Govt. College For Women, Karnal
Lesson Plan (2024-25) [Even Semester]

Class: BCA-II year
Subject: Data Structures and Applications
Name of Assistant Professor: Ms. Bhanu Priya

Week I (10th Feb to 12th Feb)

Data Structure Definition, Data Type vs. Data Structure, Classification of Data Structures, Data Structure Operations, Applications of Data Structures

Week II (17th Feb to 19th Feb)

Algorithm Specifications: Performance Analysis, Measurement (Time and Space Analysis of Algorithms- Average, Best and Worst Case Analysis).

Week III (24th Feb to 26th Feb)

Arrays: Introduction, Linear Arrays, Representation of Linear Array in Memory, Two Dimensional and Multidimensional Arrays, Sparse Matrix and its Representation

Week IV (3rd march to 5th March)

Operations on Array: Algorithm for Traversal, Selection, Operations on Array: Insertion, Deletion and its implementation.

Week V (17th march to 19th March)

String Handling: Storage of Strings, Operations on Strings viz., Length, Concatenation, Substring, Insertion, Deletion, Replacement, Pattern Matching

Week VI (24th March to 26th March)

Linked List: Introduction, Array vs. linked list, Representation of linked lists in Memory, Traversing a Linked List, Insertion, Deletion

Week VII (31st march to 2nd April)

Searching into a Linked list, Type of Linked List. Stack: Array Representation of Stack, Linked List Representation of Stack, Algorithms for Push and Pop

Week VIII (7th April to 9th April)

Application of Stack: Polish Notation, Stack: Postfix Evaluation Algorithms, Infix to Postfix Conversion, Infix to Prefix Conversion, Recursion.

Week IX (14th April to 16th April)

Introduction to Queues: Simple Queue, Double Ended Queue, Circular Queue, Priority Queue, Representation of Queues as Linked List and Array,

Week X (21st April to 23rd April)

Applications of Queue. Algorithm on Insertion and Deletion in Simple Queue and Circular Queue.

Week XI (21st April to 23rd April)

Priority Queues., Tree: Definitions and Concepts, Representation of Binary Tree, Binary Tree Traversal (Inorder, postorder, preorder),

XII (28th April to 30th April)

Binary Search Trees – Definition, Operations viz., searching, insertions and deletion

Week XIII (5th May to 7th May)

Searching and Sorting Techniques, Sorting Techniques: Bubble sort, Selection sort, Insertion Sort

Merge sort, , Quick sort,. Searching Techniques: Sequential Searching

Week XV (19th May to 21st May) Binary Searching. & Revision

Week XVI (26th May to 28th May) Revision