ID2209 Distributed Artificial Intelligence and Intelligent Agents 7.5 credits

Distribuerad AI och Intelligenta Agenter

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment
Course syllabus for ID2209 valid from Autumn 2019

Grading scale
A, B, C, D, E, FX, F

Education cycle
Second cycle

Main field of study
Computer Science and Engineering

Language of instruction
The language of instruction is specified in the course offering information in the course catalogue.
Intended learning outcomes

Having passed the course, the student should be able to:

• formulate definitions of the most important concepts and the methods for intelligent agents and multi-agent systems
• evaluate and use the most important concepts and the methods in the area for intelligent agents and multi-agent systems.

Course contents

• Introduction and basic concepts for DAI (distributed artificial intelligence).
• Coordination methods general models, joint coordination techniques, organizational structures, information exchange on the metalevel, multi-agent planning, explicit analysis and synchronisation.
• Negotiation methods: principles, protocols, production sequencing as negotiations, conventions for automatic negotiations.
• Interoperability: Methods for interoperation of software, speech acts, KQML, FIPA.
• Multi-agent architectures: Low-level architectural support, DAI-testbeds, agent oriented software development.
• Agent theory: Fundamentals of modal logic, the BDI architecture.
• Agent architectures: deliberative, reactive and hybrid architectures.
• Mobile agents: requirements, implementation, safety for mobile agents, environments for mobile agents. Agent typology and technical questions. Applications.
• Practical part of the course that contains exercises and a project that includes implementation of a multi-agent system.

Specific prerequisites

Course literature

Textbook for the course:


Lecture notes

Recommended Reading (not in curriculum):

The following articles are recommended to obtain a deeper understanding of the subject. We have provided links to the articles wherever possible.

Introduction, Overview and Terminology


Negotiation


Coordination


Teamwork


Agent Communication


Mobile Agents


Agents Overview


Agent Theory


Agent-Oriented Software Engineering


Agent-Mediated Electronic Commerce


Additional articles in the curriculum may be added during the course

Examination

- ANN1 - Assignment, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 4.5 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH’s coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

Written examination.
In agreement with KTH’s coordinator for disabilities, it is the examiner who decides to adapt the examination for students in possession of a valid medical certificate. The examiner may permit other examination forms at the re-examination of few students.

**Ethical approach**

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.