

**ST. ANN'S COLLEGE OF ENGINEERING & TECHNOLOGY, CHIRALA**  
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
**LECTURE SCHEDULE**

**Subject: Advanced Data Structures**  
**Name: T.Y.Srinivasa Rao**  
**No. of Lectures per Week: 4+1\* (Tutorial)**

**Academic Year: 2019 – 2020**  
**Year & Sem/Section: II - II 'C'**

S. No.	Date	Unit No.	Topics to be Covered
1	18-11-19	UNIT – I	External Sorting
2	19-11-19		Introduction to Two-way Merging
3	20-11-19		K-way Merging
4	21-11-19		Buffer Handling for Parallel Operations
5	21-11-19		Run Generation
6	23-11-19		Optimal Merging of Runs
7	25-11-19		Huffman Tree
8	26-11-19		Huffman Coding
9	27-11-19		Unit –I Revision
10	28-11-19		Tutorial
11	28-11-19		Unit –I Test
12	30-11-19	UNIT – II	Introduction - Static Hashing
13	02-12-19		Hash Table
14	03-12-19		Hash Functions
15	04-12-19		Secure Hash Function
16	05-12-19		SHA Algorithm
17	05-12-19		Tutorial
18	07-12-19		Overflow Handling
19	09-12-19		Theoretical Evaluation of Overflow Techniques
20	10-12-19		Rehashing
21	11-12-19		Dynamic Hashing- Motivation for Dynamic Hashing
22	12-12-19		Dynamic Hashing Using Directories
23	12-12-19		Tutorial
24	14-12-19		Directory less Dynamic Hashing
25	16-12-19		Unit – II Revision
26	17-12-19		Unit –II Test
27	18-12-19	UNIT – III	Heap Operations
28	19-12-19		Other Heap Operations
29	19-12-19		Tutorial
30	21-12-19		Applications of Priority Queues
31	23-12-19		Construction of Priority Queue
32	26-12-19		The Selection Problem
33	26-12-19		Tutorial
34	28-12-19		Event Simulation Problem
35	30-12-19		Binomial Queues
36	31-12-19		Binomial Queue Structure
37	01-01-20		Binomial Queue Operations
38	02-01-20		Implementation of Binomial Queues
39	02-01-20		Tutorial
40	04-01-20		Merging of Binomial Queues
41	06-01-20		Unit – III Revision
42	07-01-20		Revision
43	08-01-20		Revision
44	09-01-20		Revision
45	09-01-20		Revision
46	13-01-20		Revision
47	18-01-20	Revision/ST -I	
48	20-01-20	Revision/ST -I	
49	21-01-20	Revision/ST -I	
50	22-01-20	Revision/ST -I	
51	23-01-20	Revision/ST -I	
52	23-01-20	Revision/ST -I	
53	25-01-20	UNIT – IV	Optimal Binary Search Trees
54	27-01-20		AVL Tree Rotations
55	28-01-20		AVL Tree Insertion
56	29-01-20		AVL Tree Deletion
57	30-01-20		Red-Black Trees, Definition
58	30-01-20		Tutorial
59	01-02-20		Representation of a Red- Black Tree
60	03-02-20		Searching a Red-Black Tree
61	04-02-20		Inserting into a Red Black Tree
62	05-02-20		Deletion from a Red-Black Tree
63	06-02-20		Joining Red-Black Trees

64	06-02-20		Tutorial
65	10-02-20		Splitting a Red-Black Tree
66	11-02-20		Unit – IV Revision
67	12-02-20		Unit – IV Test
68	13-02-20	UNIT – V	M-Way Search Trees, Definition and Properties
69	13-02-20		Searching an M-Way Search Tree
70	15-02-20		Construction of 2-3 Tree
71	17-02-20		B-Trees - Definition and Properties
72	18-02-20		Number of Elements in a B-Tree
73	19-02-20		Construction of B-Tree
74	20-02-20		Insertion into B-Tree
75	20-02-20		Tutorial
76	22-02-20		Deletion from a B-Tree
77	25-02-20		B+Tree – Definition, Searching a B+Tree
78	26-02-20		Insertion into B+ Tree
79	27-02-20		Deletion from a B+Tree
80	27-02-20		Tutorial
81	29-02-20		Unit – V Revision
82	02-03-20		Unit – V Test
83	03-03-20		UNIT – VI
84	04-03-20	Insert and Delete in Digital Search Trees	
85	05-03-20	Binary Tries, Compressed Binary Tries, Patricia	
86	05-03-20	Tutorial	
87	07-03-20	Multitway Tries - Definition, Searching, Sampling Strategies	
88	10-03-20	Insertion into a Trie, Deletion from a Trie	
89	11-03-20	Keys with Different Length - Height of a Trie	
90	12-03-20	Space Required and Alternative Node Structure- Prefix Search and Applications	
91	12-03-20	Tutorial	
92	16-03-20	Compressed Tries- Compressed Tries With Skip Fields- Compressed Tries With Labeled Edges- Space Required by a Compressed Tries	
93	17-03-20	Tries and Internet Packet Forwarding, IP Routing- 1-Bit Tries- Fixed-Stride Tries, Variable-Stride Tries	
94	18-03-20	Revision	
95	19-03-20	Revision	
96	19-03-20	Revision	
97	21-03-20	Revision	
98	23-03-20	Revision/ST-II	
99	24-03-20	Revision/ST-II	
100	26-03-20	Revision/ST-II	
101	26-03-20	Revision/ST-II	
102	28-03-20	Revision/ST-II	
103	30-03-20	Revision/ST-II	

#### TEXT BOOKS

1. Data Structures, A Pseudocode Approach, Richard F Gilberg, Behrouz A Forouzan, Cengage.
2. Fundamentals of Data Structures in C++, Ellis Horowitz, Sartaj Sahni and Dinesh Mehta, 2nd Edition, Universities Press (India) Pvt. Ltd.
3. Data structures and Algorithm Analysis in C++, 2<sup>nd</sup> edition, 03k Allen Weiss, Pearson.

#### REFERENCE BOOKS

1. <http://lcm.csa.iisc.ernet.in/dsa/dsa.html>
2. [http://utubersity.com/?page\\_id=878](http://utubersity.com/?page_id=878)
3. <http://freevideolectures.com/Course/2520/C-Programming-and-Data-Structures>
4. <http://freevideolectures.com/Course/2279/Data-Structures-And-Algorithms>
5. File Structures: An Object oriented approach with C++, 3<sup>rd</sup> ed., Michel J Folk, Greg Riccardi, Bill Zoellick.
6. C and Data Structures: A Snap Shot oriented Treatise with Live examples from Science and Engineering, N B Venkateswarlu & E V Prasad, S Chand, 2010.

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