Teaching Guide				
Identifying Data				2023/24
Subject (*)	Data Warehousing		Code	614G01043
Study programme	Grao en Enxeñaría Informática			
Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	2nd four-month period	Third	Optional	6
Language	SpanishGalician			
Teaching method	Face-to-face			
Prerequisites				
Department	Ciencias da Computación e Tecnoloxías da InformaciónComputación			
Coordinador	Ladra González, Susana	E-mail	susana.ladra@udc.es	
Lecturers	Ladra González, Susana Silva Coira, Fernando	E-mail	susana.ladra@udc.es fernando.silva@udc.es	
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General description	As "Data Warehousing" we understand everything related to the database of the analytic environment and the course focuses on this matter			

Study programme competences / results	
Code	Study programme competences / results
A46	Capacidade de integrar solucións de tecnoloxías da información e as comunicacións e procesos empresariais para satisfacer as necesidades de información das organizacións, permitíndolles alcanzar os seus obxectivos de forma efectiva e eficiente, e dándolles así vantaxes competitivas.
B3	Capacidade de análise e síntese
B5	Habilidades de xestión da información
C3	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.
C7	Asumir como profesional e cidadán a importancia da aprendizaxe ao longo da vida.
C8	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 / results		
Coñecer os conceptos de bases de datos necesarios para afrontar o proceso ETL, entender o proceso analítico e diferencialo do operacional, coñecer a arquitectura dun almacén de datos e saber efectuar o deseño e a explotación do mesmo, coa orientación á toma de decisións e incluíndo a utilización de ferramentas de minería de datos.	A46	B3 B5	C3 C7 C8

Contents	
Topic	Sub-topic
Introduction to Business Intelligence and Data Warehouse	Decision Making Analytical Environment Concept of Data Warehouse Types of Analytical Databases
Data Warehouse Architecture	Data Warehouse Components Data Warehouse Development Orientations ETL Process Metadata

Data Warehouse Design	Multidimensional Modelling Conceptual Modelling Logical Modelling Advanced Design Concepts
Data Warehouse Exploitation	Data Mining Analytical SQL

Planning				
Methodologies / tests	Competencies / Results	Teaching hours (in-person & virtual)	Student?s personal work hours	Total hours
Laboratory practice	A46 B3 B5 C3 C7 C8	14	21	35
Problem solving	A46 B3 B5 C3 C7 C8	7	14	21
Workbook	A46 B3 B5 C7 C8	0	14	14
Mixed objective/subjective test	A46 B3 B5 C3 C7 C8	3	0	3
Supervised projects	A46 B3 B5 C3 C7 C8	0	14	14
Guest lecture / keynote speech	A46 B3 B5 C7 C8	21	42	63
Personalized attention		0		0
(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.				

Methodologies	
Methodologies	Description
Laboratory practice	Son clases nas que se desenvolven as competencias procedimentais relacionadas cos contidos da asignatura. Nelas realizaranse probas e exercicios cuxo obxetivo é madurar os conceptos das clases teóricas, e introduciranse novos conceptos de carácter práctico que acompañaranse de exercicios.
Problem solving	Clases nas que se discutirán as estrategias de solución de diversos problemas propostos.
Workbook	Se propondrá a lectura de diversos traballos que complementen e axuden a entender os conceptos plantexados.
Mixed objective/subjective test	Examen da asignatura que combina conceptos teóricos, prácticos e problemas.
Supervised projects	Trabajos realizados baixo a orientación do profesorado, cuxo obxetivos é que os estudintes asuman a responsabilidade do seu propio aprendizaxe e que aprenden "cómo hacer".
Guest lecture / keynote speech	Clases teóricas nas que se expoñen os contidos fundamentais da materia, que poden acompañarse da propuesta e a resolución de exemplos.

Personalized attention	
Methodologies	Description
Laboratory practice Problem solving	Both for the ICT practicals and for problem solving, the teaching staff will provide solutions and/or answer the doubts and questions that may arise. A more personalized attention will be developed in the tutorials.

Assessment			
Methodologies	Competencies / Results	Description	Qualification
Laboratory practice	A46 B3 B5 C3 C7 C8	The maximum mark will be 4 points out of 10 of the subject. The practice must be done individually or in small groups and will be defended orally.	40

Mixed objective/subjective test	A46 B3 B5 C3 C7 C8	The maximum mark will be 3.5 points out of 10 for the subject. Several tests will be held during the course, dealing with theoretical concepts and practical assimilation of the subject. In order to pass the course as a whole, a MINIMUM grade of 0.75 (out of 2) must be obtained in the final (theoretical) mixed test. If this is not the case, the maximum grade for the subject will not be higher than a 4.9 (and therefore the subject will be considered a FAIL).	35
Supervised projects	A46 B3 B5 C3 C7 C8	The maximum mark of the works will be 2.5 points.	25

Assessment comments
NOT SHOW: At the first opportunity, the student who does not do all the final theoretical test will have the grade of NOT SHOW. At the second opportunity any of the parts of the evaluation can be recovered, so that the grades of this opportunity always substitute those of the first one. For the laboratory practice, only the final submission can be recovered (3 points). The student who does not make up any part of the evaluation will have a grade of NO SHOW. In order to pass the course, it is mandatory to obtain a minimum grade of 0.75 out of 2 in the theoretical mixed test. ACADEMIC DISPENSATION: Students officially enrolled part-time who have been granted an official dispensation from attending classes, as stipulated in the regulations of this University, must contact with the responsible of the course within the first two weeks to establish the conditions for submitting and defending the practical exercises and the supervised project. ADVANCED OPPORTUNITY: The evaluation in the advanced opportunity will consist of: mixed test (35% of the qualification), practice (40% of the qualification) and supervised project (25% of the qualification). In order to pass the course, it is mandatory to obtain a minimum grade of 0.75 out of 2 in the theoretical part of the mixed test. ACADEMIC FRAUD: The fraudulent performance of tests or evaluation activities, once verified, will directly imply the qualification of failure in the call in which it is committed: the student will be graded with "suspenso" (numerical grade 0) in the corresponding call of the academic year, whether the commission of the fault occurs in the first opportunity or in the second. For this, the student's grade will be modified in the first opportunity report, if necessary.

Sources of information	
Basic	- Kimball, R.; Ross, M (2013). The Data Warehouse Toolkit, 3rd edition. Wiley - Kimball, R.; Ross, M.; Thornthwaite, W.; Mundy, J.; Becker, B. (2008). The Data Warehouse Lifecycle Toolkit, 2nd edition. John Wiley and Sons - Inmon, W. H. (2002). Building the Data Warehouse, 3nd edition. Wiley - Sharda, R. Delen, D.; Turban, E. (2014). Business Intelligence: A managerial perspective on analytics. Prentice Hall - Tan, P.; Steinbach, M.; Kumar, V. (2006). Introduction to Data Mining . Addison-Wesley - Williams, G. (2011). Data Mining with Rattle and R. Springer
Complementary	- Inmon, W. H.; Strauss, D.; Neushloss, G. (2008). The Architecture for the Next Generation of Data Warehousing . Morgan Kaufman - Golfarelli, M.; Rizzi, S. (2009). Data Warehouse Design: Modern Principles and Methodologies . McGraw-Hill - Mazón López, N.; Pardillo Vela, J.; Trujillo Mondejar. J. C. (2011). Diseño y explotación de almacenes de datos . Editorial Club Universitario - Elmasri, R.; Navathe, S. (2011). Fundamentals of Database Systems. Addison-Wesley - García-Molina, H.; Ullman, J.; Widom, J. (2009). Database System. The complete book.. Prentice Hall

Recommendations
Subjects that it is recommended to have taken before

Databases/614G01013
Subjects that are recommended to be taken simultaneously
Subjects that continue the syllabus
Other comments
Gender perspective:According to the different regulations applicable to university teaching, the gender perspective must be incorporated in this subject (use of non-sexist language, etc.). Work will be done to identify and modify sexist prejudices and attitudes and influence the environment to modify them and promote values of respect and equality. The aim will be to detect situations of gender discrimination and to propose actions and measures to correct them.