

<i>DEPARTMENT OF COMPUTER SCIENCE</i>				<i>CLASS: I B.Sc. Computer Science</i>				
<b>Semester</b>	<b>Course Type</b>	<b>Course Code</b>	<b>Course Title</b>	<b>Credits</b>	<b>Contact Hours/week</b>	<b>CIA</b>	<b>Ext</b>	<b>Total</b>
II	Major core practical-2	20U2DMP2	Data structures lab using C	3	3	50	50	100

**COURSE OBJECTIVES:**

- # To develop skills to design and analyse simple linear and non-linear data structure.
- # To understand the practical applications of Data structures.

**List of Programmes.**

1. Write a C program to create two array list of integers. Sort and store the elements of both of them in third list.
2. Write a C program to multiply two matrices A and B and store the resultant matrix in C using arrays.
3. Write a C program to experiment the operation of STACK using array.
4. Write a C program to create menu driven options to implement QUEUE to perform the following
  - (i) Insertion (ii) Deletion (iii) Modification (iv) Listing of elements
5. Write a C program to create Linked list representations of employee records and do the following operations using pointers.
  - (i) To add a new record.
  - (ii) To delete an existing record.
  - (iii) To print the details about an employee.
  - (iv) To find the number of employees in the structure.
6. Write a C Program to count the total nodes of the linked list.
7. Write a C program to insert an element at the end of the linked list.
8. Write a C program to insert an element at the beginning of a doubly linked list.
9. Write a C program to display the hash table, using the mid square method.
10. Write a program to demonstrate Binary Search.
11. Write a C program to insert nodes into a Binary tree and to traverse in pre order.

**COURSE LEARNING OUTCOMES:**

On the completion of the course the students will be able to

<b>Course Learning Outcomes</b>	<b>PSO 1 (Knowledge Base)</b>	<b>PSO 2 (Problem Analysis &amp; Investigation)</b>	<b>PSO 3 (Communication Skills &amp; Design)</b>	<b>PSO 4 (Individual and Team Work)</b>	<b>PSO 5 (Professionalism Ethics and equity )</b>	<b>PSO 6 (Life Long Learning)</b>
CLO-1	3	1	2	1	1	1
CLO-2	2	3	2	1	1	1
CLO-3	2	2	2	1	1	2
CLO-4	2	2	2	1	1	1
CLO-5	2	1	2	3	2	1

**MAPPING OF CLOs WITH PSOs:**

	<b>COURSE LEARNING OUTCOME</b>	<b>Knowledge Level (basis of Bloom's Taxonomy)</b>
CLO-1	Construct programs to sort numbers and strings and searching the elements using sequential and binary search.	K3
CLO-2	Describe and Design programs with recursion and pointers related applications.	K1, K4
CLO-3	Construct programs on stack and queue and explain its operations.	K4
CLO-4	Construct and explain about linked list data structure and its operations.	K4,k3
CLO-5	Design programs on binary trees and tree traversals.	K3

3- Advanced Application

2- Intermediate

1- Introductory