Course Name: DATA STRUCTURE & ALGORITHMS LAB					
Course Code: CSBS2151					
Contact Hours per week	L	T	P	Total	Credit Points
	0	0	3	3	1.5

Course Outcome:

After successfully completing this course the students will be able to:

1. Design and analyze the time and space efficiency of the data structure.
2. Capable to identity the appropriate data structure for a given problem.
3. Implement the Stack ADT using both array based and linked-list based data structures.
4. Implement the Queue ADT using both array based circular queue and linked-list based implementations.
5. Implement Nonlinear Data structure operations and its applications
6. Apply Sorting and Searching algorithms on various problems and analyze run-time execution of these methods.

Detailed Syllabus:

1.Design and Implement List data structure using i) array ii) singly linked list.
2.Design and Implementation of basic operations on doubly linked list.
3.Design and Implementation of Linear Data Structure :
   a) Stack using i)array ii) singly linked list
   b) Queue using i)array ii) singly linked list
   c) Basic operations on Circular Queue
4.Design and Implementation of Conversion and Evaluation of expressions (Infix, Postfix) operations.
5.Implementation of Sorting Techniques.
6.Implementation of Searching Techniques.
7.Design and Implement Binary Search Tree (BST)- create, insert, delete, search elements. Traversal in a BST-inorder, preorder, postorder.
8.Design and Implement Graph Algorithms: BreadthFirstSearch Techniques, DepthFirstSearch Techniques.

Books:

1. Brian W. Kernighan and Dennis M. Ritchie, “The C Programming Language”, Prentice Hall of India.
2. E. Balaguruswamy, “Programming in ANSI C”, Tata McGraw-Hill.
3. Byron Gottfried, “Schaum's Outline of Programming with C”, McGraw-Hill.
4. Seymour Lipschutz, “DataStructures, Schaum's Outlines Series”, Tata McGraw-Hill.
5. Ellis Horowitz, Satraj Sahni and Susan Anderson-Freed, “Fundamentals of Data Structures in C”, W.H.Freeman and Company.
6. R. G. Dromey, “How to Solve it by Computer”, Prentice-Hall of India.
7. Reema Thareja, “Data Structures using C”, Oxford University Press.