

## Artificial intelligence

**Credits: 4 Semester 2 Compulsory: No**

<b>Format</b>	Lectures 20 h	Examples 12h	Private study 68 h
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**Lecturers:** (Ph. Lucidarme; P-Y Oudeyer) (ECN)

### Objectives:

The goal of the course is to present advanced issues of artificial intelligence from the perspective of a computerized autonomous agent

### Contents:

The first part covers basic methods of artificial intelligence – the logic of knowledge representation, inference rules and problem solving including: uniformed search, informed search with heuristic functions, constraint satisfaction problems and adversarial games. The second part deals with practical planning and acting of an autonomous agent (i.e., situation space, plan space, plan decomposition, hierarchic decomposition, contingency planning), and with probabilistic reasoning. The third part discusses agent design problems in the area of knowledge acquisition (learning from observations, in neural networks and reinforcement learning), and machine perception (image and speech understanding).

**Abilities:** After completing this course, the students will be able to:

- Produce and analyse the knowledge inference rules,
- Acquire the knowledge using: active observation, neural networks processing.
- Process the visual information and recognize speech using the machine perception.

**Assessment:** 30% continuous assessment, 70% from end-semester examination.

### Recommended texts:

- S. Russell, P. Norvig, *Artificial Intelligence: A Modern Approach*. Prentice Hall, Upper Saddle River, N.J., 2002.

### Further readings:

- G.F. Luger, W.A. Stubblefield, *Artificial Intelligence. Structures and Strategies for Complex Problem Solving*, Addison Wesley, 1997
- J-P. Delahaye, *Formal Methods in Artificial Intelligence*, Oxford 1987