

NIRMA UNIVERSITY

Institute:	Institute of Technology
Name of Programme:	BTech All (Other Than CSE)
Course Code:	3CS520IC24
Course Title:	Application Development Frameworks
Course Type:	Interdisciplinary Minor-Core
Year of Introduction:	2024-25

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Course Learning Outcomes (CLO):

At the end of the course, the students will be able to -

1. explain the key components of the .NET Framework (BL2)
2. make use of web forms along with a variety of controls (BL3)
3. develop web-based applications using LINQ, XML, and Web services (BL4)
4. assess ADO.NET, data providers, data binding techniques, database connectivity, data retrieval using DataSets and DataReaders, and managing multiple tables. (BL5)

Unit	Contents	Teaching Hours (Total 45)
Unit-I	Overview of ASP.NET framework and C# programming language: Components of .Net Framework, ASP.NET - Environment Setup, ASP.NET - Life Cycle, C# - Overview, Building a simple ASP.NET application	05
Unit-II	ASP.NET Web Forms: Building dynamic web pages with Web Forms, Creating web forms, controls, and data binding, Handling user input, events, and validation controls	10
Unit-III	Database Integration: Overview of ADO.NET, Introduction to Using ADO.NET, .NET Framework data providers, Data Binding, connecting to the Database, Accessing Data with DataSets, displaying a DataSet in a List-Bound Control, Using Multiple Tables, Accessing Data with DataReaders, Disconnected operations with Data tables and Data sets, Connection pooling	10
Unit-IV	Working with LINQ: What is Linq, Projection Operators, Ordering Operators, Filtering Operators, Set Operators, Quantifier Operators, Grouping Operators, Partitioning Operators, Equality Operators, Element Operators, Conversion Operators, Concatenation Operators, Aggregation Operators, Generation Operators, Join Operators	05
Unit-V	Introduction to XML: Structure & Syntax of an XML Document, Read XML File using XmlDocument, Read XML File using XmlReader, Read XML File using LINQ	05
Unit-VI	ASP.NET - Web Services: Creating and using the Web Services in web application	05
Unit-VII	Introduction to AJAX: ASP.NET AJAX Library, AJAX Control Toolkit, AJAX in ASP.NET Web Forms and Error Handling and Debugging in AJAX	05



Self-Study:

The self-study contents will be declared at the commencement of the semester. Around 10% of the questions will be asked from self-study contents

Suggested Readings/ References:

1. Andrew Troelsen, C# 6.0 and the .NET 4.6 Framework, Apress
2. Matthew MacDonald, Beginning ASP.NET 4.5 in C#, Dreamtech Press
3. Les Jackson, The Complete ASP.NET Core 3 API Tutorial: Hands-On Building, Testing, and Deploying, Apress
4. Himali Patel and Kaushal Gor, Web Application Development: Asp.Net with C#, Notion Press
5. Carl Rippon, ASP.NET Core 5 and React: Full-stack web development using .NET 5, React 17, and TypeScript 4, Packt Publishing Limited

Suggested List of Experiments:

Sr. No.	Title	Hours
1	Design a web-based login authentication application using ado.net database connectivity with SQL server database. The application should contain the following web forms: login form, Welcome form, Registration form, Invalid User	04
2	Design a web-based application to implement the Required Field Validator, Compare Validator, Range Validator, Custom Validator, Regular Expression Validator and Validation Summary validation controls.	02
3	Design a web-based application to implement the following Navigation with SQL server database: Add, Update, Save and Delete	02
4	Design a web-based application to implement the following Navigation with SQL server database: First, Previous, Next, and Last.	04
5	Design a web-based application to demonstrate Page Load and Page.IsPostBack.	02
6	Design a web-based application to bind data using XML files.	04
7	Design a web-based application to bind data using Repeater control. The database should be created in ms-access or SQL server. Also, demonstrate how to create a menu.	02
8	Design a web-based application to implement Datagrid control with paging.	04
9	Create a web service and design a web-based application to use that web service.	04
10	Design a web-based application to demonstrate various operators of LINQ.	02