Program: B.Sc.- Computer Science				Semester : IV	
Course: .NET Technologies				Course Code: USMACS406	
Teaching Scheme				Evaluation Scheme	
Lecture (Hours per week)	Practical (Hours per week)	Tutorial (Hours per week)	Credit	Continuous Assessment and Evaluation (CAE) (Marks - 25)	Term End Examinations (TEE) (Marks-75 in Question Paper)
02	02	-	2+1 = 3	25	75

Learning Objectives:

- To learn to create console applications using C#
- To explore .NET technologies for designing and developing dynamic websites
- To apply database connectivity in .Net Applications
- To create interactive and responsive web applications.

Course Outcomes:

After completion of the course, learners would be able to:

CO1: Understand the .NET framework
CO2: Develop a proficiency in the C# programming language
CO3: Proficiently develop ASP.NET web applications using C#
CO4: Incorporate ADO.NET for data persistence in a web application

Outline of Syllabus: (per session plan)

Module	Description	No of hours
1	**The .NET Framework, C# Language Basics, ASP.NET**	10
2	**Web Controls, Validation, Master Pages**	10
3	**ADO.NET, Working with XML**	10
	Total	**30**
PRACTICALS		**30**

Module	.NET Technologies	No. of Hours/Credits 30/2
1	**The .NET Framework, C# Language Basics, ASP.NET**	10
	The .NET Framework: .NET Languages, Common Language Runtime, .NET Class Library **C# Language Basics**: Comments, Variables and Data Types, Variable Operations, Object-Based Manipulation, Conditional Logic, Loops, Methods, Classes, Value Types and Reference Types, Namespaces and Assemblies, Inheritance, Static Members, Casting Objects, Partial Classes **ASP.NET** - Writing Code - Code-Behind Class, Adding Event Handlers Anatomy of an ASP.NET Application - ASP.NET File Types, ASP.NET Web Folders **HTML Server Controls** - View State, HTML Control Classes, HTML Control Events, HtmlControl Base Class, HtmlContainerControl Class, HtmlInputControl Class, Page Class, global.asax File	
2	**Web Controls, Validation, Master Pages**	10
	Web Controls: Web Control Classes, WebControl Base Class, List Controls,Table Controls, Web Control Events and AutoPostBack, Page Life Cycle **State Management:** ViewState, Cross-Page Posting, Query String, Cookies,Session State, Configuring Session State, Application State **Validation:** Validation Controls, Server-Side Validation, ClientSide Validation, HTML5 Validation, Manual Validation, Validation with Regular Expressions **Rich Controls:** Calendar Control, AdRotator Control, MultiView Control ASP.NET Master Pages: Simple Master Page and Content Page, Connecting Master pages and Content Pages, Master Page with Multiple Content Regions, Master Pages and Relative Paths. Website Navigation: Site Maps, URL Mapping and Routing, SiteMapPath Control, TreeView Control, Menu Control	
3	**ADO.NET, Working with XML**	10
	ADO.NET: Data Provider Model, Direct Data Access - Creating a Connection, Select Command, DataReader, Disconnected Data Access **Data Binding :** Introduction, Single-Value Data Binding, Repeated-Value Data Binding, **Data Source Controls** – SqlDataSource Data Controls: GridView, DetailsView, FormView **Working with XML:** XML Classes – XMLTextWriter, XMLTextReader Caching: When to Use Caching, Output Caching, Data Caching	

PRACTICALS	
Sr. No.	**Topic.**
1	Write C# programs for understanding C# basics involving a. Variables and Data Types b. Object-Based Manipulation c. Conditional Logic d. Loops e. Methods
2	Write C# programs for Object oriented concepts of C# such as: a. Program using classes b. Constructor and Function Overloading c. Inheritance d. Namespaces
3	Design ASP.NET Pages with a. Server controls. b. Web controls and demonstrate the use of AutoPostBack c. Rich Controls (Calendar / Ad Rotator)
4	Design ASP.NET Pages for State Management using a. Cookies b. Session State c. Application State
5	Design ASP.NET page and perform validation using various Validation Controls
6	Design ASP.NET Pages with various Navigation Controls. Design an ASP.NET master web page and use it other (at least 2-3) content pages.
7	Perform ADO.NET data access in ASP.NET for Simple Data Binding
8	Perform ADO.NET data access in ASP.NET for Repeated Value Data Binding
9	Design ASP.NET application for Interacting (Reading / Writing) with XML documents
10	Design ASP.NET Pages for Performance improvement using Caching

RECOMMENDED READING:

Text Books:

1. Beginning ASP.NET 4.5 in C#, Matthew MacDonald, Apress(2012)

Reference Books

1. The Complete Reference ASP .NET, MacDonald, Tata McGraw Hill
2. Beginning ASP.NET 4 in C# and VB Imar Spanajaars, WROX