

27652 - ICT and Databases

Syllabus Information

Academic year: 2023/24

Subject: 27652 - ICT and Databases

Faculty / School: 109 - Facultad de Economía y Empresa

Degree: 450 - Degree in Marketing and Market Research

ECTS: 5.0

Year: 4

Semester: Second semester

Subject type: Optional

Module:

1. General information

The main goal of this subject is that the student learns the skills and resources necessary for the creation and management of databases. This IT tool is of particular importance for Marketing, as it will allow an optimal management of customer data, allowing offers to be made according to the consumer profile and the market. In addition, will promote the use of artificial intelligence and Big Data tools that allow us to manage data and draw conclusions or make predictions.

These approaches and goals are aligned with the Sustainable Development Goals (SDGs) of the 2030 Agenda of United Nations (<https://www.un.org/sustainabledevelopment/es/>), specifically, the activities planned in the subject will contribute to the achievement of goals 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 and 17

2. Learning results

- Properly use computer terms related to databases and information systems, as well as to understand the fundamental notions of relational databases, their advantages and limitations.
- Design, create and manage simple databases with a database manager for personal computers. Be able to establish relationships between tables.
- Perform complex queries in a relational database.
- Know and understand the need to handle data and information securely, taking the necessary measures to ensure confidentiality, availability and integrity of data.
- Students should be able to use Big Data tools to perform data pre-processing tasks, such as data cleaning, transformation, discretisation and attribute selection, in order to prepare data for analysis and modelling.
- Students should be able to apply machine learning algorithms, such as classification, regression, clustering and association, to extract knowledge from data and generate predictive or descriptive models.
- Students should be able to evaluate and validate the models generated, using techniques such as cross-validation, dataset partitioning and performance metrics, to measure the effectiveness and quality of the models.
- Interpret and communicate results obtained from the analyses and models generated, and effectively communicate conclusions and recommendations based on the results.
- Apply knowledge in practical scenarios by being able to apply the knowledge acquired in the use of databases and Big Data in practical scenarios, such as solving real problems, making data-driven decisions and implementing smart solutions.

3. Syllabus

- Information Systems
- ERPs
- Introduction to Databases
- Relational Database Design
- SQL Queries
- Big Data

4. Academic activities

Master classes: 5 hours

Theoretical-practical sessions in which the contents of the subject will be explained, incorporating active methodologies that favor the participation and involvement of the student in the development of the class.

Practical classes: 45 hours

Computer sessions in which exercises will be solved with the computer tools that the student must learn to use to handle.

Personal Study: 71 hours

Tests Assessment: 4h

5 ECTS = 125 hours

In principle, the teaching methodology and its evaluation is planned to be based on face-to-face classes . However, if circumstances so require, they may be carried out online.

5. Assessment system

In the FIRST CALL the subject will be evaluated in the modality of continuous evaluation throughout the semester by means of the activities that are indicated below and global evaluation. If the student does not pass the subject by continuous evaluation, he/she will have the opportunity to pass it in the corresponding official exams; in these official exams the global evaluation will be carried out as specified below.

Continuous assessment:

It consists of:

- a. A written test consisting of a series of questions (multiple choice or short answer) on the theory contents. will require at least a 3 (out of 10) in order to pass the course; it will contribute 20% to the final grade.
- b. Two practical tests consisting of performing on the computer exercises similar to those performed in class. A score of at least 5 (out of 10) will be required for each of the practical tests at . The first will contribute 30% of the final grade; the second will contribute 30%.
- c. Activities developed in the classroom (resolution of exercises, practices with applications, ...). This part will contribute 20% to the final grade.

Students may waive this last part, it being understood that the written test and the practical test will increase their weight in the final mark (30% for the written theory test, 40% for the first practical test and 30% for the second practical test).

The student who does not reach the required minimums in the continuous evaluation tests, must take the corresponding part in the final global test.

Global Assessment

It will be carried out in the official convocations established by the Center. It will consist of:

- a. A written test consisting of a series of questions (multiple choice or short answer) on the theoretical contents. will require at least a 3 (out of 10) in order to pass the course; it will contribute 20% to the final grade.
- b. A practical test consisting of performing on the computer exercises similar to those performed in class, with the computer tools worked on in the year. At least a 4 (out of 10) will be required to pass the subject, and will contribute 80% to the final grade.

In the event that the student does not reach any of the required minimums, his/her grade will be failed and the numerical grade will be, at most, 4.5.

The evaluation will assess the mastery of the tools used in the course and the quality of the solutions.

Assessment Criteria:

The evaluation will be based on the mastery of the theoretical contents, the ability to solve practical exercises using the computer tools and the quality of the proposed solutions.