

## SEMESTER I

Course Name: C- Programming – I

No. of credits: 05

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**Objectives:** This is a first course in programming. The objective of this paper is to teach the Programming Language C. However, the process of learning a computer language will also be emphasized. Emphasis is also on semantics and problem solving.

### **Learning Outcomes:**

At the end of the course a student should be able to -

- (a) write good programs in C language
- (b) Understand and use C libraries
- (c) Effectively use of Arrays and functions

**Pre-requisites:** XII Standard Mathematics

### **Text Books:**

E.Balagurusamy (2009), Programming with C , Tata McGraw Hill

Yashawant Kanetkar, let Us C, BPB Publication

UNIT I: Learning a Computer Language :

Natural Languages and Computer Languages- Symbols, Alphabet, Vocabulary and Reserved words, High level words and Identifiers, Sentences and Statements, Executable and Non-Executable Statements, Types of Executable Statements- Input Statements,

Assignment and Arithmetic Statements, Control Statements- Sequential, Selection, Iteration Statements, Output Statements, Concepts of a Program and subprogram, Procedures and functions, Syntactic, Semantic, and Logical Errors in a program, Program Correctness- Verification and Validation, Concept of Test Data

UNIT II: Introduction to computer Language C :

Concepts of Machine, Assembly, and Higher Level Languages, Origins of C, Characters and Character Set of C, Tokens in C, The function main()

### UNIT III : Statements in C :

Non-executable Statements in C- Comments and Type Declarations, Data types in C, Input and Output Statements in C- scanf(), printf (),Formatted input and output statements

### UNIT IV : Operators, Precedence, and Associativity :

Operators and operands, Unary and Binary Operators, Concept of Expression, Arithmetic Expressions, Relational Expressions, Assignment Expressions, Evaluation of Expressions, Concepts of Precedence and Associativity, Table of Precedence and Associativity.

### UNIT V : Programming Construct :

Selection Statement in C- if, if..else, conditional operator as a simplification of if..else, Key words case, switch, break, default, go to, Iteration Statement in C- while, for statement, do..while, continue, break

### UNIT VI : Concept of a function :

Function declaration, Function Definition, and Function Use, Local/public variables, Variable Scope, Function types, actual parameters, formal parameters, Call by value, Storage Classes

### UNIT VII : Arrays :

Definition, Random Access to elements -Capacity, Size, Operator [ ], initializing, reading into, writing to and traversing an array, Sorting, searching using array, Two-dimensional Arrays, Arrays as arguments to functions

### UNIT VIII : Strings :

Strings in C and String manipulation functions, Input, output statements for strings, String as arguments to functions, Examples on String manipulation functions