

Core Course CC-105 *CC-102 Practicals

Course Introduction:

Students will be implementing basics of C programming language features like control structures, loops and arrays.

Objectives:

The students would be enable

- 1) To know the practical basics of C Programming.
- 2) To understand practical knowledge of programming in day to day application.

No. of Credits: 3

Practical Sessions per week: 3

Teaching Hours: 40 hours

The students are expected to write program in 'C' language unit wise as given below.

The list in each unit is **indicative only and may or may not be asked in the examination.**

UNIT	TOPICS / SUBTOPICS	TEACHING HOURS
1	Using input and output statements, Operators	10 hours
1	Find the Simple Interest. Inputs are principal amount, period in year and rate of interest.	
2	Find the area and perimeter of square and rectangle. Input the side(s) through the keyboard.	
3	Accept any three numbers and find their squares and cubes.	
4	Write a program to enter the temperature in Fahrenheit and convert it to Celsius. $[C = ((F-32)*5)/9]$	
5	Write a program to store and interchange two float numbers in variables a and b.	
6	Write a program to accept an integer and display it in octal and hexadecimal formats.	
7	Write a program to enter text with gets() and display it using printf() statement also find the length of the text.	
8	Write a program to enter two numbers and find the smallest out of them. Use conditional operator.	
9	Write a program to enter a number and carry out modular division operation by 2, 3 and 4 and display the remainders.	
10	Write a program to find the average temperature of five sunny days. Assume the temperature in Celsius.	
11	Write a program to enter two numbers. Make the comparison between them with conditional operator. If the first number is greater than second perform multiplication otherwise division operation.	
12	Write a program to display numbers from 0 to 9. Use ASCII range 48 to 59 and control string %c.	
13	Write a program to accept number of seconds and display its corresponding hours, minutes and seconds.	

2	Using conditional statements	10 hours
1	Write a program to check whether the number is positive, negative or zero.	
2	Write a program to find the maximum of three integer values.	
3	Write a program to check whether the blood donor is eligible or not for donating blood. The conditions laid down are as under. Use if statement. a) Age should be above 18 yrs but not more than 55 yrs. b) Weight should be more than 45kgs.	
4	Write a program to calculate bill of a job work done as follows. Use if else statement. a) Rate of typing 3 Rs/page b) Printing of 1 st copy 5Rs/pages & later every copy 3Rs/page. The user should enter the number of pages and print out copies he/she wants.	
5	Write a program to enter a character through keyboard. Use switch() case structure and print appropriate message. Recognize the entered character whether it is vowel, consonant or symbol.	
6	Write a program to enter a numeric value with in the range from 1 to 12 and give its corresponding month name.	
7	The ABC Insurance Company Ltd. Offers the following three categories of car insurance policy to car owners: → Category A, here the basic premium is calculated as 2% of the car's value. → Category B, here the basic premium is calculated as 3% of the car's value. → Category C, here the basic premium is calculated as 5% of the car's value. Write a program that accepts the car value and category of insurance from the user and calculates the premium to be paid.	
8	Write a program to implement calculator using switch case.	
9	Write a program to display the grade according to the marks entered by the user using else-if ladder.	
10	Write a C Program to input gender and salary of an employee and check whether salary of an employee is taxable or not.(Salary limit for Male : 1,50,000 and for female : 1,80,000) [Take input gender as 'M' or 'F' and match that.]	
3	Using control statements	10 hours
1	Write a program to accept an integer N. Evaluate the value of series $1 + 1/2^2 + 1/3^3 + 1/4^4 + \dots + 1/N^N$.	
2	Write a program to accept an integer value from the user until a value 999 is entered, count total number of odd and even numbers (excluding 999) from the numbers entered.	
3	Write a program to accept an integer. Generate a series of first N prime numbers.	
4	Write a program that accepts an integer N from the user.	

	Extract and display each digit of the integer in English. For eg. If the user enters 132 then the program should display “one three two”.	
5	Write a program that accepts an integer N. Sum all the digits of the number entered. For eg. if N = 470, then sum of digits N is 11.	
6	Write a program that accepts an integer N. Reverse the number entered and store it in the same variable. For eg. If N = 456 then the new value of N is 654.	
7	Write a program that accepts an integer N, if the integer N = 4, then print the pyramid : <pre style="text-align: center;"> 1 121 12321 1234321 </pre> The pyramid should get modified based on the value of N. For negative values, print the appropriate message.	
8	Write a program that accepts an integer N, if the integer N = 4, then print the pyramid : <pre style="text-align: center;"> 4 4 4 4 3 3 3 2 2 1 </pre>	
9	Program to print the Floyd’s triangle. E.g. if number of rows entered by the user is 4 then output is: <pre style="text-align: center;"> 1 0 1 1 0 1 0 1 0 1 </pre>	
10	Program to print the triangle <pre style="text-align: center;"> * * * * * * * * * * </pre> The user should input the number of rows . E.g. the above should be the output if the user enters 4.	
11	Accept a string from the user and display the following <ul style="list-style-type: none"> • Count of no. of words in the string • No. of letters • No. of digits • No. of special characters. 	
4	Using arrays & Strings	10 hours
1	Write a program to read 10 integers in an array. Find the largest and smallest number.	
2	Write a program to enter five numbers using array and rearrange the array in the reverse order. For eg. Numbers entered are 58324 and after arranging array elements must be 42385	
3	Write a program to read the text. Find out number of lines in it.	

4	Read the marks of five subjects obtained by five students in an examination. Display the top two student's codes and their marks.	
5	Program to sort an Array in ascending order	
6	Program to print Addition of two matrices	
7	Program to print Multiplication of two matrices	
8	Program to count the no. of occurrences of a given character in a sentence.	
9	Program to extract n characters starting from m in a given string. (String, n and m should be provided as inputs).	
10	Program to remove duplicate numbers from a list of numbers and print the list without duplicate numbers. E.g. if the list of numbers is : 45 67 45 89 7 3 6 7 then the output should be 45 67 89 7 3 6 .	
11	Program to sort an Array in descending order	
12	Program to accept a string and number from the user and find if the number and string is palindrome or not.	

Note : The students should maintain the record of typical (not simple ones) programs in their file which duly certified, should be presented at the time of final examination.

Textbook:

Programming In C (Second Edition)
Publication : Pearson Education
by Ashok N. Kamthane

Reference Book :

1. Simplifying C (First Edition 2010)
Publication: Dreamtech
by Harshal Arolkar and Sonal Jain
2. Programming in ANSI C (Fifth Edition 2011)
Publication: Mc Graw Hill
by Balagurusamy
3. Programming in C (First Edition 2011)
Publication: Oxford Higher Education
by Reema Thareja