SILABUS ASP.NET FUNDAMENTALS

1. **C# 12 and .NET 8 – Modern Cross-Platform Development**

   - Fundamentals, Seventh Edition: Start building websites and services
   - With ASP.NET Core 7, Blazor, and EF Core

2. **Hello, C#! Welcome, .NET!**

   - Setting up your development environment
   - Understanding .NET
   - Building console apps using Visual Studio 2022
   - Building console apps using Visual Studio Code
   - Exploring code using .NET Interactive Notebooks
   - Reviewing the folders and files for projects
   - Looking for help
   - Practicing and exploring

3. **Speaking C#**

   - Introducing the C# language
   - Understanding C# grammar and vocabulary
   - Working with variables
   - Exploring more about console apps
   - Understanding async and await
   - Practicing and exploring

4. **Controlling Flow, Converting Types, and Handling Exceptions**

   - Operating on variables
   - Understanding selection statements
   - Understanding iteration statements
   - Storing multiple values in an array
   - Casting and converting between types

- Handling exceptions
- Checking for overflow
- Practicing and exploring

5. Writing, Debugging, and Testing Functions

- Writing functions
- Debugging during development
- Hot reloading during development
- Logging during development and runtime
- Unit testing
- Throwing and catching exceptions in functions
- Practicing and exploring

6. Building Your Own Types with Object-Oriented Programming

- Talking about OOP
- Building class libraries
- Storing data within fields
- Writing and calling methods
- Splitting classes using partial
- Controlling access with properties and indexers
- More about methods
- Pattern matching with objects
- Working with records
- Practicing and exploringi. Exercise 5.1 – Test your knowledge

7. Implementing Interfaces and Inheriting Classes

- Setting up a class library and console application
- Making types safely reusable with generics
- Raising and handling events
- Implementing interfaces

- Managing memory with reference and value types

- Working with null values

- Inheriting from classes

- Casting within inheritance hierarchies

- Inheriting and extending .NET types

- Using an analyzer to write better code

- Practicing and exploring

8. Packaging and Distributing .NET Types

- The road to .NET 7

- Understanding .NET components

- Publishing your code for deployment

- Decompiling .NET assemblies

- Packaging your libraries for NuGet distribution

- Porting from .NET Framework to modern .NET

- Practicing and exploring

- Working with Common .NET Types

9. Join our book community on Discord

- Working with numbers

- Working with text

- Pattern matching with regular expressions

- Storing multiple objects in collections

- Working with spans, indexes, and ranges

- Working with network resources

- Practicing and exploring

10. Working with Files, Streams, and Serialization

- Managing the filesystem

- Reading and writing with streams

- Encoding and decoding text

- Serializing object graphs

- Practicing and exploring

11. Working with Data Using Entity Framework Core

- Understanding modern databases

- Setting up EF Core

- Defining EF Core models

- Querying EF Core models

- Loading patterns with EF Core

- Manipulating data with EF Core

- Working with transactions

- Code First EF Core models

- Practicing and exploring

12. Querying and Manipulating Data Using LINQ

- Writing LINQ expressions

- Using LINQ with EF Core

- 12.4 Sweetening LINQ syntax with syntactic sugar

- Using multiple threads with parallel LINQ

- Creating your own LINQ extension methods

- Working with LINQ to XML

- Practicing and exploring

13. Introducing Web Development Using ASP.NET Core

- Understanding ASP.NET Core

- New features in ASP.NET Core

- Structuring projects

- Building an entity data model for the Northwind database

- Understanding web development

- Practicing and exploring

14. Building Websites Using ASP.NET Core Razor Pages

- Exploring ASP.NET Core

- Exploring ASP.NET Core Razor Pages

- Using Entity Framework Core with ASP.NET Core

- Using Razor class libraries

- Configuring services and the HTTP request pipeline

- Enabling HTTP/3 support

- Practicing and exploring

15. Building Websites Using the Model-View-Controller Pattern

- Setting up an ASP.NET Core MVC website

- Exploring an ASP.NET Core MVC website

- Customizing an ASP.NET Core MVC website

- Querying a database and using display templates

- Improving scalability using asynchronous tasks

- Practicing and exploring

16. Building and Consuming Web Services

- Building web services using ASP.NET Core Web API

- Documenting and testing web services

- Implementing advanced features for web services

- Building web services using minimal APIs

- Practicing and exploring

- Summary

17. Building User Interfaces Using Blazor

- Understanding Blazor

- Comparing Blazor project templates

- Building components using Blazor Server

- Building components using Blazor WebAssembly

- Improving Blazor WebAssembly apps

- Practicing and exploring