

Subject Code	Subject Name	Credits
26CS001	C PROGRAMMING	4

Course Objectives:

This course is designed to provide a comprehensive study of the C programming language. It stresses the strengths of C, which provide students with the means of writing efficient, maintainable, and portable code. To learn and acquire art of computer programming. To know about some popular programming languages and how to choose Programming language for solving a problem.

Learning Objectives:

On successful completion of the course, students will be able to:

1. Understand the basic terminology used in computer programming
2. Write, compile and debug programs in C language
3. Design programs involving decision structures, loops and functions
4. Understand the dynamics of memory by the use of pointers and Structures
5. Use different data structures and create/update basic data files.

Unit 1 - BASICS OF COMPUTER HARDWARE AND SOFTWARE (12 hrs.)

Basics of Computer Architecture: processor, Memory, Input & Output devices Application Software & System software: Compilers, interpreters, High level and low level languages Introduction to structured approach to programming, Flow chart Algorithms, Pseudo code.

Unit 2 - PROGRAM BASICS (12 hrs.)

Basic structure of C program: Character set, Tokens, Identifiers in C, Variables and Data Types, Constants, Console IO Operations, printf and scanf, Operators and Expressions: Expressions and Arithmetic Operators, Relational and Logical Operators, Conditional operator, size of operator, Assignment operators and Bitwise Operators. Operators Precedence Control Flow Statements: If Statement, Switch Statement, Unconditional Branching using goto statement, While Loop, Do While Loop, For Loop, Break and Continue statements.

Unit 3 - ARRAYS AND STRINGS (12 hrs.)

Declaration and Initialization, 1-Dimensional Array, 2-Dimensional Array String processing: In built String handling functions (strlen, strcpy, strcat and strcmp, puts, gets) Linear search program, bubble sort program, simple programs covering arrays and strings.

Unit 4- WORKING WITH FUNCTIONS (12 hrs.)

Introduction to modular programming, writing functions, formal parameters, actual parameters Pass by Value, Recursion, Arrays as Function Parameters structure, union, Storage Classes, Scope and life time of variables, simple programs using functions

Unit 5 - POINTERS AND FILES (12 hrs.)

Basics of Pointer: declaring pointers, accessing data through pointers, NULL pointer, array access using pointers, pass by reference effect File Operations: open, close, read, write, append Sequential access and random access to files: In built file handling functions (rewind(), fseek(), ftell(), feof(), fread(), fwrite()), simple programs covering pointers and files.

Reference Books:

1. Schaum Series, Gottfried B.S., Tata McGraw Hill, Programming with C
2. E. Balagurusamy, McGraw Hill, Programming in ANSI C
3. Asok N Kamthane, Pearson, Programming in C
4. Anita Goel, Pearson, Computer Fundamentals