



Indraprastha College for Women

University of Delhi

Work Plan for ODD SEMESTER – 2026

Course Name:		BA(Prog.)		
Paper Title:		Design and Analysis of Algorithms		
Unique Paper Code:				
Semester:		III		
Faculty(s):		Dr. Manisha Bansal		
Year:		2026		
	Work Plan			
Week No.	Unit No.	Learning Objective	Referen ce No.	Topics to be Covered
28 Jul - 31Jul	Unit 1	Selection Sort, Bubble Sort,	[1]	From Appendix
3 Aug - 8Aug	Unit 1	Selection Sort, Bubble Sort, Merge sort	[1]	Ch 2 - 2.1, 2.2, 2.3
10Aug - 15Aug	Unit 1	Heap Sort	[1]	Ch 6 - 6.4
17Aug - 22Aug	Unit 1	Quick Sort, Randomised quicksort	[1]	Ch 7 - 7.1, 7.2, 7.3, 7.4 (upto 7.4.1)
24Aug - 29Aug	Unit 1	Counting sort, Radix Sort, Lower bounds for sorting	[1]	Ch 8 - 8.1, 8.2, 8.3
31Aug - 5Sep	Unit 1	Minimum and maximum, Linear Search, Binary Search	[1]	Ch 9 - 9.1
7Sep - 12Sep	Unit 1	Strassen's algorithm for matrix multiplication.	[1]	Ch 4 - 4.2
14Sep - 19Sep	Unit 2	Graphs: Basic Definitions and Applications, Graph Connectivity and Graph Traversal	[2]	Ch 3.1, 3.2
21Sep - 26Sep	Unit 2	Graph Connectivity and Graph Traversal, Implementing Graph Traversal Using Queues and Stacks	[2]	3.2, 3.3

28Sep - 3Oct	Unit 2	Testing Bipartiteness: An Application of Breadth-First Search, Connectivity in Directed Graphs	[2]	3.4, 3.5
5Oct - 11Oct	Unit 2	Connectivity in Directed Graphs, Directed Acyclic Graphs and Topological ordering	[2]	3.5, 3.6
12Oct - 17Oct	Unit 3	Elements of the greedy strategy, Interval Scheduling: The Greedy Algorithm Stays Ahead	[1]. [2]	Ch 15 - 15.2, Ch 4 - 4.1 (upto page 121, excluding Extensions)
19Oct - 24Oct	Mid Semester Break			
26Oct - 31Oct	Unit 3	Shortest Paths in a Graph	[2]	4.4,
2Nov - 7Nov	Unit 3	The Minimum Spanning Tree Problem	[2]	4.5
9Nov - 14Nov	Unit 2	Weighted Interval Scheduling: A Recursive Procedure	[2]	6.1
16Nov - 19Nov	Unit 6	Principles of Dynamic Programming: Memoization or Iteration over Subproblems	[2]	6.2
24Nov - 26Nov	Unit 6	Subset Sums and Knapsacks: Adding a Variable	[2]	6.4

Unit	Contents/Syllabus
I	Searching, Sorting, Selection, Divide and Conquer Ch 2 - 2.1, 2.2, 2.3, Ch 4 - 4.2, Ch 6 - 6.4, Ch 7 - 7.1, 7.2, 7.3, 7.4 (upto 7.4.1) Ch 8 - 8.1, 8.2, 8.3, Ch 9 - 9.1. [1]
II	Graphs and Greedy algorithms Ch 3, Ch 4 - 4.1 (upto page 121, excluding Extensions), 4.4, 4.5 (only Prim's Algorithm and related theorems/sub-sections to be discussed). [2] Ch 15 - 15.2 [1]
III	Dynamic Programming Ch 6 - 6.1, 6.2, 6.4. [2]

IV	Hash Functions, Collision resolution schemes Ch 11 - 11.2 (except Independent Uniform Hashing and Analysis of Hashing with chaining), 11.3 (upto and including multiplication method), 11.4 (except Analysis of open-address hashing) [1]
S. No.	Name of Authors/Books/Publishers
1.	Cormen, T.H., Leiserson, C.E., Rivest, R. L., Stein C. Introduction to Algorithms, 4th edition, Prentice Hall of India, 2022.
2.	Kleinberg, J., Tardos, E. Algorithm Design, 1st edition, Pearson, 2013.

Paper Components			
Credit s	Lecture (L)	Tutorial (T)	Practical (P)
4	3	0	1
Assessment Scheme			
S.No.	Component	Marking Scheme	Total Marks
1	Internal Assessment - Assignment/Quiz/Project/Presentation - Class Test - Attendance		30
		12	
		12	
		6	
2.	Continuous Assessment (Tutorial) - Activity 1 - Activity 2 - Attendance		NA
3.	Practical - Continuous Assessment - End Term Written/Practical Exam - Viva		40
		10	
		20	
		10	
4.	End Semester Examination		90