



RAICHUR UNIVERSITY, RAICHUR

**Under Graduate Curriculum for Degree of
Bachelor of Science (B.Sc) in**

**COMPUTER SCIENCE
(I & II Semester)**

**As per Revised NEP 2024
With Effect from the Academic year from
2024-25 and onwards**

SEMESTER: I

Course Code:	Course Title: Computer Fundamentals and C-Programming
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Course Learning Objectives:

1. This course introduces the concepts of computer basics and programming concepts using C.
2. C programming language also focuses on fundamentals of computer, so that the students will have a basic computer concept.

Course Outcomes: On successful completion of the course, the students shall be able to

1. Understanding the concept of Computers and its Peripheral devices and their coordination.
2. Write, compile and debug programs in C language and use different data types.
3. Design programs Using Control structure and functions.

Unit-I

Introduction to Computer

Fundamentals of Computers: Introduction to computers- Computer Definition , characteristics of Computer, Evolution and History of Computer, Types of Computers, Basic Organization of a Digital Computer; Number System-different types, conversion from one number system to another; Computer codes-BCD, Grey code, ASCII and Unicode; Boolean Algebra-Boolean Operators with truth tables; Types of software , Computer languages, Translator programs-Assembler, Interpreter and compiler; Planning a computer program- Algorithm , Flowchart and Pseudo code with examples.

Unit-II

Overview of C

Introduction, Basic structures of 'C' programs, Programming style, executing a 'C' program, Constants, variables and Data types: 'C' tokens, keywords and identifiers, constants, variables, data types, declarations of variables, assigning values to variables, defining symbolic constants. Operators and expressions: Arithmetic operators, Relational operators, Logical operators, Assignment operators, increment and decrement operators, conditional operators, bitwise operators, special operators, some computational problems, type conversions in expressions, operator precedence and associativity, mathematical functions

Unit-III

Managing input and output operators

Input and output statements, reading character, writing characters, formatted input, formatted output statements. Decision making, Branching and looping: Decision making with if statement, simple if statement, the if-else statement, nesting of if-else statements, else-if Ladder and The switch statement. The ternary Operator, The GOTO statement, The while, do-while and for statements, jumps in loops.

Unit-IV

Arrays and Functions

One dimensional array, two dimensional arrays, initializes two- dimensional array, multidimensional arrays. Handling of character strings: Declaring and initializing string variables , reading string from terminal , writing string to screen, arithmetic operations on characters, putting strings together, Comparison of two strings, string handling functions like strlen, strcpy, strcat, strcmp,strupr, strlwr.

User Defined functions: Need for user defined functions, a multi-functional program, the form of 'C' function, return values and their types, calling a function, category of functions- No arguments and no return values, argument but no return values, arguments with return values, nesting of functions, recursion.

Text Books :

1. E. Balaguruswamy: Programming in ANSI C, 6th edition, Tata McGraw-Hill.
2. Yashawant Kanetkar : ' Let us C', 2011
3. P.B. Kotur "Computer Concepts and C Programming",Sapna Book House (P) 2013 .

References:

1. S. Byron Gottfried: Programming with 'C' Tata McGraw-Hill.
2. Rajesh Hongal : 'Computer Concepts and C Programming, 2008

Course Code:	Course Title: C Programming Lab
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List of Assignments

- 1) Write a C program to read radius of a circle and to find area and circumference.
- 2) Write a C program to read three numbers and find the biggest of three.
- 3) Write a C program to read percentage of marks and to display appropriate message (Demonstration of else if ladder)
- 4) Write a C program to find the roots of quadratic equation (Demonstration of switch case statement)
- 5) Write a C program to read a number, find the sum of the digits, reverse the number and check it for palindrome.
- 6) Write a C program to read marks scored by n students and find the average of marks (Demonstration of single dimensional array)
- 7) Write a C Program to perform addition and subtraction of matrices.
- 8) Write a C program to find the length of a string without using built in function.
- 9) Write a C program to demonstrate string functions.
- 10) Write a C program to check a number for prime by defining isprime() function.
- 11) Write a C program to read, display and add two m x n matrices using function.
- 12) Write a C program to read a string and to find the number of alphabets, digits, vowels, consonants, spaces and special characters.
- 13) Write a C program to swap two variables using functions.
- 14) Write a C program to find factorial of a number using recursion.
- 15) Write a program in C to find the sum of the series $1!/1+2!/2+3!/3+4!/4+5!/5$ using the function.