

Academic Year/course: 2021/22

## 30257 - Systems Administration 2

### Syllabus Information

**Academic Year:** 2021/22

**Subject:** 30257 - Administración de sistemas 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

### 2. Learning goals

### 3. Assessment (1st and 2nd call)

### 4. Methodology, learning tasks, syllabus and resources

#### 4.1. Methodological overview

The learning methodology is as follows:

- Concepts and methodologies in system administration are taught in the classroom.
- Learned knowledge is applied in paper and lab exercises to solve different problems in system administration.
- Students will design and implement different aspects of deployment, update, problem detection and solutions of operating systems, applications and their interaction with the network.

Students are expected to participate actively in the class throughout the semester. Classroom materials will be available via Moodle. These include a repository of the lecture notes used in class, the course syllabus, as well as other course-specific learning materials, including a discussion forum. Further information regarding the course will be provided on the first day of class.

#### 4.2. Learning tasks

This is a 6 ECTS course organized as follows:

- Syllabus development in the classroom about theory aspects.
- Problem-solving with knowledge acquired in theory classes.
- Lab exercises developed in real working systems about the knowledge presented in theory and problem-solving classes.

#### 4.3. Syllabus

The course will address the following topics:

- Basic concepts in distributed system administration. Heterogeneous systems: Linux, Windows, BSDs (Mac OSx).
- Programming for heterogeneous systems administration: Ruby and Python.
- Virtual machines administration. Introduction to administration environments for cloud computing.
- Configuration Systems. Configuration of nodes deployment and maintenance.
- Administration of basic distributed services.
  - Administrative domains network.
  - Basic distributed services: names (DNS) and time (NTP).
  - File systems: NFS (Linux y BSDs) y SMB (Windows).
  - System network configuration: LDAP.
  - Identities and security: Kerberos and PKIs.
  - Monitoring systems: Nagios.
  - Services interoperability and integration (Linux and Windows).
- Administration of Kubernetes and Cloud Systems.
- Organizational aspects.

#### 4.4. Course planning and calendar

##### Sessions in-person class: Work calendar and work presentation.

##### The teachers' organization of core subject is:

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- Theory and problem classes (three hours per week).
- Laboratory classes (two hours per week). There are sessions of programming in laboratory work. This work is guided by a professor and there are reduced students groups.

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- Type one activities (theory classes): two hours per week, one group.
- Type two activities (problem classes): one hour per week, two groups.
- Type three activities (laboratory classes): one hour per week, two groups.

##### Student work

The student work to get learning outcomes in this subject are estimated in 150 hours distributed as follows:

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- 60 hours, approximately, in person-class activities (theory, problems, and laboratory classes)
- 65 hours of effective self-study (the study of texts and course notes, troubleshooting, class preparation, classes and problems preparation, and programme development.
- 25 hours of development and evaluation fo practical projects/works (T6 type).

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- 60 hours, approximately, in person-class activities (theory, problems, and laboratory classes).
- 90 hours of effective self-study (the study of texts and course notes, troubleshooting, class preparation, classes and problems preparation, and programme development.

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class.

#### 4.5. Bibliography and recommended resources

- Zaragoza:

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=30257&Identificador=14721>

- Teruel:

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=30257&Identificador=13627>