

**2EC06: OBJECT ORIENTED PROGRAMMING
CREDITS - 3 (LTP:3,0,0)**

Course Objective:

To learn the basics of C++, Objects and Classes, Inheritance, Polymorphism, I/O and file management, and advance topics including templates, exceptions and STL (Standard Template Library).

Teaching and Assessment Scheme:

Teaching Scheme (Hours per week)			Credits	Assessment Scheme				Total Marks
L	T	P		Theory Marks		Practical Marks		
			ESE	CE	ESE	CE	100	
3	0	0	3	60	40	00		00

Course Contents:

Unit No.	Topics	Teaching Hours
1	Introduction to C++: Introduction OOP, Procedural Vs. Object Oriented Programming, Basic concept of OOP, Principles of OOP, Benefits and applications of OOP, Programming in C++.	04
2	Data types, Operators and Control Structures : Data Types, Keyword, Tokens, identifiers, variables, constants, enum, operators, typecasting, control structures.	05
3	C++ Functions : Function Prototyping, Call by value and reference, Return by reference, Inline function and macro function, Default Arguments, Function Overloading.	05
4	Class and Objects : Structure V/s Class, Member functions Declaration, Access Specifier for member function, Static data Member and Member Function, Friend Function, Object as Argument.	07
5	Constructor and Destructor : Constructor, Types of Constructor, Destructor.	04
6	Operator Overloading and Type Conversion : Unary and Binary Operator Overloading, Types of Type Conversion.	04
7	Inheritance : Inheritance, Types of Inheritance, Virtual Base Classes, Abstract Class, Constructor in Derived Class	04
8	Virtual Function and Polymorphism : Polymorphism, Types of Polymorphism, this Pointer, Virtual Function, Pure Virtual Function	04

Unit No.	Topics	Teaching Hours
9.	I/O Functions & File Management : Formatted and Unformatted I/O Operations, Manipulators, Classes for File Operations, Basic File Operations, File Functions, Error Handling Operations, Command Line Arguments.	04
10.	Template and Exception Handling : Template, Types of Template, Multiple Parameter in Class template and function template, Overloading of template function, Try, Catch and Throw, Multiple Catch, Rethrow Exception.	04
Total		45

List of References:

1. E Balagurusamy, “*Object Oriented Programming with C++*”, Tata McGraw Hill, 6th edition, 2013.
2. Bhushan Trivedi, “*Programming with ANSI C++*”, Oxford University Press, 2nd edition, 2013.
3. Herbert Schlitdt, “*C++ the Compete Reference*”, TMH Publication, 5th edition, 2014.
4. Ashok Kamthane, “*Object Oriented Programming with ANSI and Turbo C++*”, Pearson Education, 1st Edition, 2011.

Course Outcomes (COs):

By learning this course students will be able to ...

1. Remember the basic programming concepts and the necessary constructs of C++ programming.
2. Understand algorithmic thinking and problem solving techniques.
3. Describe concepts like object and class, encapsulation, inheritance, polymorphism, template and exception handling for real life problems.
4. Apply advance features to make programs which supports reusability and sophistication.
5. Test standard template library for faster development.
6. Resolve C++ program using variables, operators, control structures, functions and objects.