

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

Course Code: **CACS302**

Year/Semester: **III/V**

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

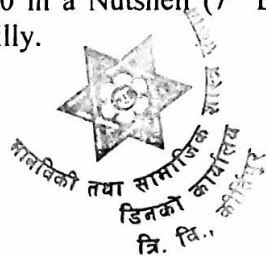
Delegates; Events; Lambda Expressions; Exception Handling; Introduction of LINQ; Working with Databases; Writing Web Applications using ASP.NET

**Laboratory Work:** 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 Nutshell (7<sup>th</sup> Edition), the Definitive Reference, Joseph Albahari & Ben Albhari, O'Reilly.



2. Microsoft Visual C# Step by Step (9<sup>th</sup> Edition), John Sharp, Pearson Education.

**Reference Books:**

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

**Teaching Methods:**

The teaching faculties are expected to create environment where students can update and upgrade themselves with the current scenario of computing and information technology with the help of topics listed in the syllabus. The general teaching pedagogy that can be followed by teaching faculties for this course includes class lectures, laboratory activity, group discussions, case studies, guest lectures, research work, project work, assignments (Theoretical and Practical), and written and verbal examinations.

**Evaluation:**

Internal Assessment Format [FM = 20] – Subject Teacher				
Term Examination		Assignment	Attendance	Total
Mid-Term	Pre-Final			
5	5	5	5	20
Practical Assessment Format [FM = 20] – External Examiner will be assigned by Dean Office, FOHSS.				
Practical	Viva	Lab Reports	Total	
10	5	5	20	

Note: Assignment may be subject specific case study, seminar paper preparation, report writing, project work, research work, presentation, problem solving etc.

Final Examination Questions Format [FM = 60, Time = 3 Hrs.]

SN	Question Type	Number of Questions	Marks per Question	Total Marks
1	Group – 'A' Objective Type Questions (Multiple Choice Questions) Attempt all the questions.	10	1	10 x 1 = 10
2	Group – 'B' Short Questions (Attempt any SIX questions.)	7	5	6 x 5 = 30
3	Group – 'C' Long Questions (Attempt any TWO questions.)	3	10	2 x 10 = 20

