Name of the Programme: B. Tech. in Computer Science and Engineering (AI)	**Year**: II	**Semester**: III
Course Name: Data Structures and Algorithms Lab	**Course Code**: CSUP320	**Credit**: 1.5
Max Marks: 100	**CIE:** 60	**SEE:** 40
End Term Exam Time: 3 Hrs.	**Teaching Scheme:** 0L+0T+3P	

All experiments should be implemented using the C++ programming language.

S. No.	Experiments
1	Write a menu driven Program in C++ for the following Array operations a. Creating an Array of N Integer Elements b. Display the Array Elements c. Inserting an Element at a given valid Position d. Deleting an Element at a given valid Position e. Exit
2	Write a Program for the following String operations (without using built-in functions) a. Input a main sentence, a word or phrase to find, and a replacement word or phrase. b. Search through the main sentence for the word or phrase to find. If found, replace it with the replacement. If not found, let the user know.
3	Implement a stack data structure and demonstrate its operations including push, pop, overflow, and underflow.
4	Implement a Program for converting an Infix Expression to Postfix Expression.
5	Implement a Program for evaluating a Postfix Expression.
6	Implement a menu driven Program for the following operations on Singly Linked List (SLL) a. Create a SLL of N Students Data. b. Display the status of SLL and count the number of nodes. c. Perform Insertion at the beginning /end of SLL. d. Perform Deletion at the beginning /end of SLL.
7	Implement queue data structure and demonstrate its operations including enqueue, dequeue.
8	Implement a stack using Queue and vice versa.
9	Implement a Binary tree and perform various traverse using recursion and without recursion.
10	Implement inorder, Preorder Morris traversal in Binary Tree
11	Implement a Binary search tree and print Top View, font View, Left view of a tree
12	Implement different Sorting and Searching Techniques.

Name of the Programme: B. Tech. in Computer Science and Engineering (AI)	**Year**: II	**Semester**: III
Course Name: Programming in Java Lab	**Course Code**: CAUL321	**Credit**: 1.5
Max Marks: 100	**CIE:** 60	**SEE:** 40
End Term Exam Time: 3 Hrs	**Teaching Scheme:** 0L+0T+3P	

S. No.	Experiments
1	Develop depth understanding of programming in Java: bytecode, data types, variables, arrays, operators, Decision and Control statements.
2	Develop Object Oriented programs in Java: Objects, Classes constructors, returning and passing objects as parameter.
3	Inheritance, Access Control, using super, final with inheritance Overloading and overriding methods, Abstract classes, Extended classes.
4	Develop understanding to Packages & Interfaces in Java: Package, concept of CLASSPATH, access modifiers, importing package, Defining and implementing interfaces.
5	Develop understanding to developing Strings handling: String constructors, special string operations, character extraction, searching and comparing strings, string Buffer class.
6	Exception handling fundamentals, Exception types, uncaught exceptions, try, catch and multiple catch statements. Usage of throw, throws and finally.
7	Develop applications involving file handling: File Class, I/O streams, File I/O.
8	Multithreading fundamentals: Introduction to Thread class, runnable interface, priority and applying synchronized block.