PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY
(Autonomous)
KANURU, VIJAYAWADA-520007

II B.Tech – I Sem CSE (AI&ML)

Data Structures Lab

Course Code	**20AM3352**	**Year**	II	**Semester:**	I
Course Category	PCC Lab	**Branch**	CSE(AI&ML)	**Course Type**	Practical
Credits	1.5	**L-T-P**	0-0-3	**Prerequisites**	Programming for Problem Solvingusing C
Continuous Internal Evaluation	15	**Semester End Examination**	35	**Total Marks**	50

Course Outcomes		
Upon successful completion of the course, the student will be able to:		
CO1	Apply Linear and non-linear data structures for solving problems.	**L3**
CO2	Implement programs as an individual on different IDEs.	**L3**
CO3	Develop an effective report based on various programs implemented.	**L3**
CO4	Apply technical knowledge for a given problem and express it with effective oral communication.	**L3**
CO5	Analyze outputs using given constraints/test cases.	**L4**

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3: High, 2: Medium, 1: Low)

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PS01**	**PS01**
CO1	3													
CO2					1				2					
CO3			3											
CO4										3				
CO5		2										1		

Syllabus		
Expt. No.	**Contents**	**Mapped CO**
1	Demonstrate recursive algorithms with examples.	**CO1,CO2,CO3,CO4,CO5**
2	Implement various searching techniques.	**CO1,CO2,CO3,CO4,CO5**
3	Develop programs for different sorting techniques	**CO1,CO2,CO3,CO4,CO5**
4	Implement and perform different operations on Single, Double and Circular Linked Lists.	**CO1,CO2,CO3,CO4,CO5**
5	Develop a program to perform operations of a Stack using arrays and linked Lists.	**CO1,CO2,CO3,CO4,CO5**
6	Develop programs to implement Stack applications.	**CO1,CO2,CO3,CO4,CO5**
7	Develop a program to perform operations of Linear Queue using arrays and linked Lists.	**CO1,CO2,CO3,CO4,CO5**
8	Implement Circular Queues.	**CO1,CO2,CO3,CO4,CO5**
9	Develop a program to represent a tree data structure.	**CO1,CO2,CO3,CO4,CO5**
10	Develop a program to demonstrate operations on Binary Search Tree.	**CO1,CO2,CO3,CO4,CO5**
11	Implement and perform different operations on Graph	**CO1,CO2,CO3,CO4,CO5**
12	Demonstrate Graph Traversal Techniques	**CO1,CO2,CO3,CO4,CO5**
13	Case Study -1	**CO1,CO2,CO3,CO4,CO5**
14	Case Study -2	**CO1,CO2,CO3,CO4,CO5**
15	Case Study -3	**CO1,CO2,CO3,CO4,CO5**
16	Case Study -4	**CO1,CO2,CO3,CO4,CO5**

Learning Resources

Text Books

1. Data Structures Using C, Reema Thareja, Second Edition, OXFORD University Press

e-Resources & other digital material

1. https://www.cs.usfca.edu/~galles/visualization/Algorithms.html
2. http://www.algomation.com/algorithm/single-linked-list-insert-delete
3. http://www.algomation.com/algorithm/binary-tree-insert-delete-display
4. https://www.youtube.com/watch?v=AfYqN3fGapc
5. https://www.youtube.com/watch?v=7vw2iIdqHlM
6. http://littlesvr.ca/dsa-html5-animations/sorting.php