Universidad Zaragoza

**Academic Year/course: 2023/24**

# 30257 - Systems Administration 2

## Syllabus Information

**Academic year:** 2023/24
**Subject:** 30257 - Systems Administration 2
**Faculty / School:** 110 - Escuela de Ingeniería y Arquitectura
326 - Escuela Universitaria Politécnica de Teruel
**Degree:** 439 - Bachelor's Degree in Informatics Engineering
443 - Bachelor's Degree in Informatics Engineering
**ECTS:** 6.0
**Year:** 3
**Semester:** Second semester
**Subject type:**
**Module:**

## 1. General information

In previous subjects, students have learned the functionalities, structure and use of distributed systems and basic system administration. Based on this knowledge, students will learn, in this course, to manage the resources of distributed systems in Linux, BSDs (Mac OSX), Windows environments, which are being used from small businesses to large enterprises, including some aspects of administration of Cloud Computing Environments through Kubernetes.

The objectives and approaches of the subject are aligned with the following Sustainable Development Goals of the 2030 Agenda Agenda 2030: targets 7.3 and 7.b of goal 7, target 8.2 of goal 8 and targets 9.1, 9.5 and 9.c of goal 9.

## 2. Learning results

In order to pass this subject, the students shall demonstrate they has acquired the following results:

- Manages essential distributed services in a medium-scale computer system.
- Guarantee both system operation and distributed authentication services as well as business continuity with contingency and disaster recovery plans.
- Properly organize different types of changes in the life of computer systems.

## 3. Syllabus

Basic concepts in distributed systems administration. Heterogeneous systems: Linux, Windows, BSDs (Mac OSx).

Programming for administration of heterogeneous systems: Ruby, Python.

Administration of virtual machines. Introduction to the administration of Cloud Computing environments.

Automatic system configuration. Deployment and maintenance of configurations.

Administration of basic distributed services:

- Administrative domains.
- Basic distributed services: names (DNS) and time (NTP).
- File systems: NFS (Linux and BSDs) and SMB (Windows).
- Network system configuration: LDAP.
- Identities and security: Kerberos and PKIs.
- Monitoring: Nagios, Zabbix, Prometheus.
- Integration and interoperability of services (Linux, Windows).

Kubernetes and Cloud systems administration.

Organizational aspects.

## 4. Academic activities

The student's dedication to achieve the learning results in this subject is estimated in 150 hours, distributed as follows:

- Lectures: sessions with the teacher in which the subject syllabus will be explained. 30 hours.
- Problems and cases: sessions to solve cases posed by the teacher: 15 hours.
- Laboratory practices: development and implementation of case studies: 15 hours.
- Effective personal study: study of notes and texts, problem solving, class and practical preparation, program development: 90 hours.

The schedule of exams and due dates will be announced well in advance.

## 5. Assessment system

The global assessment test of the course consists of two parts:

- Final assessment of practical laboratory work. It will be valued that the solutions provided behave according to the specifications, the quality of their design and the time spent. The grade obtained is weighted 40% of the grade of the subject.
- Final assessment of a case study project. The grade obtained is weighted 60% of the grade of the subject.