ADVANCED DATA STRUCTURES LAB

II B. TECH- II SEMESTER: CSE/IT/CSIT

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIE	SEE	Total
A5CS10	PCC	-	-	3	1.5	30	70	100

COURSE OBJECTIVES:

The course should enable the students to:

1. Ability to identify the appropriate data structure for given problem.
2. Effectively use compilers include library functions, debuggers and trouble shooting.
3. Write and execute programs using data structures such as arrays, linked lists to implement stacks, queues.
4. Write and execute programs in C to implement various sorting and searching.

COURSE OUTCOMES:

The course should enable the students to:

1. Use appropriate data structure for given problem.
2. Use compilers include library functions, debuggers and trouble shooting.
3. Execute programs in C to implement Linked List.
4. Execute programs to implement Dictionary and HashTable.
5. Execute programs using data structures such as Trees & Graphs.
6. Execute programs in C to implement text processing algorithms.

LIST OF EXPERIMENTS

WEEK-1 SINGLE LINKED LIST

Write a C program that uses functions to perform the following:

a. Create a singly linked list of integers.
b. Delete a given integer from the above linked list.
c. Display the contents of the above list after deletion.

WEEK-2 DICTIONARY

Write a C program to implement Dictionary ADT using Linked List.

WEEK-3 HASH TABLE

Write a C program to implement Collision Resolution Techniques:

a. Linear Probing
b. Chaining

WEEK-4 BINARY TREES USING RESURSION

Write a C program that uses functions to perform the following:

a. Create a binary tree of integers
b. Traverse the above Binary tree recursively in PreOrder, InOrder and PostOrder.

WEEK-5 BINARY TREES USING NON-RESURSION

Write a C program that uses functions to perform the following:
a. Create a binary tree of integers.
b. Traverse the above Binary tree non-recursively in PreOrder, InOrder and PostOrder.

WEEK-6 **PRIORITY QUEUE**

a. Write C programs to implement Priority Queue ADT
b. Write a C Program to sort given list of integers using Heap Sort.

WEEK-7 **GRAPH**

Write C programs to implement Graph Representations
a) Adjacency Matrix b) Adjacency List

WEEK-8 **GRAPH TRAVERSAL ALGORITHMS**

Write C programs for implementing the following graph traversal algorithms:
a)Depth first traversal b) Breadth first traversal

WEEK-9 **BINARY SEARCH TREE USING RESURSION**

Write a C program that uses functions to perform the following:
a. Create a binary tree of integers
b. Traverse the above Binary tree recursively in PreOrder, InOrder and PostOrder.

WEEK-10 **BINARY SEARCH TREE USING NON-RESURSION**

Write a C program that uses functions to perform the following:
a. Create a binary tree of integers.
b. Traverse the above Binary tree non-recursively in PreOrder, InOrder and PostOrder.

WEEK-11 **AVL TREE**

Write a C program to perform the following operations on AVL:
a. Insertion into an AVL.
b. Display elements of AVL Tree

WEEK-12 **TEXT PROCESSING**

Write a C Program to implement KMP Algorithm.

TEXT BOOKS:

1. C and Data Structures, Prof. P.S.Deshpande and Prof. O.G. Kakde, Dreamtech Press.
2. Data structures using C, A.K.Sharma, 2nd edition, Pearson.
3. Data Structures using C, R.Thareja, Oxford University Press.

WEB REFERENCES:

1. http://www.sanfoundry.com/data structures-examples
2. http://www.geeksforgeeks.org/c
3. http://www.cs.princeton.edu