

## Data Structures and Algorithms using C++

**Course Duration:** 30 Hours

1. Introduction to C++
2. OOPs concept
3. Variables and Datatypes
4. Arrays
  - a. 1D
  - b. 2D
5. Pointers
6. Arrays and Pointers
  - a. Static Allocation
  - b. Dynamic Allocation
7. Sorting Algorithms
  - a. Bubble Sort
  - b. Insertion Sort
  - c. Merge Sort
  - d. Selection Sort
  - e. Time Complexity and Big O Notation
8. Introduction to Data Structure
  - a. What is DS
  - b. Need of DS
  - c. Types of DS
  - d. Linear Data Structures
    - i. Array List
    - ii. Single Linked List
    - iii. Double Linked List
    - iv. Stacks
    - v. Queues
    - vi. Hashing Mechanism
    - vii. Hash Tables
  - e. Non-Linear Data Structures
    - i. Trees
    - ii. Graphs
    - iii. Heap
9. C++ STL Libraries

