INTB402: MODERN WEB PROGRAMMING TOOLS AND TECHNIQUES

L:3 T:0 P:2   Credits:4

Course Outcomes: Through this course students should be able to

CO1 :: Analyze Asp.Net Core, distinguish .NET Framework/Core, set up VS Code, and understand key C# concepts, including version history and Visual Studio configuration

CO2 :: Apply programming fundamentals, including variables, loops, and arrays, along with object-oriented principles like classes, inheritance, and exception handling.

CO3 :: Develop an ASP.NET Core web app, mastering project structure, MVC, request handling, Razor views, data passing, and forms with model binding and validations.

CO4 :: Construct middleware, utilize DI, and develop web applications with both Code First and Database First approaches, emphasizing authentication and authorization.

CO5 :: Understand databases, SQL Server, types of databases, SQL commands, constraints, clauses, operators, joins, and views, with an introduction to stored procedures and user-defined stored procedures.

CO6 :: Understand REST and ASP.NET Web API, build and test CRUD operations, and implement routing in a Web API project.

Unit I

Introduction To .Net And C# : Introduction to Asp.Net Core and its features, Asp.NET Core Version History, Difference Between .NET Framework and .NET Core, Setting up a development environment with VS code, Introduction to .NET CLI and NET CLI Commands, Overview of the .Net Core Platform, Introduction to C#, History of C# Version, C# Code Execution, Installing and Configuring C# in Visual Studio

Unit II

C# Programming Fundamentals : Variable and Datatype, C# Hello World Program, Operators and Operators Precedence, Conditional Statements, Loops- For,While and Do-while, Jump Statements-Break,Continue,return and goto, Arrays and Types of Arrays, Manipulating Arrays, Strings and String Methods, Manipulating Strings, Object-Oriented Programming Concepts, Classes and Objects, Encapsulation and Abstraction, Constructors, Inheritance, Polymorphism, Abstract Classes, Exception Handling

Unit III

Backend Development Using Asp.Net : ASP.NET Core Project Folder Structure, Building a Web Application using ASP.NET Core, Understanding MVC Pattern and Model-View-Controller Communication, Handling Requests in .NET Core MVC Core, Razor View Engine and Razor Syntax, Layout, Sections and View Start, Data Passing Techniques, ViewBag and View Data, Working with TempData, Sessions and State Management, Working with QueryString, ASP.NET Core Forms, Model Binding, Forms Validations - Server Side and Client Side

Unit IV

Asp.Net MVC and Security : Middleware Request Pipeline, Built-In Middleware and Custom Middleware, Dependency Injection (DI), Implementing DI in ASP.NET Core, Developing Application with Code First Approach, Developing Application with Database First Approach, Authentication and Authorization in Web Application

Unit V

SQL Server For Backend Development : Introduction to databases, Introduction to SQL Server, Types of Databases, SQL Commands, SQL Server Tables, Data Manipulation Commands Constraints, SQL Clauses, SQL Operators, SQL Joins, SQL Server Views, Types of Views, User Defined Views, Introduction to Stored Procedure, User Defined Stored Procedure

Unit VI

Asp.Net With Web API : Introduction to REST, Introduction to ASP.NET Web API, Building ASP.NET Web API, Creating First Web API Project, Creating Database for Web API, ASP.NET Web API CRUD Operations, Testing Web API Using Postman, Routing - Convention and Attribute Routing

List of Practicals / Experiments:

List of Practicals
- Write a program to display the addition, subtraction, multiplication and division of two number using console application.

- Write a Program to check whether entered number is odd or even

- Write a C# Program to Find the Largest Number using Conditional Operator.

- Write a C# program to check leap year using conditional Operator.

- Create a registration form using different server controls.

- Write a program to implement exception handling in C#.

- Write a program to manage sessions in ASP.NET.

- Create a C# console application that prints "Hello, To The Coding World" to the console.

- Write code that intentionally generates an exception and also solve the exception using try and catch.

- Create a simple class with attributes and methods(Class name should be your favorite subject)

- Write a C# program to calculate the total marks, percentage and division of two students.

- Implement a simple service and use dependency injection to inject it into a controller in an ASP.NET Core application.

- Create an ASP.NET Core MVC project with a controller and a view that displays a simple message.

- Implement a sorting algorithm (e.g., Bubble Sort, Quick Sort) in C# for an integer array.

Text Books:
1. BUILDING A WEB APP WITH BLAZOR AND ASP .NET CORE by JIGNESH TRIVEDI, BPB PUBLICATIONS

References:
1. ASP.NET: THE COMPLETE REFERENCE by MATTHEW MACDONALD, MC GRAW HILL