Program Structure

General:
Live Teaching - Live Teaching sessions from Monday – Saturday from 08:45 AM to 05:45 PM.

For the Milestone(quiz and project), the submission timeline will be
Graded Quiz- 45 minutes
Graded Project- 2 hours

Courses	Day no	Date	Day	Modules	SubTopics
Introduction to .NET & C# & OOPS using C# & Data Handling using C#	Day 1	08 January 2026	Thursday	Getting started with Git basics	
				Introduction to Version Control	What is version control and why it is essential?
					Centralized vs. Distributed version control systems.
					Git Basics, Branching and Merging working with Remote Repositories
				Implementing CI/CD	What is CI/CD and why is it important?
					Key concepts: Build, Test, Release, Deploy.
					Tools for CI/CD: Jenkins, GitHub Actions, GitLab CI, etc.
				Introduction & Basic Programming Concepts	
				Getting started with .NET platform	Installation of Visual Studio 2019
					Introduction to .NET framework
					.NET framework architecture
					Common type system
					Common language specification
					Common language runtime
					Base class library
				Types in C#	Introduction to Classes
					Reading and Writing in the console
					Assembly
					Private
					Shared
					Types
					Value type and Reference type
					Boxing and Unboxing
					Strings
					String Builder
					Difference between String and StringBuilder
					Nullable types
	Day 2	09 January 2026	Friday	Core C# Programming	
				Arrays in C#	Array
					Single array
					Multi-dimension
					Jagged array
				Looping Construct	Loops and Statement
					IF statement
					For loop
					Foreach loop
					Switch statement
					While loop
					Do-while loop
	Day 3	10 January 2026	Saturday	Getting Started with properties and functions	
				Access modifiers in C#	Access modifiers
					Private
					Public
					Protected
					Internal
					Protected internal
				Methods in C#	Methods
					Void method
					With parameter
					Return type method
					Static method
					Instance method
					Namespaces
					Unit testing
	Day 4	12 January 2026	Monday	Getting started with Inheritance for code reusability	
				Inheritance in C#.NET	Object Oriented Concept
					Inheritance
					Single
					Multilevel
					Multiple (using Interface)
					Hierarchical
					Hybrid
				OOPs principles ie Polymorphism in Action	
				Polymorphism in C#.NET	Polymorphism
					Method override
					Method overload
					Encapsulation
					Abstraction
				Object types in C#.NET	Properties
					Static
					Static class
					Static method
					Static constructor
				User define types in C#.NET	Structs
					Interface
					Abstract
					Enumeration
					Difference between Interface and Abstract

					Problem with multiple class inheritance
					Solution for multiple class inheritance using interface.
					Exception handling
	Day 5	13 January 2026	Tuesday	File Handling in C#.NET	
				File Handling in C#.NET	File I/O
					Create
					Write
					Append
					Delete
					Copy
				Collections in C#.NET: Generic and Non Generic	Collections
					Non generic
					Array list
					Hash table
					Sorted list
					Stack
					Queue
					Generic
					List
					Dictionary
					Sorted list
					Stack
					Queue
	Day 6	14 January 2026	Wednesday	Advance topics	
				Exception Handling in C#	Introduction to Exception Handling Types of Exceptions in C#, The try, catch, finally Blocks Common Exception Classes Creating Custom Exceptions Exception Filters (C# 6.0 and Later) Exception Handling Best Practices
				Latest C# 7.0 features	Extension Methods
					Tuples and Deconstruction, Pattern Matching, Local Functions,Out Variables, Ref Locals and Returns, Discards (_) & Expression-bodied Members
				C# 8.0 features	Nullable Reference Types, Async Streams, Ranges and Indices,Switch Expressions, Default Interface Methods, Pattern Matching Enhancements, Using Declarations & Readonly Members
				Searching and Sorting Data Structure	Importance of searching in data structures
					Types of searching algorithms (Linear vs Binary)
					Types of sorting algorithms (Comparison-based vs Non-comparison-based)
					Bubble Sort, Selection Sort , Insertion Sort
					Efficiency comparison among Bubble, Selection, and Insertion Sort Real-world scenarios for each sorting algorithm
				Indexers and Attributes in C#	Indexer
					Difference between index and properties
					Attributes
Advanced C# & introduction to .Net	Day 7	15 January 2026	Thursday	Delegates & Reflection	
				Delegates in C#.NET	Delegates
					Single cast
					Multi cast
				Standard C# Features	Anonymous method
					Lambda expression
					Func
					Action
					Predicate
					Events
					INtroduction to Reflection and its practical use
					Generics
					Generic class
					Generic field
					Generic method
					Advantage of generics
					Threading
					Ref and Out keyword
					Async & Await
					Understanding Http client
	Day 8	16 January 2026	Friday	Unit Testing & Test-Driven Development	
				Introduction to Unit Testing	What is unit testing?
					Benefits of unit testing
					Basic concepts and terminology
					Testing Frameworks
				Introduction to Testing Frameworks	Introduction to popular testing frameworks (NUnit, MSTest, XTest)
					Setting up a testing framework in a project
					Understanding test projects and test classes
				Writing Test Cases	Anatomy of a unit test
					Creating test methods
					Organizing test classes and test suites
				Assertions and Test Data	Using assertions to validate test results
					Common assertion methods (e.g., Assert.AreEqual, Assert.IsTrue)
					Test data setup and teardown
				Testing Techniques	Test-driven development (TDD)
					Testing different scenarios (positive, negative, edge cases)
					Mocking dependencies using frameworks like Moq
				Test Execution and Reporting	Running tests using the testing framework
					Analyzing test results and understanding test reports
					Handling failures and debugging failing tests
				.NET Security & Reliability	
				.NET Security & Reliability	Understanding security in .NET applications
					Common security practices (authentication, authorization, encryption)
					Secure coding practices
					Using .NET libraries for encryption, secure communication, and secure storage
					Building Reliable Applications
					Designing for reliability
					Exception handling strategies

	Day 9	17 January 2026	Saturday		Error Handling & Logging
					Implementing error handling best practices
					Logging errors and monitoring application health
Advanced C# & introduction to .Net				SOLID Principles & Design Patterns	
				SOLID Principles	Introduction to SOLID Principles
					Overview of SOLID principles (SRP, OCP, LSP, ISP, DIP)
					Practical Application of SOLID
					Refactoring code to adhere to SOLID principles
				Design Patterns	Introduction to Design Patterns
					Understanding the importance of design patterns in software design
					Overview of common design patterns (Creational, Structural, Behavioral)
	Day 10	**19 January 2026**	**Monday**	**Milestone Assessment 1 (C# Fundamentals)**	
Basics of Microsoft SQL Server / MS SQL Querying Capabilities	Day 11	20 January 2026	Tuesday	Introduction, Basic Concepts, and DML Commands	
				Introduction to Databases	Installation of SQL Server Management Studio
					Introduction to basic database concepts.
					Advantage of DBMS
				Keys, Operators & DML Commands	Introduction to RDBMS
					Creating Tables
					Relationship between tables.
					Primary keys, Foreign keys, Unique keys
					SQL operators (Arithmetic, Comparison, Logical)
					DML Commands
					CRUD operations
	Day 12	21 January 2026	Wednesday	DDL, DCL, and TCL Commands	
				SQL Fundamentals	SQL commands
					Constraints
					Primary key
					Foreign key
					Types of contraints - Not null, Check, Unique.
					DDL Commands
					DCL & TCL Commands
					Grant & Revoke, Commit & Rollback
				Advanced Queries, Functions, and Joins	
				Function in SQL Server	Functions
					Built-in Functions
					Scalar functions (e.g., LEN, ROUND, GETDATE)
					Aggregate functions (e.g., SUM, AVG, COUNT)
					User-defined Functions
	Day 13	22 January 2026	Thursday	Working with Queries	Aggregate functions
					Joins
					Inner join
					Left join
					Right join
					Self-join
					Full outer join
					Cross join
					Set operators
					Union
					Intersect
					Minus
	Day 14	23 January 2026	Friday	Stored Procedures and Triggers	Stored procedure
					Input and Output parameter
					If Else
					Transaction
					Error Handling
					Functions
					Scalar function
					Table value function
					Single table value
					Multi table statement
					Difference between SP and function.
					Call functions in SP.
HTML CSS and BootStrap	Day 15	24 January 2026	Saturday	HTML /CSS /JavaScript	
				HTML	Basic Structure of an HTML Page
					Various Tags and Attributes
					Inline and Block Elements
					Forms
					Semantic elements
					HTML 5 Features
					Paper based Layout
					Hero unit
					Audio Video Players
					Semantic Markup
					Geo Location, A11Y (Accessibility)
	Day 16	27 January 2026	Tuesday	CSS	Intro to CSS
					CSS Properties and their syntaxes
					Various Selectors in CSS and their preference orders
					Inline , Internal and External Styling
					Box Model
					CSS 3
					Advance Unites like rem, em and vh vw
					New elements added like Round Corners
					Working with flex box
	Day 17	28 January 2026	Wednesday	Bootstrap	Working with Bootstrap
					Cards, Tables, and Lists
					Develop a static webpage,Forms and Form Validations
					Navs and Navbar,Pagination and Progress
					Navigation and Pagination
	Day 18	**29 January 2026**	**Thursday**	**Milestone Assessment 2 (SQL Fundamentals)**	
	Day 19	30 January 2026	Friday	Basics of JavaScript	Basics of JavaScript - Introduction to JavaScript, Data type, variables, Functions and scope
					Type Conversions, Basic Operators

					Branching, Conditional statements and Looping Statements, Functions, Arrays and Strings
	Day 20	31 January 2026	Saturday	Advanced Java Script	Modern JavaScript (ES6): Javascript - Fetch API , Arrow functions, Template literals, Destructuring, Spread and rest operators Date and Time Objects, Closures, Promises and Async Programming, Closures and Scoping, DOM Manipulation: DOM Objects, Accessing elements in the DOM, Modifying HTML content, Adding and removing elements
	Day 21	02 February 2026	Monday		Functional Programming, Error Handlingclient side scripting JSON, JSON - Objects, arrays etc, JSON-Ajax Advanced DOM Manipulation, jQuery Plugins, Event Delegation, Ajax and Deferred Objects, Optimization and Performance
Getting started with React FrontEnd				**SPA & Working with NPM**	
	Day 22	03 February 2026	Tuesday	Single Page Applications (SPA) Fundamentals	Differences between SPA and traditional web applications Architecture of SPA vs multi-page apps Advantages of SPA: performance, scalability, and user experience Common use cases and industry scenarios for SPA development
	Day 23	04 February 2026	Wednesday	Working with NPM	Introduction to NPM and Node package ecosystem Initializing a project using npm init Installing, updating, and removing packages (npm install, npm update, npm uninstall) Understanding package.json and package-lock.json Dependency management best practices
				TypeScript Module (2 Days)	
	Day 24	05 February 2026	Thursday	Introduction & Core TypeScript Concepts	Introduction to TypeScript and its benefits over JavaScript Setting up the TypeScript development environment Creating and managing TypeScript projects Core TypeScript concepts (types, interfaces, functions, classes, modules) Type safety and compile-time error checking
	Day 25	06 February 2026	Friday	Tooling, Build & Execution	Using Visual Studio / VS Code features for TypeScript development Project configuration using tsconfig.json Building and transpiling TypeScript applications Running and debugging TypeScript applications Best practices for structuring scalable TypeScript projects
	Day 26	**07 February 2026**	**Saturday**	**Milestone Assessment 3 (Javascript + Typescript)**	
Power Platform & Reporting Tools (3 Day)				Power Platform & Reporting Tools (3 Day)	
	Day 27	09 February 2026	Monday	Fundamentals of Power Platform	What is Microsoft Power Platform Overview of Power BI, Power Apps, Power Automate, Power Virtual Agents How Power Platform components work together Common enterprise use cases and integrations
	Day 28	10 February 2026	Tuesday	SSRS – Reporting Fundamentals	Introduction to SSRS architecture Standard operations in SSRS (Data Sources, Datasets, Reports) Creating a simple SSRS report using SQL Server Report deployment and execution
	Day 29	11 February 2026	Wednesday	Reporting Tool Comparison & Visualization	SSRS (SQL-native reporting) vs Power BI (modern visualization) When to use SSRS vs Power BI in real projects Limitations and strengths of each tool Reporting best practices and performance considerations
Azure Module – .NET with Microsoft Dynamics CRM (4 Days)				Azure Module – .NET with Microsoft Dynamics CRM (4 Days)	
	Day 30	12 February 2026	Thursday	Azure Identity & Secure Access	Role of Azure in Dynamics CRM architecture Azure Active Directory (AAD) for authentication & authorization Azure AD B2C for external/portal users Secure access patterns for CRM integrations
	Day 31	13 February 2026	Friday	Serverless & Workflow Automation	Azure Functions for custom business logic Real-time data transformation and automation scenarios Azure Logic Apps for workflow orchestration Integrating external APIs with Dynamics CRM
	Day 32	14 February 2026	Saturday	Data, Storage & Monitoring	Azure Blob Storage for large documents and attachments Optimizing CRM performance using external storage Azure Key Vault for secrets, certificates, and credentials Azure Application Insights for monitoring, logging, and alerts
	Day 33	16 February 2026	Monday	DevOps & Data Integration	Azure DevOps for source control and CI/CD pipelines Deploying Dynamics CRM customizations via pipelines Azure Data Factory for ETL and data migration Data synchronization between CRM and external systems
Analytical & Data-Driven Concepts Module (2 Days)				Analytical & Data-Driven Concepts Module (2 Days)	
	Day 34	17 February 2026	Tuesday	Introduction to Analytical Thinking	Definition and importance of analytical thinking Role of analytical thinking in data-driven organizations Key benefits of analytical thinking for business decision-making Overview of analytical vs intuitive decision-making
	Day 35	18 February 2026	Wednesday	Analytical Thinking & Data-Driven Process	Understanding the problem and business context Problem definition and root cause analysis Defining objectives and analytical questions Gathering and preparing data Applying analytical methods Generating insights for business actions Presenting findings to stakeholders Common data analytics tools overview Selecting the right tool for a given problem
	Day 36	**19 February 2026**	**Thursday**	**Milestone - 4(Power platform + Dynamics CRM+ Data driven processes)**	
Capstone	Day 37-41	20 February 2026 - 25 February 2026	Friday - Wednesday	Capstone Project (5 days) The capstone validates full-stack enterprise readiness by integrating backend engineering, frontend SPA, cloud-native services, analytics, and business storytelling.	
	Day 42	**26 February 2026**	**Thursday**	**Final Assessment - Only MCQ bazased on case studies**	