

Centre	University College of Engineering of Vitoria-Gasteiz
Name of subject	26030 – Database Administration
Qualification	Degree in Computer Management and Information Systems Engineering
Type	Compulsory
Credits	6 ECTS
Year	3
Term(s)	2nd
Department	Computer Languages and Systems
Language	Spanish

Outcomes / Objectives

- Install and configure a DBMS
- Define user accounts and associated resources and privileges
- Make backup copies and recover the state of the DB after a system failure
- Establish and manage audit controls
- Understand the notion of transaction and its ACID properties. Basic concurrency control concepts
- Have knowledge of concurrency control mechanisms
- Define links between databases on different nodes and work with the multiple databases

Syllabus

The Database Administrator:

The general problems of a DBMS and basic administrator tasks are presented. A DBMS is installed and configured ready for start-up.

Security:

The difference between user account and user role. The two DB access control models are presented: privilege-based and level-based, with a focus on the former.

Audit:

The options for performing a DB audit are presented

Recovery:

The options for making backup copies are explained, and how to recover a consistent DB state after a system failure. The notion of Journal is explained, as well as its role in the recovery of a consistent DB state.

Transactions and Concurrency Control:

The concept of transaction is presented. Several concurrency control protocols are presented: reservations, timestamps and validation

Tuning:

Recommendations for DB optimisation are presented. The characteristics offered by DBMS for application performance analysis and tuning of DB settings are analysed.

Distributed data management:

The characteristics offered by DBMS for managing data distribution and replication are presented.

Methodology

Teaching Method

Face-to-Face Teaching Hours

Lectures	Seminars	Classroom practice	Lab. practice	Computer sessions	Clinical practice	Workshops	Industrial workshops	Field practice
40			20					

Student Hours of Non Face-To-Face Activities

Lectures	Seminars	Classroom practice	Lab. practice	Computer sessions	Clinical practice	Workshops	Industrial workshops	Field practice
40			50					

Assessment System

General criteria

- Written essay exam
- Practical tasks (exercises, case studies o problems)
- Individual assignments
- Group assignments

Clarification regarding assessment

Assessment of students in the REGULAR exam session will be by continuous assessment. The final subject grade is calculated based on the scores achieved in 3 midterm exams and exercises and laboratory practice carried out throughout the course.

Students will be deemed to have taken the REGULAR exam session if they have sat at least 2 of the above midterm exams. If a student has not sat at least the 2 midterm exams, the grade will be Not Sat. In any case, students must sit ALL midterm exams to pass the subject. An exam on the entire subject content is not allowed in the regular exam session, except in those cases where an exception is made to the assessment mode as mentioned below.

Students who do not pass in the regular exam session must sit a SUPPLEMENTARY exam where they will be assessed in an exam covering the entire subject content.

EXCEPTION to assessment mode:

- Students may only sit a single exam accounting for 100% of the final grade in exceptional cases where justification has been submitted at the beginning of the year as per article 43 of the current regulations concerning the assessment of students.
- Exceptional cases must be notified to the lecturer at the beginning of the year or as soon as the exceptional circumstance occurs if it takes place after commencement of the term.
- Supporting documentation must be provided to appropriately justify a request for exception.
- No exception requests will be accepted afterwards.

Bibliography

Basic Bibliography

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- Sistemas de Bases de Datos. Un enfoque práctico para diseño, implementación y gestión. T. Connolly eta C. Begg. Addison-Wesley, 2005.
- Sistemas de Bases de Datos. Diseño, implementación y administración. P. Rob eta C. Coronel. Thomson, 2004.
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- Principles of Distributed Database Systems. M.T. Ozsú, P. Valduriez. Prentice Hall, 1999.
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- The Manga Guide to Databases. Mana Takahashi, Shoko Azuma, Trend-Pro Co. Ltd. No Starch Press, 2009.

In-depth Bibliography

Journals

Websites

- Oracle Web: technet.oracle.com