

## Programming in C Semester -I

Theory	4 Hours/Week	4 credit
Practical	3 Hours/Week	1 credit

### Unit – I

Computer Fundamentals: Introduction of Computers, Classification of Computers, Anatomy of a Computer, Memory Hierarchy, Introduction to OS, Operational Overview of a CPU.  
Program Fundamentals: Generation and Classification of Programming Languages, Compiling, Interpreting, Loading, Linking of a Program, Developing Program, Software Development.  
Algorithms: Definitions, Different Ways of Stating Algorithms (Step-form, Pseudo-code, Flowchart), Strategy for Designing Algorithms, Structured Programming Concept.  
Basics of C: Overview of C, Developing Programs in C, Parts of Simple C Program, Structure of a C Program, Comments, Program Statements, C Tokens, Keywords, Identifiers, Data Types, Variables, Constants, Operators and Expressions, Expression Evaluation—precedence and associativity, Type Conversions.

### Unit – II

Input-Output: Non-formatted and Formatted Input and Output Functions, Escape Sequences,  
Control Statements: Selection Statements – if, if-else, nested if, nested if-else, comma operator, conditional operator, switch; Iterative Statements—while, for, do-while; Special Control Statement—goto, break, continue, return, exit.  
Arrays and Strings: One-dimensional Arrays, Character Arrays, Functions from ctype.h, string.h, Multidimensional Arrays.

### Unit – III

Functions: Concept of Function, Using Functions, Call-by-Value Vs Call-by-reference, Passing Arrays to Functions, Scope of Variables, Storage Classes, Inline Functions, and Recursion.  
Pointers: Introduction, Address of Operator (&), Pointer, Uses of Pointers, Arrays and Pointers, Pointers and Strings, Pointers to Pointers, Array of Pointers, Pointer to Array, Dynamic Memory Allocation.


### Unit – IV


User-defined Data Types: Declaring a Structure (Union) and its members, Initialization Structure (Union), Accessing members of a Structure (Union), Array of Structures (Union), Structures versus Unions, Enumeration Types.  
Files: Introduction, Using Files in C, Working with Text Files, Working with Binary Files, Files of Records, Random Access to Files of Records, Other File Management Functions.

Text Pradip Dey, Manas Ghosh, Computer Fundamentals and Programming in C (2e)

### References BOOKS

Ivor Horton, Beginning C  
Ashok Kamthane, Programming in C  
Herbert Schildt, The Complete Reference C  
Paul Deitel, Harvey Deitel, C How To Program  
Byron S. Gottfried, Theory and Problems of Programming with C  
Brian W. Kernighan, Dennis M. Ritchie, The C Programming Language  
B. A. Forouzan, R. F. Gilberg, A Structured Programming Approach Using C



  
2019  
**CHAIRMAN**  
**Board of Studies**  
Department of Computer Science  
KAKATIYA UNIVERSITY  
WARANGAL-506002 (T.S.)

With Effect from the Academic Year 2019-2020

## C Lab Semester -I

Practical

3 Hours/Week


1 credit

- 1 Write a program to find the largest two (three) numbers using if and conditional operator.
- 2 Write a program to print the reverse of a given number.
- 3 Write a program to print the prime number from 2 to n where n is given by user.
- 4 Write a program to find the roots of a quadratic equation using switch statement.
- 5 Write a program to print a triangle of stars as follows (take number of lines from user):  

```
      *
     ***
    *****
   ********
  **********
```
- 6 Write a program to find largest and smallest elements in a given list of numbers.
- 7 Write a program to find the product of two matrices..
- 8 Write a program to find the GCD of two numbers using iteration and recursion.
- 9 Write a program to illustrate use of storage classes.
- 10 Write a program to demonstrate the call by value and the call by reference concepts.
- 11 Write a program that prints a table indicating the number of occurrences of each alphabet in the text entered as command line arguments.
- 12 Write a program to illustrate use of data type enum.
- 13 Write a program to demonstrate use of string functions string.h header file.
- 14 Write a program that opens a file and counts the number of characters in a file.
- 15 Write a program to create a structure Student containing fields for Roll No., Name, Class, Year and Total Marks. Create 10 students and store them in a file.
- 16 Write a program that opens an existing text file and copies it to a new text file with all lowercase letters changed to capital letters and all other characters unchanged.

Note Write the Pseudo Code and draw Flow Chart for the above programs.  
Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows 10.



  
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