30257 - Systems Administration 2

Syllabus Information

Academic Year: 2019/20
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

- [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:

http://psfunizar7.unizar.es/br13/egAsignaturas.php?codigo=30257&Identificador=13627

- [BB] Ben Hamou, A. Practical Ruby for system administration [Recurs electrònic] / André Ben Hamou. Berkeley, Calif. : Apress ; New York : Distributed by Springer-Verlag New York, 2007
- [BB] Flanagan, D. The Ruby programming language [Recurso electrónico] / David Flanagan, Yukihiro Matsumoto. Sebastopol, Calif. : O'Reilly, 2008
- [BB] Hester, M. Windows Server 2008 R2 administration instant reference [Recurs electrònic] / Matthew Hester, Chris Henley. ndianapolis, 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.] : 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