



## Teaching Guide

Identifying Data					2014/15
Subject (*)	Administración de Sistemas Operativos	Code	614G01212		
Study programme	Grao en Enxeñaría Informática				
Descriptors					
Cycle	Period	Year	Type	Credits	
Graduate	1st four-month period	Curso adap. Enx. Téc. Informática	Obligatoria	6	
Language	Galician				
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	<p>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</p> <p>It is assumed a certain knowledge of basic operating system concepts, basic unix commands and shell programming</p>				

## Study programme competences

Code	Study programme competences
A4	Coñecementos básicos sobre o uso e a programación dos ordenadores, sistemas operativos, bases de datos e programas informáticos con aplicación na enxeñaría.
A7	Capacidade para deseñar, desenvolver, seleccionar e avaliar aplicacións e sistemas informáticos que aseguren a súa fiabilidade, seguranza e calidade, conforme a principios éticos e á lexislación e normativa vixente.
A8	Capacidade para planificar, concibir, despregar e dirixir proxectos, servizos e sistemas informáticos en todos os ámbitos, liderando a súa posta en marcha e a súa mellora continua e valorando o seu impacto económico e social.
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.
B3	Capacidade de análise e síntese
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

Subject competencies (Learning outcomes)	Study programme competences		
	A4		C3
	A7		
	A8		
	A53		
		B3	C3
			C6
			C7

## Contents

Topic	Sub-topic



Introduction to System Administration	<p>The role of the System Administrator</p> <p>Users and groups</p> <p>Files, processes and devices</p> <p>Becoming superuser</p> <p>Basic system administration commands</p> <p>Different UNIXes</p>
Booting and Installing the Operating System	<p>Selecting and preparing installation media</p> <p>The boot process</p> <p>Preparing the disks. Basic disk partitioning</p> <p>Sharing disks among O.S.s</p> <p>Boot loaders</p>
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 accesing 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>Schedulling 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>fileservers</p> <p>DHCP</p> <p>ssh</p> <p>web</p> <p>mail</p>

## Planning

Methodologies / tests	Ordinary class hours	Student?s personal work hours	Total hours
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Guest lecture / keynote speech	20.5	61.5	82
Laboratory practice	20.5	41	61.5
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
Objective test	Examen escrito para evaluar el grado de asimilación de los conceptos expuesto en las sesiones magistrales

Personalized attention	
Methodologies	Description
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	Description	Qualification
Laboratory practice	The ongoing work on the laboratory will be evaluated up to 30% of the final qualification	30
Objective test	Examen escrito para evaluar el grado de asimilación de los conceptos expuesto en las sesiones magistrales. El examen podría incluir, aparte de las cuestiones teóricas, la realización de algún ejercicio práctico	40

Assessment comments

Sources of information	
<b>Basic</b>	<ul style="list-style-type: none"> <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> <li>- Frisch, Aeleen (2002). Essential System Administration. O' Reilly</li> <li>- Solaris System Engineers (2009). Solaris 10 System Administration Essentials (Solaris System Administration) . : Prentice Hall</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>- Nemeth, Snyder, Hein ,Whaley (2011). Unix and Linux System Administration Handbook 4th edition . Pearson Education</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>
&amp;lt;p&amp;gt;Since this subject is included in &amp;quot;Curso adap. Enx. Téc. Informática&amp;quot;, no recommendations are needed since Enxeñaría Técnica is required &amp;lt;p&amp;gt;



(\*)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.