Department of Computer Science
Lesson Plan Session 2024-2025
BA Semester-II

Data Structure Using C (C24COS201T)

Feb 2025 to May 2025	Topics
1st Week	Data Structures Definition and its types, Data Structure operations, Static and dynamic memory storage, Algorithms complexity and time-space trade-off, Big-O notation
2nd week	Strings: Introduction, storing strings, String operations, Pattern matching algorithms.
3rd Week	Arrays: one-dimensional arrays, matrices, sparse matrices, multi-dimensional arrays, operations on arrays,
4th Week	Linear search, Binary search, Insertion sort, selection sort, Bubble sort, Merge sort.
5th Week	Linked List: Array vs linked list, Types (singly, doubly, singly circular, header, doubly circular,),
6th Week	Operations on Lists – create, insert, delete, search, Applications of linked lists.
7th Week	Stack: Definition, Array implementation of stacks, Linked implementation of stacks, Applications of Stacks: Infix, Postfix and prefix expression
8th Week	conversions and evaluation of expressions, Recursion, Quick Sort.
9th Week	Queue: Definition, Array implementation of queues, Linked implementation of queues, Circular queues
10th Week	Priority queues, Double-ended queues, Applications of queue.
11th Week	Trees: Binary Trees and their properties, Linked and static Representation of binary trees, Complete Binary Tree, Threaded Binary tree, Different tree traversal algorithms, Binary Search Tree (create, delete, search, insert, display).
12th Week	Graph: Definition, Array and linked representation of graphs, Graph Traversal (BFS and DFS), Adjacency matrix and adjacency lists, path matrix, Finding Shortest Path - Warshall's Algorithm
13th Week	Doubt Clearance