

**WALCHAND COLLEGE OF ENGG. SANGLI.****Department of Computer Science and Engineering****TY BTech | AY 2023-2024 | Even sem | Machine Learning (6CS323) | Lecture plan**

Module	Lecture	Topic
M1	1	Dimistifying AI-ML-DL-Gen AI-Data science boundries; Types of learnings; Data types, Data sources
	2	Data summarization - min, max, mean, mode, median, quntiles; Data visualization - scatter plot, box plot, histogram;
	3	Data cleaning, feature selection
	4	Dimensionality reduction - PCA, SVD
M2	6	Types of supervised learning; Data splitting; Basic algorithm of supervised learning; Linear regression - Basic
	7	Linear regression - Cost function, Gradient descend algorithm
	8	Multiple linear regression
	9	Bias-variance trade off
	10	Concept of overfitting, underfitting; Regularization
	11	Regularization
	12	Data validation - cross validation
M3	13	Regression case study
	15	Introduction to classification; Performance measure - Precision, Recall, F1 measure, accuracy
	16	Logistic regression
	17	Decision tree
	18	SVM
	19	Multiclass classification
	20	Ensemble methods - Bagging, Boosting, Random forest
M4	21	Classification case study
	22	Introduction
	23	Logistic regression using single neuron
	24	Implementing neural networks in python
	25	Activation functions
	26	Multi-layer perceptron
M5	27	Hyperparameters.
	28	Anomaly Detection: Introduction
	29	Basic techniques for univariate data
	30	LOF
	31	iForest
	32	Clustering: Introduction
	33	BIRCH
	34	Fuzzy clustering
	35	Introduction
	36	Elements of RL
	37	Bellman equation
	38	Q-learning
	39	Recommender system

M6	40	Case study of the state-of-the-art application.
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