

# Cluster University Srinagar

Syllabus for B.Sc. 2<sup>nd</sup> Year(Semester-III)

Subject: Information Technology

Object Oriented Programming through C++ (IT-03)

## Unit I: Introduction to Object Oriented Programming

**Introduction:** Object oriented Programming (OOP), need for OOP, Characteristics of OOP, OOP concepts- Class, Object, Abstraction, Encapsulation, Inheritance and polymorphism.

**C++ Basics:** overview, program structure, identifiers, variables, constants, data types, operators and expressions.

## Unit-II: Control Structures and Functions

Control Structures: if, if-else, switch -case, while, do while, for.

C++ functions: friend function, in-line function, macro vs in-line functions, reference variables, call by value and call by reference, function overloading and default arguments.

## Unit III: Objects, classes and inheritance

Objects and Classes: Basics of Objects and class in C++, public and private members, scope resolution operator, access specifiers and accessing class members.

Constructor, destructor, operator overloading (unary, binary).

## Unit VI: Inheritance and Polymorphism

concept of inheritance, types of inheritance, single, multiple and multilevel, hierarchical and hybrid.

Polymorphism: Pointers in C++, Pointers and Objects, virtual and pure virtual functions.

Recommended Books:

1. "Object Oriented Programming with C++" E Balaguruswamy, Tata McGraw Hill
2. Object Oriented Programming in Turbo C++, Robert Lafore
3. Object Oriented Programming with ANSI and Turbo C++, Ashok Kamthane, Pearson
4. The Complete Reference C++, Herbert Schilitz, Tata McGraw Hill