

# Shri Ramdeobaba College of Engineering and Management

## Department of Electronics and Computer Science Engineering

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Course: Programming for Problem Solving Code: ECSP101

### LIST OF EXPERIMENT (FIRST YEAR) Session: 2023-24

- 1) Demonstrate basic data types in C and implement arithmetic expressions
  - a. Write a C program to display information like Name, Gender, Branch, Roll Number and Percentage of Previous Examination for a student.
  - b. Write a C program to find area and circumference of a sphere.
  - c. Program to convert temperature from degree centigrade to Fahrenheit
- 2) Implement programs using Decision Control Structures.
  - a. Write a C program to check whether the triangle is Equilateral, Isosceles or Scalene triangle.
  - b. Write a C program to input marks of five subjects Physics, Chemistry, Biology, Mathematics and Computer. Calculate percentage and grade according to following:  
Percentage  $\geq 90\%$  : Grade A  
Percentage  $\geq 80\%$  : Grade B  
Percentage  $\geq 70\%$  : Grade C  
Percentage  $\geq 60\%$  : Grade D  
Percentage  $\geq 40\%$  : Grade E  
Percentage  $< 40\%$  : Grade F
  - c. Write a C program to check whether entered character is digits, special symbol or alphabet and if its is a alphabet wheteher it is a vowel or consonant.
- 3) Demonstrate use of Loop Control Structures
  - a. Write a C program to Count the Number of Digits in a multidigit number entered through keyboard.
  - b. Write Program to find out the sum of series  $1^2 + 2^2 + 3^2 + 4^2 + 5^2 \dots$
  - c. Write a program to find sum of numbers (max 10 nos.) entered through the keyboard.
  - d. Write a C program to print following pattern

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* *
* * *
* * * *
* * * * *
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- 4) Implement programs using Multi-way Decision Control Structures (Switch Case)
  - a. Write a menu driven C program to perform bitwise operations on decimal number.

Choice Code	Action
A	Bitwise AND
B	Bitwise OR
C	Bitwise XOR
D	Bitwise Complement
Otherwise	Invalid Choice

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- b. Write a menu driven program using switch case which has following options:
  - i) Factorial of a number
  - ii) Prime or not
  - iii) Odd or even
  - iv) Exit
- 5) Apply Functions and Recursions to simple programs.
  - a. Write a C program to perform swapping using function.
  - b. Write a C program to find fibonacci series using recursion
  - c. Write a C program to find Sum of Natural Numbers Using Recursion
- 6) Initialize array and apply it to solve 1D and 2D array problems.
  - a. Write a C program to obtain transpose of a 3 x 5 matrix.
  - b. Write a C program to multiply two matrices whose elements as well as number of rows and columns are entered through keyboard.
  - c. Write a C program to implement Selection Sort on 10 numbers entered through keyboard.
- 7) Demonstrate use of Structures and Pointers.
  - a. Using structure write a C program to Calculate Total and Percentage marks of a student using structure.
  - b. Write a C program to swap data, using concept of call by reference
  - c. Write a C program to illustrate how to access the numbers of a structure and modify them in C
- 8) Apply file handling concepts in C.
  - a. Write a C program to Count the number of characters, spaces, tabs and newlines in a file.
  - b. Write a C program to append the contents of one file at the end of another.

Dr. G. A. Morankar/ Prof. V.R. Rathee  
Course Teachers

Dr. (Mrs.) M. A. Hasamnis  
H.O.D.

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