

## **DATA STRUCTURES LAB – CSL 201**

### **KTU 2019 SYLLABUS – S3**

#### **SYLLABUS**

- 1. Implementation of Polynomials and Sparse matrices using arrays\*\***
- 2. Implementation of Stack, Queues, Priority Queues, DEQUEUE and Circular Queues using arrays\*\***
- 3. Application problems using stacks: Conversion of expression from one notation to another notation. \*\***
- 4. Implementation of various linked list operations. \*\***
- 5. Implementation of stack, queue and their applications using linked list.**
- 6. Implementation of trees using linked list.**
- 7. Representation of polynomials using linked list, addition and multiplication of polynomials. \*\***
- 8. Implementation of binary trees using linked lists and arrays- creations, insertion, deletion and traversal. \*\***
- 9. Implementation of binary search trees – creation, insertion, deletion, search**
- 10. Any application programs using trees**
- 11. Implementation of sorting algorithms – bubble, insertion, selection, quick, merge sort and heap sort. \*\***
- 12. Implementation of searching algorithms – linear search, binary search. \*\***
- 13. Representation of graphs and computing various parameters (in degree, out degree etc.) - adjacency list, adjacency matrix.**
- 14. Implementation of BFS and DFS for each graph representations. \*\***
- 15. Implementation of hash table using your own mapping functions and observe collisions and overflow resolving schemes. \*\***
- 16. Simulation of first-fit, best-fit and worst-fit allocations.**
- 17. Simulation of a basic memory allocator and garbage collector using doubly linked list.**

**\*\* - mandatory.**