

## 30257 - Systems Administration 2

### Información del Plan Docente

Academic Year	2017/18
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	Half-yearly
Subject Type	Compulsory
Module	---

### 1.General information

#### 1.1.Introduction

#### 1.2.Recommendations to take this course

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

#### 1.4.Activities and key dates

### 2.Learning goals

#### 2.1.Learning goals

#### 2.2.Importance of learning goals

### 3.Aims of the course and competences

#### 3.1.Aims of the course

#### 3.2.Competences

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

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

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

#### 5.1.Methodological overview

The learning methodology is as following :

- Concepts and methodologies in system administration are taught in classroom.
- Learned knowledge is applied in paper and lab exercises to solve different problems in system administration

## 30257 - Systems Administration 2

- Students will design and implement different aspects of deployment, update, problem detection and solutions of operating systems, applications and their interaction with the network.

### 5.2.Learning tasks

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

### 5.3.Syllabus

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).
- Organizational aspects.

### 5.4.Course planning and calendar

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

The teachers' organization of core subject is:

#### Escuela de Ingeniería y Arquitectura de Zaragoza

- Theory and problem classes (three hours per week)
-

## 30257 - Systems Administration 2

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

### Escuela Universitaria Politécnica de Teruel

- 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:

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

## 5.5.Bibliography and recommended resources

[BB: Bibliografía básica / BC: Bibliografía complementaria]

- Zaragoza:
- [BB] 4. Limoncelli, Thomas A. The Practice of System and Network Administration / Thomas A. Limoncelli, Christine Hogan, Strata R. Chalup. 3rd ed. Addison-Wesley, 2016
- [BB] 5. Hester, Matthew. Microsoft Windows Server 2008 R2 Administration Instant Reference / Matthew Hester, Chris Henley Sybex. 2010
- [BB] 6. Flanagan, David. The Ruby Programming Language / David Flanagan, Yukihiro Matsumoto O'Reilly Media. 2008.
- [BB] 7. Classic Shell Scripting / Arnold Robbins, Nelson H. F. Beebe. O'Reilly & Associates. 2005.
- [BB] Ben Hamou, André. Practical Ruby for system administration / André Ben Hamou . Berkeley (California) : Apress, cop. 2007
- [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
- [BB] Unix and Linux system administration handbook / Evi Nemeth ... [et al.] ; with Terry Morreale ... [et al.] . - 4th ed. Upper Saddle River (New Jersey) : Prentice Hall, 2011
- Teruel:
- [BB] Ben Hamou, A. Practical Ruby for system administration [Recurso electrònic] / André Ben Hamou. Berkeley, Calif. : Apress ; New York : Distributed by Springer-Verlag New York, 2007
- [BB] Flanagan, D. The Ruby programming language [Recurso electrònic] / David Flanagan, Yukihiro Matsumoto. Sebastopol, Calif. : O'Reilly, 2008
- [BB] Hester, M. Windows Server 2008 R2 administration instant reference [Recurso electrònic] / Matthew Hester, Chris Henley. Indianapolis, Ind. : Wiley Pub., 2010
- [BB] Kochan, Stephen G.. Unix : shell programming / Stephen G. Kochan and Patrick H. Wood . 3rd ed., 1st pr. Indianapolis, Indiana : Sams, 2003
- [BB] Limoncelli, Thomas. The practice of system and network administration / Thomas A. Limoncelli, Christine J. Hogan, Strata R. Chalup . 2nd ed., 7th printing Upper Saddle River : Addison-Wesley, 2012
- [BB] Robbins, A. Classic shell scripting / Arnold Robbins, Nelson H.F. Beebe. Sebastopol (California) [etc.] :

## 30257 - Systems Administration 2

O'Reilly, 2005

- [BB] Turnbull, J. Pro Puppet [Recurso electrónico-En línea] / James Turnbull, Jeffrey McCune. Berkeley, CA : Apress : Imprint: Apress, 2011
- [BB] Unix and Linux system administration handbook / Evi Nemeth ... [et al.] ; with Terry Morreale ... [et al.] . 4th ed. Upper Saddle River (New Jersey) : Prentice Hall, 2011