Contents:

Unit-I

Pointers: Introduction, Understanding Pointers, Accessing the address of a variable, Declaration and Initialization of Pointers, Accessing a variable through its pointer, Chain of pointers, Pointer expressions, Pointer Increments and scale factor, Pointers and arrays, Pointers and character strings, Pointers as Function arguments, Functions returning pointers. **8 Hrs**

Unit-II

Structures and Unions: Introduction, Defining a Structure, Declaring structure variables, Accessing structure members, structure initialization, copying and comparing structure variables, Operations on Individual Members, Arrays of structures, Arrays within structures, Structures within structures, Structures and Functions, Self-referential structures, Unions. **8 Hrs**

Unit-III

Storage Classes: Storage class specifiers, Local variable storage class: auto, register, and static. Global variable storage class: default global variable, extern, and static.

Dynamic Memory allocation: Motivation for dynamic memory requirement, Allocating a block of memory – malloc, allocating multiple blocks of memory – calloc, Releasing the used memory – free, Altering the size of a block – realloc. **8 Hrs**

Unit-IV

File Handling: Introduction, Defining an opening a file, Closing a file, Input and Output Operations on Files, Error Handling during IO operations, Random Access to Files, Command line arguments. **8 Hrs**

Unit-V

Sorting: Introduction, Bubble Sort, Selection Sort, Insertion Sort.
Searching: Introduction, Linear Search, Binary Search. **8 Hrs**

Reference Books:

1 E Balagurusamy, "Programming in ANSI C", 6th Edition, Tata McGraw Hill, 2012.
2 Yashavant Kanetkar, "Understanding Pointers in C and C++", 5th Edition, BPB Publications, 2019.
3 Reema Thareja, "Computer fundamentals and Programming in C", Oxford University, Second Edition, 2017.
4 B A Forouzan and R F Gilberg, "Computer Program: A structured programming approach using C", 3rd Edition, Thomson Learning, 2005
5 Brain W. Kernighan and Rob Pike, "The Practice of Programming", Pearson Education Inc. 2008.