CS6380: Artificial Intelligence

July Nov. 2025

Updated on July 26, 2025

1 Practical Aspects

Class Timings (F Slot) in SSB134

- Tuesday: 5.00PM-5.50PM
- Wednesday: 11.00AM-12.00PM
- Thursday: 9.00AM-9.50AM
- Friday: 8.00AM-8.50AM

Course Instructors:

- Meghana Nasre, Office: SSB 114
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TA Team:

- Ritwiz Kamal (ritwizkamal@gmail.com)
- Dinesh Naik Katravath (cs24m018@smail.iitm.ac.in)

2 Course objectives

The objective of this course is to understand how to represent knowledge explicitly using symbols and logic, and to develop skills in reasoning, problem-solving, and decision-making through classical AI techniques like search algorithms and rule-based systems. It aims to teach foundational concepts in logic, knowledge representation, and inference, enabling students to design and implement explainable, rule-driven AI systems. Additionally, the course helps learners compare symbolic AI with other AI paradigms, preparing them to build intelligent agents that operate through logical reasoning and transparent decision processes.

3 Course prerequisite(s)

CS2800 or equivalent is highly recommended.

4 Course Requirements

You are *required* to attend all the lectures. If you miss any of them it is your responsibility to find out what went on during the classes and to collect any materials that may be handed out.

Class participation is strongly encouraged to demonstrate an appropriate level of understanding of the material being discussed in the class. Regular feedback from the class regarding the lectures will be very much appreciated.

5 Planned Syllabus

The course contents are divided as follows:

- Introduction + Agents and Environments.
- Problem Solving
  - Search Methods for Problem Solving
  - Search in Complex Environments
  - Constraint Satisfaction Problem
  - Adversarial Search and Games
- Knowledge and Reasoning
  - Knowledge Based Agents
  - Propositional Logic and First Order Logic
  - Using Logic to make inferences : Resolution, Backward/Forward Chaining
- Planning
  - Knowledge Representation
  - Classical Planning: Algorithms, Heuristics
  - Hierarchical Planning
  - Planning in Non-deterministic domains
- Data driven AI

6 Grading Policy

Following is the proposed grading policy (subject to class committee approval).

- Mid Sem Exam (tentatively on 20-09-2025, Saturday) – 30%
- End Sem Exam (as per Calendar : 21-11-2025, Friday) – 40%.
- Tutorials + Programming assignments – 30%.

All details and announcements will be posted on the moodle page of this course.

7 Academic Honesty

Academic honesty is expected from each student participating in the course. NO sharing (willing, unwilling, knowing, unknowing) of assignment code between students, submission of downloaded code (from the Internet, Campus LAN, or anywhere else) is allowed.

Academic violations will be handled by IITM Senate Discipline and Welfare (DISCO) Committee. Typically, the first violation instance will result in ZERO marks for the corresponding component of the Course Grade and a drop of one- penalty in overall course grade. The second instance of code copying will result in a 'U' Course Grade and/or other penalties. The DISCO Committee can also impose additional penalties.

Please protect your Moodle account password. Do not share it with ANYONE. Do not share your academic disk drive space on the Campus LAN.