

**UNIT I**

10Hrs

Programming Languages and its Classification, Compiler, Interpreter, Linker, Loader.  
Problem Solving: Problem Identification, Analysis, flowcharts, Pseudo codes and algorithms, Program Coding, Program Testing and Execution. Examples of flow charts and algorithms- Largest of three numbers, reversing the digits of an integer, base conversion, GCD of two integers, generating prime numbers, sine function computation, computing nth Fibonacci numbers.

**UNIT II**

10Hrs

Overview of C: C character set, identifiers and keywords, Data types, Constants and Variables, Assignment statement, Symbolic constant, Structure of a C Program, printf(), scanf() Functions, Operators & Expression: Arithmetic, relational, logical, bitwise, unary, assignment, shorthand assignment operators, conditional operators and increment and decrement operators, Arithmetic

expressions, evaluation of arithmetic expression, type casting and conversion, operator hierarchy & associativity.

**UNIT III**

10Hrs

Decision making & branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, goto statement. Decision making & looping: For, while, and do-while loop, jumps in loops - break, continue statement, Nested loops.  
Functions: Standard Mathematical functions, Input/output: Unformatted & formatted I/O function in C. User defined functions: definition, prototype, Local and global variables, passing parameters, recursion.

**UNIT IV**

10Hrs

Arrays, strings and pointers: Definition, types, initialization, processing an array, passing arrays to functions, Array of Strings. String constant and variables, Declaration and initialization of string, Input/output of string data, Storage classes in C: auto, extern, register and static storage class, their scope, storage, & lifetime.  
String Handling: String Library Functions: strlen, strcat, strcmp, strcpy, strcmp.

**UNIT V**

10Hrs

Structure & Union: Definition of Structure, Declaring Structure, Accessing Structure Elements, Array of Structure, Nesting of Structure. Definition of Union, declaring and using Union. Difference between Structure & Union.  
Error Handling during I/O Operations, Command Line Arguments, Documentation, debugging, C Processors, Macros.

**References:**

1. Gill Nasib Singh, Computing Fundamentals and Programming in C, Khanna Books Publishing Co., New Delhi.
2. Balagurusamy E., Computing Fundamentals and C Programming, Tata McGraw Hill.
3. Stephen G. Kochan, Programming in Ansi C, Sams Publishing
4. Kenneth. A., C problem solving and programming, Prentice Hall.
5. R.G. Dromey, How to Solve it by Computer, Pearson Education

**Additional reading**

6. Anil V. Chouduri, The Art of Programming through Flowchart and Algorithms, Laxmi Pub.
7. Gottfried, Byron S., Programming with C, Tata McGraw Hill.
8. E. Balaguruswamy, Programming in ANSI C, McGrawhill.
9. Ashok N. Kamthane, Programming in C, Pearson Education.
10. [www.cprogramming.com](http://www.cprogramming.com)