I Year-II Semester		L	T	P	C
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OBJECT-ORIENTED PROGRAMMING THROUGH C++ (R161215)

Pre requisite Course:

Computer Programming in C

Course Description and Objectives:

   To know about some popular programming languages and how to choose Programming language for solving a problem.

Course Outcomes:

 Upon completion of the course, the student will be able to achieve the following outcomes.

Cos	Course Outcomes	POs
1	Summarizing basics of object oriented concepts, C++ programming and I/O in C++.	1,2,3,5,10
2	Understanding on Basic concept in C++ programming, Operators, control structures, functions, and over loading, recursion	1,2,3,5
3	Explaining with classes, objects and member functions.	1,2,3,5
4	Understanding constructors, destructors, variants in them, operator over loading, and type conversions	1,2,3,5,8
5	Understanding on inheritance ,types of inheritance, polymorphism and virtual functions	1,2,3,5
6	Elaborating on generic programming, templates, function templates and Exception handling	1,2,3,5,9

 Syllabus:

 UNIT-I:

 Objective: Summarizing Basics of object oriented concepts
Introduction to C++

Difference between C and C++- Evolution of C++- The Object Oriented Technology- Disadvantage of Conventional Programming- Key Concepts of Object Oriented Programming- Advantage of OOP- Object Oriented Language.

 UNIT-II:

 Objective: Understanding classes, objects, constructors, and destructors
Classes and Objects &Constructors and Destructor

Classes in C++-Declaring Objects- Access Specifiers and their Scope- Defining Member Function- Overloading Member Function- Nested class, Constructors and Destructors, Introduction-Constructors and Destructor- Characteristics of Constructor and Destructor-Application with Constructor- Constructor with Arguments (parameterized Constructor-Destructors- Anonymous Objects.

UNIT-III:

Objective: Understanding operator overloading, Inheritance and type conversions.
Operator Overloading and Type Conversion & Inheritance

The Keyword Operator- Overloading Unary Operator- Operator Return Type- Overloading Assignment Operator (=)- Rules for Overloading Operators, Inheritance, Reusability- Types of Inheritance- Virtual Base Classes- Object as a Class Member- Abstract Classes- Advantages of Inheritance-Disadvantages of Inheritance

UNIT-IV:

Objective: Understanding polymorphism and virtual functions
Pointers & Binding Polymorphisms and Virtual Functions

Pointer, Features of Pointers- Pointer Declaration- Pointer to Class- Pointer Object- The this Pointer- Pointer to Derived Classes and Base Class, Binding Polymorphisms and Virtual Functions, Introduction- Binding in C++- Virtual Functions- Rules for Virtual Function- Virtual Destructor.

UNIT-V:

Objective: Understanding generic programming, templates, function templates and Exception handling
Generic Programming with Templates & Exception Handling

Generic Programming with Templates, Need for Templates- Definition of class Templates- Normal Function   Templates- over Loading of Template Function-Bubble Sort Using Function Templates- Difference between Templates and Macros- Linked Lists with Templates, Exception Handling-Principles of Exception Handling- The Keywords try throw and catch- Multiple Catch Statements – Specifying Exceptions.

UNIT-VI:

Objective: Understanding Standard Template Library
Overview of Standard Template Library

Overview of Standard Template Library- STL Programming Model- Containers- Sequence Containers- Associative Containers- Algorithms- Iterators- Vectors- Lists- Maps.

Text Books:
1. A First Book of C++, Gary Bronson, Cengage Learing.
2. The Complete Reference C++, Herbert Schildt, TMH.
3. Programming in C++, Ashok N Kamathane, Pearson 2nd Edition.

Reference Books:
1. Object Oriented Programming C++, Joyce Farrell, Cengage.
2. C++ Programming: from problem analysis to program design, DS Malik, Cengage Learing.