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			
Coordinador	Yañez Izquierdo, Antonio Fermin	E-mail	antonio.yanez@udc.es	
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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 / results	
Code	Study programme competences / results

Learning outcomes

Learning outcomes	Study programme competences / results		
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 / Results	Teaching hours (in-person & virtual)	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 / Results	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.