



MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

COURSE CONTENT

MACHINE LEARNING LABORATORY								
V Semester : CSD / CSM								
VI Semester: CSE								
Course Code	Category	Hours/Week			Credits	Maximum Marks		
24X0583	Core	L	T	P	C	CIA	SEE	Total
		0	0	2	1	40	60	100
Contact Classes: Nil	Tutorial Classes: Nil	Practical Classes: 30			Total Classes:30			
Prerequisites: Essentials of Problem solving using Python Laboratory								

Course Overview:

This Machine Learning Lab is a hands-on course designed to give students practical experience with the implementation of machine learning algorithms and real-world problem-solving using data. Students will work with various datasets and machine learning tools, applying algorithms for classification, regression, clustering, and dimensionality reduction. The course emphasizes both the theoretical understanding and practical application of machine learning models, providing students with the opportunity to apply these concepts using popular machine learning libraries such as scikit-learn.

Course Objectives:

1. To impart knowledge of statistical concepts and their implementation in Python for data analysis.
2. To familiarize students with Python libraries such as Statistics, Math, NumPy, SciPy, Pandas, and Matplotlib for data processing and visualization.
3. To develop skills in applying supervised learning techniques like Linear Regression, Logistic Regression, Decision Trees, and KNN using sklearn.
4. To introduce unsupervised learning techniques such as K-Means Clustering and their applications.
5. To enable students to analyze, evaluate, and compare the performance of different machine learning algorithms through mini projects.

Course Outcomes: After Completion of the Course, Students should be able to

1. Implement statistical measures and apply Python libraries for data analysis.
2. Utilize data processing and visualization tools such as Pandas and Matplotlib effectively.
3. Apply supervised machine learning algorithms including Regression, Decision Trees, and KNN using sklearn.
4. Demonstrate the use of unsupervised learning techniques such as K Means clustering.
5. Analyze the performance of machine learning models on real-world datasets through mini projects.

List of Experiments:

1. Write a python program to compute Central Tendency Measures: Mean, Median, Mode
Measure of Dispersion: Variance, Standard Deviation
2. Study of Python Basic Libraries such as Statistics, Math, Numpy and Scipy
3. Study of Python Libraries for ML application such as Pandas and Matplotlib
4. Write a Python program to implement Simple Linear Regression
5. Implementation of Multiple Linear Regression for House Price Prediction using sklearn
6. Implementation of Decision tree using sklearn and its parameter tuning
7. Implementation of KNN using sklearn
8. Implementation of Logistic Regression using sklearn
9. Implementation of K-Means Clustering

10. Performance analysis of Classification Algorithms on a specific dataset.
11. Implement decision tree algorithm.
12. Implement Support Vector Machine for the sample data.
13. Write a python program to implement Hidden Markov models.
14. Implementation of Linear Discriminant Analysis.

TEXT BOOKS:

1. Machine Learning – Tom M. Mitchell, - MGH.

REFERENCE BOOKS:

1. Machine Learning: An Algorithmic Perspective, Stephen Marshland, Taylor & Francis.

ELECTRONIC RESOURCES:

1. https://www.w3schools.com/python/python_ml_mean_median_mode.asp
2. <https://www.geeksforgeeks.org/machine-learning/scikit-learn-tutorial/>
3. <https://developer.ibm.com/tutorials/awb-implementing-linear-discriminant-analysis-python/>
4. <https://www.geeksforgeeks.org/machine-learning/30-minutes-to-machine-learning/>

MATERIALS ONLINE:

1. Course template
2. Lab Manual
3. Open-ended Experiments