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.

Establishment

The official course syllabus is valid from the spring semester 2025 in accordance with the decision from the faculty board: HS-2025-0239.Decision date: 2025-02-18

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering

Specific prerequisites

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After passing the course, the student shall 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.

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.

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

Written examination.

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.