CAP379:ARTIFICIAL INTELLIGENCE-LABORATORY

L:0 T:0 P:2 Credits:1

Course Outcomes: Through this course students should be able to

CO1 :: discuss the role of Python in AI

CO2 :: apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning.

CO3 :: demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models.

CO4 :: analyze different datasets using different machine learning algorithms

List of Practicals / Experiments:

Introduction and Installation of Prolog

- The structure of a Prolog program and how to use the Prolog interpreter. Facts, Rules and Queries.

Water Jug Problem

- Implementation of Water Jug Problem in Prolog

Monkey Banana Problem

- Implementation of Monkey Banana Problem in Prolog

Medical Diagnosis System

- Implementation of Medical Diagnosis System in Prolog

Towers of Hanoi Problem

- To implement Towers of Hanoi Problem using Prolog

Introduction to AI with Python

- Introduction to AI-centric Python libraries

A* Algorithm

- Implementation of A* Algorithm in Python

AO* Algorithm

- Implementation of AO* Algorithm in Python

Depth First Search

- Implementation of Depth First Search in Python

Best First Search

- Implementation of Best First Search in Python

Introduction and Installation of Weka 3.8

- Insights into Weka Machine Learning tool, its features, and how to download, install, and use Weka Machine Learning Software, Launching Explorer and Loading Data, File Formats and Pre-Processing Data

Machine Learning Algorithms

- Insights into Machine Learning Algorithms using Weka 3.8

Classification

- Naive Bayes Classifier, Bayesian Belief Networks, Decision Trees, Artificial Neural Networks

Clustering

- EM, Filtered Clusterer, Hierarchical Clusterer, Simple K Means

Text Books:

1. PROLOG PROGRAMMING FOR ARTIFICIAL INTELLIGENCE by IVAN BRATKO, PEARSON

References:

1. THE ART OF PROLOG by LEON STERLING AND EHUD SHAPIRO, MIT Press