List of Exercises/Experiments (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.pression.
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.

Video courses:

NPTELvideo course 1: Programming Data Structures and Algorithms:
https://nptel.ac.in/courses/106/106/106106133/

NPTEL video course 2: Data Structures and Algorithms:
https://nptel.ac.in/courses/106/102/106102064/