

**SWARNANDHRA COLLEGE OF ENGINEERING AND TECHNOLOGY  
(AUTONOMOUS)**

**SEETHARAMPURAM, NARSAPUR-534280, WG- DT, AP  
DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**

**TEACHING PLAN**

| Course Code | Course Title              | Year / Sem | Branch | Contact Hr/ week | Academic Year |
|-------------|---------------------------|------------|--------|------------------|---------------|
| 24MC3L03    | BIG DATA TECHNOLOGIES LAB | II/I       | MCA    | 3                | 2025-26       |

**Course objectives:**

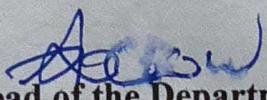
1. To implement Map Reduce programs for processing big data.
2. To realize storage and processing of big data using MongoDB, Pig, Hive and Spark.
3. To analyze big data using machine learning techniques.

| Course Outcome (CO) | Description                                                                            | Knowledge Level (K) |
|---------------------|----------------------------------------------------------------------------------------|---------------------|
| CO1                 | Demonstrate Hadoop installation and manage files in HDFS using command-line utilities. | K3                  |
| CO2                 | Develop and execute MapReduce programs for data processing and analysis.               | K4                  |
| CO3                 | Apply CRUD and aggregation operations in NoSQL databases using MongoDB.                | K3                  |
| CO4                 | Design and execute data analysis tasks using Pig Latin scripts and Hive queries.       | K5                  |
| CO5                 | Utilize Spark, CDH, and HUE tools for large-scale data analysis and reporting.         | K6                  |

| S.NO              | EXERCISE/PROGRAM                                                                                                                                                                                                                                                                                                    | PROPOSED NUMBER OF LABS |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| <b>EXERCISE 1</b> |                                                                                                                                                                                                                                                                                                                     |                         |
| 1                 | Install Hadoop and Implement the following file management tasks in Hadoop: Adding files and directories Retrieving files Deleting files and directories. Hint: A typical Hadoop workflow creates data files (such as log files) elsewhere and copies them into HDFS using one of the above command line utilities. | 1                       |
| <b>EXERCISE 2</b> |                                                                                                                                                                                                                                                                                                                     |                         |
| 2                 | Develop a Map Reduce program to implement Matrix Multiplication                                                                                                                                                                                                                                                     | 1                       |

| EXERCISE 3 |                                                                                                                                      |   |
|------------|--------------------------------------------------------------------------------------------------------------------------------------|---|
| 3          | Develop a Map Reduce program that mines weather data and displays appropriate messages indicating the weather conditions of the day. | 1 |
| EXERCISE 4 |                                                                                                                                      |   |
| 4          | Develop a Map Reduce program to find the tags associated with each movie by analyzing movie lens data.                               | 1 |
| EXERCISE 5 |                                                                                                                                      |   |
| 5          | Implement Functions: Count – Sort – Limit – Skip – Aggregate using MongoDB                                                           | 1 |
| EXERCISE 6 |                                                                                                                                      |   |
| 6          | Write Pig Latin scripts to sort, group, join, project, and filter the data.                                                          | 1 |
| EXERCISE 7 |                                                                                                                                      |   |
| 7          | Use Hive to create, alter, and drop databases, tables, views, functions, and indexes.                                                | 1 |
| EXERCISE 8 |                                                                                                                                      |   |
| 8          | Implement a word count program in Hadoop and Spark.                                                                                  | 1 |
| EXERCISE 9 |                                                                                                                                      |   |
| 9          | Use CDH (Cloudera Distribution for Hadoop) and HUE (Hadoop User Interface) to analyze data and generate reports for sample datasets  | 1 |

G. Adisee  
Faculty

  
Head of the Department

  
Principal