

DEPARTMENT OF COMPUTER / INFORMATION SCIENCE AND ENGINEERING**Choice Based Credit System (CBCS)**

SEMESTER – VI

OOPS with C++ (3:0:0) 3

(Effective from the academic year 2023-24)

Course Code	21CS652	CIE Marks	50
Teaching Hours/Week (L: T:P)	3:0:0	SEE Marks	50
Total Number of Contact Hours	40	Exam Hours	3 Hours
Course Learning Objectives: This course will enable students to: <ol style="list-style-type: none">1. Understanding about object-oriented programming and Gain knowledge about the capability to store information together in an object.2. Understand the capability of a class to rely upon another class and functions.3. Understand about constructors which are special type of functions.4. Create and process data in files using file I/O functions5. Use the generic programming features of C++ including Exception handling			
Module - I			
Introduction to Object Oriented Programming: Computer programming background- C++ overview. First C++ Program -Basic C++ syntax, Object Oriented Programming: What is an object, Classes, methods and messages, abstraction and encapsulation, inheritance, abstract classes, polymorphism. Textbook 1: Chapter 1(1.1 to 1.8)			
			8 Hours
Module - II			
Functions in C++: Tokens – Keywords – Identifiers and constants – Operators in C++ – Scope resolution operator – Expressions and their types – Special assignment expressions – Function prototyping – Call by reference – Return by reference – Inline functions -Default arguments – Function overloading. Textbook 2: Chapter 3(3.2,3.3,3.4,3.13,3.14,3.19, 3.20) , Chapter 4(4.3,4.4,4.5,4.6,4.7,4.9)			
			8 Hours
Module - III			
Inheritance & Polymorphism: Derived class Constructors, destructors-Types of Inheritance Defining Derived classes, Single Inheritance, Multiple, Hierarchical Inheritance, Hybrid Inheritance. Textbook 2: Chapter 6 (6.2,6.11) chapter 8 (8.1 to,8.8)			
			8 Hours
Module - IV			
I/O Streams: C++ Class Hierarchy- File Stream-Text File Handling- Binary File Handling during file operations. Textbook 1: Chapter 12(12.5) , Chapter 13 (13.6,13.7)			
			8 Hours
Module - V			
Exception Handling: Introduction to Exception - Benefits of Exception handling- Try and catch blockThrow statement- Pre-defined exceptions in C++ Textbook 2: Chapter 13 (13.2 to13.6)			
			8 Hours

Course outcomes: After studying this course, students will be able to:

CO1: Illustrate the basic concepts of object-oriented programming.

CO2: Design appropriate classes for the given real world scenario.

CO3: Apply the knowledge of compile-time / run-time polymorphism to solve the given problem

CO4: Use the knowledge of inheritance for developing optimized solutions

Textbooks

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| 1. | Bhushan Trivedi, "Programming with ANSI C++", Oxford Press, Second Edition, 2012. |
| 2 | Balagurusamy E, Object Oriented Programming with C++, Tata McGraw Hill Education Pvt.Ltd , Fourth Edition 2010. |

Weblinks and Video Lectures (e-Resources)

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| 1. | Basics of C++ - https://www.youtube.com/watch?v=BCIS40yzssA |
| 2 | Functions of C++ - https://www.youtube.com/watch?v=p8ehAjZWjPw |

Tutorial Link:

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| 1 | https://www.w3schools.com/cpp/cpp_intro.asp |
| 2 | https://www.edx.org/course/introduction-to-c-3 |