Course Type	Course Code	Name of Course	L	T	P	Credit
DP	NMSC506	Machine Learning Lab.	0	0	3	1.5

Course Objective
In this laboratory course, one will be introduced to some popular machine learning techniques and give insights on how to apply these techniques to solve a new business related problem. The course will be taught with popular software like Python.
Learning Outcomes
• To develop coding skill of various types of machine learning algorithm • To develop the skill in application software like Python for solving business application problems through machine learning.

Exp. No.	Topics	Lectures	Learning Outcome
1. 2. 3. 4. 5.	**Supervised Learning:** Linear Regression (with one variable and multiple variables), Gradient Descent; Classification (Logistic Regression) Naïve Bayes and kNN Support Vector Machines Decision Trees.	15	Students will learn different types of supervised learning algorithms: classification/regression problems.
6. 7. 8. 9.	**Unsupervised Learning:** Clustering (K-means) Hierarchical Clustering DBSCAN Principal Component Analysis	12	Students will learn to find the structures and patterns in the data.
10. 11. 12.	**Theory of Generalization:** Bagging Boosting, Random Forest.	9	Students will learn different types of error, and techniques to minimize error in the model.
13.	**Applications:** Spam Filtering, recommender systems, Anomaly Detection	6	Students will learn the implementation of different types of machine learning algorithms for real-life problems.
Total		**42**	

Text Books:

1. "Understanding Machine Learning", Shai Shalev-Shwartz and Shai Ben-David. Cambridge University Press. 2017.
2. "Data Analytics using Python", Bharti Motwani, First Edition, Wiley India Pvt. Ltd., 2020.

Reference Books:

1. "Foundation of Data Science", Avrim Blum, John Hopcroft and Ravindran Kannan. January 2017.
2. "Machine Learning", Tom Mitchell, First Edition, McGraw-Hill, 1997.