



Year : 2018/19

30250 - Databases II

Syllabus Information

Academic Year:	2018/19
Subject:	30250 - Databases II
Faculty / School:	110 - 326 -
Degree:	443 - Bachelor's Degree in Informatics Engineering 439 - Bachelor's Degree in Informatics Engineering
ECTS:	6.0
Year:	443 - Bachelor's Degree in Informatics Engineering: 3 439 - Bachelor's Degree in Informatics Engineering: 3
Semester:	Half-yearly
Subject Type:	Compulsory
Module:	---

General information

Aims of the course

Context and importance of this course in the degree

Recommendations to take this course

Learning goals

Competences

Learning goals

Importance of learning goals

Assessment (1st and 2nd call)

Assessment tasks (description of tasks, marking system and assessment criteria)

Methodology, learning tasks, syllabus and resources

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 completion of practical assignments by the students, oriented by the professors, who will develop the theoretical knowledge acquired.

In the course, the students' autonomous work will be encouraged. It is expected that students will learn from experience and from discussions among themselves and the professors. Through these discussions, the students will develop their critical abilities and skills to compare design alternatives or different solutions, assessing their advantages and disadvantages. At the same time, the professors will try to encourage peer learning.

Learning tasks

The program helps achieving the expected learning goals by including the following activities...

- In the classes, the program of the course will be developed.
- In problem-solving sessions, problems and exercises will be solved, and activities related to the reading and discussion of relevant texts may be performed.
- Laboratory sessions will be developed in a computer lab. In those sessions, the students will perform practical assignments related with the course, and particularly with the design, administration, and/or exploitation of databases.

Syllabus

1. Design of Databases:

- Post-relational data model. Object/relational databases.
- Design examples.

2. Distributed Databases:

- Motivation.
- Architectures and design of distributed databases.
- Information integration: Global-As-View, Local-As-View.
- Parallel databases, databases and the Internet, mobile databases.

3. Database Management Systems:

- Basic functions and architecture of a Database Management Systems (DBMS).
- Main DBMS and criteria for choosing a DBMS.
- Advanced functionalities of DBMS.
- Examples of DBMS (like, for example, Oracle, MySQL, PostgreSQL, NoSQL systems). Features, supported query language, other aspects (e.g., query optimization).

4. Administration and Exploitation of a Database:

- Roles of the database administrator.
- Security and management of privileges.
- Other aspects of administration: access from a program, support for the management of concurrency and recovery, the data dictionary, tuning of the database, data quality and availability.

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.

Bibliography and recommended resources

[BB: Basic bibliography / BC: Complementary bibliography]

Zaragoza:

- [BB] Connolly, Thomas M.. Sistemas de bases de datos : un enfoque práctico para diseño, implementación y gestión / Thomas M. Connolly, Carolyn E. Begg ; traducción, Vuelapluma . - 4ª ed. Madrid [etc.] : Pearson Educación, D.L. 2005
- [BB] Elmasri, Ramez. Fundamentos de sistemas de bases de datos / Ramez Elmasri, Shamkant B. Navathe ; traducción, José Manuel Díaz . - 5ª ed. Madrid [etc.] : Pearson Addison Wesley, D.L. 2007
- [BB] Mullins, Craig. Database administration : the complete guide to practices and procedures / Craig S. Mullins . 3rd print. Boston [etc.] : Addison-Wesley, 2004
- [BB] Silberschatz, Abraham. Fundamentos de bases de datos / Abraham Silberschatz, Henry F. Korth, S. Sudarshan ; revisión técnica Jesús Sánchez Allende . 6ª ed. Aravaca (Madrid) : McGraw-Hill Interamericana, D. L. 2014
- [BC] Lightstone, Sam. Physical database design [recurso electrónico] : the database professional's guide to exploiting indexes, views, storage, and more / Sam Lightstone, Toby Teorey, Tom Nadeau
- [BC] Tamer Özsu, M. Principles of Distributed Database Systems / M. Tamer Özsu, P. Valduriez. - 3th edition Springer, 2011

List of URLs:

- Caché Documentation [<http://docs.intersystems.com/cache20121/csp/docbook/DocBook.UI.Page.cls>]
- MySQL Reference Manual [<http://dev.mysql.com/doc/>]
- NoSQL Databases [<http://nosql-database.org/>]
- Oracle Documentation [<http://www.oracle.com/pls/db112/homepage>]
- PostgreSQL Manual [<http://www.postgresql.org/docs/manuals/>]
- Slides, problem descriptions, case studies and instructions of practice sessions that the teachers of the course make available through the platform Moodle. [<https://moodle2.unizar.es/add/>]

Teruel:

- [BB] Connolly, Thomas M.. Sistemas de bases de datos : un enfoque práctico para diseño, implementación y gestión / Thomas M. Connolly, Carolyn E. Begg ; traducción, Vuelapluma . 4ª ed. Madrid [etc.] : Pearson Educación, D.L. 2005
- [BB] Elmasri, Ramez. Fundamentos de sistemas de bases de datos / Ramez Elmasri, Shamkant B. Navathe ; traducción, José Manuel Díaz . 5ª ed. Madrid [etc.] : Pearson Addison Wesley, D.L. 2007
- [BB] Silberschatz, Abraham. Fundamentos de bases de datos / Abraham Silberschatz, Henry F. Korth, S. Sudarshan ; traducción Fernando Sáenz Pérez, Antonio García Cordero, Jesús Correas Fernández ; revisión técnica Luis Grau Fernández . 5ª ed. Aravaca (Madrid) : McGraw-Hill Interamericana, D. L. 2006
- [BC] Lightstone, Sam. Physical database design [recurso electrónico] : the database professional's guide to exploiting indexes, views, storage, and more / Sam Lightstone, Toby Teorey, Tom Nadeau .
- [BC] Ozsu, M. T. Principles of distributed database systems / M. Tamer Ozsu, Patrick Valduriez. Upper Saddle River, NJ : Prentice Hall, 1999

Listado de URL

- Caché Documentation [<http://docs.intersystems.com/cache20121/csp/docbook/DocBook.UI.Page.cls>]
- MySQL Reference Manual [<http://dev.mysql.com/doc/>]
- NoSQL Database [<http://nosql-database.org/>]
- Oracle Documentation [<http://www.oracle.com/pls/db112/homepage>]
- PostgreSQL Manual [<http://www.postgresql.org/docs/manuals/>]