

Academic Year: ( 2024 / 2025 )

Review date: 09-05-2024

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: CARBO RUBIERA, JAVIER IGNACIO

Type: Electives ECTS Credits : 3.0

Year : 4 Semester :

**REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)**

Programming

**SKILLS AND LEARNING OUTCOMES**

Complement the basic, transversal and compulsory knowledge of the Degree according to the student's preferences.

**OBJECTIVES**

General:

1. Analysis and synthesis skills
2. Planning and organization skills
3. Problem solving skills
4. Team work skills
5. Capacity to apply theoretical concepts into practical problems
6. Critical Reasoning skills

Knowledge:

1. Knowledge about the concept of agent.
2. Knowledge about the ways to evaluate how much a problem fits into agent approach.
3. Knowledge about the different types of agents.
4. Knowledge about the communication between agents.
5. Knowledge about how to rule the interaction between agents.

Instrumental:

1. Designing the ontology and protocols of a system of agents.
2. Designing the internal reasoning of an agent.
3. Using specific tools to develop a system of agents.

Attitude:

1. Creativity.
2. Quality aspects.
3. Motivation.
4. Seeking solutions to new problems.

**DESCRIPTION OF CONTENTS: PROGRAMME**

- Agent definition, scope and ultimate meaning.
- Formal description of ends, environment, organization and context of Agent Systems.
- Architectures and paradigms of Agents.
- Agents communications.
- Agent implementation: languages and platforms.
- Future challenges of agents:LLMs

**LEARNING ACTIVITIES AND METHODOLOGY**

Lectures supported by computer and audiovisual aids.

Practical learning based on cases and problems, and exercise resolution.

Individual and group or cooperative work with the option of oral or written presentation.

Individual and group tutorials to resolve doubts and queries about the subject.  
Internships and directed laboratory activities.

#### ASSESSMENT SYSTEM

<b>% end-of-term-examination:</b>	17
<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	83

The final score of both the ordinary and the extraordinary evaluations is computed from combining the scores obtained by the students both in their practical teamwork and the partial exams. The computation takes the form of a weighted sum with the following weights:

2 Practical teamwork: 66.66% (33.3 each one).

2 Partial exams: 33.33% (16.66 each one) one along the semester and the other one in the final exam day (but it is a partial exam, not a final one)

Minimal grade in any part: None

#### ADDITIONAL BIBLIOGRAPHY

- Gerhard Weiss Multiagent Systems, MIT Press, 2013
- Jacques Ferber Multi-agent systems: An introduction to distributed artificial intelligence, AddisonWesley , 1999
- M. Luck, P. McBurney, O. Shehory, S. Willmott Agent Technology, Computing as Interaction: A Roadmap for Agent Based Computing, University of Southampton Department of Electronics & Computer Science, 2005
- Michael Wooldridge An Introduction to MultiAgent Systems, Wiley, 2009
- Nicholas R. Jennings Agent Technology: Foundations, Applications, And Markets, Springer, 2010
- S. Russel, P. Norvig Artificial Intelligence: A Modern Approach, Pearson, 2021