

Advanced Web Development

B. Sc. (Information Technology)		Semester – V	
Course Name: Advanced Web Development		Course Code: USIT503	
Periods per week (1 Period is 50 minutes)		5	
Credits		2	
		Hours	Marks
Evaluation System	Theory Examination	2½	75
	Internal	--	25

Course Objective:

- Understand .NET Fundamentals: Gain a comprehensive understanding of the .NET framework, including its languages (C#), the Common Language Runtime, and the .NET Class Library.
- Learn the fundamentals of the C# language, covering variables, data types, conditional logic, loops, methods, and advanced topics like object-based manipulation.
- Develop skills in writing code for ASP.NET applications, utilizing server controls, handling events, and configuring applications. Understand various form controls, validation techniques, and navigation concepts. Handling error handling, debugging, and exception handling techniques in ASP.NET.
- Learn about state management on both client and server sides, including view state, transferring information between pages, and working with cookies.
- Gain expertise in ADO.NET components, data providers, SQL commands, and queries.
- Understand the data provider model, direct data access, and disconnected data access.
- Learn to work with data source controls and integrate with Microsoft Azure Database.

Unit	Details	Lectures
I	.NET Technology and Framework, C#, VB, and the .NET Languages, The Common Language Runtime, The .NET Class Library. The C# Language: C# Language Basics, Variables and Data Types, Variable Operations, Object-Based Manipulation, Conditional Logic, Loops, Methods. Types, Objects, and Namespaces: The Basics About Classes, Building a Basic Class, Value Types and Reference Types, Understanding Namespaces and Assemblies, Advanced Class Programming.	12
II	ASP.NET Web Forms, Writing Code, Using the Code-Behind Class, Adding Event Handlers, Understanding the Anatomy of an ASP.NET Application, Introducing Server Controls, Using the Page Class, Using Application Events, Configuring an ASP.NET Application. Form Controls: Stepping Up to Web Controls, Web Control Classes, List Controls, Table Controls, Web Control Events and AutoPostBack, Validation, Understanding Validation, Using the Validation Controls, Rich Controls, The Calendar, The AdRotator, Pages with Multiple Views, User Controls and Graphics, User Controls, Dynamic Graphics, The Chart Control, Website Navigation: Site Maps, URL Mapping and Routing, The SiteMapPath Control, The TreeView Control, The Menu Control.	12
III	Tracing, Error Handling, Debugging, Exception Handling, User defined Exceptions, Page Tracing, Client and Server side state management, View State, Transferring Information Between Pages, Cookies- creation, retrieval, reading, Types of Cookies, Using Master Pages and Content Pages	12

IV	ADO.NET Components, Data Providers, SQL Basic command and queries, Understanding the Data Provider Model, Using Direct Data Access, Using Disconnected Data Access. Working with Data Source Controls, Data Controls: GridView, DetailsView and FormView.	12
V	Understanding Security Requirements, Introduction to Authentication and Authorization NuGet package manager for .NET and Visual Studio- Installation, Basics, framework, Bootstrap basics, Structure of the Page, Typography, Forms Ajax- Using Partial Refreshes, Using Progress Notification, Implementing Timed Refreshes, Working with the ASP.NET AJAX Control Toolkit.	12

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Beginning Visual C# 2010	K. Watson, C. Nagel, J.H Padderson	Wrox (Wiley)		2010
2.	Murach's ASP.NET 4.6 Web Programming in C#2015	Mary Delamater and Anne Bohem	SPD	Sixth	2016
3.	ASP.NET 4.0 programming	J. Kanjilal	Tata McGraw Hill		2011
4.	Programming ML.NET	Dino Esposito, Francesco Esposito	Paperback		
5.	Ajax : A Beginner's Guide	Steven Holzner	Paperback		2017
6	Introducing Bootstrap 4	Jörg Krause	Apress		2016

Web reference:

NuGet package :- <https://learn.microsoft.com/en-us/nuget/quickstart/install-and-use-a-package-in-visual-studio>

Course Outcome:

After completing the course, the learner will be able to:

CO1: Learner will explore the foundations of .NET Development, .NET Ecosystem, C# and Fundamental Concepts

CO2: Comprehensive Understanding and Practical Application using controls.

CO3: ASP.NET Web Development Essentials: Tracing, Debugging, and State Management Techniques

CO4: Mastering Data Access in ASP.NET: ADO.NET Essentials and Azure Integration

CO5: Securing ASP.NET Applications: Authentication, Authorization, and Advanced Techniques with Ajax and Bootstrap