GeeksforGeeks

Competitive Programming

Detailed
Course Syllabus

Week 1

a) Intro to CP, time complexity, basic concepts, Searching, Sorting, CP Basic techniques, etc..
b) Prefix Sum, Binary Search, Euler Totient Function, Primes, Binary Exponentiation, LDE, etc..

Week 2

a) Sieve, Segmented Sieve, Wilson's Theorem
b) Modular Arithmetic, Combinatorics
c) Bit Manipulation, Shortcuts used in CP.

Week 3

a) Recursion
b) Backtracking(Basic to Advanced)
c) Divide and Conquer and its related algorithms.

Week 4

a) Stack, Queue, Priority Queue
b) Greedy, String Algorithms(Hashing included in advanced)

Week 5

a) Trees (Covering all algorithms and tricks related)
b) Graphs (Covering all algorithms and tricks related)

Week 6

a) Dynamic Programming-I (Basic Medium DP)
b) Dynamic Programming-II (Hard DP - Probability DP, Digit DP, Bitmask DP)

- ## Week 7
  - **a)** Disjoint Set and Sparse Table
  - **b)** Fenwick Trees/BIT and LCA

- ## Week 8
  - **a)** Segment Tree (Complete)
  - **b)** Sqrt Decomposition and Mo's Algorithm