

Course: GitHub Copilot with Asp.Net

Module no.	Module Names	Topics to be taught	Live Sessions- Each session 2 hours
Module 1	intro to algo+dsa before oop(Basics, Array,strings)	- Basic c# Fundamentals (Syntax, Data types, Variables, Operators, Control Structures, Arrays, Methods etc.,) Visual Studio, c# Internals Plug-ins, Setup, Tools(includes IDE), Enablers to standardize/speed up development Standard Solution/Project Structures. Time complexity Coding Standards/Best practices - Daily exercises to be introduced.	18 HRS
	Assessment 3		
Module 2	OOP	- OO Programming (Classes, Objects, Interfaces, Packages, Access modifiers, Encapsulation, Abstraction, Inheritance, Polymorphism etc.,), etc., - Entity classes, Serialization/De-Serialization Coding Standards/Best practices - Daily exercises to be introduced.	
Module 6	Advanced Programming	Error/ Exceptions Handling, Custom Exceptions Reading and writing data from files, JSON, and XML Multithreading- Deadlocks-overview	
Module 3	Deepdive into Algo/DSA stacks, queues,	Generics, Collections,,Lists,Pointers sets, maps, trees, heaps,stacks & queues, searching and sorting, Performance & Time complexity	12 HRS

Module 8	Unit testing	Introduction to Quality Engineering, Unit testing with MsTest & Basic Debugging skills. Introduction to BDD approach • various phases of Testing along with gist of tools (Selenium, TestNG etc.,) in the Market. Introduction to Headless Testing. Aspects around Shift Left approach SonarQube, Code quality & code coverage, refactoring,	16 HRS
Module 5	Adv c# Featured & Design patterns + all the diagrams (UML, use case etc)	1.c# Versions, LTS, Release Cycles 2.c# Features Understanding (Interface Enhancements, Functional / Reactive / Modular / Fluent / Stream Based Programming. Functional Interfaces, Lambda Expression / Functions. ForEach – Iterable, Method References, Streams API etc.,) 3.Introduction to SOLID Principles, Design Patterns• 4.Creational design patterns, Structural design patterns,Behavioural design patterns 5.Documentation and Communication - UML, Mental Maps, PowerPoint etc.,	20 HRS
	Assessment 6 (Module 6,8 & 9)		
Module 6	SQL Server / ms sql	• Introduction to Database,MS-SQL concepts (Working with MSSQL/PostgreSQL) – Tables, Columns, Querying – simple joins, inner/outer joins, “where” clauses, aggregation functions, subquery, stored procedures, index; query tuning basics - Intro to NoSql. + Sql vs NoSql	
	Assessment 7		
Module 7	Api + .NETboot	• Introduction to .NET Framework (Dependency Injection, IOC, MVC etc.,) • .NET Basics, Creating a .NET application • Introduction to REST and Microservices. Building REST and using .NET • Connecting to Databases, Frameworks for Persistence (Entity Framework / ORM, SQL (MySQL/PostgreSQL) & No-SQL (MongoDB), Transactions) • Swagger Specification and Documentation • API Testing with Postman • Introduction to Application Security with ASP.NET Identity / JWT (optional content)	20 HRS

Module 8	GitHub Copilot Setup and Basics	Introduction to GitHub Copilot What is GitHub Copilot? Setting up GitHub Copilot in Visual Studio Code Basic usage and commands Copilot in Action Writing basic C# code with Copilot Exploring code completions and suggestions Customizing Copilot settings Integrating Copilot Using Copilot to generate Models, Views, and Controllers Best practices for using Copilot in ASP.NET Core projects	20 HRS
	Practice Test		
	Capstone Project		