* Introduction: Data Structures, Classifications (Primitive & Non Primitive), Data structure.
* Operations, Review of Arrays, Structures, Self-Referential Structures, and Unions. Pointers and Dynamic Memory Allocation Functions. Representation of Linear Arrays in Memory, Dynamically allocated arrays.
* Array Operations: Traversing, inserting, deleting, searching, and sorting. Multidimensional Arrays, Polynomials and Sparse Matrices.
* Strings: Basic Terminology, Storing, Operations and Pattern Matching algorithms.  
  Programming Examples.
* Stacks: Definition, Stack Operations, Array Representation of Stacks, Stacks using Dynamic Arrays, Stack Applications: Polish notation, Infix to postfix conversion, evaluation of postfix expression.
* Recursion - Factorial, GCD, Fibonacci Sequence, Tower of Hanoi, Ackerman's function.
* Queues: Definition, Array Representation, Queue Operations, Circular Queues, Circular queues using Dynamic arrays, Dequeues, Priority Queues, A Mazing Problem. Multiple Stacks and Queues. Programming Examples.
* Linked Lists: Definition, Representation of linked lists in Memory, Memory allocation;  
  Garbage Collection. Linked list operations: Traversing, Searching, Insertion, and Deletion.
* Doubly Linked lists, Circular linked lists, and header linked lists. Linked Stacks and Queues.
* Applications of Linked lists – Polynomials, Sparse matrix representation, Programming Examples
* Trees: Terminology, Binary Trees, Properties of Binary trees, Array and linked  
  Representation of Binary Trees, Binary Tree Traversals - Inorder, postorder, preorder.
* Additional Binary tree operations. Threaded binary trees, Binary Search Trees – Definition, Insertion, Deletion, Traversal, Searching, Application of Trees-Evaluation of Expression, Programming Examples.
* Graphs: Definitions, Terminologies, Matrix and Adjacency List Representation Of Graphs, Elementary Graph operations, Traversal methods: Breadth First Search and Depth First Search.
* Sorting and Searching: Insertion Sort, Radix sort, Address Calculation Sort.
* Hashing: Hash Table organizations, Hashing Functions, Static and Dynamic Hashing.
* Files and Their Organization: Data Hierarchy, File Attributes, Text Files and Binary Files, Basic File Operations, File Organizations and Indexing