SYLLABUS: DATA STRUCTURE

Introduction: Basic terminology, data organization, concept of operations on data structures traversing, searching, inserting, deleting, Arrays, pointers and records, Mathematical background to create and analysze programs.

Linked lists: Introduction, representation of linked list in memory, traversing a linked list, searching a linked list, memory allocation, insertion and deletion in linked list, header linked list, two way lists.

Stacks and queues Recursion: Operation on Stacks and queues.

Trees: Definition, binary trees, repressnting binary trees in memory, traversing binary search trees, searching, inserting and deleting in binary search trees.

Hashing: hash tables, Hash functions, table overflow, Hash table implementation, analysis. AVL search trees, m-way search trees, B trees, Heap.

Books recommended:

1. E. Balaguruswamy, C Programming and Data Structures with C, McGraw Hill, 2013.

2. G.L. Heileman, Data Structures, Algorithms and Object Oriented Programming, Tata McGrawHill, 1996.

3. M. T. Goodrich and R. Tamassia, Data Structures and Algorithms in JAVA, Wiley, 2006.

4. A.V. Aho and J. E. Hopcroft, Data Structures and Algorithms, Addison-Wesley, 1983.