Branch: B.Sc.(IT)	**Semester-II**
Subject Code: 2103	**Lecture: 04** **Credit: 04**
Course Opted	**Core Course- 5(Theory)**
Subject Title	**Data Structures using 'C'**

Module	Sr.. No.	Topic and Details	No of Lectures Assigned	Marks Weight age %
UNIT-I	1	Introduction to data structure, Classification of data structure, Operations performed on data structures	4	20
	2	Algorithm Analysis • Algorithm Characteristics, Space complexity, Time complexity. • Asymptotic notation(Big O, 0, Omega and Theta	6	
	3	Arrays • Linear data structure, arrays, operations on an array,two dimensional arrays, multi dimensional arrays. • Searching, Sequential and binary search. • Sorting, bubble sort, insertion sort, selection sort	8	16
UNIT-II	4	Linked Lists • Linked list, static representation, dynamic representation • Circular linked list, Insertion and deletion operations • doubly linked list,	6	12
	6	Stacks • Stacks representation, static and dynamic operation, • Polish Notation, Postfix expression evaluation, Conversion into other notations , recursive function	5	10
UNIT-III	7	Queue • Queue representation static and dynamic, operation, • Circular queue, Deque, Priority queues.	5	10
	8	Trees • Trees, Binary tree ,Traversal (Inorder,Preorder,Postorder), Memory representation • Binary search tree, • Heap,Heap sort, height balanced trees—AVL trees	6	12

UNIT-IV	9	Graphs, • Representation, adjacency matrix, adjacency list, adjacency multi –list, • Depth first search, • Breadth first search • Minimum spanning tree	6	12
	10	Hash tables, hashing and collision resolution techniques	4	8
Total			50	100%

Text Book: Data Structure by Lipshutz ,Schaum's Outline, MCGRAW-HILL, 1986
References:
- Fundamentals ofData Structure - Horowitz and Sahani, 2004
- Data Structure in C – Tanenbaum, 2003
- Fundamentals of computer algorithms – Horowitz and Sahani. 2nd Edition, 2008
- Classic Data Structure - D. Samanta, PHI publication, 2nd Edition, 2009
- Data management and File Structure - Mary E.S. Loomis. PHI, 1990