Data Structures with C
Code: MCA203
CREDITS: 4

Algorithm concept, Complexity – Big O- Notation, time space trade-off.

Array- Row/Column major representation, sparse matrix, shifting.

Linked List- Singly, circular, doubly, doubly & circular

Stack- Push, Pop, Conversion from infix – to postfix, evaluation of postfix expression. Stack representation using array & linked list.

Queue – insert, delete, representation using array & linked list, circular queue (operations),deque(operations),priority queue(operations)-Both iterative & recursive implementation.

Garbage collection-different techniques.

Tree- definition – traversal algorithms (pre, post, in).

Threaded tree (One Way & Two Way), heap tree, Avl tree-balancing , B-tree, Trie Binary search tree, Huffman algorithm, Creation of Heap.

Sorting with complexity analysis – bubble, merge, quick, selection, insertion, shell, tournament, radix, heap .

Search- Linear & Binary (Complexity Analysis).

Recursion Technique- overview including tail recursion.

Hashing- definition. Functions- Midsquare, Folding, remainder, Collision resolution & linear probing.

Overview On – Sequential file, random access file, indexed sequential, hash file. Pattern matching algorithms- Brute force, Knuth-Morris-Pratt.