BASIC DETAILS:

Subject:	ADMINISTRACIÓN DE SISTEMAS OPERATIVOS		
Id.:	31846		
Programme:	DOBLE GRADO EN INGENIERÍA INFORMÁTICA Y DISEÑO Y DESARROLLO DE VIDEOJUEGOS		
Module:	DISEÑO Y ADMINISTRACION DE SISTEMAS Y SERVICIOS		
Subject type:	OBLIGATORIA		
Year:	3	**Teaching period:**	Primer Cuatrimestre
Credits:	6	**Total hours:**	150
Classroom activities:	63	**Individual study:**	87
Main teaching language:	Inglés	**Secondary teaching language:**	Castellano
Lecturer:		**Email:**	

PRESENTATION:

The purpose of an operating system is to provide an environment in which users can perform their tasks in an adequate and effective way. The figure of an administrator who knows in depth both the operating system and the needs of the users is mandatory to make it possible. It is a doubly complicated task because it requires both advanced technical knowledge of the machine and good skills for interpersonal communication.

This subject will introduce the conceptual bases and techniques applied to manage and get performance from the computer systems in order to meet the needs of its users.

PROFESSIONAL COMPETENCES ACQUIRED IN THE SUBJECT:

General programme competences	G02	Innovative capacity to propose and find new and efficient ways to undertake any task and/ or function within the professional environment - highly motivated by quality.
	G05	Capacity to adapt to different environments while being positive and optimistic, orienting your behaviour towards the achievement of goals.
	G06	Capacity to analyse and find a solution to complex problems or unforeseen situations which may arise while working in any type of socio-economic organisation.
	G08	Ability to communicate effectively about different matters in a variety of professional situations and with the different media available.
	G09	Capacity to make decisions impartially and rationally.
	G10	Critical and analytical capacity when assessing information, data and courses of action.
	G14	Capacity for abstraction to handle various complex knowledge models and apply them to examining and solving problems.
	G15	Capacity to structure reality by means of linking objects, situations and concepts through logical mathematical reasoning.
Specific programme competences	E02	Capacity to apply the intrinsic engineering principles based on mathematics and a combination of scientific disciplines.
	E03	Capacity to recognise the technical principles and apply the appropriate practical methods satisfactorily to analyse and solve engineering problems.
	E04	Capacity to maintain an open mind to innovation and creativity within the framework of the engineering profession.
	E11	Capacity to remain up-to-date in the technological and business worlds in the area of information and communication technologies.
	E12	Capacity to manage complexity through abstraction, modelling, 'best practices', patterns, standards and the use of the appropriate tools.
	E13	Capacity to identify, assess and use current and emerging technologies, considering how they apply in terms of individual or organisational needs.
	E16	Capacity to understand an application demesne so as to be able to develop suitable IT applications.
	E17	Capacity to identify and analyse user needs with the intention of designing effective, usable IT solutions which can be incorporated into the user's operating environment.
	E18	Capacity to identify and define the requirements to be satisfied by IT systems to cover the stated needs of organisations or individuals.

	E19	Capacity to design and define the architecture of IT systems (software, hardware and communications) under the requirements agreed upon by the parties involved.
	E21	Capacity to perform tests that verify the validity of the project (functional, data integrity, performance of the computer applications, equipment, communications, etc.).
	E22	Capacity to undertake implementation tasks which require a high degree of technical awareness in different spheres (programming, configuration of hardware and communications equipment, etc.).
	E23	Capacity to design and implement security policies in order to preserve the integrity of the operational environment.
	E25	Capacity to analyse viability, design development plans, estimate resources, run and oversee the execution of software-intensive engineering projects.
	E27	Capacity to write and maintain descriptive documentation of the origin, production and operability of IT systems.

PRE-REQUISITES:

It is recommended to have attended Operating Systems.

SUBJECT PROGRAMME:

Subject contents:

1 - The work of the administrator
1.1 - Role of the OS. Evolution.
1.2 - Role of the administrator. Tasks and skills of a systems administrator.
1.3 - Core concepts and tools for system administrators.
2 - Basic administration of operating systems
2.1 - Introduction to Shell programming.
2.2 - User Management.
2.3 - Tasks automation. Scripting.
3 - Data Management
3.1 - File Systems.
3.2 - Setting file access permissions.
3.3 - Backup and restore.
4 - System performance: managing system resources
4.1 - Controlling the system. Starting and stopping the system.
4.2 - Monitoring and controlling processes. Periodic processes.
4.3 - Memory and Input/Output management

Subject planning could be modified due unforeseen circumstances (group performance, availability of resources, changes to academic calendar etc.) and should not, therefore, be considered to be definitive.

TEACHING AND LEARNING METHODOLOGIES AND ACTIVITIES:

Teaching and learning methodologies and activities applied:

This course will use the following methodologies in order to give the students the best opportunity to develop theirp competences: lectures, practical sessions, and tuition sessions.

Lectures will be used to explain the basis of the different chapters. When possible, explanations will be accompanied by images and simple examples to be used as discussion topics and facilitate the understanding. The slides of the lectures will be available in the Online University Platform (pdu.usj.es) and students should be able to expand their content with
the class explanations and other bibliographic resources.

Practical sessions: Students will be grouped into groups of up to four students. Practical work will be the goal and responsibility of the whole group. During the resolution of the group practices, students will use the problem-based learning methodological strategy

Tuition sessions will be scheduled with the students upon the beginning of the course. There will be a weekly 2 hour slot assigned for individual and group tuition sessions. During the defined schedule, the lecturer will be available to answer the students' questions concerning the course.

Participation in class will be accounted in the final score.

Student work load:

Teaching mode	Teaching methods	Estimated hours
Classroom activities	Master classes	21
	Practical exercises	15
	Practical work, exercises, problem-solving etc.	15
	Coursework presentations	2
	Workshops	6
	Assessment activities	4
Individual study	Individual study	36
	Individual coursework preparation	25
	Group cousework preparation	18
	Research work	4
	Recommended reading	4
	Total hours:	150

ASSESSMENT SCHEME:

Calculation of final mark:

Written tests:	25	%
Individual coursework:	20	%
Group coursework:	20	%
Final exam:	30	%
Asistencia y participación:	5	%
TOTAL	100	%

*Las observaciones específicas sobre el sistema de evaluación serán comunicadas por escrito a los alumnos al inicio de la materia.

BIBLIOGRAPHY AND DOCUMENTATION:

Basic bibliography:

Frisch Æ. “Essential System Administration” 3rd Edition. O’Reilly 2002, ISBN 0596003439
Burgess M, John Wiley. “Principles of Network and System Administration” 2nd Edition
Evi Nemeth, Garth Snyder. "Linux Administration Handbook (2nd Edition)". Prentice Hall PTR 2006, ISBN 0131480049

Recommended bibliography:

Stevens R Addison. "Advanced Programming in the UNIX® Environment” 2nd Edition. Wesley Professional 2005, ISBN: 0201433079
Maxwell S. “UNIX System Administration: A Beginner’s Guide”. McGraw Hill 2002, ISBN 0072228334.
Russinovich M. "Microsoft Windows Internals”. Microsoft Press 2004, ISBN 0735619174.
Kirkland J. “Linux Troubleshooting for System Administrators and Power Users". Prentice Hall 2006, ISBN 0131855158.
Evi Nemeth, Garth Snyder, Scott Seebass and Trent H. Hein. “Unix System Administration Handbook” 3rd Edition. Prentice Hall PTR, 2000, ISBN 0130206016

Recommended websites:

Ubuntu	http://www.ubuntu.com

Webmin	http://www.webmin.com/

* Guía Docente sujeta a modificaciones