Program	BACHELOR OF VOCATION (B.Voc.)	**Semester - 2**
Type of Course	-	
Prerequisite		
Rationale	-	
Effective From A.Y.	2024-25	

Teaching Scheme (Contact Hours)				Examination Scheme				
Lecture	Tutorial	Lab	Credit	Theory Marks		Practical Marks		Total Marks
				SEE T	IAT	SEE P	CCE	
-	-	2	1	-	-	30	20	50

***SEE** - Semester End Examination, **IAT** - Internal Assessment Test, **CCE** - Continues & Comprehensive Evaluation*

Course Content

T - Teaching Hours | **W** - Weightage

Sr.	Topics	T	W
1	**Practical 1** Write a C Program to implement array using row major order and column major order	2	
2	**Practical 2** Introduction to Dynamic Memory Allocation. DMA functions malloc(), calloc(), free() etc.	2	
3	**Practical 3** Implement a program for stack that performs following operations using array: (a) PUSH (b) POP (c) PEEP/PEEK (d) CHANGE (e) DISPLAY	4	
4	**Practical 4** Implement a program to convert infix notation to postfix notation using stack.	2	
5	**Practical 5** Write a program to implement QUEUE using arrays that performs following operations: (a) INSERT (b) DELETE (c) DISPLAY	4	
6	**Practical 6** Write a program to implement Circular Queue using arrays that performs following operations: (a) INSERT (b) DELETE (c) DISPLAY	2	
7	**Practical 7**	4	

Course Content

T - Teaching Hours | **W** - Weightage

Sr.	Topics	T	W
	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		
8	**Practical 8** 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.	4	
9	**Practical 9** a) Implement recursive and non-recursive tree traversing methods inorder, preorder and postorder traversal. b) Write a program to sort an array using Binary Search Tree.	4	
10	**Practical 10** Write a program to implement Bubble Sort.	2	
	Total	30	

Course Outcomes

At the end of this course, students will be able to:	
CO1	Understand and development the program development cycle.
CO2	Differentiate primitive and non primitive structures.
CO3	Design and apply appropriate data structures for solving computing problems
CO4	Apply appropriate data structures for developing various applications.
CO5	Apply sorting and searching algorithms to the small and large data sets

Reference Books

1.	**Data Structures (TextBook)** By R.S. Salaria | Khanna Publishing House
2.	**An Introduction to Data Structures with Applications (TextBook)** By Jean-Paul Tremblay & Paul G. Sorenson | Tata McGraw Hill
3.	**Data and File Structures using C, (TextBook)** By Thareja,Reema | Oxford University Press New Delhi, Pub. Year 2011
4.	**Data Structures through C (A Practical Approach) (TextBook)** By G. S. Baluja, Dhanpat Rai & Co.

Laboratory work will be based on above syllabus with minimum required experiments/exercises to be incorporated.