

Course title: Artificial Intelligence

Course code: 19016501

Year/term: Year 4/term 1

Credit points: 3

Contact time: 3-hour lecture

Prerequisite:

Course Learning Outcomes

C1. The fundamentals and techniques of Artificial Intelligence are discussed in this course. The first part of the course begins with an overview of intelligent agents and agent architectures. We then introduce basic search techniques for problem solving and planning. Adversarial search and the principals of game theory are given. Knowledge representation and logical formalisms using propositional and first order logic are explained. Planning in partially observable environments is introduced. In the second part, we first give a summary of probability theory for Artificial Intelligence applications. Then Machine learning algorithms including supervised and unsupervised learning are discussed. Finally, we discuss the applications of AI including computer vision, robotics and NLP.

Generic learning outcome (choose the outcome that relate to your teaching activities)

- G1. students are able to communicate and speak well in public
- G2. students are responsible for all assigned work on time
- G3. students are able to work as team.
- G4. students can use their knowledge to analyse, develop and create their own work.
- G5. students have life-long learning skill.
- G6. students has a good skill in English communication, especially, the technical communication relates to sound and acoustic engineering

### Learning & Teaching Activities

Teaching activities	Learning outcome	Remarks	Problem (MKO5)	Solution to problem (MKO5)
Lecture	C1, G1, G2, G3, G4, G5, G6	Every week		

### Assessment

Name	%		
Class participation	15		-
Midterm exam	35		-
Final project	50		-
			-

### Feedback

Activities	Remarks	Problem (MKO5)	Solution to problem (MKO5)
Announce Midterm score	Week 7		
Announce Final score	Week 15		

### Time table

Week no.	Lecture topics	Lab topics
1	Introduction to Artificial Intelligence	-
2	Agent types and agent architectures	-
3	Goal trees and problem solving	-
4	Search algorithms 1	-
5	Search algorithms 2	-
6	Constraint Satisfaction Problems and Local Search	-

7	Planning and Game Theory	-
8	Games and adversarial search	-
9	Logic	-
10	Probability	-
11	Bayesian inference, Naïve Bayes model, Bayesian networks	-
12	Introduction to Machine Learning and Deep Learning	-
13	Introduction to Tensorflow and workshop	-
14	Individual meetings to help with final projects	-
15	Final project presentation	-