# Jodhpur Institute of Engineering & Technology

## SYLLABUS

### III - Semester

### Branch: CSE (AI and ML)

### 3AIML4-24: Introduction to Machine Learning Lab

**Credit: 1** **Max. Marks: 50 (IA: 30, ETE: 20)**

**0L+0T+2P** **End Term Exam: 2 Hours**

| Sr. No. | Experiments |
|---|---|
| **1** | Implement and demonstrate the FIND-S algorithm for finding the most specific hypothesis based on a given set of training data samples. Read the training data from a .CSV file. |
| **2** | For a given set of training data examples stored in a .CSV file, implement and demonstrate the Candidate-Elimination algorithm to output a description of the set of all hypotheses consistent with the training examples. |
| **3** | Write a program to obtain the least square regression line to best fit the given data for any linear regression problem. Also, predict the output for the test datasets and determine the accuracy score. |
| **4** | Write a program to obtain the least square regression line to best fit the given data for any polynomial regression problem. Also, predict the output for the test datasets and determine the accuracy score. |
| **5** | Write a program to implement k-Nearest Neighbor algorithm to classify the iris data set. Print both correct and wrong predictions. Java/ Pyhon ML library classes can be used for this problem. |
| **6** | Write a program to demonstrate the working of the decision tree based ID3 algorithm. Use an appropriate data set for building the decision tree and apply this knowledge to classify a new sample. |
| **7** | Write a program to implement the Naive Bayesian classifier for a sample training data set stored as a .CSV file. Compute the accuracy of the classifier, considering few test data sets. |
| **8** | Assuming a set of documents that need to be classified, use the naive Bayesian Classifier model to perform this task. Built-in libraries can be used to write the program. Calculate the accuracy, precision, and recall for your data set. |
| **9** | Write a program to construct a Bayesian network considering medical data. Use this model to demonstrate the diagnosis of heart patients using the standard Heart Disease Data Set. |
| **10** | Apply EM algorithm to cluster a set of data stored in a .CSV file. Use the same data set for clustering using the k-Means algorithm. Compare the results of these two algorithms and comment on the quality of clustering. You can add Java/Python ML libra classes/API in the program. |

**Tools/ software/ language : Python Programming Language**

**Suggested Readings/Books:**