QUICKSTEP COMPUTER CENTER

National Accreditation Board of Education Training.
(NABET)- Quality council of India) An ISO 9001:2008

C++ Training Content

Basics

- Introduction to C++
- Different paradigms of problem solving
- POP vs OOP
- Features of Object Oriented Programming Languages
- Object
- Class
- Abstraction
- Encapsulation
- Inheritance
- Polymorphism
- Dynamic Binding
- Message Communication
- Constants
- Variables
- Keywords
- Data types
- Declaration of Variables
- Output Stream (cout) & Manipulators
- Input Stream (cin)
- Comments
- Operators
- Arithmetic operators
- Relational operators
- Logical operators
- Assignment operators & compound assessment operations
- Increment & decrement operators
- Conditional operators
- Bitwise operators
- Shift operators
- Type casting
- Compound assignment operators
- Address operators
- Comma operator
- Pointer operator
- Sizeof operator
- new operator
- delete operator
- Control Statements
- Conditional Control Statements
- If, if-else

- nested if-else, if-else-if ladder
- Multiple Branching Control Structure
- switch-case
- Loop Control statements
- while
- do-while
    - for
- Nested Loops
- Jump Control structures
- break
- continue
- goto
- return
- Arrays
- Strings
- Structures
- Pointers
- Dynamic memory allocation using new and delete

Functions

- Defining a Function
- Calling a Function
- Return statement
- Function Prototype
- Basic Function Designs
- Scope
- Reference variables
- Recursion
- Parameter Passing Methods
- Call by value
- Call by address
- Call by reference
- Function Overloading
- Default Arguments
- Inline Functions

Classes and Objects

- Defining a Class
- Creating Objects
- Access specifiers
- Accessing Class Members
- Scope Resolution Operator (::)
- Defining Member Functions
- Outside the classInside the class
- Member function with argument
- This pointer
- Passing Objects as Arguments

- Returning Objects
- Array of objects
- Pointer to object
- Dynamic objects
- Friend Functions
- Friend Class
- Composition
- Container class
- Contained class
- Programs
- Student Class
- Employee Class
- Complex Class
- Matrix Class
- Rational Class
- Circle Class
- Rectangle Class

Constructors & Destructors

- Constructors
- Properties of constructors
- Types of constructors
- Default Constructors
- Parameterized Constructors
- Copy Constructors
- Constructor Overloading
- Constructors with Default Arguments
- Destructors
- Differences between Member functions & Constructors
- Differences between Constructors & Destructors
- Static Data Members
- Static member functions
- Constant data members
- Constant Member Functions

Operator Overloading

- Defining Operator Overloading Function
- Overloading Unary Operators
- Overloading Binary Operators
- Overloading Unary Operators using Friend Functions
- Overloading Binary Operators using Friend Functions
- Overloading << & >>
- Programs

Inheritance

- Class hierarchies
- Base classes
- Derived Classes

- Derived Class Definition
- Access specifier : protected
- Types of Inheritance & Programs
- Single inheritance
- Multiple inheritance
- Hierarchical inheritance
- Multi-level inheritance
- Hybrid inheritance
- Multi-path inheritance
- Constructors in Derived Classes
- Destructors in Derived Classes

Polymorphism and Virtual Functions

- Static Binding
- Dynamic Binding
- Virtual Destructor
- Function Overriding
- Accessing Members using Pointers
- Virtual Functions
- Pure Virtual Functions
- Abstract Classes
- Virtual Destructors

Templates

- Introduction
- Advantages
- Function Templates
- Over loading function template
- Class Templates
- Inheritance Class Templates

Exception Handling

- Types of Errors
- Benefits of exception handling
- try, catch, throw keywords
- Throwing an exception
- ‘try’ block
- Catching an exception
- Exception objects
- Rethrowing an exception
- Exception Handling Mechanism
- Catching all exceptions
- Nested try blocks

Files

- File Streams Classes
- Opening & Closing a File

- Detection End of File
- File Pointers & Their Manipulation
- Sequential Files
- Random Access Files

I-O Streams

- I-O stream Class hierarchies
- Unformatted I-O Operation
- get(), put(), getline()
- write()
- in cout
- cin
- Formatted I-O Operations
- width(), precision()
- fill(), setf()
- unsetf()
- Manipulators
- Manipulator operators
- Endl, ends
- manipulator functions
- setw(), setfill()
- setprecision()
- setiosflags()
- setbase()
- resetiosflags()
- User defined manipulators
- Operator and Overloading

Standard Template Libraries

- Containers
- vector
- list, deque
- arrays
- forward_list
- queue
- priority_queue
- stack
- set, multiset
- map, multimap
- Algorithms
- Sorting, Searching
- Important STL Algorithms
- Useful Array algorithms
- Partition Operations
- Iterators