

MLDM Multi-Agent Systems

Course level: Master

ECTS Credits: 4.00

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



Education period (Dates): 1st semester

Language of instruction: English

Expected prior-knowledge: Introduction to AI (from DMKD)

Aim and learning outcomes:

This course presents methods and tools of Artificial Intelligence (AI) –mono-agent– and of its counterpart Multi-Agent (MA) systems. It gives a strong theoretical and practical background which will allow students to embed in existing applications or to develop their own AI and MA methods and tools applied to different contexts.

Topics to be taught (may be modified)~25h

- ☒ Multi-Agent Oriented Programming: ~ 10h
- ☒ Multi-Agent Problem Solving ~6h
- ☒ Self-Organizing Systems ~4h
- ☒ Multi-Agent Simulation ~6h

Practical Laboratory Sessions~10h

- Multi-Agent Oriented programming in practice: application of the different models and tools to develop a decentralized application

Teaching methods: Lectures and lab classes.

Form(s) of Assessment: written exam (70%), practical work (30%)

External/internal examiner: --

Examination support: None

Literature and study materials:

Basic textbook:

- *Programming Multi-Agent Systems in AgentSpeak using Jason*, Rafael H. Bordini, Jomi Fred Hübner, Michael Wooldridge, Wiley 292 pages, 2007
- *An Introduction to MultiAgent Systems*, 2nd Edition Michael Wooldridge, Wiley, 2009
- *Developing Intelligent Agent Systems: A Practical Guide*, Lin Padgham (RMIT University, Australia), Michael Winikoff (RMIT University, Australia) ISBN: 978-0-470-86120-2, 240 pages, Wiley, June 2004
- *Multiagent systems : a modern approach to distributed artificial intelligence*, edited by Gerhard Weiss, Cambridge (Mass.), The MIT Press, cop. 2000. ISBN : 0-262-73131-2 ; 0-262-23203-0.

Additional information:

Flavien Balbo, Olivier Boissier, Gauthier Picard

ENS Mines Saint-Etienne

E-mail: {flavien.balbo, olivier.boissier, [gauthier.picard](mailto:gauthier.picard@emse.fr)}@emse.fr

Web page: <http://www.emse.fr/~balbo>, <http://www.emse.fr/~boissier>, <http://www.emse.fr/~picard>

Home page: <http://mldm.univ-st-etienne.fr>