C++ Programming

Duration: 40 Hours
Prerequisites
- Knowledge of C Programming.

Course Contents

1. **Introduction to OOPs**
   - Procedure-Oriented Programming
   - Drawbacks of Procedure Programming
   - OOPs Concepts
   - Abstraction
   - Inheritance
   - Polymorphism
   - Data Binding
   - Encapsulation
2. **Beginning with C++**
   - History of C++
   - Advantages of C++ over C
   - Input and Output Statements
   - Compiling and Linking
3. **Fundamentals of C++**
   - Data types
   - Operators
   - Control Structure
   - Functions
   - Inline Function
   - Function Overloading
4. **Fundamentals of Classes**
   - Defining the Class in C++
   - C++ Objects
   - Data members & Member Functions
   - Constructors in C++
   - Types of constructor
   - Destructor
5. **Operator Overloading**
   - Defining Operator Overloading
   - Rules for operator overloading
   - Friend function
   - Overloading Increment Operator:
   - Overloading decrement Operator
   - Overloading [] Operator
   - Overloading Assignment Operator

6. **Inheritance**
   - Inheritance
   - Advantages of Inheritance
   - Base & Derived Classes
   - Visibility Mode
   - Types of Inheritance
   - Polymorphism
   - Overriding
   - Virtual Functions
   - Rules for Virtual Functions
   - Pure Virtual Functions
   - Abstract class
   - Virtual destructor
7. **I/O Stream Library**
   - C++ Streams
   - I/O Stream Library
   - Unformatted I/O Operations
   - Formatted Console I/O Operations
   - File
   - Classes for file stream operation
   - Opening a File
   - File modes
   - Closing a File
   - File Pointer and their Manipulators
   - Input and Output Operation
   - Reading and Writing Class Objects
   - Error handling during file Operations
8. **Advanced Topics**
   - Template
   - Template function
   - Template class
   - Exception handling
9. **Standard Template Library**
   - Introduction
   - Standard Template library
   - STL components