Teaching Guide					
Identifying Data					2021/22
Subject (*)	Computer Science Preliminaries			Code	614G01002
Study programme	Grao en Enxeñaría Informática				
Descriptors					
Cycle	Period	Year		Type	Credits
Graduate	1st four-month period	First		Basic training	6
Language	SpanishGalicianEnglish				
Teaching method	Face-to-face				
Prerequisites					
Department	Ciencias da Computación e Tecnoloxías da InformaciónComputaciónEnxeñaría de Computadores				
Coordinador	Fariña Martinez, Antonio		E-mail	antonio.farina@udc.es	
Lecturers	Bernardo Roca, Guillermo de		E-mail	guillermo.debernardo@udc.es	
	Cerdeira Pena, Ana Belen			ana.cerdeira@udc.es	
	Condori Fernández, Olinda Nelly			n.condori.fernandez@udc.es	
	Fariña Martinez, Antonio			antonio.farina@udc.es	
	Fernández Blanco, Enrique			enrique.fernandez@udc.es	
	Gómez Brandón, Adrián			adrian.gbrandon@udc.es	
	Gonzalez Lopez, Miguel			miguel.gonzalez.lopez@udc.es	
	Lobeiras Blanco, Jacobo			jacobo.lobeiras@udc.es	
	López Rodríguez, Juan Ramon			juan.ramon.lopez@udc.es	
	López Taboada, Guillermo			guillermo.lopez.taboada@udc.es	
	Morán Fernández, Laura			laura.moranf@udc.es	
	Padron Gonzalez, Emilio Jose			emilio.padron@udc.es	
	Pallas Quintela, Lara			lara.pquintela@udc.es	
	Pazos Sierra, Alejandro			alejandro.pazos@udc.es	
	Pedreira Souto, Maria de las Nieves			nieves.pedreira@udc.es	
	Puente Castro, Alejandro			a.puentec@udc.es	
	Santoveña Gómez, Raúl			raul.santovena@udc.es	
	Varela Rodeiro, Tirso			tirso.varela.rodeiro@udc.es	
	Vazquez Araujo, Francisco Javier			francisco.vazquez@udc.es	
Web	campusvirtual.udc.gal				
General description	This subject includes basic concepts about: computer hardware and information representation within computers, operating systems, databases, and communication networks.				

Contingency plan	1. Modifications in the contents - No changes will be made. 2. Methodologies * Teaching methodologies that are maintained * Changing teaching methodologies - Master/keynote sessions: the initial organization of the theory-lessons is exclusively "face-to-face" (non-virtual). If required, they would switch to a "virtual mode"; i.e. with lessons taught via Teams in a synchronous way and/or using videos asynchronously. - Laboratory practices: the initial organization of the practices is exclusively "face-to-face" (non-virtual). If necessary, they would switch to a "virtual" mode; i.e., to a combination of online (synchronous) lessons and asynchronous videos. - Mixed test: If required, it would be switched from the regular "face-to-face" mode to a "virtual" mode (e.g. via Moodle tests). 3. Mechanisms of personalized attention to students - No changes 4. Modifications in the evaluation - There are no changes, except that the non-virtual tests could be performed in "virtual" mode using the "Moodle" and/or "Teams" platforms. * Evaluation observations: - No observations. 5. Modifications to the bibliography or webography - There are no changes.

Study programme competences / results	
Code	Study programme competences / results
A4	Coñecementos básicos sobre o uso e a programación dos ordenadores, sistemas operativos, bases de datos e programas informáticos con aplicación na enxeñaría.
A5	Coñecemento da estrutura, organización, funcionamento e interconexión dos sistemas informáticos, os fundamentos da súa programación e a súa aplicación para a resolución de problemas propios da enxeñaría.
B3	Capacidade de análise e síntese
C2	Dominar a expresión e a comprensión de forma oral e escrita dun idioma estranxeiro.
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.

Learning outcomes	
Learning outcomes	Study programme competences / results

Learn the basics of operating systems.	A4	B3	
Understanding the basic operation of a computer, and how information is internally represented.	A4 A5	B3	
Obtaining advanced user-level skills to manage relational databases.	A4 A5	B3	
Learn the basics of different programming paradigms.	A4		
Learn the basics of communication networks.	A4 A5	B3	C2 C3
Know the most important aspects of computer engineering profession.			C7

Contents	
Topic	**Sub-topic**
Fundamentals of Computer Architecture	Information Representation History of Computers Hardware Computer Architecture
Fundamentals of Database Management Systems and Introduction to Operating Systems	Introduction to Operating Systems Introduction to Database Management Systems Introduction to the Relational Model Introduction to SQL
Fundamentals of Comunication Networks	Networks: Introduction to Communication Networks. Wiring and topologies. The OSI model. Ethernet basics. Fundamentals of TCP / IP. Configuration of end devices. Basic functionality of network devices: Switches and Routers.

Planning				
Methodologies / tests	**Competencies / Results**	**Teaching hours (in-person & virtual)**	**Student?s personal work hours**	**Total hours**
Guest lecture / keynote speech	A4 A5 B3 C7	30	30	60
Laboratory practice	A4 C2 C3	30	48	78
Mixed objective/subjective test	A4 A5 B3 C7	3	0	3
Personalized attention		9	0	9
(*)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	Classroom theory classes. In these classes, the fundamental contents of the subject will be explained. They consist of exposition of objectives, motivation, conceptual development, utility and summary.
Laboratory practice	In laboratory classes, the concepts, techniques and tools needed to acquire the proposed skills are presented. In these practical sessions, students will do exercises that will lead them to develop their operative skills.
Mixed objective/subjective test	It is a final exam that will contain both questions related to theoretical issues and problems to solve.

Personalized attention	
Methodologies	**Description**

Laboratory practice	There can be significant differences between students in terms of their knowledge of the specific contents of the subject, so personalised attention will be developed both in practical and theoretical classes. During the lessons, the students will be able to present questions, doubts, etc. The teacher, in response to these requests, will review concepts, solve new problems, or use any activity he or she considers appropriate to resolve the questions raised. For the office hours, initially set up as a "non-attendance" mode by the centre, students of each particular group will be asked to make an appointment with the teachers responsible for their group, to make video calls by Teams within the tutorial hours established in espazos.udc.es

Assessment			
Methodologies	Competencies / Results	Description	**Qualification**
Mixed objective/subjective test	A4 A5 B3 C7	Both in the FIRST OPPORTUNITY and in the SECOND OPPORTUNITY it will be MANDATORY to pass a written test that will make up 60% of the final overall grade. To pass this mixed test, students have to get at least 2.4 points out of 6 (i.e. 40% of the maximum mark of the Mixed Test). - Maximum grade: 6.0 points - Minimum grade: 2.4 (out of 6.0)	60
Laboratory practice	A4 C2 C3	Students will have to do several practical exercises that will be rated. - Maximum grade: 4.0 points - Minimum grade: not required	40

Assessment comments
Students must obtain at least 5 points (out of 10) after summing their grades corresponding to the mixed test plus the laboratory-practice grade. Students must obtain at least 40% of the maximum grade in the mixed test (final exam). Otherwise, they would not pass the subject even if the final grade (considering both practice and mixed tests) were >=5. In such case, the maximum final grade would be set to 4.9, and consequently, the subject will be considered as "NON-PASSED". - First opportunity: Mixed test: [60%]: Mandatory: Students must do a final exam that will include the contents of each block/part of the subject.Laboratory-practice: [40%]: Optional: Students who did not perform any (one or more) of the evaluable tests corresponding to the "laboratory practice" part from September to January, (for example, those who did not attend the class on the day of the test), will receive a "zero" grade in the corresponding test. Yet, they are allowed to attend the final test/exam (Mixed objective/subjective test) and could still pass the subject in the first opportunity.- Second opportunity: During the second opportunity it is possible to reach 100% of the maximum grade both in the Laboratory-practice part and in the mixed test.Mixed test: [60%]: Mandatory: The grade obtained in the first opportunity is not kept.Laboratory-practice: [40%]: Optional: The grades of the first opportunity are retained. However, it is possible to take an optional practice exam (along with the mixed test) to recover the maximum grade (this means discarding the ?Laboratory-practice? grade achieved in the first opportunity).Attention to part-time students: In case that: (a) they could not attend to the (scheduled) classes corresponding to their group and they miss any of the existing tests (e.g. "practical tests"), and (b) provided that they notified that issue with time enough to re-schedule their test within a different group; we will try to allow them to join a different group so that they could do the corresponding "test" in a different date.

Sources of information

Basic	- Ernesto Ariganello (2009). Reces Cisco. Guía de Estudio para la Certificación CCNA Routing y Switching. RA-MA - Vicente Trigo Aranda (2010). Del ábaco a Internet. Creaciones Copyright - A. Silberschatz; H. Korth; S. Sudarshan (2006). Fundamentos de Bases de Datos. Mc Graw Hill - A. Silberschatz; H. Korth; S. Sudarshan (2011). Database System Concepts (6th ed). McGraw-Hill - Elmasri, R.; Navathe, S. (2007). Fundamentos de Sistemas de Bases de Datos. Addison-Wesley - Miles J. Murdocca; Vincent P. Heuring (2002). Principios de arquitectura de computadoras. Prentice-Hall - Allen B. Tucker, Robert E. Noonan (2001). Programming Languages: Principles and Paradigms. Mc Graw Hill - Carretero et al. (2007). Sistemas Operativos, una visión aplicada (2ª ed). Mc Graw Hill - Andrew S. Tanenbaum (2009). Sistemas Operativos Modernos (3ª ed). Prentice-Hall - Andrew S. Tanenbaum (2009). Modern Operating Systems (3rd ed). Pearson-Prentice Hall - Wendell Odom (2013). CCENT/CCNA ICND1 100-101 Official Cert Guide. Cisco Press
Complementary	- W. Stallings (2004). Comunicaciones y Redes de Computadores. Pearson - Prentice Hall - Silberschatz, A.; Galvin, P.B.; Gagne, G. (2005). Fundamentos de los Sistemas Operativos (7ª ed). Mc Graw Hill - M. Meyers (2009). Redes. Administración y mantenimiento. Anaya

Recommendations
Subjects that it is recommended to have taken before
Subjects that are recommended to be taken simultaneously
Subjects that continue the syllabus
Fundamentals of Computers/614G01007 Computer Structure/614G01012 Databases/614G01013 Operating Systems/614G01016 Networks/614G01017
Other comments

(*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.