

Syllabus Break up

Subject: Advanced Data Structures

Subject Code: 5CS6.1

Class: V Sem.

Unit	Topics to be covered	Lectures Required	Month in which topic will be covered	Date of Completion	Reason of not completing the task	E-contents used
1	Introduction to the trees and heaps, Introduction to the weighted binary trees. Huffman coding usage.	1	Aug. 2015	3Aug.	NIL	NPTEL, Youtube, Dragon Book Pdf
	Huffman coding and compression technique's algorithm and examples.	1	Aug. 2015	4 Aug.	NIL	NPTEL, Youtube, Dragon Book Pdf
	Red-Black Tree. Properties, insertion, deletion, searching and rotations and their algorithms	3	Aug. 2015	5,10,11 Aug.	NIL	NPTEL, Youtube, Dragon Book Pdf
	2-3 tree properties. Algorithm and various operations like union, insertion, deletion and decrease key, extract minimum.	2	Aug. 2015	12,17 Aug.	NIL	NPTEL, Youtube, Dragon Book Pdf
	Interval trees, Dictionaries	2	Aug. 2015	18,19 Aug.	NIL	NPTEL, Youtube, Dragon Book Pdf
	Dynamic order statistics.	1	Aug. 2015	24 Aug.	NIL	NPTEL, Youtube, Dragon Book Pdf
2	Difference between mergable heaps and normal heaps.	1	Aug. 2015	25 Aug.	NIL	NPTEL, Youtube, Dragon Book Pdf
	Binomial heaps and its various operations like insertion, deletion, extract minimum etc.	2	Aug. 2015	26, 31Aug.	NIL	NPTEL, Youtube, Dragon Book Pdf
	2-3-4 tree properties. Algorithm and various operations like union, insertion, deletion and decrease key, extract minimum.	2	Aug. 2015	31 Aug. 1 Sept.	NIL	NPTEL, Youtube, Dragon Book Pdf
	Fibonacci Heaps properties. Algorithm and various operations like union, insertion, deletion and decrease key, extract minimum.	2	Sept. 2015	2,14 Sept.	NIL	NPTEL, Youtube, Dragon Book Pdf
	Amortized analysis and strategies. Evaluating the potential function for the Fibonacci heap.	2	Sept. 2015	15,16 Sept.	NIL	NPTEL, Youtube, Dragon Book Pdf
3	Weighted and directed graphs. Circuits properties. Cut set, cut vertices.	1	Sept. 2015	21 sept.	NIL	NPTEL, Youtube, Dragon Book Pdf

	Planarity of a graph. Dual Graphs, Spanning trees and Kurotovaski theorem.	2	Sept. 2015	22,28 Sept.	NIL	NPTEL, Youtube, Dragon Book Pdf
	Isomorphism, BFS and DFS. Algorithm for the connectedness checking. Topological sort. Articulation points	1	Sept. 2015	29 Sept.	NIL	NPTEL, Youtube, Dragon Book Pdf
	Min cut Max flow problem. Ford Fulkerson algorithm of Max flow.	2	Sept. 2015	30 Sept. 2015 5 Oct.	NIL	NPTEL, Youtube, Dragon Book Pdf
4	Introduction to the sorting networks. Comparison Networks. Zero-zero principle.	1	Oct. 2015	6 Oct. 2015	NIL	NPTEL, Youtube, Dragon Book Pdf
	Bitonic Sorting and the merging of the network sorter. Priority queues and the concatenable queues and implementations.	2	Oct. 2015	7,12 Oct. 2015	NIL	NPTEL, Youtube, Dragon Book Pdf
	Disjoint sets and unifying. Problems regarding unifying. Implementation Sets.	2	Oct. 2015	14,19 Oct. 2015	NIL	NPTEL, Youtube, Dragon Book Pdf
5	Notations of number theory, Division problem.	2	Oct. 2015	20,26 Oct. 2015	NIL	NPTEL, Youtube, Dragon Book Pdf
	GCD via normal and via recursion programs.	1	Oct. 2015	26 Oct. 2015	NIL	NPTEL, Youtube, Dragon Book Pdf
	Modularity problem. Euclidian theorem and extended Euclidian theorem.	2	Oct. 2015	27 Oct. 2015	NIL	NPTEL, Youtube, Dragon Book Pdf
	Chinese Remainder theorem, computation of the Discrete logarithms and primality tests	3	Nov. 2015	28 Oct. 2015 2,3 Nov.	NIL	NPTEL, Youtube, Dragon Book Pdf

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