



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 - Degree on Technologies for Information Society

ACADEMIC YEAR & SEMESTER

2022/23 - Semester 1

Index

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.....	10
9. Other information.....	11

1. Description

1.1. Subject details

Name of the subject	615000733 - System Administration
No of credits	6 ECTS
Type	Compulsory
Academic year of the programme	Fourth year
Semester of tuition	Semester 7
Tuition period	September-January
Tuition languages	English
Degree programme	61TI - Degree on Technologies for Information Society
Centre	61 - Escuela Tecnica Superior De Ingenieria De Sistemas Informaticos
Academic year	2022-23

2. Faculty

2.1. Faculty members with subject teaching role

Name and surname	Office/Room	Email	Tutoring hours *
Pilar Manzano Garcia (Subject coordinator)	D-4412	pilar.manzano@upm.es	Not scheduled. Publisehd onthe IS department webpage.

* 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

3.1. Recommended (passed) subjects

- Sistemas Operativos
- Taller De Sistemas Operativos

3.2. Other recommended learning outcomes

- User level knowledge of Linux system

4. Skills and learning outcomes *

4.1. Skills to be learned

CC05 - Knowledge, administration and maintenance of computer systems, services and applications.

CT04 - Written communication: Relate effectively with other people through the clear expression of what one's think, through writing and graphic supports.

4.2. Learning outcomes

RA143 - Writing BASH programs to automate tasks

RA142 - Knowing and using Unix administration commands

RA145 - Determining the use that is made of system resources

RA144 - Learning and modifying Unix configuration files

RA146 - .Scheduling the periodic execution of administration tasks

5. Brief description of the subject and syllabus

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	Classroom activities	Laboratory activities	Distant / On-line	Assessment activities
1	Presentation and chapter 1 Duration: 02:00 Lecture	Introduction to lab activities Duration: 02:00 Laboratory assignments		
2	Chapter 1 Duration: 02:00 Lecture	Lab work Duration: 02:00 Laboratory assignments		
3	Chapter 2 Duration: 02:00 Lecture	Lab work Duration: 02:00 Laboratory assignments		
4	Chapter 2 Duration: 02:00 Lecture	Lab work Duration: 02:00 Laboratory assignments		
5	Chapter 3 Duration: 02:00 Lecture	Lab work Duration: 02:00 Laboratory assignments		
6	Chapter 4 Duration: 02:00 Lecture	Lab work Duration: 02:00 Laboratory assignments		
7	Chapter 5 Duration: 01:00 Lecture	Lab work Duration: 03:00 Laboratory assignments		
8	Chapter 6 Duration: 02:00 Lecture	Lab work Duration: 02:00 Laboratory assignments		
9	Chapter 7 Duration: 01:00 Lecture	Lab work Duration: 02:00 Laboratory assignments		Test 1 (chapters 1-6) - (RA142,RA143,RA144) - Continuous evaluation Written test Continuous assessment Presential Duration: 01:00
10	Chapter 8 Duration: 01:00 Lecture	Lab work Duration: 02:00 Laboratory assignments		
11	Chapter 9 Duration: 02:00 Lecture	Lab work Duration: 02:00 Laboratory assignments		
12	Chapter 10 Duration: 02:00 Lecture	Lab work Duration: 02:00 Laboratory assignments		

13	Chapter 11 Duration: 02:00 Lecture	Lab work Duration: 02:00 Laboratory assignments		
14	Chapter 12 Duration: 02:00 Lecture	Lab work Duration: 02:00 Laboratory assignments		
15				<p>Written assignment presentation - Continuous and final evaluation Individual work Continuous assessment and final examination Not Presential Duration: 00:30</p> <p>Test 2 (chapters 7-12 and practical work) (RA142,RA143,RA144,RA145,RA146) - Continuous evaluation Written test Continuous assessment Presential Duration: 02:00</p> <p>Lab work presentation - Continuous and final evaluation Individual work Continuous assessment and final examination Presential Duration: 00:30</p>
16				
17				<p>Global exam. Theory and practical work . Block 1: first partial exam of theory. Block 2: Second partial exam (theory and lab)(RA142,RA143,RA144,RA145,RA146) Written test Final examination Presential Duration: 03:00</p>

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. Assessment

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
9	Test 1 (chapters 1-6) - (RA142,RA143,RA144) - Continuous evaluation	Written test	Face-to-face	01:00	20%	0 / 10	CC05
15	Written assignment presentation - Continuous and final evaluation	Individual work	No Presential	00:30	10%	0 / 10	CT04
15	Test 2 (chapters 7-12 and practical work) (RA142,RA143,RA144,RA145,RA146) - Continuous evaluation	Written test	Face-to-face	02:00	40%	4 / 10	CC05 CT04
15	Lab work presentation - Continuous and final evaluation	Individual work	Face-to-face	00:30	30%	0 / 10	CC05

7.1.2. Global examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
15	Written assignment presentation - Continuous and final evaluation	Individual work	No Presential	00:30	10%	0 / 10	CT04
15	Lab work presentation - Continuous and final evaluation	Individual work	Face-to-face	00:30	30%	0 / 10	CC05
17	Global exam. Theory and practical work . Block 1: first partial exam of theory. Block 2: Second partial exam (theory and lab)(RA142,RA143,RA144,RA145,RA146)	Written test	Face-to-face	03:00	60%	4 / 10	CC05 CT04

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%	0 / 10	CT04
Lab work presentation	Individual presentation	Face-to-face	00:30	30%	0 / 10	CC05
Final exam (RA142,RA143,RA144,RA145,RA146)	Written test	Face-to-face	03:00	60%	4 / 10	CC05 CT04

7.2. Assessment criteria

The course has 4 parts:

- Written assignment about a topic in the course. Mandatory activity for students that cannot be recuperated. Weight: 10%

It is a written work for the generic competence "written communication" about some topic related to the concepts of the course. It must be done by all the students (both for global and for continuous evaluation) and it should be presented at the end of the semester.

- Lab works. Mandatory activity for students that cannot be recuperated. Weight: 30%

It is constituted by several practical works about different parts of the course that should be done by all the students along the semester (both for global and continuous evaluation). They should be presented along the semester.

- First partial exam of theory (Parcial1). Evaluation activity that can be recuperated (it is done during the semester). Weight: 20%

This exam only covers theory aspects of the first part of the course and it is done during the teaching period. It can be recuperated in the global exam.

- Second partial exam (theory and lab) (Parcial2). Evaluation activity that can be recuperated in the global exam and it is done during the teaching period. Weight: 40%

This exam covers theory and lab concepts of the course. It can be recuperated in the global exam.

CONTINUOUS EVALUATION

PARTIAL EXAMS OF THEORY AND LAB (60%)

There is a partial exam of theory (week 9), and another partial exam of theory and lab (week 14).

The final grade of the course in the continuous evaluation is computed as follows:

IF parcial2 \geq 4 THEN

FinalGrade = 0,20 * Parcial1 + 0,10 * trabajoCT + 0,30 * notaPrácticas + 0,40 * Parcial2

ELSE

FinalGrade = NotPass

If FinalGrade is \geq 5, the student passes the course. Otherwise, the FinalGrade is NotPass.

It is important to note that the grade of the second partial exam (Parcial2) should be \geq 4 in order to pass the course.

GLOBAL EVALUATION

Students that did not get a grade \geq 4 in the second partial exam (Parcial2), will have the opportunity of doing another written exam of the course. The exam will cover theory and lab concepts of the course. The final grade will include also the grades obtained for the generic competence work (trabajoCT) and the lab activities done during the semester (notaPrácticas). The FinalGrade will be computed as follows:

IF Parcial2 \geq 4 THEN

FinalGrade = 0,10 * trabajoCT + 0,30 * notaPrácticas + 0,20 * Parcial1 + 0,40 * Parcial2

ELSE

FinalGrade = NotPass

If the FinalGrade is ≥ 5 , the student passes the course. Otherwise, the FinalGrade is NotPass.

EXTRAORDINARY EXAM

All the students that did not pass the previous exams have the opportunity of doing a written exam with a weight of 60% on the final grade. This exam will cover theory and lab concepts of the course. This grade will be added to the grade of the work for the generic competence (trabajoCT) and the lab activities done during the semester (notaPrácticas).

The FinalGrade of the course is computed as follows:

IF ExamenTeoríaPrac ≥ 4 THEN

FinalGrade = $0,10 * \text{trabajoCT} + 0,30 * \text{notaPrácticas} + 0,60 * \text{ExamenTeoríaPrac}$

ELSE

FinalGrade = NotPass

If the FinalGrade is ≥ 5 , the student passes the course. Otherwise, the grade is NotPass.

8. Teaching resources

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

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.