

Subject Code: GPO503

Date: 14/04/2023

Well logging data (e.g., density, porosity, gamma, sonic, and resistivity) from a well is provided (File name: '**logdata-3.dat**'). Use the data to develop python-based code for ML-based enhanced interpretation.

1. Make 2D scatter plot among all well logs and interpret the possible rock-facies present.

Write K-means algorithm in Python and classify the data with varying cluster centre from 2 to 3 with maximum iteration is 15 and stopping tolerance is 0.0001. Also print the centres of train model and error with iteration.

2. Develop an MLP-Feed Forward Neural network model with one-hidden layer to classify the rock facies from well log (File name: '**logdata-1.dat**'). The data limit of three rock facies class is also given to generate training sample.

	density	porosity	Gamma	Sonic	Resistivity.
Class-1	2.64-2.77	9-10	109-127	167-176	7.5-8.83
Class-2	2.90-3.30	17-26	4-39	158-160	8.0-9.0
Class-3	1.9-2.8	15-19	57-73	162-171	7.0-8.0

NB: Assignment with code of K-means & MLP-ANN is due on 24/04/2023