## PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY (Autonomous)

### KANURU, VIJAYAWADA-520007 II B.Tech -II SEM CSE(DS)

### **Algorithms Lab**

Course Code	20DS3452	Year	II	Semester	II	
<b>Course Category</b>	PCC Lab	Branch	CSE(DS)	Course Type	Practical	
Credits	1.5	L-T-P	0-0-3	Prerequisites	DataStructures, Programming for Problem solving using 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 different design techniques for solving problems.	L3			
CO2	Implement programs as an individual on different IDEs/online platforms.	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:Substantial, 2: Moderate, 1:Slight)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3											2		
CO2	3				2									
CO3										3				
CO4	2									2				
CO5		3												

	Syllabus					
Expt No	Contents	Mapped CO				
1.	Develop and implement an algorithm using Divide and Conquer strategy for a given set of problems.	CO1,CO2,CO3,CO4,CO5				
2.	Make use of greedy method to implement a solution for a given problem.	CO1,CO2,CO3,CO4,CO5				
3.	Develop and implement an efficient solution using Dynamic Programming.	CO1,CO2,CO3,CO4,CO5				
4.	Use Backtracking design technique to implement a solution for a given problem.	CO1,CO2,CO3,CO4,CO5				
5.	Decelop and implement an algorithm using Branch and Bound technique for solving a given problem.	CO1,CO2,CO3,CO4,CO5				
6.	Case Study-1: Apply the most appropriate design technique to develop and implement an efficient solution for a given problem.	CO1,CO2,CO3,CO4,CO5				
7.	Case Study-2: Develop and implement an optimal solution for a given problem by applying a suitable design technique.	CO1,CO2,CO3,CO4,CO5				
8.	Case Study-1	CO1,CO2,CO3,CO4,CO5				
9.	Case Study-2	CO1,CO2,CO3,CO4,CO5				
10.	Case Study-3	CO1,CO2,CO3,CO4,CO5				

### **Learning Resources**

#### **Text Books**

- 1. Introduction to the Design & Analysis of Algorithms, Anany Levitin, Third Edition, 2011, Pearson Education
- 2. Data Structures and Algorithm Analysis in C, Mark Allen Weiss, 2002, Pearson.
- 3. Algorithm Design Techniques, Narasimha Karumanchi, CareerMonk Publications, 2018.

### e-Resources & other digital material

- 1. https://www.cs.usfca.edu/~galles/visualization/Algorithms.html
- 2. <a href="https://littlesvr.ca/dsa-html5-animations/sorting.php">https://littlesvr.ca/dsa-html5-animations/sorting.php</a>
- 3. <a href="https://www.youtube.com/watch?v=AfYqN3fGapc">https://www.youtube.com/watch?v=AfYqN3fGapc</a>