

Course: **Data Structures and Algorithms (Ex/ET/T/226)**

Instructor: Ananda S. Chowdhury (ASC)

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Class Schedule: Monday 10 AM – 11 AM
Friday 10 AM – 12 Noon

Class Room: T-3-13

Office Hours: Tuesday 2 PM – 3 PM (or by appointment)

Books:

1. *Data Structures using C and C++* by Y. Langsam, M. J. Augenstein, A.M. Tanenbaum, Prentice Hall of India
2. *Classic Data Structures* by D. Samanta, Prentice Hall of India
3. *Data Structures* by S. Lipschutz, Tata McGraw Hill
4. *Introduction to Algorithms* by T.H. Cormen, C.E. Leiserson, R.L. Rivest and C. Stein, Prentice Hall of India

Topics with number of lectures (tentative):

0. Introduction/Objective (1)
1. Arrays and Linked Lists (2)
2. Stacks and Queues (5)
3. Time-complexity analysis
Growth of functions, Recurrence Relations (5)
4. Trees (6)
5. Graphs (2)
6. Algorithms for sorting and searching, concept of hashing (5)
7. Dynamic Programming and Greedy Algorithms (4)
8. Graph Algorithms:
 - Breadth-First-Search (BFS), Depth-First-Search (DFS), Topological sorting (2)
 - Minimum Spanning Trees (Kruskal and Prim's algorithms) (2)
 - Shortest Paths (Dijkstra, Bellman-Ford and Floyd-Warshall algorithms) (2)
 - Maximum-Flow Minimum-Cut (Ford-Fulkerson algorithm) (2)
9. Idea of NP-Completeness (2)

Grading Policy:

Two mid-terms (15% each)

One final (70%)