RAJAGIRI SCHOOL OF ENGINEERING & TECHNOLOGY
DEPARTEMENT OF INFORMATION TECHNOLOGY
BRANCH: COMPUTER SCIENCE AND BUSINESS SYSTEMS

101009/IT622S - ARTIFICIAL INTELLIGENCE LAB

SEMESTER VI
LAB CYCLE (2021- 25 BATCH) Feb 2024- May 2024)

INSTRUCTIONS TO STUDENTS

Students should be regular and come prepared for the lab practice.

1. In case a student misses a class, it is his/her responsibility to complete that missed experiment(s) before he or she comes for the second lab after the missed class.
2. Students should maintain a lab record with cycle stuck. Prescribed textbook and class notes can be kept ready for reference if required.
3. Once the experiment(s) get executed, they should show the results to the instructors and copy the same in their observation book.

PROCEDURE FOR EVALUATION

Mark distribution

Total Marks	CIE	ESE	ESE Duration
150	75	75	3 hours

Continuous Internal Evaluation Pattern:

Attendance	:	15 marks
Continuous Assessment	:	30 marks
Internal Test (Immediately before the second series test)	:	30 marks

End Semester Examination Pattern:

The following guidelines should be followed regarding award of marks

(a) Preliminary work : 15 Marks
(b) Implementing the work/Conducting the experiment : 10 Marks
(c) Performance, result and inference : 25 Marks
(d) Viva voce : 20 marks
(e) Record : 5 Marks

SYLLABUS

List of Experiments

The programs are expected to be implemented using Python

1. Write a program to solve 8-queens problem.
2. Write a program to implement Water Jug Problem.
3. Write a program to implement Hangman game.
4. Write a program to implement basic search strategies – Crypt arithmetic.
5. Write a program to implement Breadth-First Search.
6. Write a program to implement Depth-First Search.
7. Write a program to implement A* algorithm.
8. Write a program to implement AO* algorithm.
9. Write a program to generate a magic square.
10. Write a program to implement Min-Max algorithm and Alpha-Beta pruning.
11. Develop a game playing agent for the game Connect Four. The game is played by two players who alternate turns dropping colored discs into a vertical grid. Each player uses a different color (usually red or yellow), and the objective of the game is to be the first player to get four discs in a row.
12. Write a program to solve constraint satisfaction problems.
13. Write a program to implement Tic-Tac-Toe game using python.
14. Write a program to implement the Travelling Salesman Problem.
15. Write a program to implement a simple Chatbot.
16. Write a program which behaves a small expert for medical Diagnosis. Case study of standard AI programs like Mycin and AI Shell.

LAB CYCLE

Python Programming Practice

Lab Cycle 1

AI Problems :

1. Write a program to solve 8-queens problem.

2. Write a program to implement Water Jug Problem.

3. Write a program to implement Hangman game.

Basic search strategies :

4. Write a program to implement basic search strategies – Crypt arithmetic.

5. Write a program to implement Breadth-First Search.

6. Write a program to implement Depth-First Search.

Lab Cycle 2

Heuristic search strategies:

7. Write a program to implement A* algorithm.

8. Write a program to implement AO* algorithm.

Optimal decisions & strategies in games:

9. Write a program to generate a magic square.

10. Write a program to implement Min-Max algorithm and Alpha-Beta pruning.

11. Develop a game playing agent for the game Connect Four. The game is played by two players who alternate turns dropping colored discs into a vertical grid. Each player uses a different color (usually red or yellow), and the objective of the game is to be the first player to get four discs in a row.

12. Write a program to implement Tic-Tac-Toe game using python.

13. Write a program to implement the Travelling Salesman Problem.

Lab Cycle 3

Constraint satisfaction problems:

14. Write a program to solve constraint satisfaction problems.

Expert Systems:

15. Write a program to implement a simple Chatbot.

16. Write a program which behaves a small expert for medical Diagnosis. Case study of standard AI programs like Mycin and AI Shell.

Micro Project

Lab in Charge:

Dr. Ranju S Kartha

Dr. Neeba E A

Ms. Jeshmol P. A

Ms. Ancy C A