

### Design and Analysis of Algorithms Lab

<b>Course Code</b>	20CS3452	<b>Year</b>	II	<b>Semester</b>	II
<b>Course Category</b>	PCC Lab	<b>Branch</b>	CSE	<b>Course Type</b>	Practical
<b>Credits</b>	1.5	<b>L-T-P</b>	0-0-3	<b>Prerequisites</b>	Data Structures, Programming for Problem Solving
<b>Continuous Internal Evaluation :</b>	15	<b>Semester End Evaluation:</b>	35	<b>Total Marks:</b>	50

#### Course Outcomes

Upon successful completion of the course, the student will be able to

<b>CO1</b>	Apply different design techniques for solving problems.	<b>L3</b>
<b>CO2</b>	Implement programs as an individual on different IDEs/ online platforms.	<b>L3</b>
<b>CO3</b>	Develop an effective report based on various programs implemented.	
<b>CO4</b>	Apply technical knowledge for a given problem and express with an effective oral communication.	<b>L3</b>
<b>CO5</b>	Analyze outputs using given constraints/test cases.	<b>L4</b>

#### Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
<b>CO1</b>	√												√	
<b>CO2</b>					√				√					
<b>CO3</b>										√				
<b>CO4</b>	√									√				
<b>CO5</b>			√											

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

<b>Learning Resources</b>	
<b>Text Books</b>	
<ol style="list-style-type: none"> <li>1. Introduction to the Design &amp; Analysis of Algorithms, Anany Levitin, Third Edition, 2011, Pearson Education.</li> <li>2. Data Structures and Algorithm Analysis in C, Mark Allen Weiss, 2002, Pearson.</li> <li>3. Algorithm Design Techniques, Narasimha Karumanchi, CareerMonk Publications, 2018.</li> </ol>	
<b>e- Resources &amp; other digital material</b>	
<ol style="list-style-type: none"> <li>1. <a href="https://www.cs.usfca.edu/~galles/visualization/Algorithms.html">https://www.cs.usfca.edu/~galles/visualization/Algorithms.html</a></li> <li>2. <a href="http://littlesvr.ca/dsa-html5-animations/sorting.php">http://littlesvr.ca/dsa-html5-animations/sorting.php</a></li> <li>3. <a href="https://www.youtube.com/watch?v=AfYqN3fGape">https://www.youtube.com/watch?v=AfYqN3fGape</a></li> </ol>	