Course Code: 13IT2104

Pre requisites:
1. Computer Programming through C.
2. Data Structures.
3. Design and Analysis of Algorithms.

Course Outcomes:
At the end of the course, a student will be able to
CO 1: Use abstract data type.
CO 2: Implement priority queues and sorting algorithms.
CO 3: Discover solutions for graph problems.
CO 4: Devise solutions using algorithm design techniques.
CO 5: Implement advanced data structures.

Unit-I
Lists, Stacks, Queues and Trees: Lists, Stacks and Queues: Abstract Data Types (ADTs), The List ADT, Vector and list in the STI, Implementation of vector, Implementation of list, The Stack ADT, The Queue ADT.

Unit-II
Priority Queues: Implementations, Binary Heap, Applications of Priority Queues, d-Heaps, Leftist Heaps, Skew Heaps, Binomial Queues.

Unit-III
The Disjoint Set Class: Equivalence Relations, The Dynamic Equivalence Problem, Basic Data Structure, Smart Union Algorithms, Path Compression, Worst Case of Union-by-Rank and Path Compression, An Application.

Unit -IV

Unit-V

Text Books:


References:


Web references:
www.nptel.iitm.ac.in/video.php?subjectid=106102064