

CSPT202 – Data Structures
B.Sc. (P) II semester
(4+1 Lectures per Week)

Exam : 3 Hours, 100 Marks

Theory Syllabus

Stacks: Definition of stack, array implementation of stack, conversion of infix expression to prefix, postfix expressions, evaluation of postfix expression, Introduction to Recursion, solving problems using recursion, Use of stacks in recursion

Queues: Definition of Queue, circular queues, priority queues, array implementation of queues

Linked lists: Linked List and its implementation, Link list implementation of stack and queue, Circular and doubly linked list

Trees: Intro to trees, Binary search tree, preorder, postorder and inorder traversal

Searching and sorting: Insertion sort, selection sort, bubble sort, merge sort, Linear Search, binary search

Complexity Analysis of algorithms

Guidelines

Ref [1]

Chapters (No. and Name)	Sections/ Page Numbers	Sugg. Hrs
6 – Sorting	6.1, Insertion sort, selection sort, bubble sort	6
7 - Searching	Linear Search, binary search	4
2 – The Stack	Complete	11
3 – Recursion	3.1 - Recursive definition of factorial, fibonacci sequence, multiplication of natural numbers and binary search	07
4 – Queques and Lists	4.1, 4.2 4.5 Overview of Circular and doubly linked list only	10
5 - Trees	5.1	10
	Total	48 hrs.

NOTE : Complexity of all algorithms to be discussed.

References :

[1] Y. Langsam, M.J.Augenstein, A.M.Tanenbaum Data Structures using C and C++ , Second edition, Pearson Education

[2] Sartaj Sahni, Data Structures, algorithms and applications in C++, McGraw Hill

[3] Adam Drozdek, Data Structures and Algorithms in C++, Second edition, Vikas Publishing House