

<b>C# PROGRAMMING</b>			
Course Code	21CSL582/ 21CBL584	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	0:0:2:0/ 24 Hours	SEE Marks	50
Credits	01	Total marks	100
Examination type (SEE)	PRACTICAL		
<b>Course objectives:</b>			
<ul style="list-style-type: none"> <li>• To learn basic features of C# programming</li> <li>• To understand C# support for OOP with programming examples</li> <li>• To gain experience of modern tool usage (VS Code, Visual Studio or any other] in developing C# programs</li> </ul>			
<b>Sl.NO</b>	<b>Experiments</b>		
1	Develop a C# program to simulate simple arithmetic calculator for Addition, Subtraction, Multiplication, Division and Mod operations. Read the operator and operands through console.		
2	Develop a C# program to print Armstrong Number between 1 to 1000.		
3	Develop a C# program to list all substrings in a given string. [ Hint: use of Substring() method]		
4	Develop a C# program to demonstrate Division by Zero and Index Out of Range exceptions.		
5	Develop a C# program to generate and print Pascal Triangle using Two Dimensional arrays.		
6	Develop a C# program to generate and print Floyds Triangle using Jagged arrays.		
7	Develop a C# program to read a text file and copy the file contents to another text file.		
8	Develop a C# C# Program to Implement Stack with Push and Pop Operations [Hint: Use class, get/set properties, methods for push and pop and main method]		
9	Design a class "Complex" with data members, constructor and method for overloading a binary operator '+'. Develop a C# program to read Two complex number and Print the results of addition.		
10	Develop a C# program to create a class named shape. Create three sub classes namely: circle, triangle and square, each class has two member functions named draw () and erase (). Demonstrate polymorphism concepts by developing suitable methods, defining member data and main program.		
11	Develop a C# program to create an abstract class Shape with abstract methods calculateArea() and calculatePerimeter(). Create subclasses Circle and Triangle that extend the Shape class and implement the respective methods to calculate the area and perimeter of each shape.		
12	Develop a C# program to create an interface Resizable with methods resizeWidth(int width) and resizeHeight(int height) that allow an object to be resized. Create a class Rectangle that implements the Resizable interface and implements the resize methods		
<b>Course outcomes (Course Skill Set):</b>			
At the end of the course the student will be able to:			
<ol style="list-style-type: none"> <li>1. Develop programs involving basic features of C# programming language</li> <li>2. Make use of exception handling features to safeguard program against runtime anomalies</li> <li>3. Apply concepts of OOP in developing solutions to problems</li> <li>4. Develop programs to illustrate handling of text files</li> <li>5. Make use of modern tools to develop C# programs and applications</li> </ol>			

### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the **maximum** marks (20 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each course. The student has to secure not less than 35% (18 Marks out of 50) in the semester-end examination (SEE). The student has to secure a minimum of 40% (40 marks out of 100) in the sum total of the CIE(Continuous Internal Evaluation)and SEE (Semester End Examination)taken together.

#### Continuous Internal Evaluation (CIE):

CIE marks for the practical course is **50 Marks**.

The split-up of CIE marks for record/ journal and test are in the ratio **60:40**.

- Each experiment to be evaluated for conduction with observation sheet and record write-up. Rubrics for the evaluation of the journal/write-up for hardware/software experiments designed by the faculty who is handling the laboratory session and is made known to students at the beginning of the practical session.
- Record should contain all the specified experiments in the syllabus and each experiment write-up will be evaluated for 10marks.
- Total marks scored by the students are scaled down to 30 marks (60% of maximum marks).
- Weightage to be given for neatness and submission of record/write-up ontime.
- Department shall conduct 02 tests for 100 marks, the first test shall be conducted after the 8<sup>th</sup> week of the semester and the second test shall be conducted after the 14<sup>th</sup> week of thesemester.
- In each test, test write-up, conduction of experiment, acceptable result, and procedural knowledge will carry a weightage of 60% and the rest 40% forviva-voce.
- The suitable rubrics can be designed to evaluate each student's performance and learning ability. Rubrics suggested in Annexure-II of Regulation book
- The average of 02 tests is scaled down to **20 marks** (40% of **the maximum** marks).

The Sum of scaled-down marks scored in the report write-up/journal and average marks of two tests is the

#### Semester End Evaluation (SEE):

- SEE marks for the practical course is 50Marks.
  - SEE shall be conducted jointly by the two examiners of the same institute, examiners are appointed by the University
  - All laboratory experiments are to be included for practical examination.
  - (Rubrics) Breakup of marks and the instructions printed on the cover page of the answer script to be strictly adhered to by the examiners. OR based on the course requirement evaluation rubrics shall be decided jointly by examiners.
  - Students can pick one question (experiment) from the questions lot prepared by the internal/external examiners jointly.
  - Evaluation of test write-up/ conduction procedure and result/viva will be conducted jointly by examiners.
  - General rubrics suggested for SEE are mentioned here, write up -20%, Conduction procedure and result in -60%, Viva-voce 20% of maximum marks. SEE for practical shall be evaluated for 100 marks and scored marks shall be scaled down to 50 marks (however, based on course type, rubrics shall be decided by the examiners)
  - The duration of SEE is 02hours
- Rubrics suggested in Annexure-II of Regulation book

**Suggested Learning Resources:**

**Textbooks**

1. Herbert Schildt, "The Complete Reference: C# 4.0", Tata McGraw Hill, 2012
2. Andrew Troelsen, "Pro C# 2010 and the .NET 4 Platform, Fifth edition, A Press, 2010.

**Weblinks and Video Lectures (e-Resources):**

1. Introduction to C#: <https://www.youtube.com/watch?v=ItoIFCT9P90>
2. .NET FRAMEWORK: <https://www.youtube.com/watch?v=h7huHkvPoEE>
3. <https://www.tutorialsteacher.com/csharp>
4. <https://www.w3schools.com/cs/index.php>
5. <https://www.javatpoint.com/net-framework>

**Activity Based Learning (Suggested Activities in Class)/ Practical Based learning**

- Demonstration of simple projects (course project)