UNIVERSIDADE DA CORUÑA

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Teaching Guide

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Identifying Data				2023/24
Subject (*)	Databases for Business		Code	650G01022
Study programme	Grao en Ciencias Empresariais			

Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	1st four-month period	Third	Obligatory	6
Language	Galician			
Teaching method	Face-to-face			
Prerequisites				
Department	Ciencias da Computación e Tecnoloxías da InformaciónComputación			
Coordinador	Varela Rodeiro, Tirso	E-mail	tirso.varela.rodeiro@udc.es	
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Web				
General description	Databases for the organization of information in the business environment: information modeling and conceptual design of databases. Creation and exploitation of information: introduction to SQL, the standard database query language; Microsoft Access. Databases as support for decision making: multidimensional databases, Data mining, Data warehouse and OLAP.			

Study programme competences	
Code	**Study programme competences**
A1	CE1 - Aprender a aprender, por exemplo, cómo, cándo, ónde novos desenvolvementos persoais son necesarios.
A3	CE3 - Comprender detalles do funcionamento empresarial, tamaño de empresas, rexións xeográficas, sectores empresariais, vinculación con coñecemento e teorías básicas.
A4	CE4 - Comprender a estrutura de linguas estranxeiras e desenvolver un vocabulario, Comprender, ler, falar e escribir nunha lingua estranxeira.
A5	CE5 - Comprender a tecnoloxía nova e existente e o seu impacto para os novos/futuros mercados.
A6	CE6 - Comprender os principios da enxeñaría e vinculalos co coñecemento empresarial.
A7	CE7 - Comprender os principios da lei e vinculalos co coñecemento de negocios e xestión.
A8	CE8 - Comprender os principios da psicoloxía, identificar as implicacións para a organización empresarial.
A9	CE9 - Comprender os principio éticos, identificar as implicacións para as organizacións empresariais, deseño de escenarios.
A11	CE11 - Definir criterios de acordo de cómo unha empresa é definida e vincular os resultados coa análise do entorno para identificar perspectivas.
A12	CE12 - Definir obxectivos, estratexias e políticas comerciais.
A16	CE16 - Identificar aspectos relacionados e comprender o seu impacto na organización empresarial.
A17	CE17 - Identificar o impacto dos elementos micro e macroeconómicos na organización empresarial.
A18	CE18 - Identificar as características dunha organización.
A19	CE19 - Identificar novos desenvolvementos de organizacións empresariais para afrontar con éxito o entorno cambiante.
A20	CE20 - Identificar e operar o software adecuado. Deseñar e implementar sistemas de información.
A21	CE21 - Identificar e utilizar as ferramentas adecuadas de matemáticas e estatística.
A23	CE23 - Uso de instrumentos para a análise de entornos empresariais.
A24	CE24 - Derivar dos datos información relevante imposible de recoñecer por non profesionais.
B1	CB1 - Que os estudantes demostrasen posuír e comprender coñecementos nunha área de estudo que parte da base da educación secundaria xeneral, e se adoita encontrar a un nivel que, se ben se apoia en libros de texto avanzados, inclúe tamén algúns aspectos que implican coñecementos procedentes da vangarda do seu campo de estudo.
B2	CB2 - Que os estudantes saiban aplicar os seus coñecementos ao seu traballo ou vocación dunha forma profesional e posúan as competencias que adoitan demostrarse por medio da elaboración e defensa de argumentos e a resolución de problemas dentro da súa área de estudo.

B3	CB3 - Que os estudantes teñan a capacidade de reunir e interpretar datos relevantes (normalmente dentro da súa área de estudo) para emitir xuízos que inclúan unha reflexión sobre temas relevantes de índole social, científica ou ética.
B4	CB4 - Que os estudantes poidan transmitir información, ideas, problemas e solucións a un público tanto especializado como non especializado.
B5	CB5 - Que os estudantes desenvolvesen aquelas habilidades de aprendizaxe necesarias para emprender estudos posteriores cun alto grao de autonomía.
B6	CG1 - Que os estudantes formados sexan profesionais versátiles, capacitados tanto de iniciar o seu propio negocio como de desempeñar labores de deseño, planificación, organización, xestión, asesoramento e avaliación nas áreas e departamentos contables, financeiros e fiscais de organizacións empresariais, con especial referencia ás pequenas e medianas empresas.
B7	CG2 - Que os estudantes posúan unha elevada capacitación metodolóxica de xestión e tratamento da información que lles proporcione vantaxes competitivas, non só no seu labor profesional, senón nunha sociedade global en permanente transformación. Para iso, o Grao debe estar dotado dun axeitado nivel de interdisciplinariedade, transversalidad e integración nas súas materias.
B8	CG3 - Que os estudantes presten especial atención aos cambios que, tanto en conceptos, coma en metodoloxía ou en aplicacións, implican no mundo empresarial as novas tecnoloxías da información e as comunicacións. Así mesmo deben poder obter e actualizar os coñecementos específicos que teñan como base a aparición de novas leis e regulamentos que afecten ao mundo fiscal, financeiro ou contable.
B9	CG4 - Que os estudantes integren a aprendizaxe na súa vida e no seu labor profesional, a través da metodoloxía de ensino que lles achega o Grao, o cal lles proporciona unha formación básica xeral que servirá como puntal para a formación continua ao longo da vida.
B10	CG5 - Que os estudantes teñan unha perspectiva integral e destreza no manexo dos conceptos, técnicas e ferramentas empregados en cada unha das diferentes áreas funcionáis, con especial referencia ás contables, financeiras e fiscais da empresa; así como entender as relacións que existen entre elas e cos obxectivos xerais da organización. Todo iso tendo en conta os principios de sustentabilidade e responsabilidade social das mesmas.
B11	CG6 - Que os estudantes saiban identificar e anticipar oportunidades, asignar recursos, organizar a información, realizar asesoramento fiscal e contable, control orzamentario, xestión de tesouraría, auditorías de contas e temas concursais (suspensións de pagamentos e quebras), tomar decisións en condicións de incerteza e avaliar resultados.
B12	CG7 - Que os estudantes sexan capaces de liderar proxectos nas áreas de valoración da empresa, de dirección estratéxica e financeira; deben poder entender a información contable das empresas co fin de obter conclusións e realizar predicións tanto sobre rendementos coma sobre riscos futuros.
B13	CG8 - Que os estudantes identifiquen os requisitos legais da información financeira aos que a empresa debe enfrontarse.
B14	CG9 - Que os estudantes manifesten respecto aos dereitos fundamentais e de igualdade entre homes e mulleres, o respecto e a promoción dos Dereitos Humanos e os principios de igualdade de oportunidades, non discriminación e accesibilidade universal das persoas con discapacidade.
C1	CT1 - Expresarse correctamente, tanto de forma oral coma escrita, nas linguas oficiais da comunidade autónoma.
C2	CT2 - Dominar a expresión e a comprensión de forma oral e escrita dun idioma estranxeiro.
C3	CT3 - Utilizar as ferramentas básicas das tecnoloxías da información e as comunicacións (TIC) necesarias para o exercicio da súa profesión e para a aprendizaxe ao longo da súa vida.
C4	CT4 - Desenvolverse para o exercicio dunha cidadanía aberta, culta, crítica, comprometida, democrática e solidaria, capaz de analizar a realidade, diagnosticar problemas, formular e implantar solucións baseadas no coñecemento e orientadas ao ben común.
C5	CT5 - Entender a importancia da cultura emprendedora e coñecer os medios ao alcance das persoas emprendedoras.
C6	CT6 - Valorar criticamente o coñecemento, a tecnoloxía e a información dispoñible para resolver os problemas cos que deben enfrontarse.
C7	CT7 - Asumir como profesional e cidadán a importancia da aprendizaxe ao longo da vida.
C8	CT8 - Valorar a importancia que ten a investigación, a innovación e o desenvolvemento tecnolóxico no avance socioeconómico e cultural da sociedade.

Learning outcomes	
Learning outcomes	Study programme competences

Assimilate the basic concepts of databases to improve the management capacity of the company's IT developments.	A1 A3 A4 A5 A6 A7 A8 A9 A11 A12 A16 A17 A18 A19 A20	B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B12 B13 B14	C1 C2 C3 C4 C5 C6 C7 C8
Know the fundamentals of Database Management Systems (DBMS).	A4 A5 A20 A24	B1 B2 B3 B4 B5 B7 B8 B10 B14	C1 C2 C3 C6 C8
Know and understand the structures, restrictions and basic operations of the relational model.	A4 A5 A20 A24	B1 B2 B3 B4 B5 B7 B8 B10 B14	C1 C2 C3 C6 C8
Being able to create, feed and query a previously designed database using SQL in interactive mode.	A4 A5 A20 A21 A23 A24	B1 B2 B3 B4 B5 B7 B8 B11 B12 B14	C1 C2 C3 C6 C8

	A	B	C
Understand the need to design conceptual models; know and be able to use the ER model.	A4 A5 A20 A24	B1 B2 B3 B4 B5 B7 B8 B10 B11 B14	C1 C2 C3 C6 C8
Learn to rationalize and formally reflect the information storage needs of the company in order to carry out an organization of the data that allows its efficient use.	A4 A5 A6 A16 A19 A20 A24	B1 B2 B3 B4 B5 B7 B8 B10 B11 B12 B14	C1 C2 C3 C6 C8
To know the existence of other models different from the relational one.	A4 A5 A20 A24	B1 B2 B3 B4 B5 B7 B8 B10 B11 B14	C1 C2 C3 C6 C8
Know the databases as a support for decision making (Data mining, Data warehouse and OLAP).	A4 A5 A16 A19 A20 A21 A24	B1 B2 B3 B4 B5 B7 B8 B10 B11 B12 B14	C1 C2 C3 C6 C8

Stay motivated to delve into computing as an essential tool for the performance of the profession.	A1 A5 A11 A19 A20	B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B14	C1 C2 C3 C4 C5 C6 C7 C8

Contents	
Topic	Sub-topic
Introduction to databases.	Relational databases.
	Database Management Systems.
Relational model.	Definition of relationship.
	Domains and attributes.
	Keys.
	Integrity Constraints.
Database design methodology.	Bad design problems.
	Methodology.
Conceptual design of databases.	Introduction to the Entity-Relationship Model.
Database query language: SQL.	Query sentences.
	Definition and update sentences.
Databases as support for decision making.	Multidimensional databases, Data mining, Data warehouse and OLAP.
Creation and exploitation of databases in a DBMS: Microsoft Access.	Microsoft Access

Planning				
Methodologies / tests	Competencies	Ordinary class hours	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A3 A5 A6 A7 A8 A9 A11 A12 A16 A17 A18 A19 A20 A24 B4 B5 B6 B7 B8 B9 B11 B12 B13 B14 C1 C2 C3 C4 C5 C6 C7 C8	17	35	52
Problem solving	A3 A5 A6 A7 A8 A9 A11 A12 A16 A17 A18 A19 A20 A24 B4 B5 B6 B7 B8 B9 B11 B12 B13 B14 C1 C2 C3 C4 C5 C6 C7 C8	0	5	5

ICT practicals	A4 A5 A9 A11 A16 A19 A20 A21 A23 A24 B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B14 C1 C2 C3 C4 C5 C6 C7 C8	25	30	55
Supervised projects	A1 A5 A11 A12 A16 A19 A20 A21 A23 A24 B1 B2 B3 B4 B5 B6 B7 B10 B12 C1 C3 C5 C6 C7 C8	4	30	34
Mixed objective/subjective test	A19 A20 A24 B1 B3 B4 C2	2	0	2
Personalized attention		2	0	2

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

Methodologies	
Methodologies	**Description**
Guest lecture / keynote speech	Classes will be taught in which theoretical content will be presented combined with practical exercises.
Problem solving	Practical exercises will be proposed for the students to carry out individually. Deadlines and delivery rules will be established during the course and will be published on the Virtual Campus.
ICT practicals	Practical classes will be given: tests will be carried out, exercises will be delivered, etc. They must be delivered within the proposed deadlines and following the rules established during the semester.
Supervised projects	A work will be proposed that the students will have to carry out individually. Deadlines and delivery rules will be established during the course and will be published on the Virtual Campus.
Mixed objective/subjective test	There will be a written exam that will contain short questions, multiple choice questions and exercises on the contents of the subject.

Personalized attention	
Methodologies	**Description**
Guest lecture / keynote speech ICT practicals Supervised projects Problem solving	- Small group tutorials: They will be defined during the course, they will be in face-to-face format divided into two or three sessions with a total duration of 4 hours. In the last weeks of the course they can be used to resolve doubts about the supervised work and/or the subject. - Individual or group tutorials at the request of the students during the tutoring hours of the teaching staff, or at another time agreed between both parties. They will be face-to-face or through Teams. - Scheduled group tutorials: one or two group tutorials will be held in order to prepare for the mixed test. The dates will be established and published in Moodle, once the official exam dates are known on the official dates of each opportunity. They will be done in person or through Teams. - Students with part-time dedication and academic exemption from attendance: At the request of each student in this situation, a specific tutorial schedule compatible with their dedication will be agreed upon at the beginning of the course.

Assessment			
Methodologies	**Competencies**	**Description**	**Qualification**

ICT practicals	A4 A5 A9 A11 A16 A19 A20 A21 A23 A24 B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B14 C1 C2 C3 C4 C5 C6 C7 C8	They will take place at the time that the FEE schedules for each group. During the semester, the work and results of the students will be assessed continuously through deliverable exercise bulletins, tests, etc. It is essential to achieve 50% of the maximum grade to pass the subject. If the student does not get the minimum required score with the continuous evaluation, he/she will be able to opt for a new evaluation of this part in the second opportunity.	30
Supervised projects	A1 A5 A11 A12 A16 A19 A20 A21 A23 A24 B1 B2 B3 B4 B5 B6 B7 B10 B12 C1 C3 C5 C6 C7 C8	The final quality of the work will be evaluated, in terms of the application of the contents learned in the classes and the knowledge acquired through personal work, although the development process itself will also be taken into account. Delivery dates will be marked during the course. If the student does not get 50% of the maximum score in the 1st opportunity, she/he may opt for a new evaluation of this part in the second opportunity. It is not necessary to reach a minimum score in this part to pass the subject.	30
Mixed objective/subjective test	A19 A20 A24 B1 B3 B4 C2	In each opportunity, it will be carried out on the official dates that the FEE indicates for each subject. It is essential to achieve 50% of the maximum grade to pass the subject. If the student does not get the minimum required score on the 1st opportunity, she/he may opt for a new evaluation of this part on the second opportunity.	35
Problem solving	A3 A5 A6 A7 A8 A9 A11 A12 A16 A17 A18 A19 A20 A24 B4 B5 B6 B7 B8 B9 B11 B12 B13 B14 C1 C2 C3 C4 C5 C6 C7 C8	The exercises will be carried out and evaluated during the semester, and will compute for the final qualification of the subject. It is not necessary to reach a minimum score in this part to pass the subject.	5

Assessment comments

A) EVALUATION RULES:

To pass the subject, it is necessary to pass the ICT practicals and the Mixed Test (that is, get at least 50% of the maximum score from each of these parts). If this minimum score is not reached in any of the tests, the qualification that will appear in the minutes will be a maximum of 4.0. Assessment conditions: It is forbidden to access the exam room with any device that allows communication with the outside world and/or the storage of information.Student identification: The student body must prove their identity in accordance with current regulations.Plagiarism: Partial or total plagiarism will result in a 0 in the evaluation of said delivery or test. The teaching staff may request the defense of any test/work.B) TYPES OF QUALIFICATION:Qualification of not presented: Corresponds to students when they only participate in evaluation activities that have a weighting of less than 20% of the final qualification, regardless of the qualification obtained.Students with recognition of part-time dedication and academic exemption from assistance: the rules for the evaluation of the work, problem solving and the mixed test will be the same as for the general case. However, if necessary, a specific calendar of dates compatible with their dedication will be established for these students.C) EVALUATION OPPORTUNITIES:First opportunity: the previously indicated evaluation criteria will be applied.Second opportunity:If 50% of the supervised work is not achieved in the 1st opportunity, the students may optionally present it in the 2nd opportunity, on the delivery dates that will be established during the course and will be published on the subject's website of the Virtual Campus.The student who requests it, will be evaluated on the problem solving part, in writing, on the officially scheduled dates for the mixed test.The student who did not reach the minimum mark in the ICT practicals, may take a written recovery test on the officially scheduled dates for the mixed test.The student may take the mixed test if they did not achieved the minimum grade required.Evaluations received on the first opportunity will be saved until the second opportunity. 3. Early call: students will be evaluated through a single mixed test that will allow them to obtain 100% of the score.

Sources of information	
Basic	- A. Silberschatz; H. Korth; S. Sudarshan (2006). Fundamentos de Bases de Datos.. Madrid: McGraw Hill
	- Elmasri, R.; Navathe, S. (2007). Fundamentos de Sistemas de Bases de Datos . Madrid: Addison-Wesley
	- Rivero, E.; Martinez, L.; Reina, L.; Benavides, J. y Olaizola, J. (2002). Introducción al SQL para Usuarios . Madrid: Thomson
	Enlaces en e-libro das versións electrónicas dos dous libros máis relevantes da bibliografía da materia (requiren autenticación coas credenciais da UDC):· Silberschatz; H. Korth; S. Sudarshan (2006). Fundamentos de Bases de Datos.. Madrid: McGraw Hill. https://elibro-net.accedys.udc.es/es/ereader/bibliotecaudc/50087· Elmasri, R.; Navathe, S. (2007). Fundamentos de Sistemas de Bases de Datos. Madrid: Addison-Wesley. https://elibro-net.accedys.udc.es/es/ereader/bibliotecaudc/52533
Complementary	- Cuadra, D.; Castro, E.; Iglesias, A. M.; Martínez, P.; Calle, F. J.; de Pablo, C.; Al-Jumaly, H.; Mo (2007). Desarrollo de Bases de Datos: casos prácticos desde el análisis a la implementación. Madrid: Ra-ma
	- de Miguel, A,; Martínez, P.; Castro, E.; Cavero, M., Cuadra, D.; Iglesias, A. M.; Nieto, C. (2001). Diseño de bases de datos. Problemas resueltos. Madrid: Ra-ma
	- Piattini, M. G.; Marcos, E.; Calero, C.; Vela, B. (2006). Tecnología y diseño de Bases de Datos. Madrid: Ra-ma
	- Gómez Brandón, A.; Paramá, J.R. (2022). Structured Query Language: Manual Práctico. Coruña: Reprografía Noroeste S. L.

Recommendations
Subjects that it is recommended to have taken before
Subjects that are recommended to be taken simultaneously
Subjects that continue the syllabus
Other comments

The delivery of the documentary work carried out in this matter:It will be requested in virtual format and/or computer support.It will be done through the Virtual Campus, in digital format without the need to print them. The importance of ethical principles related to sustainability values and personal and professional behaviour should be taken into account.The full integration of students who, for physical, sensory, psychological or socio-cultural reasons, experience difficulties in accessing appropriate, equal and profitable university life will be facilitated. As stated in the different applicable regulations for university teaching, the gender perspective must be incorporated in this subject (non-sexist language will be used, bibliographies of authors of both sexes will be used, male and female students will participate in class...). Work will be done to identify and modify prejudices and sexist attitudes, and influence will be made to modify them and promote values of respect and equality. Situations of discrimination based on gender must be detected and actions and measures to correct them will be proposed.