SREENIVASA INSTITUTE of TECHNOLOGY and MANAGEMENT STUDIES

MCA I - I Semester	**L**	**P**	**C**
	0	**3**	**2**

16MCA 114 PROGRAMMING USING C

Course Objective:

1. To acquire knowledge about the basic concept of writing a C program
2. Know the role of constants, variables, identifiers, operators, type conversion and other building blocks of C Language.
3. Use of conditional expressions and looping statements to solve problems associated with conditions and repetitions.
4. Know the role of Functions involving the idea of modularity.
5. Learn concept of Array and pointers dealing with memory management and files
6. Learn about structures and unions

SYLLABUS:

1. Write a C program to find biggest among 3 numbers.
2. Write a C program to find sum of first n numbers.
3. Write a C program to find multiplication table for a given input value.
4. Write a C program to print all prime numbers between 100 and 500.
5. Write a C program to generate Fibonacci series for a given input.
6. Write a C program to obtain sum of the first 10 terms of the following series for any Positive integer value of X: X +X3 /3! +X5/5! ! +X7/7! + …
7. Write a C program to reverse the digits of a given number. For example, the number 9876 should be returned as 6789.
8. Write a C function, str_search(char* s1,char* s2, int n) , that takes two strings and an integer, as arguments and returns a pointer to the nth occurrence of 1st string s1 in 2nd string s2, or NULL if it is not present.
9. Write a C function to remove duplicates from an ordered array. For example, if input array contains 10,10,10,30,40,40,50,80,80,100 then output should be 10,30,40,50,80
10. Apply recursive call in C to do the following:
    (i) Find the factorial of a given number.
    (ii) Compute $^{N}C_{r}$ value
11. Write a C program which will arrange the positive and negative numbers in a one-dimensional array in such a way that all positive numbers should come first and then all the negative numbers will come without changing original sequence of the numbers.
    Example:

Original array contains: 10,-15,1,3,-2,0,-2,-3,2,-9
Modified array: 10,1,3,0,2,-15,-2,-2,-3,-9

12. Write a C program to convert uppercase characters in a string to lowercase without using string function
13. Write a C program to convert the two-dimensional array into one-dimensional array
14. Write a C program for concatenation two strings without using string.h header file.
15. Write a C program to extract words form any text file and store in another file. Sort the words in alphabetical order and store them in the same file. Read the sorted file and print the frequency of each word.
16. Write a C program to find Binary Equivalent of a given number.
17. Write a C program that converts Roman numeral into an Arabic integer and vice versa.
18. Write a C program to determine if the given string is a palindrome or not.
19. Write a C program to display the Following pattern called Floyed's Triangle.

```
1
2   3
4   5   6
7   8   9   10
11  12  13  14  15
```

20. Write a C program to print the following patterns

a.
```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
6 6 6 6 6 6
```

b.
```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

c.
```
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
```

21. Write a C program to generate Pascal's triangle
22. Write a C program to construct Pyramid of numbers.
23. Write a C program to perform addition of two given matrices.
24. Write a C program to perform multiplication of two given matrices.
25. Write a C program to find the transpose of a given matrix.
26. Write a C Program to Perform
    a) Linear Search
    b) Binary Search

Course Outcome:

1. Knowledge on the basic concepts of writing a C program.
2. The ability to write C code according to a problem specification
3. Design programs involving decision structures, loops and functions.
4. Understand the difference between call by value and call by reference
5. Understand the dynamics of memory by the use of pointers and file handling.