



# Course Brochure

## C#.NET

### Overview

•With the introduction of the .NET framework, Microsoft has provided a very powerful platform for developing distributed applications. To utilize and excel in this new development environment, a programmer must be equipped with the knowledge and skills necessary for success. This is what this course provides: a thorough introduction to three most important tools in the .NET framework and how they are used together to build different types of .NET applications.

### Pre-requisites

•No prior .NET experience is required. Some working knowledge of computer programming is essential for this course.

### Applications

## COURSE CONTENTS

### Introduction

- ❖ Overview
- ❖ Features of C#.Net
- ❖ Versions of C#.Net
- ❖ MSIL, CLR, CTS, CLS, BCL
- ❖ .NET Framework Architecture

### Introduction to Visual Studio

- ❖ Versions, Editions and System requirements
- ❖ Installation
- ❖ Project, Solution, Types of Applications
- ❖ Compiling, Running application

### C#.NET Basic Programming

- ❖ C#.NET Program Syntax with Ways of writing Main() Method
- ❖ System.Console class
- ❖ Data Types, Operators, Constants, enum
- ❖ Casting, Parsing, Conversion Methods, Boxing & unboxing
- ❖ Working with Datetime
- ❖ Different ways of Input Statements
- ❖ Arrays, System Array class, Reference, Shallow, Deep Copy

### OOPS in C#.NET

- ❖ Introduction to Programming Techniques, Drawbacks of Procedural Programming, Importance, Features, Components of OOPs (class and object)
- ❖ Working with Modifiers, Call by Value(Optional, named Parameters), Call by Reference (Ref, out)
- ❖ Introduction to Inheritance, Shadowing, Casting
- ❖ Static And Dynamic binding, Sealed methods and Sealed Class
- ❖ Abstract classes and Methods
- ❖ Properties-Set and get Blocks, Automatic, Readonly
- ❖ Interfaces- Implicit and Explicit implementation
- ❖ Exception Handling- try, catch, finally, throw – Built-in & Customized Exceptions
- ❖ Collections, Custom, Generic methods, Classes, Built-in generic Classes, Reflection

- ❖ Operator Overloading, Type Inference, Partial Classes And Partial Methods
- ❖ Delegates, Anonymous Methods, Lambda Expressions, Events
- ❖ Overview of Garbage Collection System. GC, IDisposable, Destructors, Finalizer/Dispose
- ❖ Structures vs Classes, String vs String Builder
- ❖ Object Initializers, Anonymous Types, Extension Methods

### Window Based Programming /GUI Programming

- ❖ Introduction to Windows Forms Application, IDE of Forms, Understanding Form Class Definitions
- ❖ Working with Multiple Forms
- ❖ Working with Windows Forms Controls, Graphics
- ❖ Creating Dialogs, Modal Dialogs-Customized, built-in, Modeless dialogs
- ❖ MDI Application
- ❖ User Controls, Runtime Controls
- ❖ Deployment of Windows Forms Application, Creating Setup Project, installing and uninstalling Windows application

### Assemblies And Namespaces

- ❖ Difference between DLL and EXE, Types of DLLS
- ❖ Structure of Assembly, Single File And Multi File Assembly, .Net Module
- ❖ Types of Assemblies, Name Spaces, Accessing Modifiers In and Out of Assembly

### Streams

- ❖ Introduction to streams, Types of Streams – Text Streams, Binary Streams
- ❖ File Stream , Memory Stream Classes, File, FileInfo, DirectoryInfo Classes,Stream Reader, StreamWriter Classes
- ❖ Serialization, Deserialization

### Multi Threading

- ❖ Introduction, Types of Scheduling, Thread States
- ❖ Performing Async operations using Multi Threading
- ❖ Thread Synchronization

## COURSE CONTENTS

### Task Parallel Library

- ❖ Multi Threading (vs) Task Parallel Library
- ❖ Performing Async operations using TPL

### ADO.NET – Managed Provider

- ❖ Introduction to Database, RDMS, SQL
- ❖ Evolution of ADO.Net, Architecture of ADO.Net
- ❖ Server Explorer, Connection String – App.Config, UDL File
- ❖ Connection, Command, Parameter, DataReader as Connection Oriented Model
- ❖ Introduction to Stored Procedures, Advantages, Executing Stored Procedures Thru C# Application
- ❖ Transactions- Single Database, Multiple Databases
- ❖ Overview of Typed Databases- Working with Oracle, Excel, Access
- ❖ MARS

### ADO.NET – Disconnected Model

- ❖ Dataset, DataTable, DataColumn, DataRow, DataAdapter
- ❖ DataAdapter Commands, SqlCommandBuilder
- ❖ Handling Concurrency While Updating Data in DB, DataViews
- ❖ Purpose of Creating Foreign Key Constraint, DataRelation

### ADO.NET – Entity Framework

- ❖ LINQ to SQL (vs) Entity Framework, DbSet, DbSet
- ❖ EDM in-XML Representation- Designer Content and Runtime content (SSDL, CSDL, C-S Mapping)
- ❖ Insert, Update, Delete Operations Using EF, DataGridView
- ❖ Calling Stored Procedures Using EF
- ❖ Immediate Mode And Differed Mode Execution
- ❖ Transactions In EF- Single DB, Multiple DBs
- ❖ Navigation Types : Accessing Data – With and **Without Navigation**

### ET Code Debugging

- ❖ Breakpoints, Immediate Window, F5,F10,F11

### Windows Services

- ❖ Introduction
- ❖ Creation, Deployment Techniques

### XML

- ❖ Introduction to XML
- ❖ Rules of XML Document
- ❖ Structure of XML Document
- ❖ XML DOM Parser
- ❖ XML DataDocument
- ❖ Reading XML using Dataset
- ❖ XMLtextwriter And XMLtextReader

### WPF

- ❖ Introduction to WPF
- ❖ Different Views in WPF Environment
- ❖ Architecture of WPF
- ❖ Differences Between HTML, XML, XAML
- ❖ Syntax of XAML, WPF Controls, Multiple WPF Windows
- ❖ Brushes, Styles
- ❖ Animations and Transformations
- ❖ Working with Dataset in DataGrid

### Application Architectures

- ❖ 3-tier Architecture and N-tier Architecture