

**Course Learning Objectives:**

- The concept of .NET framework, building blocks of .NET framework and application development using IDE.
- C# programming language, use of windows forms and GUI based programs.
- OOP concepts, concept of assemblies and string manipulation.
- Designing of web applications and validating forms using validation controls, interacting with database using server side programming.

**Course Outcomes: After completing the course, the students will be able to,**

- Understand .NET framework, its runtime environment and application development using IDE of Visual Studio 2010 and higher versions.
- Develop well-defined programs using the C# programming language; learn to use Windows forms and to create GUI-based programs.
- Able to apply the principles of object-oriented programming and develop assemblies and deployment in .NET.
- Apply and build web applications and validation form data using validation controls.
- Create dynamic web applications that interact with a database using server-side programming.
- Understand Constructing classes, methods and instantiate objects.
- Understand and implement string manipulation, events and exception handling within .NET application environment.

**UNIT-I****12Hrs.**

Introduction: Principles of .NET, Overview of .NET Framework, Review of **OOP Concepts – C# language fundamentals – Basic Elements of C# – Program Structure** and simple Input and Output Operations – Data types –Value types –Reference types – Identifiers – Variables – Constraints –Literals – Operators and Expressions – Statements – Arrays and Structures. Object Oriented Programming Concepts: Encapsulation – **Encapsulation Services – Pseudo- Encapsulation: Creating Read-Only Fields- Inheritance - Namespace – Polymorphism – Interface and Overloading – Multiple Inheritance** – Property – Indexes – Delegates and Events – Publish/Subscribe Design Patterns- **Operator Overloading– Method Overloading.**

**UNIT-II****12Hrs.**

C# Concepts for creating Data Structures - File Operation – **File Management systems – Stream Oriented Operations- Multitasking – Multithreading – Thread Operation – Synchronization– Exceptions and Object lifetime. Building C# Applications:** The Role of the Command Line Compiler – Building C # Applications, Working with csc.exe, Response Files– Generating Bug Reports – Remaining C# Compiler Options – **The Command Line Debugger (cordbg.exe) – Using the Visual Studio .NET IDE – Other Key Aspects of the VS.NET IDE – C# "Preprocessor:" Directives.**

**UNIT-III****12Hrs.**

**.NET ASSEMBLERS and Windows Applications:** An Overview of .NET Assembly – Building a Simple File Test Assembly– A C# Client Application– **A Visual Basic .NET Client Application– Cross Language Inheritance– Exploring the CarLibrary's– Manifest– Exploring the CarLibrary's Types– Building the Multifile Assembly– Using Assembly– Understanding Private Assemblies– Probing for Private Assemblies (The Basics) – Private**

Assemblies XML Configurations Files– Probing for Private Assemblies (The Details) – Understanding Shared Assembly – Understanding Shared Names– Building a Shared Assembly– Understanding Delay Signing– Installing/Removing Shared Assembly. Building Windows application –Working with c# controls– Event handling – Graphics Device Interface (GDI).

#### UNIT-IV

12Hrs.

ADO.NET and Database Connectivity: Introduction to ADO.NET– Major Components of ADO.NET– Establishing Database Connections– Connection objects– Command objects– Datasets– Data readers– Querying databases– Data Grid Views– Data Validation.

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#### REFERENCE BOOKS:

1. Stephen C. Perry – "Core C# and .NET", Pearson Education, 2006.
2. S. ThamaraiSelvi and R. Murugesan –"A Textbook on C#" –, Pearson Education, 2003.
3. Andrew Troelsen, Pro C# with .NET 3.0 Special Edition, Dream tech Press, India, 2007.
4. E. Balagurusamy, Programming in C#, 5th Reprint, Tata McGraw Hill, 2004. (For Programming Examples)
5. Tom Archer, Inside C# WP Publishers, 2001.
6. Herbert Scheldt, C#: The Complete Reference, Tata McGraw Hill, 2004.
7. Robinson et al, -"Professional C#", Fifth Edition, Wrox Press, 2002.

