COMPUTER PROGRAMMING LAB

COURSE OUTCOMES SEMESTER I

Student will be able to:

1. Explain basic commands in Linux.
2. Develop programs in C language.
3. Design programs for various problems in C language.
4. Solve computing problems using control structures and arrays.

List of Experiments(C Programming-I)

Week 1:

Familiarity with Basic Linux Commands

Week 2:

Using vi editor – Creation of text files

Week 3:

Write simple programs using scanf() and printf() functions and familiarity with format strings.

Week 4:

Write programs to illustrate Operators

Week 5:

Write programs to illustrate If statements

- **a)** To find largest and smallest of given numbers
- **b)** To find the roots of the quadratic equation.

Week 6:

- **a)** Write a C program, which takes two integer operands and one operator from the user, performs the operation and then prints the result. (Consider the operators +,-,*, /, % and use Switch Statement)
- **b)** Write a C program to calculate the following Sum:
  Sum=$1-x^2/2! + x^4/4!-x^6/6!+x^8/8!-x^{10}/10!$

Week 7:

Write programs on while and do..while loops

- **a)** Program to find the sum of the individual digits of a given positive integer.
- **b)** Program to generate the first n terms of the Fibonacci sequence
- **c)** Program to check the given no is Palindrome or not

Week 8:

Write programs on for loop and nested loops.

- **a)** To generate sum of n natural numbers
- **b)** To generate Pascal triangle
- **c)** To generate all the prime numbers between 1 and n

Week 9 & 10:

- **a)** Program to find the minimum and maximum element of an array.
- **b)** Program to search for given element in an array.
- **c)** Program to convert Binary number to Decimal number and vice-versa.

Week 11:

a) Program to perform Addition of Two Matrices
b) Program to perform Multiplication of Two Matrices

Week 12:

a) Implement string manipulation functions
b) Write a C program to accept a string of any characters and display the number of vowels in that string
c) Display number of words and characters in a string.

Week 13 & 14:

a) Implement categories of user defined functions
b) Implement recursive and non recursive functions
   i. To find the factorial of a given integer.
   ii. To find the GCD (greatest common divisor) of two given integers.

Week 15:

Implementation of parameter passing Techniques

a) Call by value
b) Call by reference

Week 16:

Review and Revision

TEXT BOOKS:

1. C Programming & Data Structures, E. Balagurusamy,4th Edition, TMH.
2. A Structured Programming Approach using C, B.A.Forouzan and R.F. Gilberg, Third Edition, Cengage Learning.

REFERENCE BOOKS:

1. Let Us C, Yashavant P. Kanetkar, BPB Publications.
2 Computer System & Architecture, M.Morris Mano, 3 rd Edition 2006.

3. Programming in C , Reema Thareja , 2nd Edition Oxford University Press 2015.

COURSE OUTCOMES SEMESTER II

Students will be able to:

1 Implement various sorting and searching algorithms
2 Design solutions using derived data types and user defined data types- structures, arrays, Pointers.
3 Implement dynamic memory allocation for effective memory utilization
4 Implement linear data structures-list,stack and queue
5 Apply various file handling techniques for better data management

List of Experiments(C Programming-II)

Week 1:

a. Implementaion of Linear Search
b. Implementaion of Binary Search.

Week 2:

a. Implementaion of Binary Search using Recursion.
b. Implementaion of Bubble Sort

Week 3:

a. Implementation of Selection Sort
b. Implementation of Insertion Sort

Week 4:

Write programs to illustrate pointers

a) To implement pointer arithmetic
b) To implement pointer to pointer
c) To implement array of pointers

Week 5:

Write C program to illustrate String Handling functions using pointers- to copy, concatenate, compare, reverse and length.

Week 6:

Basic programs in structures- student details, employee details, Inventory management using array of structures.

Week 7:

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

i) Reading a complex number

ii) Writing a complex number

iii) Addition of two complex numbers

iv) Multiplication of two complex numbers

(Note: represent complex number using a structure.)

b) Write a C program to illustrate nested structures

Week 8:

Review and Revision.

Week 9:

a) Write C programs to illustrate unions
b) Write C programs to illustrate Enumerated data type

Week 10:

a) Write C program to display the contents of a file.
b) Write C program to count the no of characters ,words and lines of a text file
c) Write C program to implement command line arguments

Week 11:

a) Write C program to merge two files into a third file (i.e., the contents of the first file

Followed by those of the second are put in the third file)

b) Write C program to reverse the first n characters in a file.

(Note: The file name and n are specified on the command line.)

Week 12:

a) Write C program to illustrate Stack operations using arrays

b) Write C program to illustrate Queue operations using arrays

Week 13:

Write C program to implement the operations of Single Linked List

Week 14:

a) Write C program to illustrate Stack operations using Linked List.
b) Write C program to illustrate Queue operations using Linked List

Week 15:

Review and Revision.

TEXT BOOKS:

1. Computer Programming & Data Structures, E.Balagurusamy, 4th edition, TMH.
2. Computer Science: A Structured Programming Approach Using C, B.A.Forouzan and R.F.Gilberg, Third Edition, Cengage Learnimng.

REFERENCE BOOKS:

1.Understanding Pointers in C, Yashavant P.Kanetkar,3rd Edition , BPB Publications. 2006.

2. Programming in C , Reema Tahreja,2nd Edition,Oxford University Press 2015.

3. Theory and Problems of Data Structures, Seymour Lipschutz ,Mc Graw Hill,1986.