

Course Code	Course Title	L	T	P	C
PMCA507P	Machine Learning Lab	0	0	2	1
Pre-requisite	NIL	Syllabus version			
		1.0			
Course Objectives:					
1. To implement and differentiate regression, classification and clustering techniques and their algorithms.					
2. To analyze the performance of various machine learning techniques and to select appropriate features for training machine learning algorithms.					
Course Outcomes:					
1. Provide solution for classification and regression approaches in real-world applications					
2. Gain knowledge to combine machine learning models to achieve better results					
3. Choose an appropriate clustering technique to solve real world problems					
4. Realize methods to reduce the dimension of the dataset used in machine learning algorithms					
5. Choose a suitable machine learning model, implement and examine the performance of the chosen model for a given real world problems					
Exploration of Various Datasets					
Indicative Experiments					Hours
1.	Simple Linear Regression – Multiple Linear Regression				4 Hours
2	Decision Tree Classification Algorithm – Entropy – Gini Index				2 Hours
3.	Naive Bayes Classification – Maximum Likelihood				2 Hours
4.	Classification and Regression Trees – Regression Trees				4 Hours
5.	Support Vector Machines – Linear Kernel Functions – Non Linear Kernel Functions				4 Hours
6.	K-Nearest neighbor Classification Algorithm				4 Hours
7.	Bagging – Boosting – Random Forest Classification				4 Hours
8.	K-Means Clustering				2 Hours
9.	Hierarchical – Agglomerative - Divisive Clustering				2 Hours
10.	K-Armed Bandit - Model Based Learning				2 Hours
Total Laboratory Hours					30 hours
Text Book(s)					
1.	Alpaydin, Ethem, "Introduction to Machine Learning", 2020, 4 <sup>th</sup> Edition, MIT				

Reference Books			
1.	Mitchell, Tom M., "Machine Learning", 2007, Vol. 1, McGraw-Hill, New York.		
2.	Marsland, Stephen, "Machine Learning: an Algorithmic Perspective", 2015, 2 <sup>nd</sup> Edition, Chapman and Hall/CRC.		
3.	Mohri, Mehryar, AfshinRostamizadeh, and Ameet Talwalkar, "Foundations of Machine Learning", 2018, 2 <sup>nd</sup> Edition, MIT press.		
4.	Doane, David P., and Lori E. Seward, "Applied Statistics in Business and Economics", 2016, 5 <sup>th</sup> Edition, Mcgraw-Hill.		
Mode of assessment: CAT, Exercises, FAT			
Recommended by Board of Studies		04-05-2023	
Approved by Academic Council		No.70	Date 24-06-2023