

## PROGRAMMING CONCEPTS Using C

**1.0 Computer Programming** : Basic Programming concepts - Algorithm, Flowcharts, Modular Programming and structured programming.

### **2.0 'C' PROGRAMMING**

**2.1** Problem solving using Computers, Concept of flowcharts & algorithms.

**2.2** Overview of C : Introduction, Importance of 'C', Sample 'C' Programs, Basic structure of 'C' programs, Programming style, Executing a 'C' Program.

**2.3** Constants, Variables and Data types : 'C' Tokens, keywords and identifiers, constants, variables, data types, declaration of variables, assigning values to variables, defining symbolic constants.

**3.0 Operators and expression** : Arithmetic operators, Relational operators. Logical operators, Assignment operators, increment and decrement operators, conditional operators, bitwise operators, special operators, some computational problems, type conversion in expressions, operator precedence and associativity. Mathematical functions.

**3.1 Managing input and output operators** : Input and Output statements, reading a character, writing characters, formatted input, formatted output statements.

**3.2 Decision making, Branching and looping** : Decision making with IF statement, simple IF statement, The IF-ELSE statement, nesting of IF.. ELSE statements, The ELSE –IF ladder, The switch statement, The?: operator, The GOTO statement, The WHILE statement, The DO statement, The FOR statement, jumps in loops.

**4.0 Arrays** : One dimensional arrays, Two-dimensional arrays, initializing two dimensional array, Multidimensional arrays.

**4.1 Handling of character strings** : Declaring and initializing string variables, reading string from terminal, writing string to screen, arithmetic operations on characters, putting strings together. Comparison of two strings, string handling functions-strlen, strcat, strcmp, strcpy

**5.0 User defined functions** : Need for user-defined functions, a multi-functional program, the form of 'C' function, Return values and their types, calling a function, category of functions-No arguments and no return values, arguments but no return values, arguments with return values, handling of non-integer functions, nesting of functions, recursion, functions with arrays.

**6.0 Structure and union** : Structure definition, giving values to members, structure initialization, comparison of structure variables, array as structure, array within structure, union.

**7.0 Pointers** : Understanding pointers, accessing the address of variables, declaring and initializing pointers, accessing a variable through its pointer.

### **Text books :**

1. E. Balaguruswamy : Programming in ANSI C” Tata Mc Graw-Hill (1998)
2. Kamthane, Programming with ANSI and Turbo C. Pearson Education 2003

### **References :**

1. V. Rajaraman.: “Fundamentals of Computers”, PHI (EEE) (1999)
2. V. Rajaraman.: “Programming in C”, PHI (EEE) (2000)
3. S. ByronGottfried. : “Programming with C”, Tata McGraw-Hill(2000)
4. Yashawant Kanetkar : “Let us C”
5. Rajesh Hongal : “Computer Concepts & C language”

6. Brian Kernighan & Dennis M. Ritchie "ANSI C Programming" (PHI)
7. Ramkumar & Rakesh Aggarwal "ANSI C Programming" Tata McGraw Hill
8. Kernighan, C – Programming Language ANSI C Version. Pearson Education.
9. Venkateshmurthy, Programming Techniques through C. Pearson Education.
10. E. Balaguruswamy – Computer Fundamentals and C Programming. TMH 2008
11. Bronson : ANSI C Programming, 1ST Edition, 2008 Cengage Learning India
12. Forouzan : Computer Science A Structured Programming Approach Using C 3 Edition, Cengage Learning India.