CS6202 PROGRAMMING AND DATA STRUCTURES I   **L T P C 3 0 0 3**

UNIT I C PROGRAMMING FUNDAMENTALS- A REVIEW 9

Conditional statements – Control statements – Functions – Arrays – Preprocessors - Pointers -Variation in pointer declarations – Function Pointers – Function with Variable number of arguments

UNIT II C PROGRAMMING ADVANCED FEATURES 9

Structures and Unions - File handling concepts – File read – write – binary and Stdio – File Manipulations

UNIT III LINEAR DATA STRUCTURES – LIST 9

Abstract Data Types (ADTs) – List ADT – array-based implementation – linked list implementation –singly linked lists- circularly linked lists- doubly-linked lists – applications of lists –Polynomial Manipulation – All operation (Insertion, Deletion, Merge, Traversal)

UNIT IV LINEAR DATA STRUCTURES – STACKS, QUEUES 9

Stack ADT – Evaluating arithmetic expressions- other applications- Queue ADT – circular queue implementation – Double ended Queues – applications of queues

UNIT V SORTING, SEARCHING AND HASH TECHNIQUES 9

Sorting algorithms: Insertion sort - Selection sort - Shell sort - Bubble sort - Quick sort - Merge sort -Radix sort – Searching: Linear search –Binary Search Hashing: Hash Functions – Separate Chaining – Open Addressing – Rehashing – Extendible Hashing.

TEXT BOOKS:

1. Brian W. Kernighan and Dennis M. Ritchie, "The C Programming Language", 2nd Edition, Pearson Education, 1988.

2. Mark Allen Weiss, "Data Structures and Algorithm Analysis in C", 2nd Edition, Pearson Education, 1997.

REFERENCES:

1. Thomas H. Cormen, Charles E. Leiserson, Ronald L.Rivest, Clifford Stein, "Introduction to Algorithms", Second Edition, Mcgraw Hill, 2002.

2. Reema Thareja, "Data Structures Using C", Oxford University Press, 2011

3. Aho, Hopcroft and Ullman, "Data Structures and Algorithms", Pearson Education,1983.

4. Stephen G. Kochan, "Programming in C", 3rd edition, Pearson Ed.,