

# C++ Programming Syllabus

**Duration:** 12 months (flexible, depending on institute)

**Eligibility:** 10<sup>th</sup> & 12<sup>th</sup> pass or above

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## 1. Introduction to C++

- Features of C++
- History and Evolution
- Difference between C and C++
- Structure of a C++ Program
- Compiling and Running a C++ Program

## 2. Basics of C++

- Keywords, Identifiers
- Data Types and Variables
- Constants and Literals
- Operators and Expressions
- Input/Output (cin, cout)

## 3. Control Structures

- Decision Making: if, else, switch
- Loops: for, while, do-while
- break, continue, goto

## 4. Functions

- Defining and Calling Functions
- Function Prototypes
- Function Overloading
- Inline Functions
- Recursion

## 5. Arrays and Strings

- One-dimensional and Multi-dimensional Arrays
- Strings and String Functions

## 6. Pointers

- Introduction to Pointers
- Pointer Arithmetic
- Pointers and Arrays

- Pointers and Functions

## **7. Object-Oriented Programming Concepts**

- Classes and Objects
- Access Specifiers (public, private, protected)
- Constructors and Destructors
- Friend Functions

## **8. Inheritance**

- Types of Inheritance (Single, Multiple, Multilevel, Hierarchical)
- Function Overriding
- Virtual Functions and Polymorphism

## **9. File Handling**

- File Streams (if stream, of stream)
- Opening and Closing Files
- Read and Write Operations

## **Templates & Exception Handling**

- Function Templates
  - Class Templates
  - Basics of Exception Handling (try, catch, throw)
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