IV Year I Semester 17EE753

L T P C 0 0 3 2

AI TECHNIQUES LABORATORY (Skill Course Lab-II)

Preamble:

Intelligent machines have replaced human capabilities in many areas. Artificial intelligence is the intelligence exhibited by machines & software. It is the branch of computer science that emphasizes on creating intelligent machines that work & reacts like humans.

Learning objectives:

- 1. To make students familiar with machine learning, deep learning and artificial intelligence, random search algorithms.
- 2. To analyses data using Integrated Development Environment like Jupyter and MATLAB.
- 3. Training students on the latest advancements and technical approaches in artificial intelligence.

List of Experiments

- 1. Importing excel data to MATLAB and Jupyter.
- 2. Outlier detection in wind and solar data using moving average and array reduction.
- 3. Classification of data using data analysis tool in MATLAB or Jupyter.
- 4. Minimization of objective functions using MATLAB or Jupyter IDE.
- 5. Minimization of objective functions using MATLAB or Jupyter coding.
- 6. Classification of quality and quantitative data wind and solar data using K- means clustering.
- 7. Implementing linear regression for prediction of solar energy using previous data.
- 8. Analyzing support vector machines (SVM) on wind and solar energy data prediction.
- 9. Using Naive Bayes for wind and solar energy prediction using MATLAB or Jupyter.
- 10. PI tuning for load frequency control of single area power system using Genetic Algorithm using MATLAB.
- 11. Load forecasting using linear regression.
- 12. Training data set using nf tool in MATLAB.

Learning outcomes:

- 1. To implement various learning techniques using various clustering methods.
- 2. To use libraries & functions in MATLAB to solve complex problems.
- 3. To gain comprehensive and detailed knowledge of artificial intelligence concepts with hands on examples.

Text books:

- 1. Artificial Intelligence (3rd edition E. Rich, Kevin Knight, Shiv Shankar B Nair), TMH, 2012.
- 2. Neural Networks & Deep Learning. C. C. Aggarwal, Springer.

Reference books:

1. Artificial Intelligence: A modern approach 3rd edition. Stuart J Rossell, Peter Norving.