BCSC0807: COMPETITIVE PROGRAMING LAB

Objective: *The objective of this course is that students will understand and implement simple data structures, able demonstrate different sorting and searching techniques. and will be familiar with graphs and their applications.*

Credits:01　　　　　　　　　　　　　　　　　　　　　　　　　**L-T-P-J:0-0-2-0**

Module		Lab
I, II and **III**	1. Program for Recursive Binary & Linear Search. 2. Program for sorting(Heap Sort, Merge Sort, Selection Sort, Quick Sort) 3.Program to understand Recursion. 4. Program to understand Backtracking 5. Program to understand Matrix Multiplication. 6. Program to understand Convex hull and Searching. 7. Program to understand Greedy methods with examples such as 　　Optimal Reliability Allocation. 　　Knapsack. 　　Minimum Spanning trees – Prim's and Kruskal's algorithms. 　　Single source shortest paths - Dijkstra's and Bellman Ford algorithms. 8. Program to understand Dynamic Programing with examples such as 　　Longest Increasing Subsequence. 　　Finding best path in maze. 　　Coin Change Problem. 　　Knapsack. 　　Warshal's and Floyd's algorithms 9. Program to understand Divide and Conquer Etc.	24

Note: All Code must be done in Java as well as Python

Outcome: After completion of course, student will be able to:
- Iden*tify, implement and use the appropriate data structures for a given problem*
- *Apply algorithmic skills for computing and engineering practice.*
- *Apply design and development principles of data structures and algorithms in the construction of software systems.*