**Data Structure**

1. Structure/Union
2. Linear –
3. **Static** - Array 1D & 2D, Stack, Queue, Dequeue, Circular Queue, Priority Queue
4. **Dynamic** - Linked List (Linked List - Singly, Doubly, Circular, Dynamic Stack & Dynamic Queue)
5. Non Linear -
6. **Tree** (Binary Tree, B-Tree, Expression Tree, AVL Tree)
7. **Graph**
8. Searching - Linear, Binary, Hashing
9. Sorting - Bubble, Selection, Insertion, Quick, Merge, Bucket/Radix, Heap
10. Complexity Analysis, Asymptotic Notation
11. Function & Recursion

**Pre-Requisite - Knowledge of C-Programming**

**Array 1D & 2D :**

1. Insertion of an element (by Position)
2. Deletion of an element (by Position)
3. Deletion of an element (by Value)
4. Merging of Arrays (Sequential Way)
5. Merging of Arrays (Sorted Way and Without Sorting)
6. Dynamic Array - using malloc(), calloc()
7. Reallocating an Array - using realloc()
8. 10 to 20 Conversion & vice-versa
9. Diagonals of a 2D Array
10. Finding Transpose
11. Symmetric and Skew-Symmetric (Checking and Formation)
12. Matrix operations - Sum, Difference & Product
13. Spiral Matrix
14. Shells of a Matrix (Inner & Outer)
15. Address Calculation in a 2D Array (with Programs)

**Array (1D & 2D): Miscellaneous**

1. Sparse Matrix Valuation
2. Polynomials Representation using Sparse Matrix (Sum and Difference operations)
3. Stack using Array and operations - PUSH(), POP() and PEEK()
4. Queue using Array and operations - INSERT(), DELETE() and PEEK()
5. DeQueue using Array and operations - INSERTFRONT(), INSERTREAR(), DELETEFRONT() and DELETEREAR()
6. Circular Queue using Array and operations - INSERT(), DELETE()
7. Priority Queue using Array and operations - INSERT(), DELETE()