| PaperCode: ES-153 / ES-154 | Paper: Programming in 'C' Lab. | L | P | C |
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**Marking Scheme:**

1. Teachers Continuous Evaluation: 40 marks
2. Term end Theory Examinations: 60 marks

**Instructions:**

1. The course objectives and course outcomes are identical to that of "Programming in 'C'" as this is the practical component of the corresponding theory paper.
2. The practical list shall be notified by the teacher in the first week of the class commencement under intimation to the office of the office of the Head of Department / Institiution in which the paper is being offered from the list of practicals below. Atleast 8 experiments must be performed by the students

1. Write a program to find divisor or factorial of a given number.

2. Write a program to find sum of a geometric series

3. Write a recursive program for tower of Hanoi problem

4. Write a recursive program to print the first m Fibonacci number

5. Write a menu driven program for matrices to do the following operation depending on whether the operation requires one or two matrices

   a. Addition of two matrices
   b. Subtraction of two matrices
   c. Finding upper and lower triangular matrices
   d. Transpose of a matrix
   **e.** Product of two matrices.

6. Write a program to copy one file to other, use command line arguments.

7. An array of record contains information of managers and workers of a company. Print all the data of managers and workers in separate files.

8. Write a program to perform the following operators on Strings without using String functions

   a. To find the Length of String.
   b. To concatenate two string.
   c. To find Reverse of a string.
   d. To copy one string to another string.

9. Write a Program to store records of a student in student file. The data must be stored using Binary File.Read the record stored in "Student.txt" file in Binary code.Edit the record stored in Binary File.Append a record in the Student file.

10. Write a programmed to count the no of Lowercase, Uppercase numbers and special Characters presents in the contents of text File.

Note:
1. At least 8 Experiments out of the list shall be performed by the students. Teachers may introduce new experiments for the class in addition to above.
2. In addition Two Mini Projects based on the skills learnt shall be done by the students. Teachers shall create the mini projects so that the same is not repeated every year. These mini projects may be done in a group not exceeding group size of 4 students.
3. Usage of IDE like Visual Studio Community Edition, Codeblocks, etc. are recommended.