ANURAG ENGINEERING COLLEGE

(An Autonomous Institution)

I Year B.Tech. CSE - II Sem

L T/P/D C 0 -/3/- 1.5

(CS207ES) PROGRAMMING FOR PROBLEM SOLVING LAB - II

Prerequisites: Basics of C Language.

Course Objectives:

- □ Identify appropriate data structures to use in order to solve a problem.
- □ To be able to effectively choose programming components to solve computing problems in real-world.

Note: All the Programs should be implemented using functions.

Week 1 & Week 2:

Write a 'C' program to implement a List using Arrays and Functions [Insertion, Deletion]

Week 3:

- a) Define a structure Student with members Hall Ticket Number (htno), name(sname), program studying (program), current year (cyear) and semester (csem). Write a 'C' program to read a student details using user defined function read_student() and display the student details using print_student.
- b) Define a structure Date with members' day, month and year. Define a structure Employee with members' employee number (empno), employee name (empname), date of birth (dob) (Use the Structure Date), department number (deptno), salary(sal). Define the user-defined functions read_employee() to read employee details and print employee to print the employee details. Structure Date should be used as a Nested Structure in the Structure Employee. Write a 'C' program to read and display details of an employee using user-defined functions read_employee and print_employee.

Week 4:

- a) Define a structure Point with members x-coordinate and y-coordinate. Compute distance and slope between two given points using array of structures and functions.
- b) Define a union Student with members Hall Ticket Number (htno), name(sname), program studying (program), current year (cyear) and semester (csem). Write a 'C' program to read a student details using user defined function read_student() and display the student details using print_student.

Week 5 & Week 6:

- a) Write a 'C' program to compute length of a string using user –defined function string length. Pointer expression, Pointer Arithmetic and Pointer addressing should be used for computing string length.
- b) Write a 'C' program to read and print 3 x 3 matrix and also sum of elements of the matrix suing pointer-to-pointer.

Week 7:

Write a 'C' program to implementation of List of size n using Arrays. [Insertion and Deletion]

Week 8:

Write a C Program to perform the operations of Stacks using Arrays

Week 9:

Write a C Program to perform the operations of Queues using Arrays

Week 10:

Write a C Program to perform the operations of Single Linked List Programs [Insertion, Deletion, Searching and traversing].

Week 11:

a) Write a C Program for Linear Searchb) Write a C Program for Binary Search

Week 12:

Write a C Program to Sort N numbers in either Ascending order or Descending order using Bubble Sort.

Week 13:

Write a C Program to Sort N numbers in either Ascending order or Descending Order using Insertion Sort.

Week 14:

Write a C Program to Sort N numbers in either Ascending Order or Descending order using Quick sort.

Week 15:

- a) Write a C Program to count the number of Characters, Lines, Vowels and Consonants in a given text file
- b) Write a C Program to Display contents of a given file using Command Line Arguments

Week 16:

Review

CO-PO Mapping:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	1			1			_				_	1012
CO 2	1	-	1	✓								
CO 3	1	-	-	1								
CO 4	1		1	-								
CO 5	1	-	1	1								
CO 6	1		1	1								