

## C and C++ TRAINING OVERVIEW

**Orbit Cybermatics** facility offers C and C++ Online / Offline Training. Our trainers come with vast work experience and teaching skills. Our training online is regarded as the one of the best online training in India. All our students were happy and able to learn new programming techniques which are useful for technical exams for companies at the time of hiring.

Online training is your one stop solution to learn any course at the comfort of your home with flexible schedules.

### What are the C and C++ Course Pre-requisites

There are no hard pre-requisites. Basic understanding of Computer Programming terminologies is sufficient. Also, basic concepts related to Programming.

### Objectives of the Course

- To understand the concepts and constructs of C and C++.
- To improve problem solving skills.

## 'C' Language

### Introduction 'C' Language

- Character set
- Variables and identifiers
- Built-in data types
- Variable definition
- Arithmetic operators and expressions
- Constants and literals
- Simple assignment statement
- Basic input/output statement
- Simple 'C' programs

### Control Statements

- Decision making within a program conditions

- Relational operators
- Logical connectives
- Statements: if statement, if-else statement, switch statement
- Loops: while loop, do-while, for loop, nested loops, infinite loops

### Arrays

- One dimensional arrays: array manipulation
- Searching, insertion, deletion of an element from an array
- Finding the largest/smallest element in an array
- Two dimensional arrays

- Addition/multiplication of two matrices

## Strings

- Introductions to String
- String in C
- C gets() & puts()
- Character Handling functions
- String Handling functions

## Functions

- Top-down approach of problem solving
- Modular programming and functions
- Standard library of c functions
- Prototype of a function: parameter list, return type, function call, block structure
- Passing arguments to a function: call by reference, call by value
- Recursive functions

## Pointers

- Address operators
- Pointer type declaration
- Pointer assignment
- Pointer initialization
- Pointer arithmetic
- Functions and pointers
- Arrays and pointers
- Pointer arrays

## Structures

- Structure
- Array of structure
- Nested structure

## Files

- Concept of files
- File opening in various modes and closing of a file reading from a file
- Writing onto a file

## 'C++ Programming'

### C++ Overview

- C++ characteristics
- Object-oriented terminology
- Polymorphism
- Object-oriented paradigm
- Abstract data types

### Variables and Functions

- Functions: declaration and definition
- Variables: definition, declaration, and scope

- Variables: dynamic creation and derived data
- Arrays and strings in C++
- Qualifiers

### Classes and Objects

- Defining classes in C++
- Classes and encapsulation
- Member functions
- Instantiating and using classes
- Using constructors
- Multiple constructors and initialization lists

- Using destructors to destroy instances
- Friend class

## **Initialization and Assignment**

- Initialization vs. Assignment
- The copy constructor
- Assigning values
- Specialized constructors and methods
- Constant and static class members
- Storage management memory allocation
- Dynamic allocation: new and delete

## **Operator Overloading**

- Operator overloading
- Working with overloaded operator methods

## **Inheritance**

- Overview of inheritance
- Defining base and derived classes
- Constructor and destructor calls

## **Polymorphism**

- Overview of polymorphism
- Overloading
- Overriding
- Virtual function

## **Strings in C++**

- String compare
- String concatenation
- String copy
- String length

## **Exception Handling**

- Exception handling
- Try/catch
- User defined exceptions in C++

## **Input and Output Streams in C++**

- Standard streams
- Manipulators
- Unformatted input and output
- File input and output

*“First, solve the problem. Then, write the code.” – John Johnson*

