

CPP Programming Language

Duration: 45 classes

1. **Basic in CPP:** -Introduction to C++, History of CPP, Identifiers, Keywords, Variables , Constants, Data types, Operators, Structure of a C++ Program , Execution of CPP program reference variables.
2. **Control Structures:-**
 - a) Conditional – if, if...else, Nested if...else, Switch...Case.
 - b) Loops – while, do...while, for, Nested Loops
 - c) Jump – goto, continue & break.
3. **Functions:-** Introduction a Function, Defining a Function, Prototypes ,Actual and Formal Arguments, Parameter Passing Techniques ,Call by Value, Call by Reference, Call by Pointer, Default Arguments,Inline Functions.
4. **OOPS Concepts:** - Class, Object, Encapsulation, Inheritance, Abstraction, Polymorphism ,Message Passing
5. **Classes and Objects:-** Class Declaration, access specifiers , Data Members and Member Functions, Creating Objects, Differences between Class and Structure ,Objects as arguments, Returning Objects ,Static Members ,Friend Functions ,Friend Classes, inner classes.
6. **Constructors and Destructors:-** Introduction , Defining Constructor, types of constructor, const members, Comparing Constructor with Member Function, Destructor ,Defining Destructor.
7. **Inheritance:-** Introduction to inheritance , Types of Inheritance, Base Class ,Derived Class, Inheritance Scope, Protected Members ,Virtual Base Class ,Virtual Destructors
8. **Polymorphism:-** Introduction to polymorphism, Type Polymorphism , Static Binding, Dynamic Binding , Function Overloading , Constructor Overloading ,Operator Overloading, Function Overriding ,Virtual Functions, Pure Virtual Functions ,Difference between Function Overloading and Overriding.
9. **Streams:** - Hierarchyof I/O Streams, Istream Class Functions, Ostream Class Functions, IOS Class Functions, Manipulators.



10. **Files:** - Hierarchy of File Streams, Input- Output Operations on File. File Opening Modes, Sequential Access Files, Random Access Files, Command Line Arguments.
11. **Templates:-** Need of Template, Defining Template, Function Templates, Class Templates

