I B.Sc, (CS)	FUNDAMENTALS OF DATA STRUCTURES	CS204S
SEMESTER – II		HRS/WK-4
CORE – 4		CREDIT - 3

Objective:

This subject will make the student to get acquire with different storage techniques and also make them to implement the logic using different algorithms.

UNIT –I **10 hrs**

Introduction to Data structure : Definition of a Data structure - Primitive and Composite Data types, Arrays, Operations on Arrays - Order Lists.

Unit-II **10 hrs**

Stacks and Queus: Stacks – Operation - Application of Stack - Infix to Postfix Conversion - Queues- Operations on Queues, Queue Applications - Circular Queue.

Unit – III **15 hrs**

Linked List: Singly Linked List - Representation of a Polynomial - Polynomial addition - Doubly Linked List.

Unit – IV **15 hrs**

Trees: Binary trees - Representation – Conversion of Forest to Binary tree - Tree Traversals

Unit – V **10 hrs**

Graphs: Definition – Graph Representation - Types of Graphs - Shortest Path (Dijikistras Algorithm).

Text Books:

1. E. Horowitz, S.Sahni and Mehta – Fundamentals of "Data structures in C++" Galgotia.

2. R.Kruse and N.Dale and S.C. Lily – Pascal plus Data Structures Algorithms and Advanced Programming – Tata McGrawHill – New Delhi .
3. Data structures using C and C++ by Langsam, Augenstein and Tanenbaum, PHI/Pearson Education.

Reference Books:

1. S.E Goodman and S.T. Hedetniemi, Introduction to the Design and Analysis of Algorithms, Mc Graw Hill, International Edition.Data Structures and Algorithm Analysis in C++ by Mark Allen Weiss, Pearson Education.

B. Sc. Computer Science

Time: 3 Hrs Max. Marks: 75

Section – A (5 x 5 = 25)

Answer ANY FIVE out of eight.

One question from each unit and three questions from important topics with problems and programs

Section – B (5 x 10 = 50)

Answer ANY FIVE out of EIGHT.

One question from each unit and three questions from important topics with problems and programs