Universidad Zaragoza

Academic Year/course: 2022/23

30219 - Databases

Syllabus Information

Academic Year: 2022/23
Subject: 30219 - Databases
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: 2
Semester: Second semester
Subject Type: Compulsory
Module:

1. General information

2. Learning goals

3. Assessment (1st and 2nd call)

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The learning process of this course is based on:

- The presentation of contents by the professors, and the resolution of exercises in class.
- The personal study by the students and their participation in class in solving exercises.
- The development of practical assignments by the students, oriented by the professors, who will develop the theoretical knowledge acquired.

It must be taken into account that, although the course has a practical orientation, acquiring the needed theoretical knowledge is also required. Therefore, the learning process emphasizes both the theoretical concepts and the individualized-study as well as the development of practical work.

4.2. Learning tasks

The course includes the following learning tasks:

- In the classes, the program of the course will be developed.
- In problem classes, problems applying the concepts and techniques presented in the course syllabus will be solved.
- Lab classes will be developed in a computer lab. In those sessions, the students will perform practical assignments related to the subject, and basically with the design, management and/or database exploitation.

The course/subject consists of 6 ECTS credits, of which 2,5 credits belong to Face-To-Face (F2F) class and 3,5 off-site credits. So, student dedication to achieve the learning outcomes in this course is estimated at 150 hours (63 F2F and 87 off-site).

4.3. Syllabus

The course will address the following topics:

- 1. Introduction
  - 1.1 Database Management Systems (DBMS)
  - 1.2 Database Design
- 2. Conceptual Database Design
  - 2.1 Entity-Relationship Model (E/R). Notation
  - 2.2 Conceptual Design Methodology. Practical examples
- 3. Logical Database Design
  - 3.1 Data Models. Relational Model. Relational Algebra (RA)
  - 3.2 Normalization
  - 3.3 Relational Languages: Structured Query Language (SQL)
  - 3.4 Study Cases
- 4. Physical Database Design
  - 4.1 Physical storage and organization of information
  - 4.2 Physical design of Relational Databases
  - 4.3 Adjustment, monitoring and optimization. Adaptation to the available DBMS
- 5. Database Exploitation
  - 5.1 Recovery and concurrency management
  - 5.2 Interaction with a DBMS
  - 5.3 Database Administration

4.4. Course planning and calendar

The calendar of classes, lab sessions and exams, as well as the dates of delivery of evaluation assignments, will be announced in advance, according to the sessions and dates established by the School.

4.5. Bibliography and recommended resources

Teruel:
http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=30219&Identificador=12960
Zaragoza:
http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=30219&Identificador=13387