OBJECT ORIENTED PROGRAMMING WITH C++
(Common to CSE & ISE)

Subject Code: 10CS36	**I.A. Marks : 25**
Hours/Week : 04	**Exam Hours: 03**
Total Hours : 52	**Exam Marks: 100**

PART – A

UNIT 1 **6 Hours**

Introduction: Overview of C++, Sample C++ program, Different data types, operators, expressions, and statements, arrays and strings, pointers & user-defined types

Function Components, argument passing, inline functions, function overloading, recursive functions

UNIT 2 **7 Hours**

Classes & Objects – I: Class Specification, Class Objects, Scope resolution operator, Access members, Defining member functions, Data hiding, Constructors, Destructors, Parameterized constructors, Static data members, Functions

UNIT 3 **7 Hours**

Classes & Objects –II: Friend functions, Passing objects as arguments, Returning objects, Arrays of objects, Dynamic objects, Pointers to objects, Copy constructors, Generic functions and classes, Applications

Operator overloading using friend functions such as +, - , pre-increment, post-increment, [ ] etc., overloading <<, >>.

UNIT 4 **6 Hours**

Inheritance – I: Base Class, Inheritance and protected members, Protected base class inheritance, Inheriting multiple base classes

PART – B

UNIT 5 **6 Hours**

Inheritance – II: Constructors, Destructors and Inheritance, Passing parameters to base class constructors, Granting access, Virtual base classes

UNIT 6 **7 Hours**

Virtual functions, Polymorphism: Virtual function, Calling a Virtual function through a base class reference, Virtual attribute is inherited, Virtual functions are hierarchical, Pure virtual functions, Abstract classes, Using virtual functions, Early and late binding.

UNIT 7 **6 Hours**

I/O System Basics, File I/0: C++ stream classes, Formatted I/O, I/O manipulators, fstream and the File classes, File operations

UNIT 8 **7 Hours**

Exception Handling, STL: Exception handling fundamentals, Exception handling options

STL: An overview, containers, vectors, lists, maps.

Text Books:

1. Herbert Schildt: The Complete Reference C++, 4th Edition, Tata McGraw Hill, 2003.

Reference Books:

1. Stanley B.Lippmann, Josee Lajore: C++ Primer, 4th Edition, Pearson Education, 2005.
2. Paul J Deitel, Harvey M Deitel: C++ for Programmers, Pearson Education, 2009.
3. K R Venugopal, Rajkumar Buyya, T Ravi Shankar: Mastering C++, Tata McGraw Hill, 1999.

DATA STRUCTURES WITH C/C++ LABORATORY
(Common to CSE & ISE)

Subject Code: 10CSL37	**I.A. Marks : 25**
Hours/Week : 03	**Exam Hours: 03**
Total Hours : 42	**Exam Marks: 50**

1. Using circular representation for a polynomial, design, develop, and execute a program in C to accept two polynomials, add them, and then print the resulting polynomial.

2. Design, develop, and execute a program in C to convert a given valid parenthesized infix arithmetic expression to postfix expression and then to print both the expressions. The expression consists of single character operands and the binary operators + (plus), - (minus), * (multiply) and / (divide).

3. Design, develop, and execute a program in C to evaluate a valid postfix expression using stack. Assume that the postfix expression is read as a single line consisting of non-negative single digit operands