# OOP with C++

Course Code	19IT2501A	Year	III	Semester	I
			CSE/ME/ECE/		
<b>Course Category</b>	IDE	Branch	EEE/CE	Course Type	Theory
			2 0 0		C *
Credits	3	L-T-P	3-0-0	Prerequisites	C Language
Continuous Interna		Semester End			
<b>Evaluation:</b>	30	Evaluation:	70	Total Marks:	100

	Course Outcomes						
Upon	BloomsTaxonomy Level						
CO1	Understand the fundamental programming concepts of C++	L2					
CO2	Demonstrate the concepts of Object Oriented Programming	L2					
CO3	Outline the Exception Handling, Templates and STL concepts in C++.	L2					
CO4	Apply OOP concepts to develop C++ programs for the given problems.	L3					

Cont	Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of													
corre	correlations (H:High, M: Medium, L:Low)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	1										2	2
CO2	2	2	1										2	2
CO3	2	2	1										2	2
CO4	2	2	1										2	2

Syllabus				
Unit No	Contents	Mapped CO		
I	<b>Introduction to C++</b> : Difference between C and C++, Evolution of C++, Programming Paradigms, Key concepts of OOP, Advantages of OOP, Variable declaration, Data types in C++, Scope access operator, Name Space, Memory management operators, Decision Statements, Control Structures, Functions in C++, Input and Output in C++.	CO1, CO2		
п	Classes and Objects: Introduction, Structure in C, Classes in C++, declaring Objects, Access specifiers and their scope, Defining member 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.	CO2		
Ш	Operator Overloading: Introduction, The keyword operator, Overloading unary operators, Overloading binary operator.  Inheritance: Introduction, 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, this pointer.	CO2, CO4		
IV	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.	CO2, CO3, CO4		
V	<b>Templates</b> : Introduction, need for templates, Definition of class templates, Definition of function templates, Overloading of template function. <b>STL(Standard Template Library) Introduction:</b> Algorithms, Containers and Iterators.	CO3		

### **Learning Recourses**

## Text Books

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/
- 3. https://www.learncpp.com
- 4. https://onlinecourses.nptel.ac.in/noc21\_cs02/preview
- 5. https://www.educative.io/courses/learn-object-oriented-programming-in-cpp
- 6. https://www.youtube.com/watch?v=wN0x9eZLix4 (Learn Object Oriented Programming in C++, Beau Carnes, February 2021)