



## Teaching Guide

Identifying Data					2015/16
Subject (*)	Administración de Sistemas Operativos	Code	614G01047		
Study programme	Grao en Enxeñaría Informática				
Descriptors					
Cycle	Period	Year	Type	Credits	
Graduate	2nd four-month period	Third	Obligatoria	6	
Language	Galician				
Teaching method	Face-to-face				
Prerequisites					
Department	Computación				
Coordinador	Yañez Izquierdo, Antonio Fermin	E-mail	antonio.yanez@udc.es		
Lecturers	Yañez Izquierdo, Antonio Fermin	E-mail	antonio.yanez@udc.es		
Web	<a href="http://www.dc.fi.udc.es/~afyanez/">http://www.dc.fi.udc.es/~afyanez/</a>				
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
A53	Capacidade para seleccionar, deseñar, despregar, integrar, avaliar, construír, xestionar, explotar e manter as tecnoloxías de hardware, software 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.
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.
C6	Valorar criticamente o coñecemento, a tecnoloxía e a información dispoñible para resolver os problemas cos que deben enfrontarse.
C7	Asumir como profesional e cidadán a importancia da aprendizaxe ao longo da vida.

## Learning outcomes

Learning outcomes		Study programme competences / results	
		A53	
		A55	C3
			C3
			C6
			C7

## 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 / Results	Teaching hours (in-person & virtual)	Student's personal work hours	Total hours
Guest lecture / keynote speech	A53 A55 C3 C6 C7	21	63	84
Laboratory practice	A53 A55 C3 C6 C7	14	28	42
Supervised projects	A53 A55 C3 C6	7	10.5	17.5
Objective test	A55 C3	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
Supervised projects Laboratory practice Guest lecture / keynote speech Objective test	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
Supervised projects	A53 A55 C3 C6	Se valorará la entrega de los trabajos tutelados en el plazo preestablecido así como su correcto funcionamiento.	20
Laboratory practice	A53 A55 C3 C6 C7	The ongoing work on the laboratory will be evaluated up to 30% of the final qualification	40
Objective test	A55 C3	Examen escrito para evaluar el grado de asimilación de los conceptos expuesto en las sesiones magistrales	40

### Assessment comments

--

### Sources of information

<b>Basic</b>	<ul style="list-style-type: none"> <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>- Nemeth, Snyder, Hein, Whaley (2011). Unix and Linux System Administration Handbook 4th edition . Pearson Education</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

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.