**RAJAGIRI SCHOOL OF ENGINEERING & TECHNOLOGY**

**DEPARTMENT OF INFORMATION TECHNOLOGY**

**CS120 Computer Programming Lab  
KTU Semester 2**

**LAB CYCLE (2018-22 BATCH)**

**Week-I Basic C Programs**

1. Write a program to read a floating point number from keyboard and print its integer and fractional part separately.
2. Write a program to convert a given temperature in Celsius to Fahrenheit.
3. Write a program to compute the circumference and area of a circle.
4. The total distance travelled by vehicle in ‘t’ seconds is given by distance = ut+1/2at2 where ‘u’ and ‘a’ are the initial velocity (m/sec.) and acceleration (m/sec2). Write C program to find the distance travelled at regular intervals of time given the values of ‘u’ and ‘a’. The program should provide the flexibility to the user to select his own time intervals and repeat the calculations for different values of ‘u’ and ‘a’.

**Week -II Decision Making and Branching**

1. Write a program to implement a simple calculator.
2. Find whether a number is divisible by 7 .

*Hint: To find if a number is divisible by 7, double the digit in the ones place and subtract from the number formed by the remaining digits. If the difference is divisible by 7 then the number is also divisible by 7. ( Use if –else)*

1. Write a program for find the max and min from the three numbers.
2. Write a menu driven program to find the area of the following geometrical shapes.
   1. Rectangle b. Circle c. Triangle d. *Square (modify the program using* ***do-while*** *in week III)*

**Week -III Looping**

1. Write a program to reverse a number and check whether it is palindrome. (use ***while*** loop)
2. Write a program to compute the sine series (sin(x) =x- x3/3! + x5/5!-…….). (use ***for*** loop)
3. Write a program to check whether the given number is Armstrong or not.
4. Write a program to generate all prime numbers between a given range. (use ***nested*** loops)
5. Write a program to implement Pascal’s triangle. (use nested ***for*** loop)

**Week -IV Arrays**

1. Write a program to find the maximum and minimum number in the array.
2. Write a menu driven program to do the following operations on an array of size N
3. Insertion at a particular position
4. Deletion of a particular element from an array
5. Display the elements in the array
6. Exit
7. Write a menu driven program to do the following operations on an n x n matrix
8. Matrix addition.
9. Sum of diagonal elements
10. Transpose of a matrix.

**Week-V Strings**

1. Write a program to count the number of occurrences of a particular character in a given string.
2. Write a program to replace a substring with another in a given sentence.

**Week-VI Structures**

* 1. Create an array of structures for storing student information. Each student’s information contains name, roll no, mark1, mark2, mark3 and mark4. Write a menu driven program to:

1. Insert details of a student.
2. List the names of the students who have failed in more than 2 subjects.
3. List the class topper and subject wise topper.

NB: Assume all marks are out of 50 and pass mark is 50%

* 1. Write a program to add two polynomials.
  2. Write a program to implement an information management system for the employees. Each employee is associated with emp.number, name and salary. Sort the list with respect to salary.(Extra Question)

**Week-VII Pointers**

* + 1. Program to search an element from an array of n numbers using pointers.
    2. Write a program to sort the names of the students in a class in the lexicographic order using pointers.

**Week-VIII Functions**

* + - 1. Write a program to swap two numbers using

1. Pass by Value
2. Pass by Reference

2. Write a program using recursive function to find the GCD of two numbers.

3. Write a C program to search a particular element from a list of n numbers using Binary search. Sort the list using Bubble sort. (Use pointer to function)

**Week -IX Files**

1.Write a program to copy the contents of one file to another.

* + - 1. Write a program to read a text file and print the vowels that has the most number of occurrences.

**Week XI Memory allocations, Command line arguments, micro project evaluation**

* + - * 1. Write a C Program to Add two numbers using Command Line Arguments
        2. **Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using malloc() function**

*\*\*\*\*The students can individually or as team, can to do a micro-project using C language.*

**Lab in Charges:**

**Ms. Nikhila T Bhuvan**

Ms. Mathews Abraham

Ms.Neeba E A **Approved by**

Ms. Lakshmi K S Ms. Saritha S(HOD,IT)