

Coding Geeks

This is a **beginner program** designed specifically for **engineering students** are new to programming and want to start their journey in to the world of coding. This program **will build strong programming foundation** and prepare students to compete at next level and start solving complex problems which are frequently asked in **programming interviews**.

Program skills: Algorithm Design, Programming, Data Structures and Problem Solving Skills

Target Audience: 1st /2nd /3rd /4th year B.Tech students from branch CS/IT/ECE

Prerequisites: Passion for algorithms and coding

Program Features:

- Program duration: 8 Weekends(32 hours)
- Class schedule: 2 session per week(Saturday and Sunday)
- Class duration: 2 hours per session
- Interactive classes
- Weekly problem assignments on learned concepts
- Daily hands on coding
- Performance assessment tests
- Mock Interviews
- Support web centre : discussion forum, Blogs

Program Detail:

- Every class will consist of lectures on following categories:
 1. General Concepts and Programming Fundamentals
 2. Data Structures and Algorithms
 3. Hands On Problems and Programs

1. General Concepts and Programming Fundamentals

- Importance of Algorithms and Data Structures
- Iteration & Recursion
- Pointers
- Probability Theory and Randomness

- Principles of Induction
- Understanding complexity(time/space) of an algorithm/program
- Asymptotic analysis including big-O notation
- Time and Space Complexity
- Analyze amortized cost of algorithms
- Techniques for error free code(Handling corner cases, invalid inputs etc)
- Testing and Debugging Concepts
- Code Optimization

2. **Data Structures and Algorithms**

- Array 1D/2D
- Strings
- Stacks
- Queues
- Linked List
- Backtracking/ Recursion
- Sorting techniques
- External Sort
- Divide-and-conquer algorithms for sorting
- Searching Techniques
- Binary Tree/ BST/ Heap
- Hashing

3. **Hands On Problems and Programs**

- Interview puzzles & logical problems
- Solving complex problems based on learned concepts
- Discussing Technical Interview problems
- Interview/Resume Preparation
- Mock Interviews
- Exhaustive problem solving sessions

4. **Interview basics**

- How to start solutioning?
- Do and Don'ts in interviews.
- What are bare minimum for a solution?
- When to start optimizations?
- When to think of scale and complexity analysis?