UNIVERSIDADE DA CORUÑA

Teaching Guide			
Identifying Data			**2018/19**
Subject (*)	Network Administration	**Code**	614G01048
Study programme	Grao en Enxeñaría Informática		
Descriptors			
Cycle	**Period**	**Year**	**Type**	**Credits**
Graduate	2nd four-month period	Third	Obligatory	6
Language	SpanishGalician		
Teaching method	Face-to-face		
Prerequisites			
Department	Computación		
Coordinador	Novoa De Manuel, Francisco Javier	**E-mail**	francisco.javier.novoa@udc.es
Lecturers	Montoto Castelao, Paula	**E-mail**	paula.montoto@udc.es
	Novoa De Manuel, Francisco Javier		francisco.javier.novoa@udc.es
Web	moodle.udc.es/course/view.php?id=29132		
General description	This subject introduces the student to the problems associated with the design and operation of a computer network. It covers all aspects related to basic network services, monitoring, high availability and traffic control mechanisms. From a case of use, the different elements that make up a network will be shelled, as well as the problem of scalability and related security mechanisms.		

Study programme competences	
Code	**Study programme competences**
A53	Capacidade para seleccionar, deseñar, despregar, integrar, avaliar, construír, xestionar, explotar e manter as tecnoloxías de hárdware, sóftware e redes dentro dos parámetros de custo e calidade adecuados.
A55	Capacidade para seleccionar, deseñar, despregar, integrar e xestionar redes e infraestruturas de comunicacións nunha organización.
B1	Capacidade de resolución de problemas
B3	Capacidade de análise e síntese
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.
C4	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.
C6	Valorar criticamente o coñecemento, a tecnoloxía e a información dispoñible para resolver os problemas cos que deben enfrontarse.
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**		
Know aspects related to the design, administration and management of computer equipment in the network, as well as their involvement in the implementation of systems and network services.	A53		
Ability to select, design, deploy, integrate and manage communications networks and infrastructures in an organization.	A55		
Ability to solve problems. Critically assess the knowledge, technology and information available to solve the problems they must face.		B1	C6
Capability for analysis and synthesis. The student will be able to analyze communication project requirements and propose solutions, performing works where they will synthesize the knowledge acquired during the course		B3	
Use the basic tools of information and communication technologies (ICT) necessary for the exercise of their profession and for learning throughout their lives. They will learn to use their own tools of network administration. know to do.			C3
Develop for the exercise of an open, cultured, critical, committed, democratic and supportive citizenship, capable of analyzing reality, diagnosing problems, formulating and implementing solutions based on knowledge and oriented to the common good.			C4

Critically assess the knowledge, technology and information available to solve the problems they must face.		C6
Assess the importance of research, innovation and technological development in the socio-economic and cultural progress of society		C8

Contents	
Topic	Sub-topic
1. Network Design	Separación física e loxica de redes: vlans, subnetting e routing alta dispoñibilidade
2. Network Security	Sistemas de Firewalls Prevención de intrusión Redes privadas virtuais: IPsec
3. Network Management	Syslog SNMP Netflow
4. New approaches to ICT	SDN NFV QoE IoT Cloud

Planning				
Methodologies / tests	Competencies	Ordinary class hours	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A53 A55 C4 C8	21	48	69
ICT practicals	A53 A55 B1 C3 C6	16	32	48
Objective test	A53 A55 B1	3	0	3
Supervised projects	B1 B3 C3 C6	7	21	28
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	In which the theoretical content of the syllabus will be exposed, including illustrative examples and with the support of audiovisual media. The student will have the support material (notes, copies of the slides, articles, etc.) beforehand and the teacher will promote an active attitude, recommending the previous reading of the topics to be discussed each day in class, as well as asking questions that allow to clarify concrete aspects and leaving open questions for the reflection of the student. The magisterial ideas will be complemented with the realization of conferences in which an external expert will be brought to discuss some topic in greater depth.
ICT practicals	In which the student will see the operation in practice of some of the theoretical contents seen in the lectures. In these practices, the student will use different tools (network simulators, monitoring tools, etc.) proposed by the professor, which will allow them to deepen and consolidate their knowledge about different aspects of network management. The practices will be presented in a way that facilitates their semi-face-to-face realization to those students who can not attend the face-to-face sessions. In addition to the basic practices that all students will have to do, additional practices that interested students can do optionally will be proposed.
Objective test	At the end of the exposition of the subject, a test type will be carried out that will allow to assess the theoretical knowledge and practical skills acquired during the evolution of the course

Supervised projects	Proposal of works for their individual and non-face-to-face resolution by the students. These works will be opiconal and will allow students interested in doing them, to deepen into the content of the topics that are of special interest to them and that could not be dealt with in sufficient detail during the lectures.

Personalized attention	
Methodologies	**Description**
ICT practicals Supervised projects	The personalized attention during the practices will serve to guide and verify the work that the students are doing according to the indications that are provided to them, depending on the concrete practice in question. To carry out the supervised works, the teachers will provide the necessary initial indications, bibliography for consultation and will monitor the progress made by the student, in order to offer the relevant guidelines in each case, in order to ensure the quality of the works according to the criteria that are indicated. All the teachers of the subject will also propose a tutorial schedule in which the students will be able to answer any questions related to the development of the same. Students will be advised to attend tutorials as a fundamental part of learning support. It will facilitate the completion of practices and attention in the tutoring of work to students who, because they are enrolled part-time can not attend practical sessions or officially established tutoring sessions.

Assessment				
Methodologies	**Competencies**	**Description**	**Qualification**
ICT practicals	A53 A55 B1 C3 C6	The practices of the subject will consist of different activities related to Network Management. A defense of the practices will be carried out to assess the level of understanding and the work developed by the student	45
Supervised projects	B1 B3 C3 C6	The tutored works will be optional and on a subject to be arranged between the student and the professor.	10
Objective test	A53 A55 B1	At the end of the exposition of the subject, an objective test type test will be carried out on the treated contents, both in the theoretical sessions and in the practical ones.	45

Assessment comments
To pass the subject, it will be necessary to obtain a minimum of 40% of the total mark in the objective test and in the practices. If not, the maximum grade that can be obtained is 4.5. STUDENTS ENROLLED TO PARTIAL TIME: They must contact the professors of the subject to make it possible to carry out the tasks outside the regular organization of the subject.

Sources of information	
Basic	- Anthony Bruno; Steve Jordan (2016). CCDA 200-310 Official Cert Guide, Fifth Edition. Cisco Press - Wendell Odom (2016). CCENT/CCNA ICND1 100-105 Official Cert Guide. Cisco Press - William Stallings (1999). SNMP, SNMPv2, SNMPv3 and RMON1 and 2. Prentice Hall Engineering - Michael Meyers (2009). Managing and Troubleshooting Networks. McGraw Hill - William Stallings (2015). Foundations of Modern Networking: SDN, NFV, QoE, IoT, and Cloud. Addison-Wesley Professional
Complementary	

Recommendations
Subjects that it is recommended to have taken before
Internet and Distributed Systems/614G01023
Infrastructure Management/614G01025

Subjects that are recommended to be taken simultaneously
Administration of Infrastructures and Information Systems/614G01093
Operating Systems Administration/614G01212

Subjects that continue the syllabus

Other comments