

4. Robert Kruse & Bruce Leung: Data Structures & Program Design in C, Pearson Education, 2007.

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

Subject Code: 10CS36  
Hours/Week : 04  
Total Hours : 52

I.A. Marks : 25  
Exam Hours: 03  
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

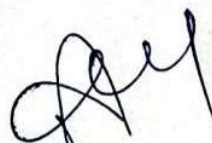
**PART – B**

**UNIT 5**

**6 Hours**

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

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**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/O:** 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++, 4<sup>th</sup> Edition, Tata McGraw Hill, 2003.


**Reference Books:**

1. Stanley B.Lippmann, Josee Lajore: C++ Primer, 4<sup>th</sup> 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

  
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