

# Lesson Planning

Name of Faculty :Jyoti  
 Dicipline :CE  
 Subject :Data structure  
 Lesson Plan dura :16 weeks(Jan'2020-July'2020)  
 Work load (Lecture/Practical) per week (in hours):Lectures-03,Practicals-02

| Week | Theory      |                                                                                   | Practical     |                                                                                                                            |
|------|-------------|-----------------------------------------------------------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------|
|      | Lecture day | Topic(Including assignment/test)                                                  | Practical Day | Topic                                                                                                                      |
| 1    | 1           | Problem solving concept, top down and bottom up design, structured programming    | 1             | Sorting an array                                                                                                           |
|      | 2           | Concept of data types, variables and constants                                    |               |                                                                                                                            |
|      | 3           | Concept of pointer variables and constants                                        |               |                                                                                                                            |
| 2    | 4           | Concept of Arrays,                                                                | 2             | The addition of two matrices using functions                                                                               |
|      | 5           | Single dimensional array                                                          |               |                                                                                                                            |
|      | 6           | Two dimensional array                                                             |               |                                                                                                                            |
| 3    | 7           | Storage Representation of Multi dimensional Array                                 | 3             | The multiplication of two matrices                                                                                         |
|      | 8           | Operations on array                                                               |               |                                                                                                                            |
|      | 9           | searching,                                                                        |               |                                                                                                                            |
| 4    | 10          | traversing,                                                                       | 4             | Push and pop operation in stack                                                                                            |
|      | 11          | Inserting                                                                         |               |                                                                                                                            |
|      | 12          | deleting                                                                          |               |                                                                                                                            |
| 5    | 13          | Introduction to linked list and double linked list                                | 5             | Inserting and deleting elements in queue,Inserting and deleting elements in circular queue                                 |
|      | 14          | Representation of linked lists in Memory                                          |               |                                                                                                                            |
|      | 15          | Operations of Linked list , Traversing a linked list                              |               |                                                                                                                            |
| 6    | 16          | Revision                                                                          | 6             | Insertion and deletion of elements in doubly linked list.Insertion and deletion of elements in linked list                 |
|      | 17          | Insertion and deletion into linked list (At first Node,Specified Position, Last ) |               |                                                                                                                            |
|      | 18          | Application of linked lists                                                       |               |                                                                                                                            |
| 7    | 19          | Doubly linked lists                                                               | 7             | The Factorial of a given number with recursion and without recursion,Fibonacii series with recursion and without recursion |
|      | 20          | Traversing a doubly linked lists                                                  |               |                                                                                                                            |
|      | 21          | Insertion and deletion into doubly linked lists                                   |               |                                                                                                                            |
| 8    | 22          | Introduction to stacks, Representation of stacks with array and Linked List       | 8             | Program for binary search tree operation                                                                                   |
|      | 23          | Implementation of stacks                                                          |               |                                                                                                                            |
|      | 24          | Application of stacks: Polish Notations                                           |               |                                                                                                                            |
| 9    | 25          | Converting Infix to Post Fix Notation                                             | 9             | The selection sort technique,The bubble sort technique                                                                     |
|      | 26          | Evaluation of Post Fix Notation, Tower of Hanoi                                   |               |                                                                                                                            |
|      | 27          | Recursion: Concept and Comparison between recursion and Iteration                 |               |                                                                                                                            |
| 10   | 28          | Introduction to queues, Implementation of queues using array algorithm            | 10            | The merge sort technique,The quick sort technique                                                                          |
|      | 29          | Implementation of queues using Linked List with algorithm                         |               |                                                                                                                            |
|      | 30          | REVISION                                                                          |               |                                                                                                                            |
| 11   | 31          | Queues                                                                            | 11            | The binary search procedures to search an element in a given list                                                          |
|      | 32          | Circular Queues                                                                   |               |                                                                                                                            |
|      | 33          | De-queues                                                                         |               |                                                                                                                            |
| 12   | 34          | Concept of Binary Trees, Concept of representation of Binary Tree in memory       | 12            | Practice The linear search procedures to search an element in a given list                                                 |
|      | 35          | Traversing Binary Trees (Pre order, Post order and Inorder)                       |               |                                                                                                                            |
|      | 36          | Searching,                                                                        |               |                                                                                                                            |
| 13   | 37          | inserting in binary search trees                                                  | 12            |                                                                                                                            |
|      | 38          | deleting in binary search trees                                                   |               |                                                                                                                            |
|      | 39          | Introduction to sorting and searching                                             |               |                                                                                                                            |
| 14   | 40          | Linear and Binary Search algorithm                                                | 12            |                                                                                                                            |
|      | 41          | Bubble Sort                                                                       |               |                                                                                                                            |
|      | 42          | Insertion Sort                                                                    |               |                                                                                                                            |
| 15   | 43          | Selection Sort                                                                    | 12            |                                                                                                                            |
|      | 44          | Merge Sort                                                                        |               |                                                                                                                            |
|      | 45          | Quick Sort                                                                        |               |                                                                                                                            |
| 16   | 46          | Heap Sort                                                                         | 12            |                                                                                                                            |
|      | 47          | REVISION                                                                          |               |                                                                                                                            |
|      | 48          | REVISION                                                                          |               |                                                                                                                            |