Course Code: 22UPCSC1C18 **Credits: 2**

Integrated Technology (AML) Lab

Course Objectives

- To formulate machine learning problems corresponding to different applications.
- To understand a range of machine learning algorithms along with their strengths and weaknesses.
- To apply machine learning algorithms to solve problems of moderate complexity.
- To apply CNN to solve problems of moderate complexity.
- To apply LSTM and RNN to solve problems.

List of Programs

1. Write a python program to compute the Central Tendency Measures: Mean, Median, Mode, Measure of Dispersion: Variance, Standard Deviation
2. Implement a Linear Regression and Multiple Linear Regression with a Real Dataset
3. Implementation of Logistic Regression using sklearn
4. Implement a binary classification model.
5. Classification with Nearest Neighbours and NavieBaye Algorithm
6. Implementation Decision tree for classification using sklearn and its parameter tuning
7. Implement the k-means algorithm.
8. Implement an Image Classifier using CNN in TensorFlow/Keras.
9. Implement an Autoencoder in TensorFlow/Keras.
10. Implement a SimpleLSTM using TensorFlow/Keras.

Course Outcomes

On the successful completion of the course, students will be able to

CO1	To understand and implement the mathematical and statistical prospective of machine learning algorithms through python programming	**K1-K6**
CO2	To recognize and develop the machine learning models through python in built functions	**K1-K6**
CO3	To understand, impart and develop the machine learning models for real-time dataset	**K1-K6**
CO4	To comprehend , impart and implement the deep learning models for real-time applications	**K1-K6**
CO5	To identify and evaluate the performance machine learning models for real-time dataset	**K1-K6**

K1- Remember, K2- Understand, K3- Apply, K4- Analyze, K5- Evaluate, K6- Create

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	S	S	S	-	S	-	-	-	M	-	-	-
CO2	S	S	S	-	S	-	-	-	M	-	-	-
CO3	S	S	S	-	S	-	-	-	M	S	S	S
CO4	S	S	S	-	S	-	-	-	M	-	-	-
CO5	S	S	S	-	S	-	-	-	M	S	S	S

S- Strong; M-Medium; L-Low