Multi-Agent Systems Coordination

Course level: Master ([M2])   **Track(s):** [CPS2, DSC, MLDM]

ECTS Credits: 3 (CPS2, DSC, MLDM)

Course instructors: Gauthier Picard (Mines Saint-Etienne), Flavien Balbo (Mines Saint-Etienne), Olivier Boissier (Mines Saint-Etienne)

Education period: 3rd semester   **Language of instruction:** English

Expected prior-knowledge: Introduction to Artificial Intelligence, Multi-Agent Programming

Aim and learning outcomes: Introduction of different coordination mechanisms to be used in the design and development of collective autonomous systems. The objective is to be maser coordination algorithms (e.g. DCOP, Auctions, Orchestration) to be used in decentralized and distributed systems composed of autonomous agents.

Keywords: multi-agent system, coordination,

Syllabus:

- Introduction to multi-agent systems and coordination
- Coordination mechanisms
- …..
- Laboratory sessions programming

Organisation and timetable: Lectures (12h), tutorials (10h) and Lab sessions (12h)

Form(s) of Assessment: written exam (2h, coefficient 2), practical work/project (coefficient 2) - Resit: written exam (2h)

Literature and study materials:

Reference books:
- R.H. Bordini, J.F. Hübner, M. Wooldridge, Programming multi-agent systems in AgentSpeak using Jason, Wiley, 2007
- G. Weiss, Multiagent Systems, MIT Press, 2013
- F.L. Bellifemine, G. Caire, D. Greenwood, Developping multi-agent systems with JADE, Wiley, 2007
- L. Padgham, M. Winikoff, Developing Intelligent Agent Systems : A Practical Guide, Wiley, 2004

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