

## 27025 - Database Systems I

### Syllabus Information

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**Academic year:** 2023/24

**Subject:** 27025 - Database Systems I

**Faculty / School:** 100 - Facultad de Ciencias

**Degree:** 453 - Degree in Mathematics

**ECTS:** 6.0

**Year:** 4

**Semester:** Second semester

**Subject type:** Optional

**Module:**

### 1. General information

In this course we will learn to design relational databases and to manage relational databases using the SQL language.

The approaches and objectives of this module are aligned with the Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda; the learning activities could contribute to some extent to the achievement of the goals 4 (quality education), 5 (gender equality), 8 (decent work and economic growth), and 10 (reducing inequality).

### 2. Learning results

- Design databases.
- Create, manage and query databases using structured languages.

### 3. Syllabus

1. Overview of database technology.
2. Table-based data models.
3. The relational model.
4. SQL: query language for relational databases.
5. Technological design in databases: methodology.
6. The conceptual schema: entity-relationship model. Perspective, formal model of knowledge representation and data model.
7. Textual specification of entity-relationship schemes.
8. An extended entity-relationship model.
9. Rules for the transformation of an entity-relationship schema into a relational schema.

### 4. Academic activities

Master classes: 30 hours.

Computer classes: 30 hours.

Project: 27 hours.

Study: 60 hours.

Assessment tests: 3 hours.

### 5. Assessment system

Database design part (3.33 points out of 10).

- Problem solving session at the end of the part (100% of the grade).

SQL part (6.67 points out of 10).

- Activities of obtaining and storing information in a relational database periodically (10% of the mark).
- A problem solving session throughout the part (90% of the grade).

In addition, the student must obtain a grade higher than 4 out of 10 in each of the two parts.

The evaluation of some of the activities proposed during the course will be carried out by means of oral presentations.

All this without detriment to the right that, according to the current regulations, the student has to take and, if necessary, pass the course by means of a global test.