

## 30257 - Systems Administration 2

### Syllabus Information

**Academic Year:** 2020/21

**Subject:** 30257 - Systems Administration 2

**Faculty / School:** 110 - Escuela de Ingeniería y Arquitectura  
326 - Escuela Universitaria Politécnica de Teruel

**Degree:** 443 - Bachelor's Degree in Informatics Engineering  
439 - Bachelor's Degree in Informatics Engineering

**ECTS:** 6.0

**Year:** 3

**Semester:** 439 - Second semester

439 - Second semester

439 - Second semester

439 - Second semester

439 - Second semester

439 - Second semester

443 - Second semester

443 - Second semester

**Subject Type:** ---

**Module:** ---

### 1.General information

#### 1.1.Aims of the course

#### 1.2.Context and importance of this course in the degree

#### 1.3.Recommendations to take this course

### 2.Learning goals

#### 2.1.Competences

#### 2.2.Learning goals

#### 2.3.Importance of learning goals

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

#### 3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

### 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.

#### 4.2.Learning tasks

The course includes the following learning tasks:

- 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: Puppet. Configuration of nodes deployment and maintenance.

Distributed services administration.

- 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 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 of next manner:

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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.
- 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.

### 4.5.Bibliography and recommended resources

[BB: Bibliografía básica / BC: Bibliografía complementaria]

- Zaragoza:

<http://psfunizar7.unizar.es/br13/egAsignaturas.php?codigo=30257&Identificador=14721>

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- [BB] 6. Flanagan, David. The Ruby Programming Language / David Flanagan, Yukihiro Matsumoto O'Reilly Media. 2008.
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- [BB] Kochan, Stephen G.. Unix : shell programming / Stephen G. Kochan and Patrick H. Wood . - 3rd ed., 1st pr. Indianapolis, Indiana : Sams, 2003
- [BB] Pro Puppet / Spencer Krum ... [et al.]. 2 nd ed. Berkeley (California) : Apress, cop. 2013
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- [BB] Flanagan, D. The Ruby programming language [Recurso electrònic] / David Flanagan, Yukihiro Matsumoto. Sebastopol, Calif. : O'Reilly, 2008
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- [BB] Robbins, A. Classic shell scripting / Arnold Robbins, Nelson H.F. Beebe. Sebastopol (California) [etc.] : O'Reilly, 2005
- [BB] Turnbull, J. Pro Puppet [Recurso electrònic-En línea] / James Turnbull, Jeffrey McCune. Berkeley, CA : Apress : Imprint: Apress, 2011
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