

30250 - Databases II

Syllabus Information

Academic Year: 2019/20

Subject: 30250 - Databases II

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
326 - Escuela Universitaria Politécnica de Teruel

Degree: 443 - Bachelor's Degree in Informatics Engineering
439 - Bachelor's Degree in Informatics Engineering

ECTS: 6.0

Year: 3

Semester: 439 - Second semester

439 - Second semester

439 - Second semester

439 - Second semester

439 - Second semester

439 - Second semester

439 - Second semester

443 - Second semester

443 - Second semester

443 - Second semester

443 - Second semester

Subject Type: ---

Module: ---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

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

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks:

- 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, professors will try to encourage peer learning.

4.2.Learning tasks

The course includes the following learning tasks:

- 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 to the course, and particularly with the design, administration, and/or exploitation of databases.

4.3.Syllabus

The course will address the following topics:

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.

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

[BB: Bibliografía básica / BC: Bibliografía complementaria]

Zaragoza:

<http://psfunizar7.unizar.es/br13/egAsignaturas.php?codigo=30250&Identificador=14715>

- [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

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 Databases [<http://nosql-database.org/>]
- Oracle Documentation [<http://www.oracle.com/pls/db112/homepage>]
- PostgreSQL Manual [<http://www.postgresql.org/docs/manuals/>]
- Transparencias, bibliografía comentada, enunciados de problemas, casos de estudio y guiones de prácticas que los profesores de la asignatura pondrán a disposición del alumnado mediante la plataforma Moodle 2 del Anillo Digital Docente. [<http://add.unizar.es>]

Teruel:

<http://psfunizar7.unizar.es/br13/egAsignaturas.php?codigo=30250&Identificador=13621>

- [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

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- 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/>]