

1. OVERVIEW

Subject area	Databases
Degree	Bachelor's Degree in Computer Engineering
School/Faculty	Architecture, Engineering and Design
Year	Second
ECTS	6
Type	Compulsory
Language(s)	Spanish
Delivery mode	On campus / Online
Semester	4
Year	2022/2023
Coordinating professor	Sergio Bemposta

2. INTRODUCTION

Databases is the first compulsory subject area of specific technologies belonging to the “Computer Science” subject, where the students will be introduced to the concepts of information management and exploitation. It will explain the importance of business information management, the problems associated with its exploitation, as well as the fundamentals of databases (relational model, normalisation of diagrams, database design, etc.), SQL as a database query language and access from different clients. These concepts will be necessary and useful for other subject areas within the subject.

3. SKILLS AND LEARNING OUTCOMES

Basic skills (CB, by the acronym in Spanish):

- CB4: Students can communicate information, ideas, problems and solutions to both specialist and non-specialist audiences.
- CB5: Students have developed the learning skills necessary to undertake further study in a much more independent manner.

General skills (CG, by their acronym in Spanish):

- CG3: Ability to design, develop, assess and ensure the accessibility, ergonomics, usability and security of systems, services and computer applications, as well as the information they manage.

Transversal skills (CT, by the acronym in Spanish):

- CT14: Ability to analyse and synthesise: be able to break down complex problems into manageable blocks; evaluate other options and perspectives to find the ideal solution.
Synthesizing to reduce the complexity and better understand the situation and/or solve problems.
- CT16: Oral or written communication: Ability to communicate and gather information, ideas, opinions and viewpoints to understand and be able to act, spoken through words or gestures or written through words and/or graphic elements.
- CT18: Information management: Ability to seek, choose, analyse and integrate information from diverse sources.

Specific skills (CE, by the acronym in Spanish):

- CE18: Knowledge and application of the characteristics, functionalities and structures of databases, enabling their appropriate use, the design, and the analysis and implementation of applications based on them.

Learning outcomes (RA, by the acronym in Spanish):

- Recognise a commercial database management system.

- Generate queries for accessing and/or modifying a database.
- Develop an application for querying and/or modifying a database.
- Database Design.

The following table shows how the skills developed in the subject area match up with the intended learning outcomes:

Skills	Learning outcomes
CB4, CG3, CE18	Recognise a commercial database management system.
CB5, CT16, CE18	Generate queries for accessing and/or modifying a database.
CB5, CT14, CT18, CE18	Develop an application for querying and/or modifying a database.
CB5, CT14, CT16, CE18	Database Design.

4. CONTENTS

- Database analysis and the entity-relationship model •Theory of databases and the relational model
- Database Design
- Database Management Systems
- Relational query languages
- Fundamental problems in databases
- Advanced databases

5. TEACHING/LEARNING METHODS

The types of teaching/learning methods are as follows:

- Survey on aims and interests.
- Lectures, subjects of study and seminars.
- Laboratory work.
- Group research (jigsaw) and/or b) group problem-solving. •Simulation.
- Practical case studies.
- Fieldwork, conferences, visits to companies and institutions.

6. LEARNING ACTIVITIES

The types of learning activities, plus the amount of time spent on each activity, are as follows:

On campus:

Learning activity (AF, by the acronym in Spanish)	Number of hours
Lectures, reading on main topics and complementary materials, implementation of activities carried out independently and collectively	50
Integrative group work, consisting of participation in debates and seminars, and group implementation of integrative application activities, mainly in the classroom.	25
Independent working	50
Tutorials, academic monitoring and assessment, both in the classroom and on the Campus Virtual.	25
TOTAL	150

Online:

Learning activity (AF, by the acronym in Spanish)	Number of hours
Independent working	50
Independent reading on complementary topics and materials and implementation of activities carried out independently. Subsequently, asynchronous group discussion on the Campus Virtual forum, and online seminars with the synchronous e-learning tools on the Campus Virtual.	50
Integrative group work, consisting of participation in debates and seminars, and group implementation of integrative activities. Carried out with the support of the Campus Virtual (the debates are held via forums, the seminars are online). In addition, each group will have asynchronous communication tools to prepare the group work (mainly forums), as well as synchronous communication tools (mainly virtual meeting tools).	25
Tutorials, academic monitoring and assessment through the Campus Virtual. Some assessment tests (e.g. exams) will be carried out on-campus when necessary.	25
TOTAL	150

7. ASSESSMENT

The assessment systems, plus their weighting in the final grade for the subject area, are as follows:

On campus:

Assessment system	Weighting
Exams and tests	30%
Development of articles, reports or design briefs	30%
Alternative assessment methods with mind maps, diaries, debates, portfolios, peer assessment.	30%
To assess the basic and general skills corresponding to the subject, exercises, problems, practical case studies, designs, simulations and research will be used.	10%

Online:

Assessment system	Weighting
Knowledge tests, exams, test	60%
Development of articles, reports or design briefs	20%
Alternative assessment methods with mind maps, diaries, debates, portfolios, peer assessment, etc.	10%
To assess the basic and general skills corresponding to the subject, exercises, problems, practical case studies, designs, simulations and research will be used with their corresponding defence in an oral or written test.	10%

On the Campus Virtual, when you open the subject area, you will find all the details of your assessable tasks and the deadlines and assessment procedures for each task.

7.1. Ordinary exam period

To pass the subject area in the ordinary exam period, you will need a final grade of at least 5.0 out of 10.0 (weighted average) for the subject area. Additionally, you will need:

- A grade of at least 5.0 out of 10.0 in all individual, group and laboratory tasks separately.
- A grade of at least 5.0 out of 10.0 in all knowledge, written or oral tests.

- Laboratory work must be delivered on the day of the activity, at the end of class. It cannot be carried out at any other time.

The grade in the ordinary exam period will appear as NP (No grade reported) if the student fails to submit any assessable task which counts towards the weighted average.

7.2. Extraordinary exam period (resits)

In the extraordinary exam period, you must deliver the activities indicated by the professor, which will be compulsory for all activities where 5 out of 10 has not been achieved individually.

In addition, the following restrictions will apply:

- In the extraordinary exam period, there are no group activities, they are all to be carried out individually. Therefore, each member of the original group must deliver the activity individually.
- If you fail the in-person test, you must retake it under the same conditions as in the ordinary exam period.
- If you fail the laboratory activity, you will have the same time to complete it as in the ordinary exam period and you will have the same material available to you. This activity must be completed in the laboratory and in person.
- In the event that you pass the objective tests and you only have individual or group tasks to carry out in the extraordinary exam period, the professor will reserve the right to hold a face-to-face or online confrontation to defend any exercise that the professor considers appropriate to demonstrate the knowledge acquired.

8. TIMELINE

The timeline with submission dates for the assessable tasks in this subject area will be indicated in this section:

Assessable tasks	Date
Individual task. Analysis, initial design of a database, relational algebra	Week 4
Individual task. ER design and basic normalisation	Week 6
Individual task. Creation of tables, data manipulation and queries.	Week 10
Individual task. Advanced normalisation.	Week 12
Group work. Application of a real case containing each of the design, development and access phases.	Week 14
Written test	Week 20

The timeline may be subject to change for logistical reasons related to the activities. Students will be informed of any changes in due time and course.

9. BIBLIOGRAFÍA

The reference material for the subject area is as follows:

The recommended bibliography is indicated below:

10. DIVERSITY AWARENESS UNIT

Students with special educational needs:

To ensure equal opportunities, curricular adaptations or adjustments for students with special educational needs will be outlined by the Diversity Awareness Unit (UAD, Spanish acronym).

As an essential requirement, students with special educational needs must obtain a report about the curricular adaptations/adjustments from the Diversity Awareness Unit by contacting unidad.diversidad@universidadeuropea.es at the beginning of each semester.

11. STUDENT SATISFACTION SURVEYS

Your opinion matters!

Universidad Europea encourages you to complete our satisfaction surveys to identify strengths and areas for improvement for staff, degrees and the learning process.

These surveys will be available in the survey area of your campus virtual or by email.

Your opinion is essential to improve the quality of the degree.
Many thanks for taking part.