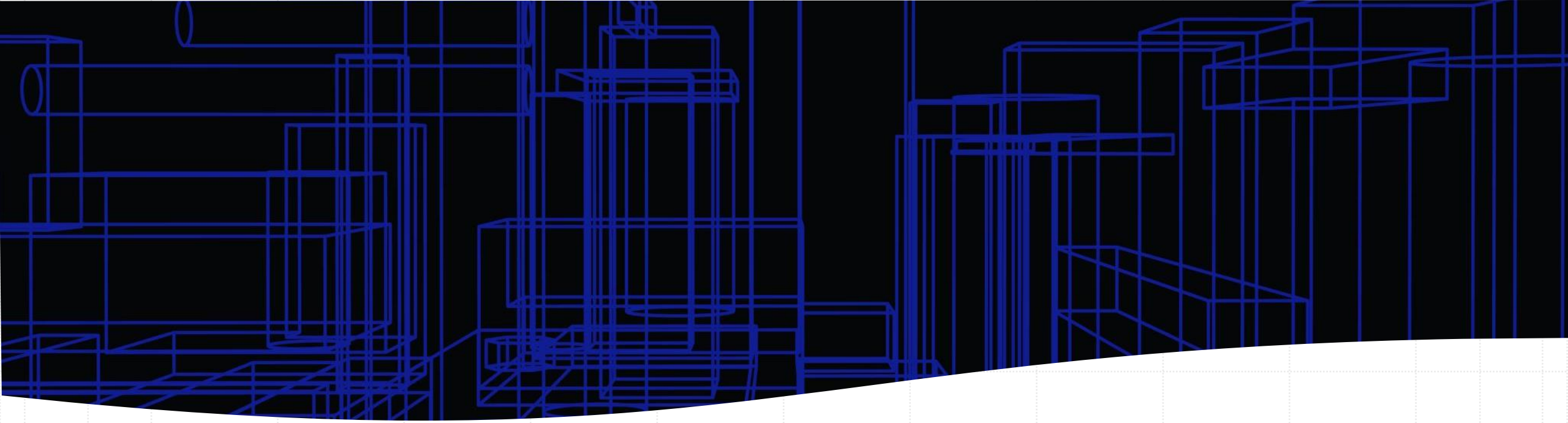

Introduction to multi-agent systems Course 2023-24

Compulsory MESIIA-MIA

Term: 1st

Department: Computer Science and Mathematics

Timetable

- Theory
  - Classroom: 215
  - Wednesday, 14-16
- Laboratory
  - Lab: 208
  - Wednesday, 16-17, 17-18, 18-19

Staff

- Lecturer: Dr. Mohammed Jabreel (mohammedhamoodabdullah.jabreel@urv.cat)
- Lab assistant: Jordi Pascual (jordi.pascual@urv.cat)

Related Previous Subjects

- Programming, Java
- Data Structures
- Many agent-related topics covered in MIA
  - Multi-Agent Systems Design (UPC)
  - Self-Organizing Agent Systems (UB)
  - Normative and Dynamic Virtual Worlds (UB)

Objectives

- Acquire the basic concepts of agents and multi-agent systems
- Learn the different kinds of agents and their basic coordination techniques, and know when to apply each of them
- Apply team collaboration techniques to solve a specific problem using agent technology

Topics (I)

1. Intelligent agents

- Introduction to agent technology
- Agent architectures
- Agent properties
- Typology

Topics (II)

2. Multi-agent systems

- Introduction to distributed intelligent systems
- Communication.
- Standards
- Coordination
- Negotiation
- Distributed planning
- Applications of multi-agent systems

Bibliography

- Extra material (papers, links, videos) in the Moodle space of the course
- Suggested reading given each week

Lab sessions

- Definition of work teams
- Description of the practical exercise
- Explanation of the programming environment to be used (Dedale – JADE)
- Group collaboration tools
- Discussion on the properties/types of the agents needed in the practical exercise
- Discussion of the most appropriate coordination and negotiation techniques to be used in the practical exercise
- Work sessions on the practical exercise
- Oral presentation of the practical exercise

Working groups

- The practical exercise of the course must be developed by teams of 4–5 students
- The exercise is presented in the lab sessions
- Each group should choose a coordinator (contact person with the lab assistant)

Teamwork

- Each group must report, with the maximum detail, all the activities of the team
- One of the basic points for the evaluation of the course
- Examples
  - Meeting summaries
  - Planning and work distribution among the team members
  - Bibliography that has been examined
  - Any material related to the practical exercice (e.g. code, tests)

Evaluation

- 40% individual theory exam – no minimum score required
- 60% practical exercise
  - Discussion on agent properties/types – Nov. 8th (10%)
  - Initial implementation – Nov. 29th (5%)
  - Discussion of coordination/negotiation techniques – Dec. 13th (10%)
  - Implementation, testing, written report, oral presentation Jan. 17th (35%)

Important dates

- First call
  - Theory & Practical exercise: January 17th
- Second call (MESIIA)
  - Theory & Practical exercise : January 31st