COMPUTER PROGRAMMING USING C LAB

I B. Tech. - I Semester	L	T	P	C
Course Code: A3CS02	-	-	3	2

COURSE OBJECTIVES

1. To impart knowledge of C programming to write modular, efficient and readable C programs by Identifying the structural elements and layout of C source code.
2. To familiarize single and multi-dimensional arrays of the C data types and derived data types like structures, unions.
3. To demonstrate use of predefined functions from the portable C library and to describe the techniques for creating program modules using functions and recursive functions.
4. To facilitate in creating and manipulating strings.
5. To describe memory allocation techniques and file operations.

COURSE OUTCOMES:

1. Upon completion of the course, the students will be able to:
2. To write, compile and debug programs in C language.
3. Design programs involving decision structures, loops and arrays.
4. Use functions to solve complex problems.
5. Analyze dynamics of memory by the use of pointers.
6. Use different file operations to create/update basic data files.

EXPERIMENTS

WEEK 1

a. Basic Linux commands
b. Write C programs to implement basic arithmetic operations – sum, average, product, difference, quotient and remainder of given numbers etc.

WEEK 2

a. Write a C program to find largest and smallest of given numbers.
b. Write a C program to find roots of a quadratic equation.

WEEK 3

a. Write a C program to find the grade of a student
b. Write a C program which takes two integer operands and one operator form the user(+,-,*,/,% use switch)

WEEK 4

a. Write a C program to find Sum of individual digits of given integer
b. Write a C program to generate first n terms of Fibonacci series
c. Write a C program to generate prime numbers between 1 and n

WEEK 5

a. Write a C program to calculate sum of series SUM=1-x2/2! +x4/4!-x6/6!+x8/8!-x10/10!
b. Write a C program to generate Pascal's triangle

WEEK 6

a. Write a C program to find the factorial of a given integer using recursion and non recursion
b. Write a C program to find GCD of given integers using recursion and non recursion

WEEK 7

a. Write a C program to solve the Towers of Hanoi using recursion.
b. Write a C program to generate first n terms of Fibonacci series using recursion and non recursion

WEEK 8

a. Write a C program to find largest and smallest number in a list of integers

b. Write a C program to find Addition of Two Matrices
c. Write a C program to find Multiplication of Two Matrices

WEEK 9
a. Write a C program to print 2-D array using pointers
b. Write a C program to allocate memory dynamically using memory allocation functions (malloc, calloc, realloc, free)

WEEK 10
Write C Program that uses functions to perform the following operations:
a) i) Insert sub-string into main string from given position.
ii) Delete specified number of Characters from a given position in a given string.
b) Check whether the given string is a palindrome or not

WEEK 11
a) Write a C program to copy one file to another file
b) Write a C program to reverse first 'n' number of characters in a file(file name and 'n' value are passed from command line)

WEEK 12
a) Write a C program to display the contents of a file
b) Write a C program to merge two files into a third file

TEXT BOOKS:
1. C programming and Data Structures, P. Padmanabham, Third Edition, BS Publications.
2. Computer Programming in C, V. Rajaraman, PHI Publishers.
3. C Programming, E. Balagurusamy, 3rd edition, TMH Publishers.
4. Mastering C, K.R. Venugopal and S.R. Prasad, TMH Publishers.

REFERENCE BOOKS:
1. Let Us C Yashavant kanetkar BPB.
2. Absolute beginner's guide to C, Greg M. Perry, Edition 2, Publisher: Sams Pub., 1994.
3. Computer Programming and Data Structures by E Balagurusamy, Tata McGraw Hill.