Course: BTech **Semester:** 3

Prerequisite: Basic knowledge of Data Structures

Rationale: This course provides a broad introduction to Data Structures The various Data structures and its analysis of working design and development.

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
Lecture Hrs/Week	Tutorial Hrs/Week	Lab Hrs/Week	Hrs/Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
0	0	4	0	2	-	-	20	-	30	50

SEE - Semester End Examination, **CIA** - Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.)

Course Outcome

After Learning the Course the students shall be able to:
After Learning the course the students shall be able to: 1. Use different types of data structures, operations and algorithms 2. Apply searching and sorting operations on files 3. Use stack, Queue, Lists, Trees and Graphs in problem solving 4. Implement all data structures in a high-level language for problem solving

List of Practical

1.	**Implement Stack and its operations like (creation push pop traverse peek search) using linear data structure**
2.	**Implement Infix to Postfix Expression Conversion using Stack**
3.	**Implement Postfix evaluation using Stack.**
4.	**Implement Towers of Hanoi using Stack.**
5.	**Implement queue and its operations like enqueue, dequeue, traverse, search.**
6.	**Implement Single Linked lists and its operations(creation insertion deletion traversal search reverse)**
7.	**Implement Double Linked lists and its operations(creation insertion deletion traversal search reverse)**
8.	**Implement binary search and interpolation search.**
9.	**Implement Bubble sort, selection sort, Insertion sort, quick sort ,merge sort.**
10.	**Implement Binary search Tree and its operations (creation, insertion, deletion).**
11.	**Implement Traversals Preorder Inorder Postorder on BST.**
12.	**Implement Graphs and represent using adjaceny list and adjacency matrix and implement basic operations with traversals (BFS and DFS).**