

Syllabus for C/C++ Programming

Course Duration For C/C++ Programming Course :

- 8 Weeks (Weekday Batches)

Objective For C/C++ Programming Course :

- Getting the student to be well trained in C/C++ Programming

Eligibility For C/C++ Programming Course :

- Any Graduate or Undergraduate

C/C++
Programming

Highlights :

- The Syllabus has been aligned with Courses offered by various top Maharashtra Universities like Pune (B.E, MCM, BCA , Bsc(Comp Science), MCA), Mumbai (B.E , Bsc(IT) , Bsc (Comp Science), MCA), YCMOU(B.E , BCA), Amravati(B.E , BCA) and Shivaji (B.E , Btech(CS & Technology)).
- The syllabus has been aligned with CLA Certification('C' Programming Language Certified Associate), CPA: 'C++' Certified Associate Programmer offered by Pearson.

Syllabus

Programming in 'C'

Introduction of Programming Languages

- Types of Languages
- Evolution of 'C' Language
- Structure of a 'C' Program
- 'C' Program development life cycle
- Executing and Debugging a 'C' Program

'C' Tokens

- Keywords and Identifiers
- Operators
- Constants
- Variables
- Data Types
- Precedence of Operators
- Scope and Lifetime of Variables

Control Statement and Expressions

- Decision Making using if statement
- Types of if ...else block
- Switch case Block
- Arithmetic Expressions
- Evaluation of Expressions
- goto statement

Looping

- Concept of Loop
- For loop
- While loop
- Do while loop
- Jumping in Loop
- break and continue statement

Algorithms and Flowchart

- Algorithms and Flowcharts (Definitions, Symbols)
- Characteristics of an algorithm

Syllabus for C/C++ Programming

Arrays and String

- Introduction of Array
- One - D Array
- Two - D Array
- Mutlidimensional Array
- Dynmaic Arrays
- Implementing String Variables
- String handling Functions

Functions

- Concept of Function
- User defined Function
- System Defined Function
- Types of parameter passing in function

Pointers

- Need of Pointers
- Types of Pointers
- Pointer Expression
- Arrays of Pointers
- Pointers and Functions

Structure and Unions

- Need of Structure
- Implementing Structure Variable
- Arrays of Structure
- Structure within Structure
- Introduction of Unions
- Difference between Structure and Unions

Programming in 'C++'

Introduction to Object Oriented Programming

- Concept of OOP
- Features of OOP
- Introduction of 'C++'
- Structure of 'C++' program
- Exceuting and Debuging a 'C++' Program

File Handling using 'C'

- Opening and Closing File
- Input / Output operations on File
- Random Access to Files
- Command Line Arguments

Dynamic Memory Allocation

- Concept of Dynamic Allocation
- Implementing Malloc and Calloc Functions
- Releasing the free space

Storage Classes and Preprocessor

- Introduction of Storage Class
- Types of Storage Classes
- Introduction of Preprocessor
- Macro Substitution
- File Inclusion

Introduction of Data Structure

- Concept of Data Structure
- Types of Data Structure
- Implementing Stack
- Implementing Linked List

Graphics using 'C'

- VDU Basics
- Simple library functions

'C++' Tokens and Type Casting

- Keywords and Identifiers
- Operators
- Constants
- Variables
- Data Types
- Precedence of Operators
- Scope and Lifetime of Variables

Syllabus for C/C++ Programming

Classes & Objects

- Classes & Object specifiers
- Defining data members and member functions
- Array of objects
- Managing console I/O
- 'C++' stream classes
- Formatted and unformatted console I/O
- Usage of manipulators

Function in 'C++'

- Call by reference, Return by reference
- Function overloading and default arguments
- Inline function
- Static class members
- Friend functions
- Virtual Functions

Constructors and Destructor

- Concept of Constructor
- Types of Constructors
- Memory allocation (new and delete)
- Usage of destructor

Operator Overloading

- Overloading Unary and Binary operators
- Overloading using friend function

Inheritance

- Types of inheritance
- Virtual base classes and abstract base classes
- Constructor and destructor in derived class

Working with files

- File operations
- File pointer and their manipulation
- File updation with random access

Exception Handling

- Various Exception Handling classes
- Implementing try and catch block
- Use of throw keyword

Templates

- Introduction to Templates
- Class templates, function templates and overloading of function templates
- Standard Template Library (STL)
- Run Time Type Identification (RTTI)