GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Bachelor of Vocation (D.Voc), 6ᵗʰ Semester
Branch: Software Development
Subject Name: Data Structure Lab.
Subject Code: 1260205

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P	C	Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
-	-	2	2	0	-	20	30	50

Implement stack. Write functions like push, pop, Initialize, Empty or Full.
Implement concept of queues
Implement queues in a circular array.
Implement queues as a circular linked list
Implementing doubly linked list
Binary search tree to sort an array

Course Content:

Sr. No.	Practical / Hands on Exercise	Hrs
1	Write a C Program to implement array using row major order and column major order	2
2	Implement a program for stack that performs following operations using array. (a) PUSH (b) POP (c) PEEP (d) CHANGE (e) DISPLAY	4
3	Implement a program to convert infix notation to postfix notation using stack	2
4	Write a program to implement QUEUE using arrays that performs following operations (a) INSERT (b) DELETE (c) DISPLAY	4
5	Write a program to implement Circular Queue using arrays that performs following operations. (a) INSERT (b) DELETE (c) DISPLAY	2
6	Write a menu driven program to implement following operations on the singly linked list. (a) Insert a node at the front of the linked list. (b) Insert a node at the end of the linked list. (c) Insert a node such that linked list is in ascending order.(according to info. Field (d) Delete a first node of the linked list. (e) Delete a node before specified position. (f) Delete a node after specified position.	4
7	Write a program to implement following operations on the doubly linked list. (a) Insert a node at the front of the linked list. (b) Insert a node at the end of the linked list. (c) Delete a last node of the linked list. (d) Delete a node before specified position	2
8	Implement recursive and non-recursive tree traversing methods inorder, preorder and postorder traversal	4
9	Write a program to implement Bubble Sort.	2
10	Write a program to sort an array using Binary Search Tree.	2
	Total Hours:	**42**

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With effective from academic year 2019-20

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks				
R Level	U Level	A Level	N Level	E Level
5	25	25	10	5

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate and above Levels (Bloom's Taxonomy)

Reference Books:
1. Data Structures, R.S. Salaria, Khanna Publishing House
2. An Introduction to Data Structures with Applications. by Jean-Paul Tremblay & Paul G. Sorenson Publisher-Tata McGraw Hill. Web Technologies, Black Book, dreamtech Press
3. Data and File Structures using C, Thareja,Reema Oxford University Press New Delhi 2011
4. Data Structures through C (A Practical Approach), G. S. Baluja, Dh