

C++ Programming

Ice Certification Program, CourseDuration:-(60Hrs)

UNIT-1 INTRODUCTION TO C++

- The history of c++
- Compilation steps
- Advantages and pretensions of c++
- Various programming technique
- Difference between structured programming language & object oriented programming Language.
- Definition of oop
- Features of oops are the following
- Data abstraction
- Encapsulation
- Polymorphism
- Inheritance
- Exception handling
- ❖ A simple c++ program
- Stream
- Standard input stream
- Standard output stream
- Generic classes
- Templates
- How c++ compilation works
- Commenting your programs
- Types of comments
- Using comments
- Variables
- Simple input/output constructs
- Variable types
- Names
- New operator
- Delete operator
- Operators
- Arithmetic operators
- Relational operators
- Logical operators
- Bitwise operators
- Increment/decrement operators
- Assignment operator
- Difference between c & c++
- Difference between delete & free
- Difference between new & malloc





























UNIT 2: CLASSES AND OBJECTS

- Difference between structure & class
- Abstract data type
- Generic abstract data types
- Methods
- Classes
- Features of a class
- Objects
- Examples of objects
- Creation of objects:
- Accessing class members
- Program
- Abstraction
- How types of abstraction differs:
- Reasons for the need of abstraction
- Encapsulation
- Features of encapsulation:
- State
- Behavior
- Identity
- Constructors
- Types of constructor
- Destructors
- General syntax of destructors
- Instantiation of object
- Garbage collection
- What does libgc do?
- Common memory problems
- Memory leaks
- Premature frees
- Dynamic memory allocation
- What are memory management operators?
- New operator:
- Delete operator:
- Abstract classes

UNIT - 3 INHERITANCES

- Objective
- Definition (inheritance) –
- Types of inheritance are as follows:-
- Single inheritance
- Multiple inheritance
- Hierarchical inheritance one super class, many sub classes.
- Multilevel inheritance derived from a derived class
- Hybrid inheritance more than two types of inheritance.













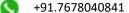
















- Class hierarchy
- Derivation public, private & protected
- Visibility mode
- Aggregation
- Composition
- Generalization

UNIT - 4 POLYMORPHISM

- Definition
- Features and advantages of the concept of polymorphism:
- Types of polymorphism:
- Virtual function -
- ***** Example of virtual functionrules
- For virtual functionspure
- Virtual functionsparametric
- Polymorphism
- Overloadable operators
- Operators that cannot be overloaded

UNIT -5 GENERIC FUNCTIONS

- Objective
- Generic functions
- Class template with multiple parameters
- Example of template class with two generic data type

UNIT – 6 STREAMS AND FILES

- Objective
- C++ streams
- Standard input (stdin)
- Standard output (stdout)
- Standard error (stderr)
- C++'s predefined streams
- Unformatted i/o operations
- Formatted console i/o operations
- Ios class functions and flags
- Defining display field width
- Setting precision
- Filling and padding
- Ios formatting flags
- Manipulators
- Custom/user-defined manipulators
- Space.cpp
- ❖ What is a file?
- Hierarchy of file stream classes
- Opening and closing a file
- Opening and closing of files explicitly
- Files modes













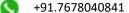
















- Ascii and binary files
- Binary file
- Write () and read () functions

UNIT -7 NAMESPACE, EXCEPTION HANDLING & STL

- Container adapters
- Algorithms
- Iterators
- Associative containers
- Sets and multisets
- Maps and multimaps
- Namespace fundamentals
- Using
- Unnamed namespaces
- Exception handling fundamentals
- Exception handling constructs
- Using multiple catch statements
- Rethrowing an exception
- Introduction to the stl (standard template language)
- Containers
- Sequence containers
- Associative containers
- Member functions
- Container adapters
- Algorithms
- Iterators
- Sequence containers
- Vectors
- Lists
- Deques
- Associative containers
- Sets and multisets
- Maps and multimaps, Author Name
- Media Type, Author Name

























