

Department of Computer Science & Engineering National Institute of Technology Srinagar				
Course Title	Data Structures Lab	Semester	4 th	
Department	Computer Science & Engineering	Course Code	CST251	
Credits	01	L	T	P
Course Type	Lab	0	0	2
Course Objectives				
<ul style="list-style-type: none"> • Develop ADT for stack and queue applications • Implement tree and graph algorithms • Implement and analyse internal and external sorting algorithms • Design and implement symbol table using hashing technique 				
Learning Outcomes				
Basic concepts of data, linear lists, strings, arrays and orthogonal lists, representation of trees & graphs, storage systems, Arrays, Recursion, Stacks, Queues, Linked lists, Binary trees, General Trees, Tree Traversal, Symbol Table and Searching Techniques, Sorting Techniques, Graphs.				
Course Synopsis				
To enable a student to have a practical command over the concepts learned in the course.				
Course Outline / Content				
Unit	Topics			Week
1.	Implement singly and doubly linked lists.			1
2.	Represent a polynomial as a linked list and write functions for polynomial addition.			1
3.	Implement stack and use it to convert infix to postfix expression			1
4.	Implement array-based circular queue.			1
5.	Implement an expression tree. Produce its pre-order, in-order, and post-order traversals.			1
6.	Implement binary search tree.			1
7.	Implement priority queue using heaps			1
8.	Implement hashing techniques			2
9.	Implement various sorting techniques			2
Text Books				
1.	Data Structures by Rajni Jindal			
2.	Data Structures - Schaum's Series			
References				
1.	Data Structures by Knuth			
2.	Data Structures by Farouzan			
3.	Data Structures using C and C++ by Langsam, Augestern, Tanenbaum.			