Universidad Zaragoza

Academic Year/course: 2024/25

30255 - Decision-Making Assistance Systems

Syllabus Information

Academic year: 2024/25
Subject: 30255 - Decision-Making Assistance Systems
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
326 - Escuela Universitaria Politécnica de Teruel
Degree: 439 - Bachelor's Degree in Informatics Engineering
443 - Bachelor's Degree in Informatics Engineering
ECTS: 6.0
Year: 4
Semester: First semester
Subject type:
Module:

1. General information

The subject is taught within the Information Systems specialty. The objective of the subject is to deepen in concepts of decision making that are introduced in "Information Systems 2", "Databases 2" and "Information Technologies In the Enterprise". This subject is complementary to the subject "Data Warehousing and Data Mining" and deepens in some theoretical aspects of "Machine Learning".

Decision support systems improve decision processes in dynamic, complex environments with uncertainty. They integrate databases, OLAP, modeling, simulation, visualization and knowledge management tools.

It is recommended to have taken "Information Systems 2" and"Databases 2".

2. Learning results

1. Know the fundamentals of intelligent systems related to the processing of information in large databases.

2. Know the techniques that allow building such models: when they can be applied and under what conditions and what kind of results they give.

3. Decide in the face of a specific practical problem what data processing task should be undertaken, what model is to be obtained, what technique would be most appropriate to use and how to evaluate the results obtained.

4. Use modeling and decision making tools (such as optimization, simulation, or data mining) and visualization tools.

3. Syllabus

The program of the subject includes the following topics:

Topic 1 - Introduction. Presentation of different approaches to decision-making processes. Behavior and support in the decision making process.

Topic 2 - Fundamentals and Techniques. Decision support models.

Topic 3 - Decisions in Multiagent Systems. Distributed intelligent systems. Modeling and experimentation.

Topic 4 - Business Intelligence. Review of real case studies in a business environment.

4. Academic activities

The academic activities will be distributed in the academic calendar of the corresponding course of each of the centers where this subject is taught:

1. Development of the theoretical program of the subject in lectures (30 hours).

2. **At EINA:** Application of specific concepts and techniques in problem (15 hours) and practical sessions (15 hours). **At EUPT:** Practical sessions (30 hours).

If available, invited experts will give professional talks on their daily experience with decision support systems.

5. Assessment system

At EINA:

The student must demonstrate that they have achieved the expected learning results by means of the following assessment activities.

1. **Written exam (60%).** It will raise issues and/or problems in the field of Information Systems Decision Support of a similar type and level of complexity to that used during the term. Both the quality and clarity of your resolution will be valued.
2. **Practices and Exercises (40%).** Throughout the term there will be exercises and practices of individual work or in small groups that will be delivered throughout the term. Critical capacity will be valued when selecting alternatives and the correct evaluation of the degree of justification of the solution proposal reached.

The final grade of the subject will be obtained as the weighted average of the two parts of its assessment. To pass it is necessary to obtain at least 5.0 points out of 10.0 in each of the two parts.
In case the Practical and Exercises part is not passed by means of the deliveries during the term, a specific written test will be given after the written exam.

At the EUPT:

Students must demonstrate that they have achieved the expected learning outcomes through the following evaluation activity:

- **Project (100%)**: a group project in which students must conceive, design, and implement a Decision Support System. The work developed by each student will be assessed based on deliverables provided by the group throughout the course and on the defense each student makes of their contribution. The evaluation will be the same for the June and July sessions.

6. Sustainable Development Goals

8 - Decent Work and Economic Growth
9 - Industry, Innovation and Infrastructure