	algorithm.		
11	Department maintains student information. The file contains roll number, name, division and address. Allow user to add, delete information of student. Display information of particular student. If record of student does not exist an appropriate message is displayed. If it is, then the system displays the student details. Use sequential file to maintain the data.	CO1 to 6	18/3/2020
12	Write a program on template and exception handling in Java : in this assignment multiple templates are to be designed as a pattern and these patterns to be used to take decisions.	CO1 to 6	25/3/2020
13	Any application defining scope of formal parameter, global parameter, Local parameter accessing mechanism and also relevance to private, public and protected access. Write a Java program which demonstrates the scope rules of the programming mechanism.	CO1 to 6	1/4/2018
14	Design a mini project using JAVA which will use the different data structure with or without Java collection library and show the use of specific data structure on the efficiency (performance) of the code.	CO1 to 6	4/4/2020
Beyond Syllabus			
1	Implementation of Trie Tree	CO1 to 5	18/3/2020
2	Department maintains student information. The file contains roll number, name, division and address. Allow user to add, delete information of student. Display information of particular student. If record of student does not exist an appropriate message is displayed. If it is, then the system displays the student details. **Use direct access file** to maintain the data	CO1 to 6	1/4/2020
Advanced Learner			
1	You have a business with several offices; you want to lease phone lines to connect them up with each other; and the phone company charges different amount of money to connect different pairs of cities. You want a set of lines that connects all your offices with a minimum total cost. Solve the problem by suggesting appropriate data structures.	CO1 to 6	18/2/2020
2	Write a Java program which will demonstrate a concept of Interfaces and packages: In this assignment design and use of customized interfaces and packages for a specific application are expected.	CO1 to 6	1/4/2020
3	Consider the scheduling problem. n tasks to be scheduled on single processor. Let t1, ..., tn be durations required to execute on single processor is known. The tasks can be executed in any order but one task at a time. Design a greedy algorithm for this problem and find a schedule that minimizes the total time spent by all the tasks in the system. (The time spent by one is the sum of the waiting time of task and the time spent on its execution.)	CO1 to 6	1/4/2020

S. K. Gondhalekar (SEA)
C. R. Patil (SE B)
P. D. Rakibe(SE A)
Course Teacher

Head
Computer Engg Dept

K. K. Wagh Institute Of Engineering Education & Research, Nashik-3
Department of Computer Engineering

Academic Year: 2019 – 2020 **Semester:** II

Course Name: Advanced Data Structures Lab **Course Code:** 210256

Class: SE **Division:** A & B

Laboratory Assignment list

Sr	Assignment	COs Mapping	
1	Implement the Heap/Shell sort algorithm implemented in Java demonstrating heap/shell data structure with modularity of programming language.	CO1 to 6	24/12/2019
2	Beginning with an empty binary search tree, Construct binary search tree by inserting the values in the order given. After constructing a binary tree- i) Insert new node ii) Find number of nodes in longest path iii) Minimum data value found in the tree iv) Search a value.	CO1 to 5	8/1/2020
3	For given expression e.g. a-b*c-d/ e+ f construct inorder sequence and traverse it using postorder traversal (non- recursive). Change a tree so that the roles of the left and right pointers are swapped at every node	CO1 to 6	15/1/2020
4	A Dictionary stores keywords and its meanings. Provide facility for adding new keywords, deleting keywords, updating values of any entry. Provide facility to display whole data sorted in ascending /descending order. Also find how many maximum comparisons may require for finding any keyword .**Use Binary search tree for implementation.**	CO1 to 5	18/1/2020
5	Convert a given binary tree into threaded binary tree. Analyze time and space complexity of the algorithm.	CO1 to 5	25/1/2020
6	There are flight paths between cities. If there is a flight between city A and city B then there is an edge between the cities. The cost of the edge can be the time that flight takes to reach city B from a, or the amount of fuel used for the journey. Represent this as a graph. The node can be represented by airport name or name of the city. Use adjacency list representation of the graph or use adjacency matrix representation of the graph. Justify the storage representation used.	CO1 to 5	5/2/2020
7	Consider telephone book database of N clients. Make use of hash table implementation to quickly look up client's telephone number.	CO1 to 5	12/2/2020
8	Implement all the functions of a dictionary (ADT) using hashing. Data: Set of(key, value) pairs, keys are mapped to values, keys must be comparable, keys must be unique Standard Operations: Insert(key, value),Find(key),Delete(key)	CO1 to 5	19/2/2020
9	A dictionary stores keywords & its meanings. Provide facility for adding new keywords, deleting keywords, updating values of any entry. Provide facility to display whole data sorted in ascending/descending order. Also find how many maximum comparisons may require for finding any keyword. **Use height balance tree** and find the complexity for finding a keyword.	CO1 to 5	4/3/2020
10	Read the marks obtained by students of second year in an online examination of particular subject. Find out maximum and minimum marks obtained in that subject. Use heap data structure. Analyze the	CO1 to 5	11/3/2020