1. OVERVIEW

Subject area	Administration of Systems
Degree	Bachelor's Degree in Computer Engineering
School/Faculty	Architecture, Engineering and Design
Year	Fourth
ECTS	6 ECTS
Type	Compulsory
Language(s)	Spanish
Delivery mode	On campus / Online
Semester	First semester
Year	2022/2023
Coordinating professor	Alberto Hernández Gallardo

2. INTRODUCTION TO THE SUBJECT AREA

This subject area belongs to the Operating Systems Module, formed by the following subject areas:

- Operating Systems
- Administration of Systems

3. SKILLS AND LEARNING OUTCOMES

Basic skills (CB, by the acronym in Spanish):

- CB1: Students have demonstrated knowledge and understanding of a study area originating from general secondary school education, and are usually at the level where, with the support of more advanced textbooks, they may also demonstrate awareness of the latest developments in their field of study.

- CB2: Students can apply their knowledge to their work or vocation in a professional manner and possess the skills which are usually evident through the forming and defending of opinions and resolving problems within their study area.

- CB3: Students have the ability to gather and interpret relevant data (usually within their study area) to form opinions which include reflecting on relevant social, scientific or ethical matters.

Transversal skills (CT, by the acronym in Spanish):

- CT1: Independent Learning: Ability to choose the most effective strategies, tools and opportunities for independent learning and implementation of what has been learnt.
- CT3: Ability to adapt to new circumstances: Being able to evaluate and understand different points of view, taking different approaches to suit the situation.
- CT8: Information management: Ability to seek, choose, analyse and integrate information from diverse sources.
- CT10: Initiative and entrepreneurial spirit: Ability to undertake difficult or risky actions with resolve. Ability to anticipate problems, propose improvements and persevere to ensure they are implemented. Willingness to take on and carry out tasks.
- CT14: Innovation/Creativity: Ability to propose and invent new, original solutions that contribute towards improving problem situations, including ideas from other contexts.

General Skills (CG, by the acronym in Spanish):

- CG3. Ability to design, develop, assess and ensure the accessibility, ergonomics, usability and security of systems, services and computer applications, as well as the information they manage.
- CG6. Ability to conceive and develop centralised or distributed computer systems or architectures, integrating hardware, software and networks.

Specific skills (CE, by the acronym in Spanish):

- CE11 Knowledge, administration and maintenance of systems, services and computer applications.
- CE16 Knowledge of the characteristics, functionalities and structure of Operating Systems, and to design and implement applications based on their services.

Learning outcomes (RA, by the acronym in Spanish):

- RA1: Know the different Operating Systems families on the market
- RA2: Explain the organisation and administration of the different functionalities of Windows/Unix operating systems
- RA3: Delve deeper into the basic elements of script programming
- RA4: Study the elements necessary for the administration of database management systems
- RA5: Define and automate server installation and maintenance tasks
- RA6: Establish the necessary resources according to the scope of the projects

- RA7: Configure the environments in the different operating systems in a network and security environment

Skills	Learning outcomes
CE11	RA1, RA2, RA4, RA5
CE16	RA3, RA6, RA7

4. CONTENTS

The contents of the subject area are as follows:

- Multiuser environments
- The roles and responsibility of an administrator.
- The servers and workstations in a network environment The different users of a system.
- Backup copies.
- Shell programming.
- System security.
- Database administration and security.
- Virtualisation. Cloud computing.

5. TEACHING/LEARNING METHODS

The types of teaching/learning methods are as follows:

- **MD1. Survey on aims and interests.** This survey is used to establish the aims of the subject and gather the student's interests on the subject. We will then make reference to it throughout the year for the students to evaluate the achievement of the aims and interests.

  In the online delivery mode, an initial questionnaire will be carried out with the same objective. Throughout the year, reference will be made to this survey, and a final reflective questionnaire will be carried out for the students to check their learning progress of the subject.

- **MD2. Lectures, subjects of study and seminars.** The "lectures" taught in the on-campus delivery mode are called subjects of study and seminars in the online delivery mode, and are conducted through readings on the topic, technical notes and webinars (which are recorded for students to access). **MD3. Laboratory work**, the laboratories will mainly be used in the on-campus delivery mode.

- **MD4. a) Group research** and/or **b) group problem-solving.** This learning method will be used for the development of both declarative and procedural knowledge. In method type a), a different topic will be assigned to each group to be investigated. Later, new groups will be formed with students who have all studied a different topic, and these new groups will be proposed comprehension and problem-solving activities. In method type b), a series of short questions and problems will be proposed to be solved in groups.

MD7. Practical case studies. These will be used for the development of conditional knowledge. In the online delivery mode, case studies will be used to develop the practical contents of the subject through forums and seminars. This method is also applicable in the classroom for the on-campus modality.

MD8. Fieldwork, conferences, visits to companies and institutions. These will be used for the development of conditional knowledge. In the on campus delivery mode, all these learning methods may be used, while in the online delivery mode, only conferences can be carried out, as they will be available for remote access in real time (via streaming technologies) or recorded and broadcast afterwards.

6. LEARNING ACTIVITIES

The types of learning activities, plus the amount of time spent on each activity, are as follows:

On campus:

Type of learning activity (AF, by the acronym in Spanish)	Number of hours
AF1: On-campus/online lectures, reading topics and complementary materials, implementation of activities carried out independently and collectively.	50 h
AF2: Integrative group work, consisting of participation in debates and seminars, and group implementation of integrative activities, mainly in the classroom.	25 h
AF3: Independent working	50 h
AF4: Tutorials, academic monitoring and assessment	25 h

Online:

Type of learning activity (AF, by the acronym in Spanish)	Number of hours
AF3: Independent working	50 h
AF6: Independent reading on complementary topics and materials and implementation of activities carried out independently. Subsequently, asynchronous group discussion on the Campus Virtual forum, and online seminars with the synchronous e-learning tools on the Campus Virtual.	50 h
AF7: Integrative group work, consisting of participation in debates and seminars, and group implementation of integrative activities. Carried out with the support of the Campus Virtual (the debates are held via forums, the seminars are online). In addition, each group will have asynchronous communication tools to prepare the group work (mainly forums), as well as synchronous communication tools (mainly virtual meeting tools).	25 h
AF8: Tutorials, academic monitoring and assessment through the Campus Virtual.	25 h

7. ASSESSMENT

The assessable tasks, the assessment criteria for each of them and their weighting with regard to the total subject area grade are set out in the following table.

On campus

Assessment criteria	Weighting (%)
Exams and tests	30
Development of reports or design briefs	15-30
Portfolio, peer assessment and/or alternative assessment methods	15-30
Fieldwork, conferences, visits to companies and institutions	0-10
Exercises, case studies, designs, simulations and research	15

Online

Assessment criteria	Weighting (%)
On-campus knowledge tests	60
Development of reports or design briefs	10-20
Portfolio, peer assessment and/or alternative assessment methods	10-20
Conferences	0-5
Exercises, case studies, designs, simulations and research	10-20

On the Campus Virtual, when you open the subject area, you'll find details of your assessable tasks, including the submission dates and assessment procedures for each task.

a. Ordinary exam period

To pass the subject area in the ordinary exam period, you will need a final grade of at least 5.0 out of 10.0 (weighted average) for the subject area.

In any case, it is necessary that you achieve a grade of at least 4.0 in the final exam, so that it can be averaged with the rest of the tasks.

If students submit none of the assessable tasks that make up the weighted average, their grade in the ordinary exam period will be **NP** (Not Presented).

b. Extraordinary exam period

To pass the subject area in the extraordinary exam period, you will need a final grade of at least 5.0 out of 10.0 (weighted average) for the subject area.

In any case, it is necessary that you achieve a grade of at least 4.0 in the final exam, so that it can be averaged with the rest of the tasks.

Activities not passed in the ordinary exam period, or those not submitted, must be submitted after receiving the relevant corrections and feedback from the lecturer.

8. TIMELINE

The timeline with submission dates for the assessable tasks in this subject area will be indicated in this section:

Assessable tasks	Date
Introduction to Linux	Weeks 1–2
Shell Programming	Weeks 3–4
Users	Weeks 5–6
Databases	Weeks 7–8
Window Servers	Weeks 12–13
Final Practice	Weeks 16–17

The timeline may be subject to change for logistical reasons related to the activities. Students will be informed of any changes in due time and course.

9. BIBLIOGRAPHY

The recommended bibliography is indicated below:

- Nutt, Gary (2004). Sistemas Operativos, Madrid: Addison Wesley.
- Stallings, William (2005). Sistemas Operativos: Aspectos Internos y Principios de Diseño. Madrid: Pearson Educación.

- Silberschatz, Galvin and Gagne (2012): Operating System Concepts (2012) : Wiley Love (2010): Linux Kernel Development: Pearson Education
- J. Carretero (2003): Sistemas Operativos. Una vision aplicada: McGraw Hill Casillas, Iglesias (2003). Problemas de Sistemas Operativos. Pearson Educación.
- Gómez López, Julio (2011). Administración de sistemas operativos. RA-MA. Gómez López, Julio (2010). Administración de sistemas GNU/Linux. StarBook.

10. DIVERSITY AWARENESS UNIT

Students with special educational needs: To ensure equal opportunities, curricular adaptations or adjustments for students with special educational needs will be outlined by the Diversity Awareness Unit (UAD, Spanish acronym).

As an essential requirement, students with special educational needs must obtain a report about the curricular adaptations/adjustments from the Diversity Awareness Unit by contacting unidad.diversidad@universidadeuropea.es at the beginning of each semester.

11. STUDENT SATISFACTION SURVEYS

Your opinion matters!

Universidad Europea encourages you to complete our satisfaction surveys to identify strengths and areas for improvement for staff, degrees and the learning process.

These surveys will be available in the survey area of your campus virtual or by email.

Your opinion is essential to improve the quality of the degree.

Many thanks for taking part.