# Swarnandhra College of Engineering & Technology

**Autonomous and recognized under 2(F) and 12(B) by UGC**

Recognized by AICTE, permanently affiliated to JNTUK Kakinada

Accredited by NAAC with 'A' Grade (2nd Cycle)

**Seetharamapurm, Narsapur – 530280 (Andhra Pradesh)**

## DEPARTMENT OF INFORMATION TECHNOLOGY

## TEACHING PLAN

| Course Code | Course Title | Semester | Branch | Contact Periods/ Week | Academic Year | Date of commencement |
|---|---|---|---|---|---|---|
| 23IT3L01 | Advanced Data Structures and Algorithm Analysis Lab | III | IT | 3 | 2024-25 | 30-07-2024 |

**COURSE OUTCOMES**

| | |
|---|---|
| 1 | Acquire practical skills in constructing and managing Data structures |
| 2 | Apply the popular algorithm design methods in problem-solving scenarios |

| Experiment Number | Experiment | Contact Hours |
|---|---|---|
| 1 | Construct an AVL tree for a given set of elements which are stored in a file. And implement insert and delete operation on the constructed tree. Write contents of tree into a new file using in-order. | 3 |
| 2 | Construct B-Tree an order of 5 with a set of 100 random elements stored in array. Implement searching, insertion and deletion operations. | 3 |
| 3 | Construct Min and Max Heap using arrays, delete any element and display the content of the Heap. | 3 |
| 4 | Implement BFT and DFT for given graph, when graph is represented by | 3 |
| 5 | Write a program for finding the biconnected components in a given graph. | 3 |
| 6 | Implement Quick sort and Merge sort and observe the execution time for various input sizes (Average, Worst and Best cases). | 3 |
| 7 | Compare the performance of Single Source Shortest Paths using Greedy method when the graph is represented by adjacency matrix and adjacency lists. | 3 |
| 8 | Implement Job Sequencing with deadlines using Greedy strategy. | 3 |
| 9 | Write a program to solve 0/1 Knapsack problem Using Dynamic Programming | 3 |

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| | | |
|---|---|---|
| 10 | Implement N-Queens Problem Using Backtracking. | 3 |
| 11 | Use Backtracking strategy to solve 0/1 Knapsack problem. | 3 |
| 12 | Implement Travelling Sales Person problem using Branch and Bound approach. | 3 |
| | Cumulative Proposed Periods | 36 |

| | | Name | Signature with Date |
|---|---|---|---|
| i | Faculty | Mr. Ch R K Raju | 30/5/24 |
| ii | Module Coordinator | Mr. Ch R K Raju | 30/5/24 |
| iii | Programme Coordinator | Dr. RVVSV Prasad | |

Principal