitoring

04

C# Structures, Collections and Events

TOPICS

- Lesson 1: Structs
- Lesson 2: Enums
- **Lesson 3:** Built-in Collections
- Lesson 4: Events

05

C# Classes

TOPICS

- **Lesson 1:** Creating Classes
- Lesson 2: Interfaces
- **Lesson 3:** Understanding Generics in C#

06

C# Inheritance

TOPICS

- **Lesson 1:** Hierarchies of Classes
- Lesson 2: Polymorphism
- **Lesson 3:** Extending Classes

07

Input and Output

TOPICS

- **Lesson 1:** File I/O
- **Lesson 2:** Serialization and Deserialization
- Lesson 3: Streams

08

ASP.NET Core Web API Introduction

TOPICS

What is a Web API? · RESTful Services and Principles · HTTP Methods (GET, POST, PUT, DELETE) · JSON and XML Data Formats

09

Building Your First ASP.NET Web API

TOPICS

Creating a New Web API Project · Understanding Controllers and Actions · Routing and URL Patterns · Returning Data from API Endpoints

10 Exercise

Interact with an ASP.NET Core Minimal API

TOPICS

Explore ASP.NET Core APIs · Document an API by using Swashbuckle

11 Exercise

Implement HTTP Operations in ASP.NET Razor Pages

TOPICS

Explore HTTP clients in .NET Core · Perform HTTP operations in Razor Pages

12

Exercise

Render API Responses in ASP.NET Core Razor Pages

TOPICS

Explore Razor Pages project structure · Discover Razor Pages syntax

13

4 Exercises

Create a Web API with ASP.NET Core Controllers

TOPICS

REST in ASP.NET Core · ASP.NET Core Web API Controllers · CRUD actions in ASP.NET Core

HANDS-ON EXERCISES

Practise What You Learn

#	MODULE	ACTIVITY
10	**Interact with an ASP.NET Core Minimal API**	Interact with an API
11	**Implement HTTP Operations in ASP.NET Razor Pages**	Implement HTTP operations in Razor Pages
12	**Render API Responses in ASP.NET Core Razor Pages**	Render API responses in Razor Pages
13	**Create a Web API with ASP.NET Core Controllers**	■ Create a web API project ■ Add a data store ■ Add a controller ■ Implement CRUD operations

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

Classroom Training | Live Online Classes (ILO) | Fly-Me-A-Trainer (FMAT) | Flexi (Self-Paced) | 1-on-1 Training

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