Sub Code	**:**	**06CS44**
IA Marks	**:**	**25**
Hrs / Week	**:**	**04**

Exam Hours

:

03

Total Hrs

:

52

Exam Marks

:

100

PART – A

UNIT 1:

1. Introduction to C++: A Review of Structures, Procedure-Oriented Programming Systems, Object-Oriented Programming Systems, Comparison of C++ with C, Console Input/Output in C++, Variables in C++, Reference Variables in C++, Function Prototyping, Function Overloading, Default Values for Formal Arguments of Functions, Inline Functions

4 Hours

1. Class and Objects: Introduction to Classes and Objects

2 Hours

UNIT 2:

1. Class and Objects *contd*.: Member Functions and Member Data, Objects and Functions, Objects and Arrays, Namespaces, Nested Classes

6 Hours

UNIT 3:

1. Dynamic Memory Management: Introduction, Dynamic Memory Allocation, Dynamic Memory Deallocation, The set_new_handler() function
2. Constructors and Destructors: Constructors, Destructors, The Philosophy of OOPS

7 Hours

UNIT 4:

1. Inheritance: Introduction to Inheritance, Base Class and Derived Class Pointers, Function Overriding, Base Class Initialization, The Protected Access Specifier, Deriving by Different Access Specifiers, Different Kinds of Inheritance, Order of Invocation of Constructors and Destructors

7 Hours

PART – B

UNIT 5:

1. Virtual Functions and Dynamic Polymorphism: The Need for Virtual Functions, Virtual Functions, The Mechanism of Virtual Functions, Pure Virtual Functions, Virtual Destructors and Virtual Constructors
2. Stream Handling: Streams, The Class Hierarchy of Handling Streams, Text and Binary Input/Output, Text Versus Binary Files, Text Input/Output, Binary Input/Output

6 Hours

UNIT 6:

1. Stream Handling *contd*.: Opening and Closing Files, Files as Objects of the fstream Class, File Pointer, Random Access to Files, Object Input/Output through Member Functions, Error Handling, Manipulators
2. Operator Overloading: Operator Overloading, Overloading the Various Operators – Overloading the Increment and the Decrement Operators (Prefix and Postfix), Overloading the Unary Minus and the Unary Plus Operator, Overloading the Arithmetic Operators

7 Hours

UNIT 7:

1. Operator Overloading contd.: Overloading the Relational Operators, Overloading the Assignment Operator, Overloading the Insertion and Extraction Operators, Overloading the new and the delete Operators, Overloading the Subscript Operator, Overloading the Pointer-to-member (->) Operator (Smart Pointer)

6 Hours

UNIT 8:

1. Type Conversion, New Style Casts, and RTTI
2. Templates: Introduction, Function Templates, Class Templates, The Standard Template Library (STL)
3. Exception Handling: Introduction, C-Style Handling of Error-generating Codes, C++ Style Solution – the try/throw/catch Construct, Limitation of Exception Handling

7 Hours

Text Book

1. **Object-Oriented Programming with C++,** Sourav Sahay, Oxford University Press, 2006.

(Chapters 1 to 10).

Reference Books

1. **C++ Primer,** Stanley B. Lippman, Josee Lajoie, Barbara E. Moo, 4th Edition, Addison Wesley, 2005.

2. **The Complete Reference C++,** Herbert Schildt, 4th Edition, TMH, 2005.