Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		L	T	P	L	T	P	Total
CEL41	**Design and Analysis of Algorithms Lab**	--	--	2	--	--	1	1
		Examination Scheme						
		ISE			**ESE**			**Total**
					Practical		**Oral**	
		40			**10**		**10**	**60**

Pre-requisite Course Codes	ES4 (Programming Methodology and Data structures) CE31 (Advanced Data Structures)
At end of successful completion of this course, student will be able to	

Course Outcomes	CO1	Compare time and space complexity of different sorting and searching techniques
	CO2	Solve various problems using dynamic programming approach
	CO3	Illustrate the concepts of greedy approach
	CO4	Demonstrate the applicability of backtracking, branch and bound strategies to solve problems in different domains
	CO5	Demonstrate various string matching algorithms

Exp. No.	Experiment Details (Implementation can be in C/C++ Language)	Ref.	Marks
1	Experiment on finding the running time of algorithm Selection sort Insertion sort	1,3	5
2	Experiment based on divide and conquer approach Merge sort Quick sort Binary search	2,3	5
3	Experiment on finding minimum and maximum numbers using divide and conquer approach	1	5
4	Experiment using dynamic programming approach Multistage graphs single source shortest path all pair shortest path 0/1 knapsack Travelling salesman problem Longest common subsequence	1,4	5

5	Experiment based on greedy approach Single source shortest path Knapsack problem Job sequencing with deadlines Optimal storage on tapes	1,5	5
6	Experiment on minimum spanning tree using Greedy approach	1,2,5	5
7	Experiment using Backtracking strategy 8 queen problem (N-queen problem) Sum of subsets Graph coloring, 15 puzzle problem Travelling salesman problem	2,3	5
8	Implement string matching algorithms The naïve string matching Algorithm The Rabin Karp algorithm The knuth-Morris-Pratt algorithm	1	5
	Total Marks		**40**

References:
1. T.H .Cormen, C.E. Leiserson, R.L. Rivest, C. Stein, "*Introduction to algorithms*", 3rd edition, PHI publication 2009.
2. Ellis Horowitz, Sartaj Sahni , S. Rajasekaran. "*computer algorithms*" 2nd edition, Computer Science Press, 1997
3. Sanjoy Dasgupta, Christos H. Papadimitriou, Umesh Vazirani, "*Algorithms*", 1st edition, Tata McGraw- Hill, 2006.
4. Jon Kleinberg, Eva Tardos, "*Algorithm Design*", 1st edition, Pearson, 2006.
5. Michael T. Goodrich, Roberto Tamassia, "*Algorithm Design and Application*", 1st edition ,Wiley Publication, 2015.