23CS31P1 – ARTIFICIAL INTELLIGENCE LAB

Course Category:	Professional Core	**Credits:**	1.5
Course Type:	Practical	**Lecture-Tutorial-Practical:**	0-0-3
Prerequisite:	Nil	**Sessional Evaluation:** **Univ. Exam Evaluation:** **Total Marks:**	30 70 100
Course Objectives:	**Students undergoing this course are expected:** • The student should be made to study the concepts of Artificial Intelligence. • The student should be made to learn the methods of solving problems using Artificial Intelligence. • The student should be made to introduce the concepts of Expert Systems and machine learning.		

Course Outcomes:	**Upon successful completion of the course, the students will be able to:**	
	CO1	Understand the Mathematical and statistical prospectives of machine learning algorithms through python programming.
	CO2	Appreciate the importance of visualization in the data analytics solution..
	CO3	Derive insights using Machine learning algorithms.
	CO4	Implement and demonstrate AI and ML algorithms
	CO5	Evaluate different algorithms
Course Content:	**LIST OF EXPERIMENTS (WITH BLOOM'S COGNITIVE LEVELS):** 1. Write a Program to Implement Breadth First Search using Python. 2. Write a program to implement Best First Searching Algorithm 3. Write a Program to Implement Depth First Search using Python. 4. Write a program to implement the Heuristic Search 5. Write a python program to implement A* and AO* algorithm. (Ex: find the shortest path) 6. Write a Program to Implement Water-Jug problem using Python. 7. Write a Program to Implement Alpha-Beta Pruning using Python. 8. Write a Program to implement 8-Queens Problem using Python. 9. Write a program to schedule a meeting among a 5 busy people using Default Reasoning the output should give the time, place and day of the meeting. 10. Write a program to implement the Unification algorithm 11. Develop a knowledge base system consisting of facts and rules about some Specialized knowledge domain 12. Write a program to implement 8 puzzle programs using different heuristics. Using it	

	play the game Tic-Tac-Toe at the end the game the program should display the no. of nodes generated, cutoff values at each stage in the form of a table
Text Books & References Books:	**TEXT BOOKS:** 1. PrateekJoshi,Artificial Intelligence with Python,Packt Publishing, 2017. 2. Xiao, Perry. Artificial intelligence programming with Python: from zero to hero. John Wiley & Sons, 2022 **REFERENCE BOOOKS:** 1. Stuart J. Russell and Peter Norvig, Artificial Intelligence A Modern Approach, Fourth Edition, Pearson, 2020 2. Martin C. Brown (Author), ―Python: The Complete Reference‖ McGraw Hill Education, Fourth edition, 2018 3. R. NageswaraRao , ―Core Python Programming‖ Dreamtech Press India Pvt Ltd 2018
E-Resources:	1. https://onlinecourses.nptel.ac.in/noc19_cs40/preview 2. https://onlinecourses.nptel.ac.in/noc19_cs41/preview