# Zed Age Syllabus

# Data Structures And Algorithms

- **Time and Space analysis of Algorithms:** Order Notations.
- **Linear Data Structures - Sequential representations:** Arrays and Lists, Stacks, Queues and Dequeues, strings, application.
- **Linear Data Structures, Link Representation:** Linear linked lists, circularly linked lists. Doubly linked lists, application.
- **Recursion:** Design of recursive algorithms, Tail Recursion, When not to use recursion, Removal of recursion.
- **Non-linear Data Structure:** Trees - Binary Trees, Traversals and Threads, Binary Search Trees, Insertion and Deletion algorithms, Height-balanced and weight-balanced trees, B-trees, B+ -trees, Application of trees; Graphs - Representations, Breadth-first and Depth-first Search.
- **Hashing:** Hashing Functions, collision Resolution Techniques.
- **Sorting and Searching Algorithms:** Bubble sort, Selection Sort, Insertion Sort, Quick Sort, Merge Sort, Heap sort and Radix Sort.
- **File Structures:** Sequential and Direct Access. Relative Files, Indexed Files - B+ tree as index. Multi-indexed Files, Inverted Files, Hashed Files.