	CS-23: Programming with C#	
Objectives:		
<td colspan="2">• Demonstrate knowledge of object-oriented concepts design, user experience and functional requirements C# .Net Application.</td>		
Prerequisites:		
<td colspan="2">• Basic knowledge of C# programming language and .Net environment.</td>		
Unit No.	**Topic**	**Detail**
1	**.NET Framework, and Visual Studio IDE, Language Basics**	• Introduction to .Net Framework • Features / Advantages • CLR, CTS and CLS • BCL / FCL / Namespaces • Assembly and MetaData • JIT and types • Managed Code and Unmanaged Code • Introduction to .NET Framework and IDE versions • Different components (windows) of IDE • Types of Projects in IDE: Console, Windows, Web, Setup, etc. • Data Types: Value Type & Reference Type • Boxing and UnBoxing • Operators: Arithmetic, Relational, Bitwise, etc. • Arrays: One Dimensional, Rectangular, Jagged • Decisions: If types and switch case • Loops: for, while, do..while, foreach
2	**Class and Inheritance, Property, Indexer, Pointers, Delegates, Event, Collections**	• Concept of Class, Object • Encapsulation, Inheritance, Polymorphism • Creating Class and Objects • Methods with "ref" and "out" parameters • Static and Non-Static Members • Constructors • Overloading Constructor, Method and Operator • Inheritance • Sealed Class & Abstract Class • Overriding Methods • Interface inheritance • Creating and using Property • Creating and using Indexer • Creating and using Pointers (unsafe concept) • Creating and using Delegates (Single / Multicasting) • Creating and using Events with Event Delegate • Collections: ArrayList, HashTable, Stack, Queue, SortedList

		and their differences.

3	**Windows Programming**	• Creating Windows Application
		• MessageBox class with all types of show() method
		• Basic Introduction to Form and properties
		• Concept of adding various Events with event parameters
		• Different Windows Controls
		    o Button,
		    o Label
		    o TextBox,
		    o RadioButton
		    o CheckBox,
		    o ComboBox
		    o ListBox,
		    o PictureBox
		    o ScrollBar,
		    o TreeView
		• Menu: MenuStrip, ContextMenuStrip, ToolStrip
		    o Timer
		    o Panel and GroupBox
		• Dialog Boxes
		    o ColorDialog,
		    o FontDialog,
		    o SaveFileDialog
		    o OpenFileDialog
		• MDI Concept with MDO Notepad
		• Concept of Inheriting Form

4	**Database Programming with ADO .NET**	- Concept of Connected and Disconnected Architecture - Data Providers in ADO.NET - Connection Object - Connected Architecture: - Command, - DataReader - Disconnected Architecture: - DataAdapter, - DataSet, - DataTable, DataRow, DataColumn, - DataRelation, DataView Data Binding - GridView Programming
5	**User Controls (Components), Crystal Reports, Setup Project**	- Creating User Control with Property, Method, Event - Using User Control in Windows, - Creating Crystal Reports , Types of Reports - Report Sections - Formula, Special Field and Summary in Report - Types of Setup Projects - Creating Setup Project

Seminar	-	5 Lectures
Expert Talk	-	5 Lectures
Test	-	5 Lectures

Total Lectures 60 + 15 = 75

Reference Books:
- Pro C# 5.0 and .NET 4.5 Framework (By: Andrew Troelse)
- Head First C# - (By: Jennifer Greene, Andrew Stellman)
- C# 5.0 Unleased – (By: Bart De Smet)
- Adaptive Code Via C# - (By: Gary McLean Hall)
- C# .NET Programming Black Book – Steven Holzner – Dreamtech Publications
- Introduction to .NET Framework – Wrox Publication
- Microsoft ADO .NET – Rebecca M. Riordan, Microsoft Press

Course outcomes:
- Use the Microsoft Visual Studio development environment to create a windows application
- Understand the basics of object-oriented programming, CLR and .NET framework
- Demonstrate C# programming constructs to solve given problem
- Perform CRUD operations in windows application
- Use the trace and debug utility that are provided with Visual Studio .NET
- Develop, configure and deploy windows application