

Teaching Scheme		Examination Scheme				
Theory Hrs.	Practical Hrs.	Theory Hrs.	Theory Marks	Pract./ Viva Marks	Term Work Marks	Total Marks
2	4	3	100	50	50	200

**PART: 1**

**1. Introduction:**

Introduction to computer, organization of computer (block diagram), modes of operation, type of programming languages, basic structure of C program, programming style, execution of C program.

**2. Constants, Variables and Data types in C:**

Character set, C tokens, keywords and identifiers, constants, variables, data types, declaration of variables, value assignment, symbolic constants.

**3. Operator and expression:**

Arithmetic, relational, logical, assignment, increment, decrement, conditional, bit-wise and special operators, arithmetic expression, priority and evaluation type conversion.

**4. Data Input-Output:** Reading and writing a character, formatted input and output.

**5. Control Statement:**

Branching- IF and ELSE statement, nesting, ELSE IF ladder, switch statement, operator, go to statement.

**6. Looping:** WHILE, DO and FOR statement and jump in loops.

**7. Arrays:**

One-dimensional, two dimensional arrays and their initialization, multidimensional array.

**8. Character String:**

Declaring and initializing, reading and writing string, arithmetic operation, combination, comparison and handling of string.

**9. Functions:**

C functions, necessity, categories, calling and nesting of functions, argument with and without return values, recursion, function with arrays, non-integer functions, and their handling.

**10. Structure and Handling:**

Definition, initialization, assignment of values, comparison of structure variables, arrays, structure within structure, structure and functions, unions, size of structure, bit field.

**11. Pointers:**

Introduction, pointer and arrays, pointers and strings, pointers and structures, pointer miscellany.

**12. File Management in C:**

Defining, opening and closing a file, input, output and error handling, random access to file, command line argument.

**PART: 2**

**1. OBJECT ORIENTED CONCEPTS :**

Object Oriented Development, The Object Modeling Technique, Objects And Classes, Generalization And Inheritance, Aggregation.

**2. OBJECT ORIENTED PROGRAMMING STYLE & LANGUAGES:**

Object-Oriented Style, Reusability, Extensibility, Class Definitions, Creating Objects, Calling Operations, Using Inheritance, Implementing Association, Object-Oriented Language Features.

**3. OBJECT ORIENTED LANGUAGES:**

AN EXAMPLE Basic Programming, Output Using Cout, Preprocessor Directives, Variables, Input And Output, Manipulators, Type Conversion, Operators, Library Functions, LOOPS & DECISIONS, Structures, Enumerated Data Types, Simple Functions, Passing Arguments, Overloaded Functions, Inline Functions, Default Arguments, A Simple Class, Objects As Physical Objects & As Data Types, Constructors, Objects As Physical Objects & As Data Types, Constructors Objects As Function Arrays Of Objects, Strings. Function Overloading & Operator Overloading, Overloading Unary Operators, Overloading Binary Operators, Data Conversion, INHERITANCE, Class Hierarchies, Public And Private Inheritance, Levels Of inheritance, Multiple Inheritance, Containership, Classes Within Classes, Pointers, Memory Management, New And Delete, Pointers To Objects, Pointers To Pointers, Debugging Pointers Virtual Function, Friend Functions, Static Functions, Assignment And Copy Initialization, The This Pointer Streams, String I/O, Character I/O, Object I/O, I/O With Multiple Objects, File Pointers, Disk I/O With Member Functions, Error Handling, Redirection, Command Line Arguments, Printer Output, Overloading The Extraction And Insertion Operations, Multi-File-Programs, Using The Project Feature.

- ❖ Practical and term work shall be based on the above topics, giving due weightage to the above topics (minimum 35 practical but practical but preferably 5 practical on each topic)

**REFERENCE BOOKS:**

1. Programming in C By E.Balagurusami, TMH
2. Programming with C++ By Balaguruswamy
3. Programming in C By Byron S.Gottfried, Schoum series, TMH
4. Object Oriented Programming in Turbo C++ By Robert Lafore
5. Understanding pointer in C By Yashwant Kanetkar, BPB