

Bhoj Reddy Engineering College for Women: Hyderabad
Department of Information Technology
Lesson plan of faculty member for the academic year 2016–17

Class: II B Tech

Branch- Section: IT- A

Semester: I

Subject: Data Structures

Lectures per week: 4+1 (Tutorial)

Lecture Number	Topics to be covered	Date (s)
UNIT – I: Basic Concepts of Data Structures		
1	Introduction, Interdependence between algorithms and data structures	13 June 2016
2	Tutorial (G1, G3, G2)- C- program examples	14, 16, 18 June 2016
3	Algorithm Specification- Introduction,	14 June 2016
4	Recursive algorithms, Recursion Verses Iteration	15 June 2016
5	Data Abstraction, time complexity and space complexity	18 June 2016
6	Asymptotic Notation- Big O, Omega and Theta notations	20 June 2016
7	Tutorial (G1, G3, G2)- Data Abstraction	21, 23, 25 June 2016
8	Example problems on Performance analysis	21 June 2016
9	Classification of Data structure Linear and Non- Linear	22 June 2016
10	Linear lists, Implementation using Linked list and Arrays, Singly Linked Lists- Operations- Insertion, Deletion	25 June 2016
11	Operations on Circularly linked lists	27 June 2016
12	Tutorial (G1, G3, G2)- Arrays and Linked Lists	28, 30 June, 02 July 2016
13	Doubly Linked Lists- Operations- Insertion, Deletion	28 June 2016
14	Representation of single, two dimensional arrays	29 June 2016
15	sparse matrices- array and linked representations	02 July 2016
UNIT- II: Stack and Queue		
16	Stack ADT, definition, operations	04 July 2016
17	Tutorial (G1, G2)- Stack representations, Application	05, 09 July 2016
18	array and linked implementations in C	05 July 2016
19	Applications- infix to postfix conversion	09 July 2016
20	Postfix expression evaluation, recursion implementation	11 July 2016
21	Tutorial (G1, G3, G2)- array and linked Implementations in C	12, 14, 16 July 2016
22	Queues, Circular Queues, Deques	12 July 2016
23	Circular queues- Insertion and deletion operations	13 July 2016
24	Deque (Double ended queue) ADT,	16 July 2016
25	array implementations in C.	18 July 2016
26	Tutorial (G1, G3, G2)- Stack and queue implementation	19, 21, 23, July 2016
27	linked implementations in C	19 July 2016
UNIT- III: Trees and Graphs		
28	Trees – Terminology, Representation of Trees	20 July 2016
29	Binary tree ADT, Properties of Binary Trees	23 July 2016
30	Trees, Binary Trees	25 July 2016
31	Tutorial (G1, G3, G2)- Problems on Binary Trees	26, 28, 30 July 2016
32	Threaded binary trees	26 July 2016
33	Max Priority Queue ADT,	27 July 2016
34	implementation- Max Heap- Definition,	30 July 2016
35	Tutorial (G1, G3, G2)- Problems on trees, Priority queues	02, 04, 06 August 2016
36	Insertion into a Max Heap, Deletion from a Max Heap.	02 August 2016
37	Revision	03 August 2016
38	Graphs – Introduction, Definition, Terminology	06 August 2016
39	Tutorial (G1, G3, G2)- Problems on Graph	16, 18, 20 August 2016
40	Graph ADT, Graph Representation, Adjacency Matrix, Adjacency List	16 August 2016
41	Traversal- DFS	17 August 2016
42	BFS	20 August 2016

UNIT- IV: Searching and Sorting		
43	Searching- Linear Search	22 August 2016
44	Tutorial (G1, G2)- Implementation in- C	23, 27 August 2016
45	Binary Search	23 August 2016
46	Static Hashing, Introduction	24 August 2016
47	Hash tables, Handling Overflows	27 August 2016
48	Hash function, Handling Overflows	29 August 2016
49	Tutorial (G1, G3, G2)- Example- hash function	30 August, 01, 03 September 2016
50	Sorting- Insertion Sort, , Selection Sort	30 August 2016
51	Radix Sort,	31 August 2016
52	Quick sort	03 September 2016
53	Tutorial (G1, G3, G2)- Implementation in C	06, 08, 10 September 2016
54	Heap Sort,	06 September 2016
55	Comparison of Sorting methods	07 September 2016
UNIT- V: Search Trees		
56	Search trees	10 September 2016
57	Tutorial (G1, G3, G2)- Sorting Algorithms	13, 15, 17 September 2016
58	Binary Search Trees, Def.	13 September 2016
59	Search, Insert and Delete	14 September 2016
60	AVL Tree	17 September 2016
61	AVL Trees- Definition with Examples, Insertion	19 September 2016
62	Tutorial (G1, G3, G2)- Binary Search Trees Implementation in C	20, 22, 24 September 2016
63	Binary Search Trees Implementation in C	20 September 2016
64	B- Trees, Def., B- Tree of order m,	21 September 2016
65	Insert and Search	24 September 2016
66	Examples on B- Tree	26 September 2016
67	Tutorial (G1, G3, G2)- Examples on B- Tree	27, 29 September, 01 October 2016
68	B- Trees Implementation in C	27 September 2016
69	B- Trees Implementation in C	28 September 2016
70	Introduction to Red- Black	01 October 2016
71	Splay Trees	03 October 2016
72	Tutorial (G1)- Red- Black, Splay Trees	04 October 2016
73	Comparison of search trees	04 October 2016
74	The Knuth- Morris- Pratt algorithm	29 October 2016
75	The Knuth- Morris- Pratt algorithm implementation in C	31 October 2016
76	Tutorial (G1, G3, G2)- Knuth- Morris- Pratt algorithm Implementation in C	01, 03, 05 November 2016
77	Tries (examples only)	01 November 2016
78	Revision	02 November 2016

Text books:

1. Fundamentals of Data Structures in C, 2nd Edition, E.Horowitz, S.Sahani and Susan Anderson- Freed, Universities Press
2. Data Structures: A Programing Approach with C, D.S.Kushwaha and A.K.Misra, PHI

Name and signature of the faculty: Tasneem Rahath

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Name and signature of Head of the Department: G.Srinivasa Rao

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