



## Teaching Guide

Identifying Data					2018/19
<b>Subject (*)</b>	Operating Systems Administration		<b>Code</b>	614G01047	
<b>Study programme</b>	Grao en Enxeñaría Informática				
Descriptors					
<b>Cycle</b>	<b>Period</b>	<b>Year</b>	<b>Type</b>	<b>Credits</b>	
Graduate	2nd four-month period	Third	Obligatory	6	
<b>Language</b>	Galician				
<b>Teaching method</b>	Face-to-face				
<b>Prerequisites</b>					
<b>Department</b>	Computación				
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<b>Lecturers</b>	Yañez Izquierdo, Antonio Fermin	<b>E-mail</b>	antonio.yanez@udc.es		
<b>Web</b>	<a href="http://www.dc.fi.udc.es/~afyanez/">http://www.dc.fi.udc.es/~afyanez/</a>				
<b>General description</b>	Operating Systems Administration, covering both standalone and networked systems. The different types of UNIX systems are taken into consideration				

## 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	<ul style="list-style-type: none"> <li>The role of the System Administrator</li> <li>Users and groups</li> <li>Files, processes and devices</li> <li>Becoming superuser</li> <li>Basic system administration commands</li> <li>Different UNIXes</li> </ul>
Booting and Installing the Operating System	<ul style="list-style-type: none"> <li>Selecting and preparing installation media</li> <li>The boot process</li> <li>Preparing the disks. Basic disk partitioning</li> <li>Sharing disks among O.S.s</li> <li>Boot loaders</li> </ul>



Managing users and groups	<p>Managing user accounts</p> <p>Administrative tools for managing users</p> <p>Managing groups</p> <p>User authentication with PAM</p> <p>User authentication with LDAP</p>
Processes and software packages	<p>Managing and monitoring processes</p> <p>Tracing system calls</p> <p>Process privileges and priorities</p> <p>The /proc filesystem</p> <p>Signals</p> <p>Software packages: packages and ports</p> <p>Administering software packages and installing software</p>
Devices, disks and filesystems	<p>Devices and device files.</p> <p>Adding support for devices. Kernel modules</p> <p>Organisation of the UNIX file system.</p> <p>Managing disks. Partitioning schemes</p> <p>Creating and accessing filesystems</p> <p>Managing volumes.</p> <p>RAID</p> <p>Encrypting filesystems</p> <p>Introduction to the ZFS filesystem</p>
Automating administrative tasks	<p>Shell scripting</p> <p>Monitoring system: logs</p> <p>Scheduling execution of tasks: the cron and at commands</p> <p>Starting and stopping system services</p> <p>Initialization files and boot scripts</p>
TCP/IP networking	<p>Basic network configuration</p> <p>Network interface aliasing</p> <p>Manipulating routes</p> <p>inetd configuration</p>
Managing internet and intranet services	<p>file servers</p> <p>DHCP</p> <p>ssh</p> <p>web</p> <p>mail</p>

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	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	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

Sources of information	
<b>Basic</b>	<ul style="list-style-type: none"> <li>- Nemeth, Snyder, Hein, Whaley (2011). Unix and Linux System Administration Handbook 4th edition . Pearson Education</li> <li>- Solaris System Engineers (2009). Solaris 10 System Administration Essentials (Solaris System Administration). : Prentice Hall</li> <li>- Frisch, Aileen (2002). Essential System Administration. O' Reilly</li> <li>- The FreeBSD Documentation Project (2012). The FreeBSD handbook. <a href="http://www.freebsd.org/doc/en_US.ISO8859-1/books/handbook/">http://www.freebsd.org/doc/en_US.ISO8859-1/books/handbook/</a></li> <li>- openBSD.org (2012). Bug Buster's guide to OpenBSD. <a href="http://www.openbsd.org/faq/index.html">http://www.openbsd.org/faq/index.html</a></li> </ul>
<b>Complementary</b>	

Recommendations
<b>Subjects that it is recommended to have taken before</b>
<b>Subjects that are recommended to be taken simultaneously</b>
<b>Subjects that continue the syllabus</b>
<b>Other comments</b>
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