

**MARIS STELLA COLLEGE**  
**(AUTONOMOUS), VIJAYAWADA-8**  
**(Affiliated to Krishna University, Machilipatnam)**  
**SYLLABUS**

**Subject: Computer Science**

**Semester: II**

**Course Title: Data Structures using C**  
**– Practical**

**Course Code: 22CSP2DS22**

**No of Hours: 30**

**LTP: 002**

**Credits: 2**

**Objectives**

- To enable the students to gain knowledge in practical applications of data structures using C.
- To develop skills to design and analyze simple linear and non-linear data structures.

**Course Outcomes**

**CO1:** Identify and apply the suitable data structure for the given real world problem.

**CO2:** Implement various kinds of searching and sorting techniques.

**CO3:** Implement data structures such as stacks, queues and Search trees to solve various computing problems.

**List of practicals:**

1. Write a program to read “N” numbers of elements into an array and also perform the following operation on an array
  - a. Add an element at the beginning of an array
  - b. Insert an element at given index of array
  - c. Delete an existing element
2. Write Programs to implement the Stack operations using an array
3. Write Programs to implement the Stack operations using Linked List.
4. Write Programs to implement the Queue operations using an array.
5. Write Programs to implement the Queue operations using Linked List.
6. Write a program for Binary Search Tree Traversals.
7. Write Programs to implement the single Linked List.
8. Write a program to implement dequeue using a doubly linked list.
9. Write a program to search an item in a given list using the following Searching Algorithms

- a. Linear Search
  - b. Binary Search.
10. Write a program for implementation of the following Sorting Algorithms
- a. Bubble Sort
  - b. Insertion Sort
  - c. Merge Sort
11. Write a program to implement Depth First Search graph traversals algorithm
12. Write a program to implement Breadth First Search graph traversals algorithm

### **Reference Books**

1. Data structures and Algorithm Analysis in C, 2nd edition, M. A. Weiss, Pearson.
2. Lipschutz: Schaum' s outline series Data structures Tata McGraw – Hill

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**Practical-Scheme of Valuation**

**Time: 3 Hrs.**

**Max. Marks: 50**

<b>Practical</b>	<b>Marks</b>
Program Writing	15 M
Program Execution	15 M
Viva	10 M
Practical Record	10 M
<b>Total</b>	<b>50 M</b>