Course: GitHub Copilot with Asp.Net

Module no.	Module Names	Topics to be tought	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		