CSE505:ADVANCED DATA STRUCTURES AND ALGORITHMS LABORATORY

Course Outcomes: Through this course students should be able to

CO1 :: determine and implement efficient algorithms for solving computing problems in a programming language

CO2 :: evaluate and implement the basic sorting Algorithms.

CO3 :: identify various data compression methods.

CO4 :: experiment the basic operations of hashing

CO5 :: understand the efficient algorithms for logical and computational solutions.

CO6 :: analyze various tree and graph traversal techniques

List of Practicals / Experiments:

Array and Linked List

- Pointer to Arrays
- Doubly and Circular Linked List
- Multidimensional arrays

Sorting

- Radix Sort
- Quick Sort
- Merge Sort
- Heap Sort

Hashing

- Hash Functions
- Collision Resolution

Trees and Graphs

- Prim's and Kruskal algorithms
- Inorder, Preorder and Postorder tree traversals
- Depth First Search and Breadth-First Search

Compression Techniques

- Huffman coding
- Run-length Encoding

Memory management

- Garbage collection methods

Text Books:

1. DATA STRUCTURES AND ALGORITHMS IN C++ by ADAM DROZDEK, THOMSON EDUCATIONAL PUBLISHING

References:

1. DATA STRUCTURES AND ALGORITHM ANALYSIS IN C by MARK ALLEN WEISS, ADDISON-WESLEY

2. DATA STRUCTURES AND ALGORITHMS IN JAVA by MICHAEL T. GOODRICH, ROBERTO TAMASSIA, WILEY

3. INTRODUCTION TO ALGORITHMS by CORMEN, THOMAS H., LEISERSON, CHARLES E., RIVEST, RONALD L., STEIN, CLIFFORD, PHI Learning Pvt Ltd

4. DATA STRUCTURES & ALGORITHMS by ALFRED V. AHO, JOHN E. HOPCROFT, JEFFREY D. ULLMAN, PEARSON