**22MA4L1 : MACHINE LEARNING LAB**

**Semester : IV**

| Course Code | 22MA4L1 | Course Delivery Method | Blended Mode |
|---|---|---|---|
| Credits | 3 | CIA Marks | 30 |
| No. of Lab Hours / Week | 6 | Semester End Exam Marks | 70 |
| Total Number of Lecture Hours | 90 | Total Marks | 100 |
| Year of Introduction : 2023- 24 | Year of offering : 2023-24 | Year of Revision: --- | Percentage of Revision :--- |

**Course Objectives:**

The objective of this course is to enable the students understand learn, apply / implement the Load Data Sets from Different Sources, Basics of Data Pre-processing and Feature Selection, Supervised Learning and Regression Algorithms, Supervised Learning and Classification Algorithms, Concepts of Clustering Algorithms.

| COURSE OUTCOME | Upon successful completion of this course, students will be able to: |
|---|---|
| CO1 | Know the concepts of Load Data Sets from Different Sources. |
| CO2 | Understand basics of Data Pre-processing and Feature Selection. |
| CO3 | Learn Supervised Learning and Regression Algorithms. |
| CO4 | Learn Supervised Learning and Classification Algorithms. |
| CO5 | Understand the concepts of Clustering Algorithms. |

**Mapping of Course Outcomes:**

|  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 |
|---|---|---|---|---|---|---|---|
| **CO1** | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| **CO2** | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| **CO3** | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| **CO4** | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| **CO5** | 0 | 0 | 0 | 0 | 0 | 0 | 3 |

**List of Programs:**

1. Write a program to open Data Sets in Python. (CO1,L1)
2. Explain various Plotting Techniques of Python. (CO2, L2)

## REGRESSION ALGORITHMS

3. Demonstrate Simple Linear Regression in Python with Sample Data Sets. (CO3,L2)
4. Demonstrate Multiple Linear Regression in Python with Sample Data Sets. (CO3,L2)
5. Demonstrate Decision Tree Regression in Python with Sample Data Sets. (CO3,L2)
6. Demonstrate Support Vector Regression in Python with Sample Data Sets. (CO3,L2)
7. Demonstrate Random Forest Regression in Python with Sample Data Sets. (CO3,L2)

## CLASSIFICATION ALGORITHMS

8. Demonstrate Logistic Regression in Python with Sample Data Sets. (CO4,L2)
9. Demonstrate Support Vector Classification in Python with Sample Data Sets. (CO4,L2)
10. Demonstrate Random Forest Classification in Python with Sample Data Sets. (CO4,L2)

## CLUSTERING ALGORITHMS

11. Demonstrate K-Means Clustering with Sample Data Sets. (CO5,L2)
12. Demonstrate Hierarchical Clustering with Sample Data Sets. (CO5,L2)

**Note: The list of experiments is not limited to the above list. If the existing laboratory experiments completed in advance, the additional laboratory programs can added , and to be executed in the laboratory.**

**Course has focus on :  S**kill Development

**Websites of Interest:**  1. www. nptel.ac.in

2. www.epgp.inflibnet.ac.in

3. www.ocw.mit.edu