**Tribhuvan University**

**Faculty of Humanities and Social Science (FoHSS)**

**Syllabus**

Course Title **: DotNet Technology (3 Cr.)**

Course Code  **: CACS302**

Nature of Course **: Theory + Practical**

Year/Semester **: III/V**

Marks  **: 60+20+20 [24 + 8 + 8]**

Class Load **: 6 Hrs. /Week (Theory: 3hrs. Practical: 3 Hrs.)**

**Course Description:**

This course covers different concepts of .NET framework. It also covers basic to advanced features of C# language including language basics, creating types and inheritance, delegates, events, lambda expressions, LINQ, working with databases, and developing web applications using ASP.NET.

**Course Objectives**:

The primary objective of this course is to provide concepts of .NET framework and different concepts of C# programming language and make students familiar with their uses and applications.

**Course Contents**

**Unit 1: Introducing C# and the .NET framework 7 Hrs**

Object Orientation; Type Safety; Memory Management; Platform Support; C# and CLR; CLR and .NET Framework; Other Frameworks; Framework Overview; .NET Standard 2.0; Applied Technologies

**Unit 2: The C# Language Basics 12 Hrs**

Writing Console and GUI Applications; Identifiers and Keywords; Writing Comments; Data Types; Expressions and Operators; Strings and Characters; Arrays; Variables and Parameters; Statements (Declaration, Expression, Selection, Iteration, and Jump Statements); Namespaces

**Unit 3: Creating Types in C# 12 Hrs**

Classes; Constructors and Deconstructors; this Reference; Properties; Indexers; Static Constructors and Classes; Finalizers; Dynamic Binding; Operator Overloading; Inheritance; Abstract Classes and Methods; base Keyword; Overloading; Object Type; Structs; Access Modifiers; Interfaces; Enums; Generics

**Unit 4: Advanced C# 14 Hrs.**

Delegates, Events, Lambda Expressions, Exception Handling, Introduction to LINQ, Working with Databases; Web Applications using ASP.NET

**Laboratory Works**

The laboratory work includes writing console and/or GUI programs in C#

* To implement basic language features.
* To create classes and objects and to implement different object oriented features.
* To implement inheritance.
* To implement advanced features like delegates, event handling, lambda expressions, exception handling.
* To implement LINQ and database applications

**Text Books**

1. *C# 7.0 in a Nutshel (7th Edition), the Definitive Reference*, Joseph Albahari & Ben Albhari, O'Reilly.
2. *Microsoft Visual C# Step by* Step (9th Edition), John Sharp, Pearson Education.

**Reference Books**

1. *C# 7.0 All-in-One For Dummies (1st Edition)*, John Paul Mueller, Bill Sempf, Chuck Sphar, John Wiley & Sons, Inc.
2. *Professional C# 7 and .NET Core 2.0 (7th Edition*), Christian Nagel, John Wiley & Sons, Inc.