

C PROGRAMMING FOR PROBLEM SOLVING

Semester	: I/II	CIE Marks	: 40
Course Code	: 18CPS13/23	SEE Marks	: 60
Teaching Hours/week (L:T:P)	: 2:2:0	Exam Hours	: 03
Credits : 03			

Course Learning Objectives:

This course (18CPS13/23) will enable students to:

- Familiarize with writing of algorithms, fundamentals of C and philosophy of problem solving.
- Implement different programming constructs and decomposition of problems into functions.
- Use and implement data structures like arrays and structures to obtain solutions.
- Define and use of pointers with simple applications.

MODULE-I

Introduction to computer Hardware and software: Computer generations, computer types, bits, bytes and words, CPU, Primary memory, Secondary memory, ports and connections, input devices, output devices, Computers in a network, Network hardware, Software basics, software types.

Overview of C: Basic structure of C program, executing a C program. Constant, variable and data types, Operators and expressions,

(RBT Levels : L1 & L2)

MODULE 2

Managing Input and output operations. Conditional Branching and Loops. Example programs, Finding roots of a quadratic equation, computation of binomial coefficients, plotting of Pascals triangle.

(RBT Levels : L1 & L2)

MODULE 3

Arrays: Arrays (1-D, 2-D), Character arrays and Strings, Basic Algorithms: Searching and Sorting Algorithms (Linear search, Binary search, Bubble sort and Selection sort).

(RBT Levels : L1, L2 & L3)

MODULE 4

User Defined Functions and Recursion.

Example programs, Finding Factorial of a positive integers and Fibonacci series.

(RBT Levels : L1, L2 & L3)

MODULE 5

Structure and Pointers, Preprocessor Directives

(RBT Levels : L1, L2 & L3)

Course Outcomes:

The student will be able to :

- Illustrate simple algorithms from the different domains such as mathematics, physics, etc.
- Construct a programming solution to the given problem using C.
- Identify and correct the syntax and logical errors in C programs.
- Modularize the given problem using functions and structures.

Question Paper Pattern:

- The question paper will have ten questions.
- Each full Question consisting of 20 marks
- There will be 2 full questions (with a maximum of four sub questions) from each module.
- Each full question will have sub questions covering all the topics under a module.
- The students will have to answer 5 full questions, selecting one full question from each module.

Textbooks:

1. E. Balaguruswamy, Programming in ANSI C, 7th Edition, Tata McGraw-Hill
2. Brian W. Kernighan and Dennis M. Ritchie, The 'C' Programming Language, Prentice Hall of India.

Reference Books:

1. Sumitabha Das, Computer Fundamentals & C Programming, Mc Graw Hill Education.
2. Gary J Bronson, ANSI C Programming, 4th Edition, Cengage Learning.
3. Dey and Ghosh, Programming in C, 3rd Edition, Oxford University Press.
4. Vikas Gupta: Computer Concepts and C Programming, Dreamtech Press 2013.
5. R S Bichkar, Programming with C, University Press, 2012.
6. V Rajaraman: Computer Programming in C, PHI, 2013.
7. Basavaraj S. Anami, Shanmukhappa A Angadi, Sunilkumar S. Manvi, Computer Concepts and C Programming: A Holistic Approach to Learning C, Seond edition, PHI India, 2010.