

Course code: Course Title	Course Structure			Pre-Requisite
	L	T	P	
CS106: Basics of Machine Learning & Applications	1	0	2	NIL

Course Objective: The objective of the course is to develop the skill & knowledge of Machine Learning and understand the knowhow and can function either as an entrepreneur or can take up jobs in the data science.

S. No	Course Outcomes (CO)
CO1	Describe the basic concepts of machine learning.
CO2	Preprocess the data.
CO3	Apply supervised algorithms on Real-world data.
CO4	Apply unsupervised algorithms on Real-world data.

S. No	Contents
UNIT 1	Introduction to Machine Learning: Machine Learning, Supervised vs Unsupervised Learning, Classification, Regression, Clustering.
UNIT 2	Data Pre-processing: Introduction, Working with CSV files, Handling missing values and outliers, Feature scaling and normalization, Encoding categorical variables, Splitting data into training and testing sets, Cross-validation techniques for model evaluation.
UNIT 3	SkLearn for Supervised Learning: Model Initialization, Model Training, Model prediction, Model evaluation, Model selection, Model Persistence, Feature selection, performance metrics, Ensemble methods, House-price prediction, Sentiment Analysis.
UNIT 4	SkLearn for Unsupervised Learning: Clustering Algorithms, Anomaly Detection, Document Clustering.

REFERENCES

S.No.	Name of Books/Authors/Publishers	Year of Publication / Reprint
1	Pattern Recognition and Machine Learning by Christopher M. Bishop	2006
2	The Elements of Statistical Learning: Data Mining, Inference, and Prediction by Trevor Hastie, Robert Tibshirani, and Jerome Friedman	2009
3	Machine Learning: A Probabilistic Perspective by Kevin P. Murphy	2012

4	Machine Learning by Andrew Ng	2018
5	Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow by Aurélien Géron	2019

B. Tech. Electrical Engineering