UNIVERSIDADE DA CORUÑA

	Teaching Guide		
	Identifying Data		2020/21
Subject (*)	Operating Systems Administration	Code	614G01047
Study programme	Grao en Enxeñaría Informática		

Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	2nd four-month period	Third	Optional	6

Language	Galician
Teaching method	Face-to-face
Prerequisites	
Department	Ciencias da Computación e Tecnoloxías da InformaciónComputación
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General description	In this course we'll try to get acquainted with the administration of unix-like operating systems. We'll try to cover both the concepts and the different implementations of those same concepts by using systems on the different branches of the unix family tree It is assumed a certain knowledge of basic operating system concepts, basic unix commands and shell programming
Contingency plan	1. Modifications in the contents none 2. Methodologies * Teaching methodologies that change - Master session: videoconference - Practices: supervised through ICT, - Objective test and practical test: through Moodle, Teams or any other UDC tool. - Tutored works: Given the difficulties of meeting and doing group work, doing the presentations in class and doing the peer-to-peer evaluations, the performance of work will be replaced by the performance of reports of the practices made 3. Mechanisms of personalized attention to students - Moodle: all teaching resources will be provided through Faitic. - Teams or other video conferencing tools. Team sessions may be convened for tutoring - Email: for any questions 4. Modifications in the evaluation In accordance with the modification of the methodologies corresponding to the supervised work, the score corresponding to the supervised work will be added. the part of the practices, concretely the realization of the reports * Evaluation observations: In the case of not being able to be in person Both the objective test and the practical test will be done using Teams, moodle or any other tool available at udc 5. Modifications to the bibliography or webography none

Study programme competences	
Code	Study programme competences

Learning outcomes	
Learning outcomes	Study programme competences

C1 - C8 (See Nuclear competences of the studies)			
Knowledge of the characteristics, functionalities and structure of operating systems and design and implement applications based on its services.			
B9-B17 (Transversal capacities: see study competences)			

Contents	
Topic	**Sub-topic**
Introduction to System Administration	The role of the System Administrator
	Users and groups
	Files, processes and devices
	Becoming superuser
	Basic system administration commands
	Different UNIXes
Booting and Installing the Operating System	Selecting and preparing installation media
	The boot process
	Preparing the disks. Basic disk partitioning
	Sharing disks among O.S.s
	Boot loaders
Basic TCP Networking	Basic network configuration
	Network interface aliasing
	Manipulating routes
	inetd configuration: tcpwrappers
Managing users and groups	Managing user acounts
	Administrative tools for managing users
	Managing groups
	User autentification with PAM
	User autentification with LDAP
Processes and software packages	Managing and monitoring processes
	Tracing system calls
	Process privileges and priorities
	The /proc filesystem
	Signals
	Software packages: packages and ports
	Administering software packages and installing software
Devices, disks and filesystems	Devices and device files.
	Adding support for devices. Kernel modules
	Organisation of the UNIX file system.
	Managing disks. Partitioning schemes
	Creating and accesing filesystems
	Managing volumes.
	RAID
	Encrypting filesystems
	Introduction to the ZFS filesystem

Automating administrative tasks	Shell scripting
	Monitoring system: logs
	Schedulling execution of tasks: the cron and at commands
	Starting and stopping system services
	Initialization files and boot scripts

Planning				
Methodologies / tests	Competencies	Ordinary class hours	Student?s personal work hours	Total hours
Guest lecture / keynote speech		21	63	84
Laboratory practice		14	28	42
Supervised projects		7	10.5	17.5
Objective test		2.5	0	2.5
Personalized attention		4	0	4
(*)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	The teacher will elaborate on the contents and give guidance on how to use and apply these concepts in the laboratory
Laboratory practice	Practical application of the concepts exposed in the magisterial sessions. The students will install several different unix systems (System V, BSD. POSIX ...) on the same virtualized machine, having to coexist the different types of partitions and the different boot loaders and will carry out the different administration tasks of the S.O. on each of the installed systems
Supervised projects	Preparation and exposition in class, by the students, of complementary topics to the syllabus of the subject
Objective test	Written exam to evaluate the degree of assimilation of the concepts exposed in the master sessions

Personalized attention	
Methodologies	Description
Objective test Supervised projects Guest lecture / keynote speech Laboratory practice	An attempt will be made to resolve all doubts and make as many clarifications as necessary in the classroom hours in the different methodologies. In addition, the teacher will be available for personalized attention to students in the tutoring hours reserved for this purpose. Students have the possibility of reviewing the evaluations obtained in the different sections and being informed of the criteria that have been used for this purpose.

Assessment			
Methodologies	Competencies	Description	Qualification
Objective test		Written exam to assess the degree of assimilation of the concepts exposed in the master sessions	40
Supervised projects		Both their contents as well the expositions in class will be evaluated. Students not taking part in the class presentations, will perform peer to peer evaluations of the expositions and must prove the adquisition of the bascic concepts used in them	20

| Laboratory practice | | The delivery of the practices in the pre-established deadline will be valued as well as its correct operation. Furthermore, as part of the practice evaluation process, an individual practice exam could be carried out, either on one of machines used in the practical classes or on a machine specifically provided for this purpose.

STUDENTS PART TIME: A meeting will be held at the beginning of the course to assess how the evaluation will be carried out based on its availability | 40 |

Assessment comments

Sources of information

| Basic | - Nemeth, Snyder, Hein ,Whaley (2011). Unix and Linux System Administration Handbook 4th edition . Pearson Education
- Solaris System Engineers (2009). Solaris 10 System Administration Essentials (Solaris System Administration). : Prentice Hall
- Frisch, Aeleen (2002). Essential System Administration. O' Reilly
- The FreeBSD Documentation Project (2012). The FreeBSD handbook. http://www.freebsd.org/doc/en_US.ISO8859-1/books/handbook/
- openBSD.org (2012). Bug Buster's guide to OpenBSD. http://www.openbsd.org/faq/index.html |
| Complementary | |

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 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.