



Certificate in C ++ Programming

Duration : 240 Hrs / 3 Months

Introduction and First Program

In this module you will learn about guide to C++ programming, you will be introduced to everything from C++ applications to running your first C++ program Introduction of c++

Language Features

In this module you will learn about Learn what are variables in C++ and how they are declared and initialized and C++ program for function overloading and operator overloading

- How C++ differs from C
- Variables Declaration
- Function overloading
- Optional Parameters
- Reference Variables
- Operator overloading
- Basics of Console Input and Output
- Constant Pointers
- Dynamic Memory Allocation

OOPs Concepts

In this module you will learn about Object Oriented programming is a programming style that is associated with the concept of Class, Objects and various other concepts revolving around these two, like Inheritance, Polymorphism, Abstraction, and Encapsulation etc.

- Overview of OOPs Principles
- Introduction to classes & objects
- Creation & destruction of objects
- Data Members
- Member Functions
- Pointer

- Constructor & Destructor
- Static class member
- Friend class and functions
- Namespace

Inheritance

In this module you will learn about Inheritance is one of the core feature of an object-oriented programming language. It allows software developers to derive a new class from the existing class. The derived class inherits the features of the base class (existing class).

- Introduction and benefits.
- Access Specifier
- Base and Derived class Constructors
- Types of Inheritance
- Down casting and up casting
- Function overriding
- Virtual functions.
- Destructor overriding.

Polymorphism

In this module you will learn about one of the key features of class inheritance is that a pointer to a derived class is type-compatible with a pointer to its base class. Polymorphism is the art of taking

- What is Polymorphism
- Pure virtual functions
- Virtual Base Class

I/O Streams

In this module you will learn about very basic and most common I/O operations required for C++ programming. C++ I/O occurs in streams, which are sequences of bytes. What is a stream?

- C++ Class Hierarchy
- File Stream
- Text File Handling
- Binary File Handling
- Error handling during file operations
- Overloading << and >> operators

Exception Handling

In this module you will learn about one of the advantages of C++ over C is Exception Handling. C++ provides following specialized keywords for this purpose. Try: represents a block of code that can throw an exception. Catch: represents a block of code that is executed when a particular exception is thrown.

- Introduction to Exception.
- Benefits of Exception handling.
- Try and catch block.
- Throw statement.
- Pre-defined exceptions in C++.
- Writing custom Exception class.
- Stack Unwinding.

At the end of the course participants will be able to

1. Variables / types of variables
2. Input / output streams and validation of data
3. Operators - arithmetic, assignment, logical, bitwise
4. Conditions like if / else / switch
5. Arrays / multi-dimensional arrays
6. Loops - for / while / do-while
7. Functions, overloading functions, passing variables to functions etc.
8. Structures
9. References
10. Pointers
11. Dynamic allocation of memory
12. Creating project in IDE
13. Classes
14. Object oriented programming
15. Class and function templates
16. Namespaces
17. Exceptions