

M.Tech (CS, AI, IT) ALGORITHMS COURSE TENTATIVE SCHEDULE AUGUST-DEC 2024
Tuesday: 10AM – 12PM and Friday: 11AM - 1PM

DATE	TOPIC	REMARKS
13 AUGUST	Introduction	
15 AUG		HOLIDAY
20 AUG	O Notation; Quiz on Sorting : Complexity Analysis:	
23 AUG	Best, Worst and Average case analysis; Amortized analysis	Assignment-1 (New sorting algorithm)
27 AUG	Quiz: Heaps ; Priority queues	
30 AUG	Divide and Conquer : Binary Search, Quick Sort Complexity Analysis Recurrence Relations	
3 SEPT	MST(Greedy); Complexity Analysis	Assignment -2 (Greedy)
6 SEPT	Knapsack (KP) Problem - Discussion of Greedy Strategy	
10 SEPT	0/1 KP - DP	
13 SEPT	0/N KP Problem Coin Changing Problem	
17 SEPT	MINOR -1	16 th Holiday (Milad-un-Nabi)
20 SEPT	Chained Matrix Multiplication	
24 SEPT	TSP; OBST Discussion on DP	
27 SEPT	Exploring Graphs by BFS	Assignment-3 (DP)
01 OCT	Exploring Graphs by DFS	
04 OCT	Shortest Paths: Dijkstra	
08 OCT	Shortest Paths: Floyd Warshall, Singlesource-O(N) algo	
11 OCT	Bellman-Ford algorithm	12 Oct Dussehra
15 OCT	Applications of DFS: Articulation Points	
18 OCT	DFS on Directed Graphs: Topological Sorting	Assignment –4 (Graph Algos)
22 OCT	Strongly connected components	
25 OCT	MINOR-2	
29 OCT	Applications of DFS: Backtracking	
1 NOV	Backtracking	31st(Diwali)
5 NOV	Branch and Bound : KP revisited	

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8 NOV	Branch and Bound Strategy	DA Group Assignment
12 NOV	Theory of NP-Completeness	
15 NOV		Holiday
19 NOV	Theory of NP-Completeness	
22 NOV	GA Presentations	
26 , 29 NOV	GA Presentations	

Evaluation :

Minor-1 and Minor-2 : 20 Marks each

Minor-3: Assignments + GA (20 Marks) (Compulsory)

INTERNALS (40) : Best of Minors 1, 2 (20 Marks) + Minor 3 (20 Marks)

MAJOR : 60 Marks

IT LAB (ALGO) (Thursdays: 9AM - 12PM)

DATE	TENTATIVE TOPIC	
14 AUG	Appreciating Complexity	
05 SEP	New Sorting algo	Complexity analysis (empirical) on randomly generated lists etc.
12 SEP	Greedy vs DP	Knapsack
03 OCT	DP	New problem
10 OCT		Minor
31 OCT		Holiday: Diwali
07 NOV	BFS Application	Floyd vs Dijkstra
14 NOV	DFS: Backtracking	

OS LABS: August 21, 28

September 19, 26

October 17, 24

November 21, 28