KONGU ENGINEERING COLLEGE, PERUNDURAI-638 060
SCHOOL OF COMMUNICATION AND COMPUTER SCIENCES
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

LECTURE SCHEDULE
EVEN SEMESTER (2017-2018)

Name : Dr. K. Kousalya **Designation** : Professor
Subject: 14CST43 Design and Analysis of Algorithms **Class** : IV Sem BE [CSE] 'B'

S.No	PROPOSED			Topics to be covered	ACTUAL		Remarks
	Date	Day	Hour		Date	Hour	
	11.12.17	Mon	3	Overview and Introduction			
Unit I - Introduction							
1.	12.12.17	Tue	2	Notion of algorithm			
2.	13.12.17	Wed	1	Fundamentals of algorithmic problem solving			
3.	14.12.17	Fri	3	Important problem types			
4.	15.12.17	Fri	5	Tutorial – 1			
5.	18.12.17	Mon	3	Fundamentals of analysis framework			
6.	19.12.17	Tue	2	Asymptotic notations			
7.	20.12.17	Wed	1	Asymptotic notations			
8.	21.12.17	Fri	3	Basic efficiency classes			
9.	22.12.17	Fri	5	Tutorial - 2			
10.	26.12.17	Tue	2	Mathematical analysis: non-recursive			
11.	27.12.17	Wed	1	Mathematical analysis: recursive algorithms – Fibonacci numbers			
12.	28.12.17	Fri	3	Empirical analysis of algorithms			
13.	29.12.17	Fri	5	Tutorial - 3			
14.	02.01.18	Tue	2	Algorithm visualizations			
	03.01.18	Wed	1	Revision			
Unit II - Brute Force and Divide-and-Conquer							
15.	04.01.18	Fri	3	Brute force: Selection and Bubble sort			
16.	05.01.18	Fri	5	Tutorial –4			
17.	08.01.18	Mon	3	Sequential search			
18.	09.01.18	Tue	2	String matching			
19.	10.01.18	Wed	1	Divide and Conquer: Merge sort			
20.	11.01.18	Fri	3	Quick sort			
21.	12.01.18	Fri	5	Tutorial – 5			
22.	17.01.18	Wed	1	Binary Search			
				Module Test – I (18.01.18 to 20.01.18)			
	22.01.18	Mon	3	**Paper Distribution & Discussion**			
23.	23.01.18	Tue	2	Binary search			
24.	24.01.18	Wed	1	Binary tree, traversals and related properties			

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25.	25.01.18	Fri	3	Multiplication of large integers and Strassen's Matrix Multiplication			
	25.01.18	Fri	5	Tutorial – 6			
Unit III - Decrease and Conquer and Transform and conquer							
26.	29.01.18	Mon	3	Decrease and conquer: Insertion sort			
27.	30.01.18	Tue	2	Topological Sorting			
28.	31.01.18	Wed	1	Computing a Median and the Selection Problem			
29.	01.02.18	Fri	3	Depth First Search			
30.	02.02.18	Fri	5	Tutorial – 7			
31.	05.02.18	Mon	7	Breadth First Search			
32.	06.02.18	Tue	2	Transform and conquer: Presorting			
33.	07.02.18	Wed	1	Balanced search trees			
34.	08.02.18	Fri	3	AVL trees			
35.	09.02.18	Fri	5	Tutorial – 8			
36.	12.02.18	Mon	3	2-3 trees			
37.	13.02.18	Tue	2	Heaps			
38.	14.02.18	Wed	1	Heap sort			
	15.02.18	Fri	3	Revision			
	16.02.18	Fri	5	Tutorial – 9			
UNIT IV : Dynamic Programming and Greedy Techniques							
39.	19.02.18	Mon	3	Dynamic Programming: Warshall's Algorithm			
40.	20.02.18	Tue	2	Floyd's algorithm			
41.	21.02.18	Wed	1	Knapsack Problem and Memory functions			
42.	22.02.18	Fri	3	Optimal Binary Search Trees			
43.	23.02.18	Fri	5	Tutorial – 10			
Module Test – II (26.02.2018 to 28.02.2018)							
	01.03.18	Fri	3	**Paper Distribution & Discussion**			
44.	02.03.18	Fri	5	Tutorial – 11			
45.	05.03.18	Mon	3	Optimal Binary Search Trees			
46.	06.03.18	Tue	2	Greedy Techniques: Prim's algorithm			
47.	07.03.18	Wed	1	Kruskal's algorithm			
48.	08.03.18	Fri	3	Dijkstra's algorithm			
	08.03.18	Fri	5	Tutorial – 12			
49.	12.03.18	Mon	3	Huffman trees			
	13.03.18	Tue	2	Revision			
	14.03.18	Wed	1	Revision			
UNIT V: Backtracking and Branch-and-Bound							
50.	15.03.18	Fri	3	Backtracking: N-Queens' problem			
51.	16.03.18	Fri	5	Tutorial – 13			
52.	19.03.18	Mon	3	Hamiltonian circuit problem			
	20.03.18	Tue	2	Revision			

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53.	21.03.18	Wed	1	Sum of sub-sets problem			
54.	22.03.18	Fri	3	Branch and Bound: Assignment problem			
55.	23.03.18	Fri	5	Tutorial – 14			
56.	26.03.18	Mon	3	Knapsack problem			
57.	27.03.18	Tue	2	Travelling Salesman Problem			
58.	28.03.18	Wed	1	Overview of P,NP and NP Complete problems			
59.	02.04.18	Mon	3	Approximation Algorithms for NP-hard problems*			
60.	03.04.18	Tue	2	Revision			
	04.04.18	Wed	1	Revision			
	05.04.18	Fri	3	Revision			
	06.04.18	Fri	3	Tutorial – 15			

*content beyond syllabus

TEXT BOOKS	
1.	Anany Levitin, —Introduction to the Design and Analysis of Algorithms□, 3rd Edition, Pearson Education, 2012
REFERENCE BOOKS	
1.	Thomas H.Cormen, Charles E.Leiserson, Ronald L. Rivest and Clifford Stein, Introduction to Algorithms□, 3rd Edition, Prentice Hall of India, 2012.
2.	Alfred V. Aho, John E. Hopcroft and Jeffrey D. Ullman, Data Structures and Algorithms□, Pearson Education, Reprint 2006.
3.	Donald E. Knuth, The Art of Computer Programming, 3rd Edition, Volumes I & III, Addison Wesley, 2011.
4.	Steven S. Skiena, The Algorithm Design Manual, 2nd Edition, Springer, 2008.

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