Advanced Data Structures V sem Computer Engineering

S.NO.	UNIT	LECTURE	CONTENTS
1	Advanced Trees	LECTURE1	TREES: Definitions,
		LECTURE2	Operations on Weight Balanced Trees
		LECTURE3	Huffman Trees
		LECTURE4	2-3 Trees
		LECTURE5	Red- Black Tree
		LECTURE6	Dynamic Order Statistics
		LECTURE7	Interval Tree
		LECTURE8	Dictionaries
2	**MERGEABLE HEAPS**	LECTURE9	Mergeable Heap Operations
		LECTURE10	Binomial Trees
		LECTURE11	mplementing Binomial Heaps and its Operations
		LECTURE12	2-3-4. Trees
		LECTURE13	2-3-4 Heaps.
		LECTURE14	Amortization analysis and Potential Function of Fibonacci Heap
		LECTURE15	Amortization analysis and Potential Function of Fibonacci Heap
3	**GRAPH THEORY DEFINITIONS**	LECTURE16	Definitions of Isomorphic Components. Circuits, Fundamental Circuits
		LECTURE17	Cut-sets. Cut- Vertices Planer and Dual graphs
		LECTURE18	Spanning Trees, Kuratovski's two Graphs
		LECTURE19	Algorithms for Connectedness, Finding all Spanning Trees in a Weighted Graph
		LECTURE20	Breadth First and Depth First Search
		LECTURE21	Topological Sort, Strongly Connected Components and Articulation Point.
		LECTURE22	Single Min-Cut Max-Flow theorem of Network Flows.Ford-Fulkerson Max Flow Algorithms.
		LECTURE23	Ford-Fulkerson Max Flow Algorithms.
4	**SORTING NETWORK**	LECTURE24	Comparison network
		LECTURE25	zero-one principle
		LECTURE26	bitonic sorting
		LECTURE27	Priority Queues

		LECTURE28	Concatenable Queues using 2-3 Trees
		LECTURE29	Operations on Disjoint sets
		LECTURE30	set union-find problem
		LECTURE31	Implementing Sets
		LECTURE32	merging network sorter,
5	**NUMBER THEORITIC ALGORITHM**	LECTURE33	Number theoretic notions
		LECTURE34	Division theorem, GCD
		LECTURE35	recursion, Modular arithmetic
		LECTURE36	Solving Modular Linear equation Chinese Remainder Theorem
		LECTURE37	Chinese Remainder Theorem
		LECTURE38	power of an element
		LECTURE39	Computation of Discrete Logarithms
		LECTURE40	primality Testing and Integer Factorization