

Course Code:	Course Title: C Programming Concepts
Course Credits: 03	Hour of Teaching/Week: 03
Total Contact Hours: 45	Formative Assessment Marks:
Exam Marks:	Exam Duration:

Course Outcomes (COs):

After completing this course satisfactorily, a student will be able to:

- Confidently operate Desktop Computers to carry out computational tasks
- Read, understand and trace the execution of programs written in C language
- Write the C code for a given problem
- Perform input and output operations using programs in C
- Write programs that perform operations on arrays

Course content:

Unit 1:

5 Hrs

Introduction to Problem Solving: Computer Languages - Machine Level, Assembly Level & High Level Languages, Translator Programs – Assembler, Interpreter and Compiler; Planning a Computer Program – Algorithm and Flowchart with Examples.

Unit 2:

5Hrs

Introduction to C Programming: Over View of C; History and Features of C; Structure of a C Program with Examples; Creating and Executing a C Program; Compilation process in C.

C Programming Basic Concepts: C Character Set; C tokens - keywords, identifiers, constants, and variables; Data types; Declaration & initialization of variables; Symbolic constants. Input and output with C: Formatted I/O functions - printf and scanf.

Unit 3:

15Hrs

C Operators & Expressions: Arithmetic operators; Relational operators; Logical operators; Assignment operators; Increment & Decrement operators; Bitwise operators; Conditional operator; Special operators; Operator Precedence and Associativity; Evaluation of arithmetic expressions; Type conversion.

Control Structures: Decision making Statements - Simple if, if_else, nested if_else, else_if ladder, Switch-case, goto, break & continue statements; Looping Statements - Entry controlled and Exit controlled statements, while, do-while, for loops, Nested loops.

Unit 4:**10Hrs**

Arrays: One Dimensional arrays - Declaration, Initialization and Memory representation; Two Dimensional arrays - Declaration, Initialization and Memory representation. Strings: Declaring & Initializing string variables; String handling functions -strlen, strcmp, strcpy and strcat; Character handling functions - toascii, toupper, tolower, isalpha, isnumeric etc.

Unit 5:**10 Hrs**

User Defined Functions: Need for user defined functions; Format of C user defined functions; Components of user defined functions - return type, name, parameter list, function body, return statement and function call; Categories of user defined functions - With and without parameters and return type.

Text Books

1. Pradeep K. Sinha and Priti Sinha: Computer Fundamentals (Sixth Edition), BPB Publication
2. E. Balgurusamy: Programming in ANSI C (TMH)

References

1. Kamthane: Programming with ANSI and TURBO C (Pearson Education)
2. V. Rajaraman: Programming in C (PHI – EEE)
3. S. ByronGottfried: Programming with C (TMH)
4. Kernighan & Ritchie: The C Programming Language (PHI)
5. Yashwant Kanitkar: Let us C