Approved by the Bos in Bachelor of Science (Information of Technology) on 13-11-2024 Item No.03

# As Per NEP 2020

# Tolani College of Commerce (Autonomous)



Knowledge is Supreme

**Title of the Course: <u>Advanced Web Programming</u>**

**Programme: Bachelor of Science (Information Technology ) Semester V**

**Syllabus for 4 credits Course**

**From the academic year-2025-2026**

# Name of the Course: Advanced Web Programming

| Sr. No. | Heading | Particulars |
|---|---|---|
| 1 | **Description the course :** | This course covers topics ranging from programming a basic, web-based shopping cart to integrating the application to a back-end database. |
| 2 | **Vertical:** | Major |
| 3 | **Type:** | Theory and Practical |
| 4 | **Credit**: | 4 credits |
| 5 | **Hours Allotted:** | 60 Hours |
| 6 | **Marks Allotted**: | Total 100 Marks<br>Practical Evaluation: 40 Marks<br>Semester End Examination: 60 Marks |
| 7 | **Course Objectives**:<br>1. Create and Console Application with basics code.<br>2. Create the Application using different types of statements and loops.<br>3. Know about namespaces and assemblies and how to create the same.<br>4. Create console application using delegates and methods. | |
| 8 | **Course Outcomes:**<br>1. Able to gain the knowledge for designing and developing web applications.<br>2. Apply PHP7 to improve accessibility of a web document.<br>3. Develop a static, interactive and well formed webpage using JavaScript, CSS3. and HTML5. | |

| 9 | **Modules**:- |
|---|---|

**Module 1: Introducing .NET & C# Language**                 **(15 hours)**

- NET Framework 4.8, The Common Language Runtime,.NET Class Library
- C# 11 Language Basics, Variables and Data Types, Variable Operations, Conditional Logic, Loops, Methods.
- The Basics About Classes, Building a Basic Class, Value Types and Reference Types.
- Understanding Namespaces and Assemblies, Advanced Class Programming.

**Module 2: Web Form Fundamentals and Form Controls**          **(15 hours)**

- 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.
- 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, Blazor, AdRotator, Pages with Multiple Views, User Controls and Graphics, User Controls.
- Website Navigation: Site Maps, URL Mapping and Routing, SiteMapPath Control, TreeView Control, Menu Control.

**Module 3: Error Handling, Logging, and Tracing , State Management and Styles, Themes, and Master Pages**                                                  **(15 hours)**

- Avoiding Common Errors, Understanding Exception Handling, Handling Exceptions, Throwing Your Own Exceptions, Using Page Tracing
- Understanding the Problem of State, Using View State, Transferring Information Between Pages, Using Cookies, Managing Session State, Configuring Session State, Using Application State, Comparing State Management Options.
- Styles, Themes, Razor Layouts.

**Module 4: ADO.NET Fundamentals & ASP.NET AJAX**          **(15 hours)**

- Understanding Databases, Configuring Your Database, Understanding SQL Basics, Understanding the Data Provider Model
- Using Direct Data Access, Using Disconnected Data Access, Working with Data Source Controls,
- The Grid View, Formatting the Grid View, selecting a Grid View Row, Editing with the Grid View, Sorting and Paging the Grid View, Understanding Ajax, Using Partial Refreshes, Using Progress Notification, Implementing Timed Refreshes, Working with the ASP.NET AJAX Control Toolkit.

| 10 | |
|---|---|

**Reference Books:**

1) **Bohem, Anne, and Joel Murach.** *C# 2024*. Murach, 3rd ed., 2024.
2) **Delamater, Mary, and Anne Bohem.** *Murach's ASP.NET 4.6 Web Programming in C# 2024*. SPD, 6th ed., 2024

| 11 | Internal Continuous Assessment: 40% | Semester End Examination:60% |
|---|---|---|
| 12 | Continuous Evaluation through: | Practical Assessment |
| 13 | Format of Question Paper: | |

**Scheme of Evaluation Pattern**
**Table 1A: Scheme of Continuous Evaluation (CE/Practical)**
**Scheme of Evaluation Pattern**

| Sub-components | Maximum Marks | Conditions for passing |
|---|---|---|
| 1) Practical exam | 30 | A learner must be present for each of the sub-components |
| 2) Journal and Viva | 10 | |
| Total | 40 | |

**Table 1B: Scheme of Semester End Examination (SEE) Evaluation**
**Question Paper Pattern for Semester End Examination (SEE)**

**Maximum Marks: 60**                                    **Duration: 2 Hrs.**

Note: All questions are compulsory. Each question has an internal choice.

| Question Number | | Nature of Questions | Maximum Marks |
|---|---|---|---|
| 1) | | **Attempt any Three** | 15 |
| | a) | | |
| | b) | | |
| | c) | | |
| | d) | | |
| | e) | | |
| 2) | | **Attempt any Three** | 15 |
| | a) | | |
| | b) | | |
| | c) | | |
| | d) | | |
| | e) | | |
| 3) | | **Attempt any Three** | 15 |
| | a) | | |
| | b) | | |
| | c) | | |
| | d) | | |

| | | e) | | |
|---|---|---|---|---|
| | 4) | | **Attempt any Three** | 15 |
| | | a) | | |
| | | b) | | |
| | | c) | | |
| | | d) | | |
| | | e) | | |

| Course Name: Advanced Web Programming Practical | | | |
|---|---|---|---|
| **Periods per week (1 Period is 60 minutes)** | | **4** | |
| **Credits** | | **2** | |
| | | **Hours** | **Marks** |
| **Evaluation System** | **Practical Examination** | **2** | **40** |

| **List of Practical** | |
|---|---|
| **1.** | **Working with basic C# and ASP .NET** |
| a. | Create an application that obtains four int values from the user and displays the product. |
| b. | Create an application to demonstrate string operations. |
| c. | Create an application that receives the (Student Id, Student Name, Course Name, Date of Birth) information from a set of students.          The application should also display the information of all the students once the data entered. |
| d. | Create an application to demonstrate following operations<br> i. Generate Fibonacci series.                  ii. Test for prime numbers.<br>iii. Test for vowels.                                 iv. Use of foreach loop with arrays<br>v. Reverse a number and find sum of digits of a number. |
| **2.** | **Working with Object Oriented C# and ASP .NET** |
| a. | Create simple application to perform following operations<br>i. Finding factorial Value                  ii. Money Conversion<br>iii. Quadratic Equation                  iv. Temperature Conversion |
| b. | Create simple application to demonstrate use of following concepts<br>i. Function Overloading                  ii. Inheritance (all types)<br>iii. Constructor overloading                  iv. Interfaces |
| c. | Create simple application to demonstrate use of following concepts<br>i. Using Delegates and events                  ii. Exception handling |
| | |
| **3.** | **Working with Web Forms and Controls** |

| | |
|---|---|
| a. | Create a simple web page with various sever controls to demonstrate setting and use of their properties. (Example : AutoPostBack) |
| b. | Demonstrate the use of Calendar control to perform following operations. <br> a) Display messages in a calendar control      b) Display vacation in a calendar control <br> c) Selected day in a calendar control using style      d) Difference between two calendar dates |
| c. | Demonstrate the use of Treeview control perform following operations. <br> a) Treeview control and datalist      b) Treeview operations |
| | |
| **4.** | **Working with Form Controls** |
| a. | Create a Registration form to demonstrate use of various Validation controls. |
| b. | Create Web Form to demonstrate use of Adrotator Control. |
| c. | Create Web Form to demonstrate use User Controls. |

| | | |
|---|---|---|
| **5.** | | **Working with Navigation, Beautification and Master page.** |
| a. | | Create Web Form to demonstrate use of Website Navigation controls and Site Map. |
| b. | | Create a web application to demonstrate use of Master Page with applying Styles and Themes for page beautification. |
| c. | | Create a web application to demonstrate various states of ASP.NET Pages. |
| | | |
| **6.** | | **Working with Database** |
| a. | | Create a web application bind data in a multiline textbox by querying in another textbox. |
| b. | | Create a web application to display records by using database. |
| c. | | Demonstrate the use of Datalist link control. |
| | | |
| **7.** | | **Working with Database** |
| a. | | Create a web application to display Databinding using dropdownlist control. |
| b. | | Create a web application for to display the phone no of an author using database. |
| c. | | Create a web application for inserting and deleting record from a database. (Using Execute-Non Query). |
| | | |
| **8.** | | **Working with data controls** |
| a. | | Create a web application to demonstrate various uses and properties of SqlDataSource. |
| b. | | Create a web application to demonstrate data binding using DetailsView and FormView Control. |
| c. | | Create a web application to display Using Disconnected Data Access and Databinding using GridView. |
| | | |
| **9.** | | **Working with GridView control** |
| a. | | Create a web application to demonstrate use of GridView control template and GridView hyperlink. |
| b. | | Create a web application to demonstrate use of GridView button column and GridView events. |
| c. | | Create a web application to demonstrate GridView paging and Creating own table format using GridView. |
| | | |
| **10.** | | **Working with AJAX and XML** |
| a. | | Create a web application to demonstrate reading and writing operation with XML. |
| b. | | Create a web application to demonstrate Form Security and Windows Security with proper Authentication and Authorization properties. |
| c. | | Create a web application to demonstrate use of various Ajax controls. |
| | | |
| **11.** | | **Programs to create and use DLL** |

| | | |
|---|---|---|
| 1 | Q.1 | 15 |
| 2 | Q.2 | 15 |
| 3 | Viva | 5 |
| 4 | Journal | 5 |
| 5 | **Total** | **40** |