



POLITÉCNICA

INTERNATIONAL  
CAMPUS OF  
EXCELLENCE

COORDINATION PROCESS OF  
LEARNING ACTIVITIES  
PR/CL/001



E.T.S. de Ingeniería de  
Sistemas Informáticos

# ANX-PR/CL/001-01

## LEARNING GUIDE

### SUBJECT

**615000733 - System Administration**

### DEGREE PROGRAMME

61TI - Grado En Tecnologías Para La Sociedad De La Informacion

### ACADEMIC YEAR & SEMESTER

2020/21 - Semester 1

## Index

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### Learning guide

1. Description.....	1
2. Faculty.....	1
3. Prior knowledge recommended to take the subject.....	2
4. Skills and learning outcomes .....	2
5. Brief description of the subject and syllabus.....	3
6. Schedule.....	4
7. Activities and assessment criteria.....	6
8. Teaching resources.....	8
9. Other information.....	9

## 1. Description

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### 1.1. Subject details

<b>Name of the subject</b>	615000733 - System Administration
<b>No of credits</b>	6 ECTS
<b>Type</b>	Compulsory
<b>Academic year of the programme</b>	Fourth year
<b>Semester of tuition</b>	Semester 7
<b>Tuition period</b>	September-January
<b>Tuition languages</b>	English
<b>Degree programme</b>	61TI - Grado en Tecnologias para la Sociedad de la Informacion
<b>Centre</b>	61 - Escuela Tecnica Superior De Ingenieria De Sistemas Informaticos
<b>Academic year</b>	2020-21

## 2. Faculty

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### 2.1. Faculty members with subject teaching role

<b>Name and surname</b>	<b>Office/Room</b>	<b>Email</b>	<b>Tutoring hours *</b>
Pilar Manzano Garcia (Subject coordinator)	D-4412	pilar.manzano@upm.es	M - 12:00 - 14:00 Tu - 12:00 - 14:00 Th - 12:00 - 14:00

\* The tutoring schedule is indicative and subject to possible changes. Please check tutoring times with the faculty member in charge.

## 3. Prior knowledge recommended to take the subject

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### 3.1. Recommended (passed) subjects

- Sistemas Operativos
- Taller De Sistemas Operativos

### 3.2. Other recommended learning outcomes

- Conocimientos del sistema Linux a nivel de usuario

## 4. Skills and learning outcomes \*

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### 4.1. Skills to be learned

CC05 - Conocimiento, administración y mantenimiento de sistemas, servicios y aplicaciones informáticas.

CT04 - Comunicación escrita: Relacionarse eficazmente con otras personas a través de la expresión clara de lo que se piensa, mediante la escritura y los apoyos gráficos.

### 4.2. Learning outcomes

RA143 - Escribe programas BASH para automatizar tareas

RA142 - Conoce y usa comandos de administración de Unix

RA145 - Determina el uso que se hace de los recursos del sistema

RA144 - Conoce y modifica ficheros de configuración de Unix

RA146 - Programa la ejecución periódica de tareas de administración

\* The Learning Guides should reflect the Skills and Learning Outcomes in the same way as indicated in the Degree Verification Memory. For this reason, they have not been translated into English and appear in Spanish.

## 5. Brief description of the subject and syllabus

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### 5.1. Brief description of the subject

It introduces the basic concepts of administration of a Linux system and allows students to practice with some specific administration tasks.

### 5.2. Syllabus

1. Introduction
2. The BASH language
3. Virtualization
4. System startup and shutdown
5. Installing and updating software
6. User management
7. Managing system resources
8. System security
9. Automating tasks with cron
10. Filesystems and backups
11. RAID systems
12. Printer management

## 6. Schedule

### 6.1. Subject schedule\*

Week	Face-to-face classroom activities	Face-to-face laboratory activities	Distant / On-line	Assessment activities
1	<b>Presentation and chapter 1</b> Duration: 02:00 Lecture	<b>Introduction to lab activities</b> Duration: 02:00 Laboratory assignments		
2	<b>Chapter 1</b> Duration: 01:00 Lecture	<b>Lab work</b> Duration: 03:00 Laboratory assignments		
3	<b>Chapter 2</b> Duration: 02:00 Lecture	<b>Lab work</b> Duration: 02:00 Laboratory assignments		
4	<b>Chapter 2</b> Duration: 04:00 Lecture			
5	<b>Chapter 3</b> Duration: 01:00 Lecture	<b>Lab work</b> Duration: 03:00 Laboratory assignments		
6	<b>Chapter 4</b> Duration: 02:00 Lecture	<b>Lab work</b> Duration: 02:00 Laboratory assignments		
7	<b>Chapter 5</b> Duration: 01:00 Lecture	<b>Lab work</b> Duration: 03:00 Laboratory assignments		
8	<b>Chapter 6</b> Duration: 02:00 Lecture	<b>Lab work</b> Duration: 02:00 Laboratory assignments		
9	<b>Chapter 7</b> Duration: 01:00 Lecture	<b>Lab work</b> Duration: 02:00 Laboratory assignments		<b>Test chapters 1-6 (RA142,RA143,RA144)</b> Written test Continuous assessment Presential Duration: 01:00
10	<b>Chapter 8</b> Duration: 01:00 Lecture	<b>Lab work</b> Duration: 02:00 Laboratory assignments		
11	<b>Chapter 9</b> Duration: 01:00 Lecture		<b>Group work</b> Duration: 03:00 Problem-solving class	
12	<b>Chapter 10</b> Duration: 02:00 Lecture	<b>Lab work</b> Duration: 02:00 Laboratory assignments		
13	<b>Chapter 11</b> Duration: 01:00 Lecture		<b>Group work</b> Duration: 03:00 Problem-solving class	

14	<b>Chapter 12</b> Duration: 01:00 Lecture		<b>Group work</b> Duration: 03:00 Problem-solving class	
15			<b>Student Presentations</b> Duration: 02:30 Problem-solving class	<b>Written assignment presentation</b> Individual work Continuous assessment and final examination Not Presential Duration: 00:30
16				
17				<b>Final exam</b> <b>(RA142,RA143,RA144,RA145,RA146)</b> Written test Continuous assessment and final examination Presential Duration: 03:00  <b>Lab work presentation</b> Individual presentation Continuous assessment and final examination Presential Duration: 00:30  <b>Additional part for students with only final exam</b> Written test Final examination Presential Duration: 00:30

Depending on the programme study plan, total values will be calculated according to the ECTS credit unit as 26/27 hours of student face-to-face contact and independent study time.

\* The schedule is based on an a priori planning of the subject; it might be modified during the academic year, especially considering the COVID19 evolution.

## 7. Activities and assessment criteria

### 7.1. Assessment activities

#### 7.1.1. Continuous assessment

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
9	Test chapters 1-6 (RA142,RA143,RA144)	Written test	Face-to-face	01:00	20%	0 / 10	CC05
15	Written assignment presentation	Individual work	No Presential	00:30	10%	5 / 10	CT04
17	Final exam (RA142,RA143,RA144,RA145,RA146)	Written test	Face-to-face	03:00	40%	5 / 10	CC05
17	Lab work presentation	Individual presentation	Face-to-face	00:30	30%	4 / 10	

#### 7.1.2. Final examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
15	Written assignment presentation	Individual work	No Presential	00:30	10%	5 / 10	CT04
17	Final exam (RA142,RA143,RA144,RA145,RA146)	Written test	Face-to-face	03:00	40%	5 / 10	CC05
17	Lab work presentation	Individual presentation	Face-to-face	00:30	30%	4 / 10	
17	Additional part for students with only final exam	Written test	Face-to-face	00:30	20%	5 / 10	

#### 7.1.3. Referred (re-sit) examination

Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
Written assignment presentation	Individual work	Face-to-face	00:30	10%	5 / 10	CT04
Lab work presentation	Individual presentation	Face-to-face	00:30	30%	4 / 10	



Final exam (RA142,RA143,RA144,RA145,RA146)	Written test	Face-to-face	03:00	60%	5 / 10	CC05
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## 7.2. Assessment criteria

CONTINUOUS EVALUATION:

IF FinalExamGrade  $\geq$  5 then

FinalGrade =  $0,20 * \text{PartialExamGrade} + 0,10 * \text{WrittenAssignmentGrade} + 0,30 * \text{PracticalWorkGrade} + 0,40 * \text{FinalExamGrade}$

else

FinalGrade = NoPass

ONLY FINAL EXAM AND EXTRAORDINARY JULY EXAM:

IF FinalExamGrade  $\geq$  5 then

FinalGrade =  $0,10 * \text{WrittenAssignmentGrade} + 0,30 * \text{PracticalWorkGrade} + 0,60 * \text{FinalExamGrade}$

else

FinalGrade = NoPass

In this case, the practical work and the written assignments will be presented on the day of the final exam.

DEADLINE TO ASK FOR ONLY FINAL EXAM: November 30

The evaluation of the generic competence "Comunicación escrita" (CT04) is done through a written work.

## 8. Teaching resources

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### 8.1. Teaching resources for the subject

Name	Type	Notes
Lab equipment with Linux	Equipment	A Department or School lab with 30-40 computers with Linux is required. 
"Unix and Linux System Administration Handbook". 4th. Ed. Evi Nemeth. Prentice-Hall, 2011	Bibliography	Basic concepts of administration with Linux and Unix.
"Essential System Administration". 3rd. Edition. Aeleen Frisch. O'Reilly & Associates, 2002.	Bibliography	Basic concepts on administration on Unix type systems.
"Learning the Bash shell". 3rd. Ed. Cameron Newham. O'Reilly, 2005	Bibliography	BASH language.
"Managing RAID on Linux". Derek Vadala. O'Reilly, 2003	Bibliography	RAID systems.
"Administración de sistemas Linux", 1ª edición. Tom Adelstein y Bill Lubanovic. O'Reilly 2007	Bibliography	Basic Linux administration in Spanish.

## 9. Other information

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### 9.1. Other information about the subject

The course is taught in English, and all the materials (included exams) are provided in Spanish and English.

The generic competence assigned to this course is "written communication" and it is evaluated through a written assignment that accounts for 10% of the grade of the course.

In case of possible problems due to COVID, this guide includes teaching of the course in bimodal format. Consequently, all the activities initially programmed as presential activities, will be developed on-line if required.