CS-107 Computer Programming

Course Name: **Computer Programming**

Credit Hours: 3-1

Contact Hours: 3-1

Pre-requisites: Nil

Course Introduction:

The purpose of this course is to provide an introduction to object oriented programming (OOP) using the C++ programming language.

Course Learning Outcomes (CLOs):		
At the end of the course the students will be able to:		**BT Level***
	1. Analyze fundamental concepts of object-oriented programming for their mapping to real life scenarios.	C-2
	2. Understand how to apply the major object-oriented concepts to implement object oriented programs, encapsulation, inheritance and polymorphism	C-3
	3. Develop programs to implement computer-based solutions of well-specified problems	P2
	4. Exhibit effective team-participation and management when working in a group	A-2

Course Plan:

Topic	Estimated Contact Hours
Overview of programming	06
Functions, recursion. Arrays, strings, pointers	06
Introduction to object oriented programming and it fundamentals	02
Classes and objects	03

Abstract Data Types	02
Constructors and destructors	03
Constant and Static members	03
Inheritance, Association and Composition	03
Virtual Functions and Polymorphism	05
Templates and File handling	07
Operator Overloading and Window Form based Application design C++	06
Dynamic Memory and classes	01
Exception Handling	01

List of Experiments:

1. Visualizing Programming: Flowcharts
2. Functions
3. Arrays Pointers
4. Strings
5. Classes, Objects, and Methods
6. Default, Parameterized and Copy Constructors and Destructor
7. Constant and Static Data Members
8. Inheritance and reusing Parent classes
9. Practice Polymorphism, Learn static and dynamic binding and Abstract Classes
10. Templates and Generic ADTs
11. Friend Class and Friend Function
12. File Handling
13. Operator Overloading
14. Graphical User Interface using Window Form Based Application
15. Open ended lab

Reference Materials:

- C Programming: A Modern Approach (2nd Ed.) by K. N. King
- C++: How to Program (latest Ed.) by P. J. Deitel and H. M. Deitel