Teaching Guide				
Identifying Data				2022/23
Subject (*)	Networks		Code	614G01017
Study programme	Grao en Enxeñaría Informática			
Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	2nd four-month period	Second	Obligatory	6
Language	SpanishGalicianEnglish			
Teaching method	Face-to-face			
Prerequisites				
Department	Ciencias da Computación e Tecnoloxías da InformaciónComputación			
Coordinador	Cacheda Seijo, Fidel	E-mail	fidel.cacheda@udc.es	
Lecturers	Álvarez González, Marco Antonio Cacheda Seijo, Fidel Fernández Iglesias, Diego Fernández López-Vizcaíno, Manuel Losada Perez, Jose	E-mail	marco.antonio.agonzalez@udc.es fidel.cacheda@udc.es diego.fernandez@udc.es manuel.fernandezl@udc.es jose.losada@udc.es	
Web	https://campusvirtual.udc.gal/			
General description	Transmission medium. Network technologies. Access networks. Routing protocols and network services.			

Study programme competences	
Code	Study programme competences
A17	Coñecemento e aplicación das características, funcionalidades e estrutura dos sistemas distribuídos, as redes de computadores e internet, e deseñar e implementar aplicacións baseadas nelas.
B1	Capacidade de resolución de problemas
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.

Learning outcomes			
Learning outcomes	Study programme competences		
To understand the networks division on protocol layers.	A17	B3	C2 C3
To understand the operation of the main application layer protocols.	A17	B3	C2 C3
To understand the how the transport protocols UDP and TPC work.	A17	B1 B3	C2 C3
To understand the operation of routing and network services.	A17	B1 B3	C2 C3
To know the basic link layer technologies.	A17	B3	C3

Contents	
Topic	Sub-topic
Introduction	Computer networks and Internet Introduction to TCP/IP
Application layer	Application layer protocols I Application layer protocols II

Transport layer	UDP and TCP TCP data transfer
Network layer	IP and subnetting Routing ICMP IPv6
Link layer	TCP/IP and the link layer Link layer technologies

Planning				
Methodologies / tests	Competencies	Ordinary class hours	Student?s personal work hours	Total hours
Laboratory practice	A17 B1 C3	20	40	60
Seminar	A17 B3 C2	10	15	25
Objective test	A17 B1 B3	2.5	7.5	10
Guest lecture / keynote speech	A17 B3	30	20	50
Personalized attention		5	0	5
(*)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	The university virtual platform will be used as a basis to publish all the required material to do the laboratory practices. In the laboratory the students must deepen certain theoretical issues of the subject. In order to achieve this objective, there will be Java programming laboratories and laboratories based on network emulation/simulation and/or protocol analyzer tools.
Seminar	Through the seminars (TGRs) we will deepen certain issues of the subject, both theoretical and practical, in a more personalized way, with a more specific treatment and solving student's doubts and matters individually.
Objective test	At the end of the four-month period there will be an exam where the student must prove his knowledge of the subject.
Guest lecture / keynote speech	The university virtual platform will be used as a basis to publish all the required material to follow the lectures. During the lectures the theoretical concepts of the subject will be presented, encouraging the student participation.

Personalized attention	
Methodologies	Description
Laboratory practice Seminar	The personalized attention for laboratory practices and seminars is essential for an adequate subject development for the student. Moreover, the students are recommended to attend tutorials as a support method. From the teacher perspective, the personalized attention will allow to detect possible imbalances in the subject methodology and improve the quality in continuously.

Assessment			
Methodologies	Competencies	Description	Qualification
Laboratory practice	A17 B1 C3	The laboratory practices done by the students throughout the course will be evaluated. The laboratory practices grade can not be recovered in the second opportunity nor in the December call.	25
Seminar	A17 B3 C2	Related with the seminars, a series of works will be proposed to the student, that will be evaluated. The seminars grade can not be recovered in the second opportunity nor in the December call.	5

Objective test	A17 B1 B3	At the end of the four-month period there will be an exam where the student must prove his knowledge of the subject. In case of obtaining less than a 4 (out of 10) in the exam, the subject will receive a failing grade and the final qualification will be the obtained in the exam. In other case, the final grade is calculated from the grades of each part, proportionally, and must be equal to or greater than 5 (out of 10) to pass the subject.	70

Assessment comments
The laboratory practices and the seminars are part of the subject continuous evaluation as therefore can not be recovered in the second opportunity nor in the December call.Fraudulent realization of the tests or evaluation activities, once verified, will directly imply a failing grade of "0" in the corresponding call, invalidating any grades obtained for all the evaluation activities for the extraordinary call.The part-time students will be helped in the timetable election for laboratories and seminars.

Sources of information	
Basic	- James F. Kurose, Keith W. Ross (). Computer Networking. A top-down approach.. Addison Wesley - W. Richard Stevens (2011). TCP/IP Illustrated, Vol. 1: The Protocols. Addison Wesley
Complementary	

Recommendations
Subjects that it is recommended to have taken before
Computer Science Preliminaries/614G01002 Discrete Mathematics/614G01004
Subjects that are recommended to be taken simultaneously
Subjects that continue the syllabus
Internet and Distributed Systems/614G01023 Infrastructure Management/614G01025 Network Design/614G01082 Network Administration/614G01213
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.