



Indraprastha College for Women

University of Delhi

Course Name:	B.SC. (H) CS
Paper Title:	MACHINE LEARNING
Unique Paper Code:	
Semester:	V
Faculty(s):	Mr. Swayam Prakash
Year:	2026-2027

Work Plan

Period	Unit No.	Learning Objective	Topics to be Covered
1 st Aug -3 rd Aug	I	Familiarisation with basic terminology and the difference between supervised and unsupervised learning tasks.	Basic definitions and concepts, key elements, supervised and unsupervised learning.
5 th Aug-10 th Aug	I	Applications of Machine Learning	Introduction to reinforcement learning, applications of ML.
12 th Aug-17 th Aug	III	Understand the fundamentals of regression	Linear regression with one variable
19 th Aug-24 th Aug	III	Using multiple variables for making predictions	Linear regression with multiple variables using Gradient Descent
26 th Aug-31 st Aug	III	Evaluating regression models using metrics	Regression evaluation metrics
2 nd Sep-7 th Sep	III	Understanding the phenomenon of over-fitting and using regularization to prevent over-fitting	Over-fitting, regularization
9 th Sep-14 th Sep	IV	Understand the fundamentals of classification	Logistic Regression
16 th Sep-21 st Sep	IV	Implement various machine learning algorithms	Naïve Bayes classifier
23 rd Sep-28 th Sep	IV	Implement various machine learning algorithms	k-nearest neighbor classifier
30 th Sep-5 th Oct	IV	Implement various machine learning algorithms	Decision trees
7 th Oct-12 th Oct	IV	Implement various machine learning algorithms	Perceptron, multilayer perceptron
14 th Oct-19 th Oct	IV	Implement various machine learning algorithms	Neural networks

21 st Oct-26 th Oct	IV	Implement various machine learning algorithms	Classification evaluation metrics
28 th Oct-2 nd Nov			MID-SEMESTER BREAK

4 th Nov-9 th Nov	IV	Implement various machine learning algorithms	Support Vector Machine (SVM)
11 th Nov-16 th Nov	II	Appreciate the need for preprocessing, feature scaling, and feature selection.	Feature scaling, feature selection methods
18 th Nov-23 rd Nov	II		Dimensionality Reduction (Principal Component Analysis)
25 th Nov-27 th Nov	-		Revision
28 th Nov	DISPERSAL OF CLASSES		

Unit	TOPICS
I	Introduction: Basic definitions and concepts, key elements, supervised and unsupervised learning, introduction to reinforcement learning, applications of ML.
II	Preprocessing: Feature scaling, feature selection methods. dimensionality reduction (Principal Component Analysis).
III	Regression: Linear regression with one variable, linear regression with multiple variables, gradient descent, over-fitting, regularization. Regression evaluation metrics.
IV	Classification: Decision trees, Naive Bayes classifier, logistic regression, k-nearest neighbor classifier, perceptron, multilayer perceptron, neural networks, Support Vector Machine (SVM). Classification evaluation metrics.
S. No.	Name of Authors/Books/Publishers
1.	Essential/recommended readings Mitchell, T.M. Machine Learning, McGraw Hill Education, 2017.
2.	James, G., Witten. D., Hastie. T., Tibshirani., R. An Introduction to Statistical Learning with Applications in R, Springer, 2014.
3.	Alpaydin, E. Introduction to Machine Learning, MIT press, 2009.
S. No.	Additional References
1.	Flach, P., Machine Learning: The Art and Science of Algorithms that Make Sense of Data, Cambridge University Press, 2015.
2.	Christopher & Bishop, M., Pattern Recognition and Machine Learning, New York: Springer-Verlag, 2016.
3.	Sebastian Raschka, Python Machine Learning, Packt Publishing Ltd, 2019.