Advanced Data Structures Lab					
Course Code: **19CSP221/ 19ITP221**	Year and Semester: II-II	L	T	P	C
Prerequisites: Prior knowledge of programming language(s) and basic Data Structures and Algorithms		0	0	3	1.5

Course Objectives:

1. Ability to apply computational thinking to a diverse set of problems.
2. Ability to adapt to new challenges and computational environments.
3. Proficiency in the design and implementation of algorithms.

Course Outcomes:

At the end of the course student will be able to:

1. CO1: Select the most appropriate data structure and defend the selection.
2. CO2: Appropriately solve a variety of computational problems.
3. CO3: Communicate their results and describe an algorithm.

List of experiments:

Prerequisites : Solve the following problems in Hackerrank

1. Time Conversion
2. Balanced Brackets
3. Queue using 2 Stacks
4. Cycle Detection

UNIT I

1	Implement a dictionary (Division Method)
2	Implement Linear Probing on a dictionary
3	Implement Quadratic Probing on a dictionary
4	Implement Double Hashing.
5	Implement Separate Chaining.
6	**String Pairs / Anagram (Hackerrank)**

UNIT II

7   Implement Binary Heap Operations.
8   **Minimize the Sum (Hackerrank)**
9   **Implement Expression Tree.**

UNIT III

10   Implement Operations on Binary Search Tree non recursive.
11   Implement AVL Tree.

UNIT IV

12   Implement Prims Algorithm
13   Implement Krushkal's Algorithm
14   Implement Sollin's Algorithm
15   Implement Dijkstra's Algorithm
16   Implement shortest path between all pair of vertices.
17   **Implement Island Strikes. (Hackerrank)**
18   **Implement Pawn Moves. (Hackerrank)**

UNIT V

19   Implement Brute force pattern matching algorithm.
20   Implement Boyer-Moore pattern matching algorithm.
21   Implement Knuth-Morris pattern matching algorithm.
22   **Implement Counting Numeric sub sequences. (Hackerrank)**