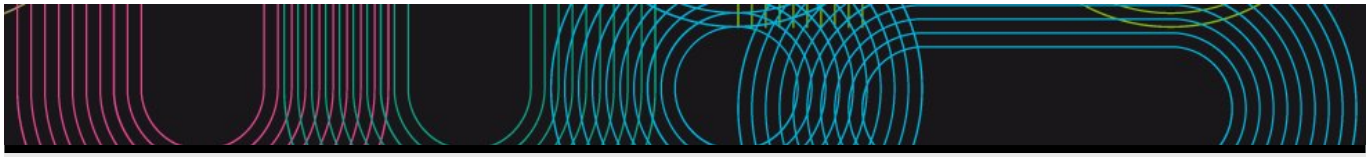

IDENTIFYING DATA				
Databases 2				
Subject	Databases 2			
Code	O06G151V01303			
Study programme	Grado en Ingeniería Informática			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	3rd	1st
Teaching language	#EnglishFriendly Spanish Galician			
Department				
Coordinator	Lorenzo Iglesias, Eva María			
Lecturers	Lorenzo Iglesias, Eva María Nieto González, Juan			
E-mail	eva@uvigo.es			
Web	http://moovi.uvigo.gal			
General description	This subject is compulsory in the Bachelor's Degree in Computer Engineering. It is a continuation of the subject Data Bases I taught in the 2nd course. In this subject the concepts that in the subject Databases I were simply introduced are developed more fully, thus completing and expanding the basic training in databases of our students. English Friendly subject: International students may request from the teachers: a) materials and bibliographic references in English, b) tutoring sessions in English, c) exams and assessments in English.			

Training and Learning Results	
Code	
A2	Students will be able to apply their knowledge and skills in their professional practice or vocation and they will show they have the required expertise through the construction and discussion of arguments and the resolution of problems within the relevant area of study.
A4	Students will be able to present information, ideas, problems and solutions both to specialist and non-specialist audiences.
B4	Ability to define, assess and select hardware and software platforms for the development and execution of computing systems, services and applications, according to the acquired knowledge and training.
B5	Ability to conceive, develop and maintain computing systems, services and applications through use of software engineering methods as tools to ensure quality, according to the knowledge and training acquired.
B9	Ability to solve problems by taking the initiative, making decisions and acting independently and creatively. Ability to communicate the knowledge contents, skills and abilities of the Computer Science Engineer profession.
C13	Knowledge, design and efficient use of the most appropriate data structures and types for the resolution of a problem.
C18	Knowledge and application of the characteristics, functions and structure of data bases, allowing their appropriate use, and design, analysis and implementation of applications based on them.
C19	Knowledge and application of the necessary tools for storing, processing and accessing information Systems, including web-based ones.
C26	Ability to assess clients needs and determine the software requirements to satisfy these needs, reconciling conflicting goals through attempts to reach acceptable compromises within the limits imposed by costs, available times, existing developed systems and organizations themselves.
C27	Ability to solve problems of integration according to available strategies, standards and technologies.
C28	Ability to identify and analyze problems and design, develop, implement, verify and document software solutions on the basis of sound knowledge of the theories, models and techniques available nowadays.
C31	Ability to understand the environment of an organization and its needs in the area of information and communication technologies.
C35	Ability to select, design, implement, integrate and manage information systems that meet the needs of organizations, once the costs and quality criteria have been identified.
D5	Organizational and planning skills
D6	Ability to abstract: ability to create and use models that reflect real situations
D7	Ability to search, relate and structure information from various sources and to integrate ideas and knowledge.

D9	Ability to quickly integrate and work efficiently in unidisciplinary teams and to collaborate in a multidisciplinary environment
D10	Interpersonal relationship skills.
D11	Critical thinking
D12	Leadership

Expected results from this subject

Expected results from this subject	Training and Learning Results			
RA1: Manage and know the operative associated to the databases and to the most expanded DBMS in the actuality	A4	B9	C18	D7 D11
RA2: Make the complete design of a relational database (even to physical level). Ensure the coherence and the adaptation to the needs of the organisations	A2	B4 B5	C13 C18 C28	D6 D9 D10 D12
RA3: Administer a system of databases, interpreting his design and structure, and making the adaptation of the model to the requests of the managing system of databases, as well as the configuration and administration of the same to physical and logical level, to end to ensure the integrity, availability and confidentiality of the information stored.	A2	B4 B5	C13 C18 C35	D9 D10 D12
RA4: Manage the permissions of access for the users	A2	B4 B5	C19	D9 D10 D12
RA5: Ensure the good operation of the database and do a follow-up of the utilisation of the users through the tasks of mirroring, tunning and splitting.		B4 B5	C19	D9 D10 D12
RA6: Assume the responsibility of the integration of the data and of the existence of back-ups		B9	C27	D7 D11
RA7: Estimate volumes of the structures of data, defining mechanisms of migration and initial load of data	A2	B9	C26 C31	D5 D7
RA8: Know the last advances related with databases	A4	B9	C18	D7 D11

Contents

Topic	
BLOCK I.- FILES.	Physical design
BLOCK II.- DESIGN OF DATABASES	Processing and optimisation of queries
BLOCK III.- TECHNICAL OF IMPLEMENTATION OF RELATIONAL DATABASE MANAGEMENT SYSTEMS	Management of transactions Concurrence Recovery
PRACTICE I.- ENLARGEMENT OF THE CONCEPTUAL And LOGICAL DESIGN	EER Model DDL PL/SQL Language Active Databases
PRACTICE II.- ADMINISTRATION OF RELATIONAL DATABASE MANAGEMENT SYSTEMS	Oracle Architecture Database Control Structure of storage

Planning

	Class hours	Hours outside the classroom	Total hours
Introductory activities	1	0	1
Lecturing	8	0	8
Problem solving	6	6	12
Laboratory practical	28	56	84
Previous studies	0	10	10
Collaborative Learning	7	0	7
Problem and/or exercise solving	4	16	20
Essay questions exam	1	7	8

*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies

	Description
Introductory activities	Activities directed to present the subject and organise groups of work.
Lecturing	Exhibition by part of the professor of the contents on the matter object of study, theoretical bases and/or guidelines of a work, exercise or project to develop by the student.

Problem solving	Activity in which they formulate problems and/or exercises related with the subject. The students has to develop the suitable or correct solutions by means of routines, the application of formulas or algorithms, the application of procedures of transformation of the available information and the interpretation of the results. It uses as I complement of the lecturing and of the works of classroom.
Laboratory practical	Activities of application of the knowledges to concrete situations and of acquisition of basic skills and procedimentales related with the matter object of study. They develop in the computer laboratories, and of autonomous form by the students before each session. CONTINUOUS EVALUATION Character: Compulsory Assistance: Minimum 5 classes of laboratory GLOBAL EVALUATION Character: Compulsory
Previous studies	Research, reading and work of documentation, previous to the classes or practical of laboratory, that makes the students of autonomous form.
Collaborative Learning	Procedures of education that split of the organisation of the class in small mixed and heterogeneous groups where the student works of form coordinated between if to develop academic tasks and deepen in his own learning. It carries out in the class of classroom.

Personalized assistance

Methodologies	Description
Lecturing	The sessions of personalized assistance will be able to make by telematic means (email, videoconference, MOOVI, ...) with appointment.
Laboratory practical	The sessions of personalized assistance will be able to make by telematic means (email, videoconference, MOOVI, ...) with appointment.
Problem solving	The sessions of personalized assistance will be able to make by telematic means (email, videoconference, MOOVI, ...) with appointment.

Assessment

	Description	Qualification	Training and Learning Results			
Laboratory practical	The practices of laboratory are compulsory, will have a date of presentation stipulated previously and will be evaluated separately. Expected results from this subject evaluated: RA2, RA3, RA4, RA5	40	A2	B4 B5	C13 C18 C19 C28 C35	D6 D9 D10 D12
Problem and/or exercise solving	The students has to solve a series of problems and/or exercises in a time/condition established by the professor. These problems/exercises form part of the 2 compulsory proofs that make along the course, together with questions of short answer. Expected results from this subject evaluated: RA1, RA6, RA7, RA8	50	A2	B9	C26 C27	D5
Essay questions exam	Direct questions that the students has to answer of brief way in base to the knowledges that has on the matter. These questions form part of the 2 compulsory proofs that make along the course, together with the resolution of problems and/or exercises. Expected results from this subject evaluated: RA1, RA6, RA7, RA8	10	A4	B9	C26 C27 C31	D7 D11

Other comments on the Evaluation

CONTINUOUS EVALUATION SYSTEM

TEST 1: Theoretical evaluation1

Description: Objective test that will include evaluation of theoretical concepts and resolution of exercises.

Methodology(ies) applied: Resolution of problems and/or exercises, Examination of development questions.

% Grade: 40%.

Minimum: For the release of this part of the subject the student must obtain a grade equal to or higher than 1.5 points (out of 4).

Training and learning outcomes: A2, A4, B9, C26, C27, C31, D5, D7, D11.

Expected results in the subject: RA1, RA6, RA7, RA8.

TEST 2: Theoretical evaluation2

Description: Objective test that will include evaluation of theoretical concepts and resolution of exercises.

Methodology(ies) applied: Problem solving and/or exercises, Developmental questions exam.

% Grade: 20%.

Minimum: For the release of this part of the subject the student must obtain a grade equal to or higher than 1 point (out of 2).

Training and learning outcomes: A2, A4, B9, C26, C27, C31, D5, D7, D11.

Expected results in the subject: RA1, RA6, RA7, RA8.

TEST 3: Laboratory practices1

Description: Performance of individual practices related to Oracle administration.

Methodology applied: Laboratory practices.

Qualification %: 10%.

Minimum: For the release of this part of the subject the student must obtain a grade equal or higher than 0.5 points (out of 1).

Training and learning outcomes: A2, B9, C31, D5, D7, D11.

Expected results in the subject: RA1, RA7, RA8.

TEST 4: Laboratory practices2.

Description: Delivery of the laboratory practices proposed throughout the course on the dates previously stipulated and attendance.

Methodology applied: Laboratory practices.

Qualification %: 30%.

Minimum: For the release of this part of the subject the student must obtain a grade equal or higher than 1 point in the delivery of practices and a grade equal or higher than 0.4 in the defense before the faculty. In addition, he/she must have attended at least 5 laboratory classes.

Training and learning outcomes: A2, A4, B9, C26, C27, C31, D5, D7, D11.

Expected learning outcomes: RA1, RA6, RA7, RA8.

Remarks:

- Attendance to the laboratory classes will be assessed pro-rating a total of 0.20 points among the 14 weeks of class.

- In the classroom class, voluntary activities will be proposed that will allow reaching 1 additional point to the grade obtained in the sum of the TEST1 and TEST2 tests.

GLOBAL EVALUATION SYSTEM

Procedure for the election of the global evaluation modality: The student is considered to opt for the global evaluation system if he/she does not take Test 1: Theoretical evaluation 1 of the continuous evaluation system.

TEST 1: Theoretical evaluation

Description: Objective test that will include evaluation of theoretical concepts and exercise resolution.

Methodology(ies) applied: Resolution of problems and/or exercises, Examination of development questions.

% Grade: 60%.

Minimum: For the release of this part of the subject the student must obtain a grade equal to or higher than 3 points (out of 6).

Training and learning outcomes: A2, A4, B9, C26, C27, C31, D5, D7, D11.

Expected results in the subject: RA1, RA6, RA7, RA8.

TEST 2: Laboratory practicals

Description: Delivery and defense of all the laboratory practicals and questionnaires given throughout the course on a previously stipulated date. In addition, the student will have to take an exam related to the contents taught in the laboratory.

Methodology applied: Laboratory practices, development questions exam.

% Grade: 40%.

Minimum: For the release of this part of the subject the student must obtain a grade equal or higher than 2 points (out of 4).

Training and learning outcomes: A2, A4, B9, C26, C27, C31, D5, D7, D11.

Expected results in the subject: RA1, RA6, RA7, RA8.

EVALUATION CRITERIA FOR THE EXTRAORDINARY CALL AND END OF DEGREE COURSE

TEST 1: Theoretical evaluation

Description: Objective test that will include evaluation of theoretical concepts and resolution of exercises.

Methodology(ies) applied: Problem solving and/or exercises, Development questions exam.

% Qualification: 60%

Minimum: For the release of this part of the subject the student must obtain a qualification equal to or higher than 3 points (out of 6).

Training and learning results: A2, A4, B9, C26, C27, C31, D5, D7, D11.

Expected results in the subject: RA1, RA6, RA7, RA8.

TEST 2: Laboratory practices

Description: Delivery and defense of all the laboratory practices and questionnaires exposed throughout the course on a previously stipulated date. In addition, the student will have to take an exam related to the contents taught in the laboratory.

Methodology applied: Laboratory practices, exam of development questions.

Qualification %: 40%.

Minimum: For the release of this part of the subject the student must obtain a qualification equal or higher than 2 points (out of 4).

Training and learning outcomes: A2, A4, B9, C26, C27, C31, D5, D7, D11.

Expected results in the subject: RA1, RA6, RA7, RA8.

QUALIFICATION PROCESS OF ACTS

Independently of the evaluation system and the call, in case of not passing any part of the evaluation, but the overall score is higher than 4 (out of 10), the qualification in acts will be 4.

EVALUATION DATES

The dates of the tests corresponding to the continuous assessment system will be published in the calendar of activities, available on the ESEI web page https://esei.uvigo.es/docencia/horarios/.

The official dates of the exams of the different calls, officially approved by the ESEI Board of Directors, are published in the ESEI web page https://esei.uvigo.es/docencia/horarios/.

USE OF MOBILE DEVICES

All students are forbidden to use mobile devices in exercises and practices, in compliance with article 13.2.d) of the University Student Statute, related to the duties of university students, which establishes the duty to "Refrain from using or cooperating in fraudulent procedures in evaluation tests, in the work carried out or in official university documents".

CONSULTATION/REQUEST FOR TUTORIALS

Tutorials can be consulted through the personal page of the teaching staff, accessible through https://esei.uvigo.es/docencia/profesorado/

Sources of information
Basic Bibliography
Connolly, T.M.; Begg, C., **Database Systems: A Practical Approach to Design, Implementation, and Management**, 9780132943307, 6, Pearson Educación, 2013
Elmasri, R.; Navathe, S., **Fundamentals of Database Systems**, 978-8478290857, 7, Addison-Wesley, 2015
Ramakrishnan, R.; Gehrke, J., **Database Management Systems**, 9780071151108, 3, McGraw-Hill, 2002
Complementary Bibliography
Date, C.J., **Introduction to Database Systems**, 978-0321197849, 8, Prentice Hall, 2003
Silberschatz, A.; Korth, H.; Sudarshan, S., **Database Management Systems**, 9780073523323, 3, McGraw-Hill, 2002

Recommendations