Lesson Plan

Name of the Faculty : Shakti Raj Singh, Programmer
Discipline : Computer Engg.
Semester : 4th
Subject : Data Structure using C(Code-220843)
Lesson plan duration : 15 weeks (15.01.26 to 30.04.26) , Periods/Week -L-3, P-4

Week	Theory		Practical	
	Lecture Day	Topic	Practical Day	Topic
1st Week	1st	Problem solving concept , Top-down and bottom-up design, structured programming	1st	Exercise of C Program
			2nd	Exercise of C Program
	2nd	Concept of data type, variables, pointer variables and constants	1st	Exercise of C Program
	3rd	Introduction to data Structure(Linear, Non Linear, Primitive, Non Primitive))	2nd	Exercise of C Program
Week 2	1st	Concept of Data Structure (Array, Linked List, Stack, Queue, Trees, Graphs)	1st	C Program on Array
			2nd	C Program on Array
	2nd	Concept of Arrays	1st	Program-Sorting an Array
	3rd	One dimensional Array, Two Dimensional Array: Representation of Two dimensional Array (Base address,	2nd	Program-Sorting an Array
Week 3	1st	Operations on Arrays with Algorithms (inserting, deleting)	1st	The addition of two matrices using functions.
	2nd	Operations on Arrays with Algorithms (Searching, Traversing	2nd	The addition of two matrices using function
	3rd	Introduction to linked list and double linked list, Representation of Linked list in Memory	1st	The multiplication of two matrices.
			2nd	The multiplication of two matrices.
Week 4	1st	Describe and Comparison between Linked list and Array	1st	Insertion and deletion of elements in Linked List
	2nd	Traversing and Searching Linked List	2nd	Insertion and deletion of elements in Linked List
	3rd	Insertion and deletion into Linked list	1st	Insertion and deletion of elements in Linked List
			2nd	Insertion and deletion of elements in Linked List
Week 5	1st	Application of Linked List and Explain Doubly Linked List	1st	Insertion and deletion of elements in Doubly Linked List
	2nd	Traversing, Insertion and deletion into doubly Linked List	2nd	Insertion and deletion of elements in Doubly Linked List
	3rd	Traversing, Insertion and deletion into doubly Linked List	1st	Insertion and deletion of elements in Doubly Linked List
			2nd	Insertion and deletion of elements in Doubly Linked List
Week 6	1st	Traversing, Insertion and deletion into doubly Linked List	1st	**Practical 1st Sessional Exam**
	2nd	**1st Sessional Exam**	2nd	**Practical 1st Sessional Exam**

	3rd	Introduction to Stack, Representation of Stacks With Array and Linked list	1st	Push and pop operation in stack.
			2nd	Push and pop operation in stack.
Week 7	1st	Implementation of Stacks	1st	Push and pop operation in stack.
	2nd	Application of stack (Polish Notation, Converting Infix to Post Fix Notation)	2nd	Push and pop operation in stack.
	3rd	Application of stack (Polish Notation, Converting Infix to Post Fix Notation)	1st	Inserting and deleting elements in queue.
			2	Inserting and deleting elements in queue.
Week 8	1st	Evaluation of Post fix Notation and Tower of Hanoi	1st	Inserting and deleting elements in circular queue.
	2nd	Recursion : Concept and Comparison between recursion and Iteration	2nd	Inserting and deleting elements in circular queue.
	3rd	Recursion : Concept and Comparison between recursion and Iteration	1st	The factorial of a given number with recursion and without recursion
			2nd	The factorial of a given number with recursion and without recursion
Week 9	1st	Introduction of Queues and Implementation of queues (array and Linked list with algorithm)	1st	Fibonacci series with recursion and without recursion
	2nd	Introduction of Queues and Implementation of queues (array and Linked list with algorithm)	2nd	Fibonacci series with recursion and without recursion
	3rd	Introduction of Queues and Implementation of queues (array and Linked list with algorithm)	1st	**Practical 2nd Sessional Exam**
			2nd	**Practical 2nd Sessional Exam**
Week 10	1st	Explain Circular Queues and De-Queues	1st	Program on the Selection sort technique
	2nd	**2nd -Sessional Exam**	2nd	Program on the Selection sort technique
	3rd	Introduction of Trees and Concept of Binary Trees Explain Complete and Extended Binary	1st	Program on the bubble sort technique
			2nd	Program on the bubble sort technique
Week 11	1st		1st	Program on the quick sort technique
	2nd	Concept of representation of Binary Tree	2nd	Program on the quick sort technique
	3rd	Concept of representation of balanced Binary Tree	1 st	Program on the merge sort technique
			2nd	Program on the merge sort technique
Week 12	1st	Explain Traversing Binary Trees (Pre Order, Post Order and In Order)	1st	Program for Binary Search tree operation
	2nd	Explain Searching, inserting and deleting in binary search trees	2nd	Program for Binary Search tree operation
	3rd	Explain Searching, inserting and deleting in binary search trees	1st	Program of Binary Search procedures to search an element in given list
			2nd	Program of Binary Search procedures to search an element in given list
Week 13	1st	Search algorithm(Linear Search)	1st	Program of Binary Search procedures to search an element in given list

			2nd	
	2nd	Search algorithm(Binary Search)	2nd	Program of Binary Search procedures to search an element in given list
	3rd	Concept and uses of Sorting	1st	Program of Linear Search procedures to search an element in given
			2nd	Program of Linear Search procedures to search an element in given
Week 14	1st	Sorting Algorithm (Bubble sort)	1st	Program of Linear Search procedures to search an element in given list
	2nd	Sorting Algorithm (Insertion sort)	2nd	Program of Linear Search procedures to search an element in given list
	3rd	Sorting Algorithm (Selection sort)	1st	Revision session
				Revision session
Week 15	1st	Sorting Algorithm (Merge Sort)	1st	Practice with similar programs and discussion about various problems
	2nd	Sorting Algorithm (Heap Sort)	2nd	Practice with similar programs and discussion about various problems
	3rd	**3rd Sessional Exam**	1st	**3rd sessional Practical Exam**
			2nd	**3rd sessional Practical Exam**