

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

**SYLLABUS**

**Subject: Computer Science**

**Semester: II**

**Course Title: Data Structures**

**Course Code: 20CSP2DS22**

**using C++ - Practical**

**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 that uses functions to perform the following:
  - a) Creation of list of elements where the size of the list, elements to be inserted and deleted are dynamically given as input.
2. Implement the operations, insertion, deletion at a given position i n the list and search for an element in the list
3. Write a program that demonstrates the operations on stack.
4. Write a program to implement queue data structure and basic operations on it.
5. Write a program that uses well defined functions to create a binary tree of elements and traverse the Binary tree in preorder, in order and post order.
6. Write a program that implements linear and binary search methods of searching for an element in a list.
7. Write and trace programs to understand the various phases of sorting elements using the method Selection Sort.
8. Write and trace programs to understand the various phases of sorting elements using the method Quicksort.
9. Write and trace programs to understand the various phases of sorting elements using the method Merge sort.
10. Write and trace programs to create a Binary search tree and insert and delete from the tree.
11. Represent suitably a graph traversals using BFS.
12. Represent suitably a graph traversals using DFS.

**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>