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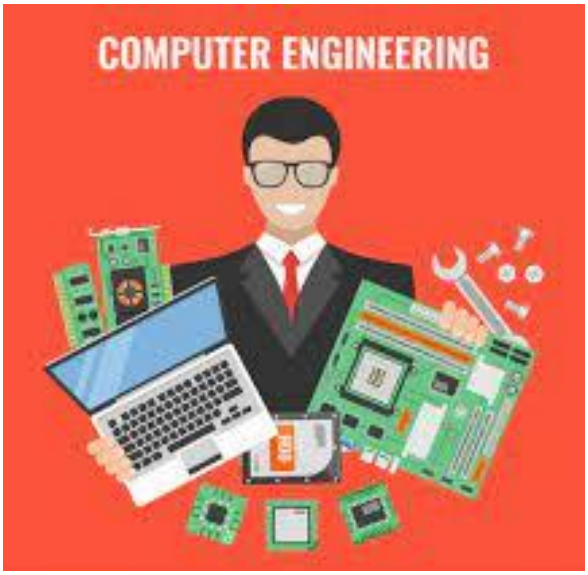

COMPUTER ENGINEERING

SEM III

DATA STRUCTURE

Programming & development

Course Curriculum

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DATA STRUCTURES

Module 1 : Introduction to Data Structures

- Introduction to data structures
- Concept of ADT
- Types of Data Structures
    - Linear
    - Non- linear

Module 2 : Stack

- Introduction to ADT of Stack
- Operations of Stack
- Array implementation of Stack
- Applications of Stack
- Infix to Postfix conversion
- Postfix Evaluation
- Recursion

Module 3 : Queues

- Introduction ADT of Queue
- Operation on Queue
- Array Implementation of Queue
- Types of Queue
    - Circular Queue
    - Priority Queue
- Introduction to Double Ended Queue
- Application of Queue

Module 4 : Linked List

- Introduction to Linked List
- Representation of Linked List

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- List v/s Array
- Types of Linked List
    - Singly Linked List
    - Circular Linked List
    - Doubly Linked List
- Operations on Singly Linked List and Doubly Linked List
- Stack and Queue using Singly Linked List
- Singly Linked List Application
    - Polynomial Representation and Addition

Module 5 : Trees

- Introduction to Tree Terminologies
- Binary Tree
- Binary Tree Representation
- Types of Binary Tree
    - Binary tree Traversals
    - Binary Search Tree
- Operations on binary search tree
- Application of Binay tree
- Expression tree
- Huffman Encoding
- Search Trees AVL
    - Rotations in AVL Tree
    - Operations on AVL Tree
- Introduction of B Tree
    - B+ Tree

Module 6 : Graphs

- Introduction to Graph Terminologies
- Representation of Graph
- Graph Traversals
    - Depth First Search (DFS)
    - Breadth First Search (BFS)
- Graph Application
    - Topological Sorting

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Module 7 : Searching Techniques

- Linear Search
- Binary Search
- Hashing
    - Concept
    - Hash functions
    - Collision resolution Techniques