

Branch Name:	Information and Communication Technology
Program Code:	ET208
Course Name:	Advanced Machine Learning Practical
Course Code:	2ET2080201P
Pre-requisite Course:	Artificial intelligence, Python programming for data science

Course Objectives:

1. The course will deepen the student's knowledge of how to build computer systems that learn from experience.
2. The course assumes basic knowledge of introductory machine learning, and a good background on probability and statistics, linear algebra, and optimization methods.
3. This subject covers the overview of the python with emphasis on various python data structures and various libraries like Pandas, NumPy, Matplotlib for performing various data science function including data preparation, cleaning, exploratory analysis and visualization.
4. Students will learn advanced topics such as learning theory, transfer learning, meta-learning, domain adaptation, self-adaptive learning algorithms, deep learning, Gaussian processes, and kernel methods.

Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)									Total (Marks)
					Theory (Marks)				Practical (Marks)					
	L	T	P	Total	SEE		CCE		SEE		CCE			
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
	1	-	-	2	2	-	-	-	-	10	25	10	25	

LAB/Practical

1. Introduction about basic machine learning techniques.
2. Implement Classification
 - a. K-Nearest Neighbors (KNN)
 - b. Support Vector Machine (SVM)
 - c. Decision Tree Classification
 - d. Random Forest Classification
3. Implement Simple Linear Regression
4. Implement Multiple Linear Regression.
5. Implement Naive Bayes classifiers.
6. Implement K-Means Clustering.

7. Implement K-Armed Bandit.
8. Implement Monte Carlo method.
9. Mini Project based on concept of advanced machine learning.