PVP-19

OOP with C++

Course Code	19IT2501A	**Year**	III	**Semester**	I
Course Category	**IDE-1**	**Branch**	-	**Course Type**	Theory
Credits	3	**L-T-P**	3-0-0	**Prerequisites**	C Language
Continuous Internal Evaluation :	30	**Semester End Evaluation:**	70	**Total Marks:**	100

Course Outcomes		
Upon Successful completion of course, the student will be able to		**Blooms Taxonomy Level**
CO1	Illustrate the fundamental programming concepts in C++	L2
CO2	Demonstrate the concepts of Object Oriented Programming	L2
CO3	Outline the concepts of polymorphism and Exception handling in C++	L2
CO4	Make use of OOP concepts to develop C++ programs.	L3

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (H: High, M: Medium, L:Low)

* - Average value indicates course correlation strength with mapped PO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	2					1	1				2	2
CO2	2	2	2					1	1				2	2
CO3	2	2	2					1	1				2	2
CO4	2	2	2					1	1				2	2
Average* (Rounded to nearest integer)	2	2	2					1	1				2	2

Syllabus		
Unit No	**Contents**	**Mapped CO**
I	**Introduction to C++:** Difference between C and C++, Evaluation of C++, Programming Paradigms, Key concepts of OOP, Advantages of OOP. **Declarations: Tokens**, Variable declaration and initialization, Data types in C++, Operators in C++, Scope access operator, Name Space, Memory management operators, Comments. **Decision Statements :** Introduction, The if statement, Multiple ifs, Nested if-else, else-if ladder, unconditional control transfer statements, the switch statement	CO1, CO2
II	**Control Loop Structures** : Introduction, What is loop, The for loop, the while loop, The do-while loop **Functions in C++**: Introduction, Parts of a function, Passing arguments, Inline functions, Function overloading **Input and Output in C++:** Streams in C++ and Stream Classes, Pre-defined streams.	CO1, CO2

III	**Classes and Objects**: Introduction, Structure in C, Classes in C++, declaring Objects, Access specifiers and their scope, Defining member functions, Characteristics of member functions, Outside member function as inline, Rules for inline functions, Static member variable, static member functions, friend functions. **Constructors and Destructors**: Introduction, Constructors and destructors, Constructors with default arguments, Parameterized constructor, Overloading constructors, Array of objects using constructors, Constructors with default arguments **Operator Overloading:** Introduction, The keyword operator, Overloading unary operators, Overloading binary operator.	CO2, CO4
IV	**Inheritance**: Introduction, Reusability, Access Specifies and Simple inheritance, Types of inheritance, Single, Multiple, Hierarchical, Hybrid, Multipath inheritances, Virtual base classes, program on simple inheritance **Pointers**: Introduction, Features of pointers, Pointer Declaration, void pointer, wild pointer, The this pointer, Pointers to derived class and base class	CO2, CO4
V	**Binding and Polymorphism and Virtual Functions**: Introduction, Binding in C++, Pointer to base class and derived class objects, Virtual functions, pure virtual functions, Abstract classes. **Exception Handling**: Introduction, Principles of exception handling, the keywords try, throw and catch, Multiple catch statements, Re-throwing an exception.	CO3

Learning Recourses
Text Books
1. Programming in C++, Second Edition, by Ashok N Kamthane, Pearson Education.
References
1. C++ How to Program, Dietel and Dietel, Prentice Hal. 2. C++ The Complete Reference, 5th Edition, by Herbert Schildt, TMH.
E-Recourses and other Digital Material
1. http://www.cplusplus.com 2. https://www.w3schools.com/cpp/
