CSE221 Fall 2022
semester begin: September 24, 2022
Semester end: January 05, 2023
Mid week: November 04-11

week	week end date	Theory	slides				
week 0		1. Intro to time complexity, RAM Model 2. Asymptotic Time Complexity	Assympt: https://drive.google.com/file/d/1rTgD7Vzsvd4jWFr9taPqrdttOHlHXRJY/view?usp=sharing				
week 1		1. Time complexity (contd.) 2. Recursion brush up: base case, branching, stack	Iterative time complexity: https://drive.google.com/file/d/1rTgD7Vzsvd4jWFr9taPqrdttOHlHXRJY/view?usp=sharing				
week 2		1. Searching Linear / Binary / Ternary Search / insertion sort/ selection sort 2. Merge Sort, Quick Sort	Linear: https://drive.google.com/file/d/1vAJ2EbjdNmv6_ZgbEcDwDJj3RnwPs7qp/view?usp=sharing Binary: https://drive.google.com/file/d/1P6QjoYShah1YlFzdgNCRbnXd379BiuQb/view?usp=sharing Ternary: https://drive.google.com/file/d/1tP_ebyE3uHpGto6NlcDf5-VlzUsgoyOe/view?usp=sharing Merge: https://drive.google.com/file/d/1JUGTeiVhRnwaMKVcvwruklKGymlq-IJ25/view?usp=sharing Quick: https://drive.google.com/file/d/1vbcbOtf5jkfIJBLzMbniFr3FZIvF3nbO/view?usp=sharing"				
week 3		1. Sorting (contd.) ~~1. Heap data structure and heap sort~~ Recursive time complexity, Master theorem	Heap sort: https://drive.google.com/file/d/1pE_xnkGCzSONOhGTs7kA5En5vgA_X2On/view?usp=sharing Recursive Time comlexity: https://drive.google.com/file/d/12cR_JBR8wZg0NDAII-wzL6fUsZLYcfQM/view?usp=sharing				
week 4		1. Graph basics (Adjacency List , Matrix , Space complexity and Time complexity, Symmetricity property , Dense graph , Sparse graph , Indegree, Outdegree)	Graph intro: https://drive.google.com/file/d/1OkLO91GV4M23e-1EtvFr9yeGWgk6V91q/view?usp=sharing				
week 5		1. BFS , DFS, and applications: cycle detection, bipartite/bicolorable graph 2. Edge classification	bfs dfs: https://drive.google.com/file/d/1OkLO91GV4M23e-1EtvFr9yeGWgk6V91q/view?usp=sharing				
Week 6		Mid Exam					
week 7		1. cycle detection, bipartite/bicolorable graph 2. DAG, Topological sort, Strongly Connected Components (Kosaraju, Tarjan) 3. Shortest path Dijkstra, Negative cycle: Bellman-Ford	topo: https://drive.google.com/file/d/1U-PVynHjD-PytCeHvcqtCsCaEE-iL-qc/view?usp=sharing SCC: https://drive.google.com/file/d/1fckjavRyW4yCAi2zmAjsF3pKhIsr3FJb/view?usp=sharing MST+Dijkstra: https://drive.google.com/file/d/1zNpTudRm--5wPHKrownXyosZQ1ta69F3/view?usp=sharing				
week 8		MST: Prim's, Kruskal's (+DSU)	MST+Dijkstra: https://drive.google.com/file/d/1zNpTudRm--5wPHKrownXyosZQ1ta69F3/view?usp=sharing				
week 9		1. Introduction to greedy, time scheduling interval 2. Fractional knapsack, 3. Huffman encoding decoding	Greedy Basics, time scheduling: https://drive.google.com/file/d/1U-LLjWQHP-RdARYV8vOYlMkKglZBFzd4/view?usp=sharing Huffman: https://drive.google.com/file/d/1-_oOWBKQARdaWgZvLTUFIV5tCYd5CqZ4/view?usp=sharing fractional knapsack: https://drive.google.com/file/d/1U-LLjWQHP-RdARYV8vOYlMkKglZBFzd4/view?usp=sharing				
week 10-11		1. DP Basics, Knapsack 0/1 2. LCS 3. Coin Change 4. Recursive and iterative DP formulation, comparison	LCS: https://drive.google.com/file/d/1YJonhR6glZoGMLk0G6323MJytohllvn6/view?usp=sharing DP Basics, knapsack: https://drive.google.com/file/d/1tdh2T7G4L4uMVuLnxvqHhJqVxku8nnoN/view?usp=sharing				
~~week 11~~		~~Recursive time complexity, Master theorem [if untouched before mid]~~	~~Recursive time complexity: https://drive.google.com/file/d/12cR_JBR8wZg0NDAII-wzL6fUsZLYcfQM/view?usp=sharing~~				
week 12		Review					
		Final					

Marks Distribution
Quiz: 15 (best 4 of 5, or depending on course teacher) Assignment: 5 mid: 20 (offline) final: 30 (offline) Class performance: 5 Lab attendance: 5 Lab submission: 10 (**average of all labs)** (google form) Lab mid viva: 10

Lab Link		https://docs.google.com/spreadsheets/d/1KqRAzFP6uXy7KUmH7fw64GpP6hdlU-JWYKJXOFqrihY/edit?usp=sharing