Nirma University
Institute of Technology

Computer Science and Engineering Department
6CS203CC22   **Applied Machine Learning**   **[3 2 - 4]**

List of Practical

Sr. NO.	Week No.	List of Experiments	Mapped with CO
1	1	Introduction to Python and Numpy (2 Hrs) *	3
2	2	Introduction to Pandas, Matplotlib and Sklearn (2 Hrs) *	3
3	3,4	Simple and Multiple Linear Regression using Gradient Descent & Normal Equation Method (without using sklearn or equivalent library for both) (4 Hrs)	3
4	5	Linear Regression with Regularization (without using sklearn or equivalent library) and Simple and Multiple Linear Regression with and without regularization using Sklearn (2 Hrs)	3
5	6	Naïve-Bayes – Multivariate Bernoulli, Multinomial and Gaussian using sklearn (2 Hrs)	3
6	7	Decision Trees – ID3, C4.5 using sklearn (2 Hrs)	3
7	8	Support Vector Classification and Regression with Grid Search for Hyper-parameter tuning using sklearn (2 Hrs)	3
8	9	AND gate using Perceptron Learning (self-implementation) (2 Hrs)	3
9	10,11	Ex-OR Gate/any other problem using Backpropagation Neural Networks (self-implementation) (4 Hrs)	3
10	12	Back propagation Neural Network and K-means using sklearn (2 Hrs)	3

11	13,14,15	Reinforcement Learning for some game. (self-implementation) (6 Hrs)	3
		Total	30

Note: Practical 1 and 2 are of 5 marks, each of the rest is of 10 marks.

* Those who are already good at Python, Numpy, Pandas, Matplotlib and Sklearn, they can perform following 2 practical instead:

1. Use pytesseract library in Python for optical character recognition from (i) an image file (ii) a multi-page pdf file

2. Download financial report of some company in a pdf format. Using Tabula library in Python extract multiple tables from the financial report and save each table in a separate csv file. Repeat the entire task using Camelot library.