# LESSON PLAN

# (PVPSIT/ACD /01)

**Academic Year : 2023-24**

## Year & Semester : II B.TECH, SEM - II

**Branch : COMPUTER SCIENCE AND ENGINEERING (S1, S2 & S3)**

**Subject Code & Name : 20CS3451,** **ADVANCED DATA STRUCTURES THROUGH C++ LAB**

**Name of Faculty : Dr. S Madhavi**

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| **Ex.**  **No.** | **Topic of syllabus to be covered** | Learning outcome(s) | **Teaching Mode**  **CB/**  **LCD**  **.** | **Hours Required** | | **Total no. of Hours (Cumulative**) | **Expected date of Completion**  **(for each Unit)**  **By HOD** | **Review/**  **Remarks**  **(By HOD)** |
| **Practical** | **Tutorial** |
| 1 | Hashing Techniques | Implementation of various hashing and collision resolution techniques. | CB/LCD  ***https://iswsa.acm.org/mphf/openDSAPerfectHashAnimation/perfectHashAV.html*** | **3** |  | **3** |  |  |
| 2 | Practice problems on Hashing Techniques | To apply suitable hashing techniques for solving problems. | CB/LCD | **3** |  | **6** |  |  |
| 3 | Binary Heap and its operations | Implementation of Binary Heap operations. | CB/LCD  ***https://visualgo.net/*** | **3** |  | **9** |  |  |
| 4 | Practice problems on Binary Heaps | To apply Binary Heap operations for solving suitable problems | CB/LCD | **3** |  | **12** |  |  |
| 5 | AVL Trees & Rotations | Implementation of AVL Trees and Single/Double Rotations | CB/LCD  ***https://www.cs.usfca.edu/~galles/visualization/AVLtree.html*** | **3** |  | **15** |  |  |
| 6 | Practice Problems on AVL Trees | To apply AVL tree concepts for solving suitable problems | CB/LCD | **3** |  | **18** |  |  |
| 7 | 2-3 Trees | Implementation of 2-3 trees | CB/LCD | **3** |  | **21** |  |  |
| 8 | Practice Problems on 2-3 Trees | To apply 2-3 Tree principles for solving suitable problems | CB/LCD | **3** |  | **24** |  |  |
| 9 | Disjoint Sets and its Primary Operations | Implementation of Disjoint sets, Union & Find operations | CB/LCD  ***https://visualgo.net/en*** | **3** |  | **27** |  |  |
| 10 | Practice Problems on Sets | To apply union, find algorithms for solving problems | CB/LCD | **3** |  | **30** |  |  |
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| **Practical** | **Tutorial** |
| 11 | Graph Algorithms | Implementation of Topological sort, Dijkstra’s, Bellman-ford, Warshall’s algorithms | CB/LCD  ***https://algorithm-visualizer.org/*** | **3** |  | **33** |  |  |
| I2 | Practice problems on Graphs concepts | To apply graph algorithms for solving problems | CB/LCD | **3** |  | **36** |  |  |
| 13 | Pattern Matching using String Search Techniques | Implementation of Brute Force, Rabin Karp, Knuth Morris Algorithms | CB/LCD  ***https://algorithm-visualizer.org/*** | **3** |  | **39** |  |  |
| 14 | Practice problems on Pattern Matching | To apply suitable pattern matching algorithm to solve the problem | CB/LCD | **3** |  | **42** |  |  |
| 15 | **Lab Internal Exam** | | | | | | | |

**Legend**: Teaching Mode

**CB**: Chalk Board / LCD: Power Point Presentation

**Signature of the Faculty**

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**Date:**

**Signature of the HOD**