

**Artificial Intelligence Lab (AI-302P)**  
**Department of Electrical & Electronics Engineering, MAIT**

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**Lab Overview**

The Artificial Intelligence (AI) Lab supports hands-on learning for B.Tech. (EEE – AIML) students by enabling them to implement fundamental AI concepts using programming, logical reasoning, search, game-based problem-solving, and Natural Language Processing (NLP). The lab complements the corresponding Artificial Intelligence theory course by providing practical exposure to knowledge representation, state-space search techniques, and NLP pipelines for text preprocessing and classification.

The lab is designed to strengthen students' ability to model real-world problems, implement algorithms in Python, and validate solutions through experimentation and structured evaluation.

**Learning Objectives**

- CO1: Develop foundational AI programming skills by representing facts, implementing predicates, and applying logical reasoning using Python.
- CO2: Enhance AI problem-solving skills through search algorithms, state-space techniques, and text processing using Python.
- CO3: Strengthen AI problem-solving and logical reasoning by implementing game-based algorithms in Python.
- CO4: Develop foundational NLP skills by implementing text preprocessing, POS tagging, and classification techniques using NLTK in Python.

### List of Experiments / Practicals

Experiment No.	Experiment / Practical
1	Write predicates in PYTHON: (i) convert centigrade temperature to Fahrenheit; (ii) check if a temperature is below freezing.
2	Write a program to implement Breadth First Search (BFS) traversal.
3	Write a program to implement the Water Jug Problem.
4	Write a program to remove punctuations from the given string.
5	Write a program to sort a sentence in alphabetical order.
6	Write a program to implement the Hangman game using Python.
7	Write a program to implement the Tic-Tac-Toe game.
8	Write a program to remove stop words for a given passage from a text file using NLTK.
9	Write a program to implement stemming for a given sentence using NLTK.
10	Write a program for POS (Part-of-Speech) tagging for a given sentence using NLTK.
11	Write a program to implement lemmatization using NLTK.
12	Write a program for text classification for the given sentence using NLTK.

### Key Equipment and Software

- Location: Room No. 631, Block 6, Mahatama Gandhi Block (Dept. of EEE).
- Computing Systems: 21 desktop systems (HP Pro/HP Desktop 280 series) with Intel 12th Gen processors (i5/i7), RAM range 8–28 GB, and storage configured with ~500 GB HDD or 512 GB SSD (as per department inventory [report attached](#)).
- Networking and peripherals to support programming, dataset handling, and practical demonstrations.
- Software Stack (installed/used in AI Lab): Anaconda, Turbo C++, and Scilab.

## Current Pictures of the Lab



