



Teaching Guide

Identifying Data					2019/20
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	Operating Systems Administration, covering both standalone and networked systems. The different types of UNIX systems are taken into consideration				

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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Selecting and preparing installation media The boot process Preparing the disks. Basic disk partitioning Sharing disks among O.S.s Boot loaders



Managing users and groups	<ul style="list-style-type: none"> Managing user accounts Administrative tools for managing users Managing groups User authentication with PAM User authentication with LDAP
Processes and software packages	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Devices and device files. Adding support for devices. Kernel modules Organisation of the UNIX file system. Managing disks. Partitioning schemes Creating and accessing filesystems Managing volumes. RAID Encrypting filesystems Introduction to the ZFS filesystem
Automating administrative tasks	<ul style="list-style-type: none"> Shell scripting Monitoring system: logs Scheduling execution of tasks: the cron and at commands Starting and stopping system services Initialization files and boot scripts
TCP/IP networking	<ul style="list-style-type: none"> Basic network configuration Network interface aliasing Manipulating routes inetd configuration
Managing internet and intranet services	<ul style="list-style-type: none"> file servers DHCP ssh web mail

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	Use and application of the concepts seen in real world system in the laboratory
Supervised projects	Ampliación de las practicas de laboratorio para ser realizada de manera más autónoma por los alumnos
Objective test	Examen escrito para evaluar el grado de asimilación de los conceptos expuesto en las sesiones magistrales

Personalized attention

Methodologies	Description
Objective test Supervised projects Guest lecture / keynote speech Laboratory practice	Both the understanding of the concepts and the application of these concepts to real systems may require personalized attention to the student.

Assessment

Methodologies	Competencies / Results	Description	Qualification
Objective test		Examen escrito para evaluar el grado de asimilación de los conceptos expuesto en las sesiones magistrales	40
Supervised projects		Se valorará la entrega de los trabajos tutelados en el plazo preestablecido así como su correcto funcionamiento. ALUMNOS TIEMPO PARCIAL: Se realizará una reunión a principio de curso para valorar como se realizará la evaluación en función de su disponibilidad.	20
Laboratory practice		The ongoing work on the laboratory will be evaluated up to 30% of the final qualification	40

Assessment comments

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Sources of information

Basic	<ul style="list-style-type: none"> - 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, Aileen (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.