

PLACEMENT 100

SYLLABUS

Programming Basics

- ◆ **C++** : Variables , Operators, Loops, Arrays, String , Functions, Pointers and Dynamic Memory Allocation
- ◆ **Java** : Variables , Operators, Loops, Arrays, String , Immutable Strings, ArrayList , BigInteger

Note: Due to time constraints, you may choose any one programming language of your choice for the course.

OOP's

- ◆ Classes and Objects
- ◆ Inheritance and Polymorphism : Overloading and Overriding
- ◆ Abstraction and Encapsulation
- ◆ Access Modifiers
- ◆ Friend and Virtual functions in C++
- ◆ Static, final, this and super keywords and Interfaces in Java

Data Structures and Algorithms

- ◆ Mathematics
- ◆ Basic Recursion
- ◆ Arrays: Searching, Sorting, Deleting, Shift, Rotation, Prefix Sum...

- ◆ Bit Magic
- ◆ **Matrix:** Search, Delete, Insert, Rotate...
- ◆ **Searching:** Linear Search, Binary Search, Two pointer approach...
- ◆ **Sorting:** QuickSort and its variation, Mergesort, Counting sort, Insertion Sort, Heap Sort, Comparator
- ◆ **Hashing:** Different Types of Hashing Techniques, Collision resolution Techniques, Hashing Questions
- ◆ **Strings:** Basic Operations, Naive Pattern Search, Other searching algorithms.
- ◆ **Linked Lists:** Singly Linked List, Doubly Linked Lists, Circular Linked List, Skip List, Doubly Circular
- ◆ **Stacks:** Stack Operations, Implementation, Different Questions
- ◆ **Queues:** Queue Operations, Implementation, Different Questions, Deque Operations, Implementation, Different Questions.
- ◆ **Tree:** Binary Tree, Tree Traversal
- ◆ **Binary Search Tree:** Search, Insert, Delete and other important questions, AVL (Basic Introduction)
- ◆ **Heaps:** Binary Heap, Questions based on heaps.
- ◆ **Graphs:** Types of Graphs, BFS, DFS, Cycle Detection, Connected Components, Bipartite Graph
- ◆ **Recursion and Backtracking:** Backtracking questions, n queen, rat, knight etc.
- ◆ **Dynamic Programming:** Properties (Top Down, Bottom Up, Optimal Substructures, Overlapping Subproblems).
- ◆ **Graph Algorithms :** Shortest Path Algorithms, Connected Components, Bridges
- ◆ **Advanced DS** – Trie, Segment Tree, Disjoint Set

Object Oriented Analysis and Design

- ◆ Elevator Design
- ◆ Parking Lot Design
- ◆ Tiny URL Design

Operating System

- ◆ Basics Concepts Relevant to Placements

Database Management System

- ◆ Basics Concepts Relevant to Placements

Computer Networks

- ◆ Basics Concepts Relevant to Placements

Practice Test

- ◆ Two Practice Tests from Above Topics

Aptitude and Reasoning

- ◆ Quantitative
- ◆ Logical Reasoning
- ◆ Verbal

Personality Development

- ◆ Soft Skills Tips
- ◆ HR Round Questions
- ◆ Resume Building Guide

Mock Test

- ◆ Three Mock Tests based on the Complete Course

Assessment Test and Referral

- ◆ Final Assessment Test
- ◆ Mock interviews of selected students from assessment test.
- ◆ Referral to the Hiring Partners.