SUBJECT TEACHING GUIDE

G679 - Design and management of Computer Systems

Degree in Computer Systems Engineering

Academic year 2022-2023

1. IDENTIFYING DATA					
Degree	Degree in Computer Systems Engineering			Type and Year	Optional. Year 4
Faculty	Faculty of Sciences				
Discipline	Subject Area: Computer Engineering Mention in computer Engingeering				
Course unit title and code	G679 - Design and management of Computer Systems				
Number of ECTS credits allocated	6	Term		Semester based (2)	
Web	https://www.ce.unican.es/course/dgsi/				
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. INGENIERÍA INFORMÁTICA Y ELECTRÓNICA
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Other lecturers	

3.1 LEARNING OUTCOMES
- Be able to program and design new operating system services
- Know how to develop the tasks and exercise the responsibilities of a System Administrator for "data center" environments.
- Understand and apply the principles of energy efficiency in the design and operation of a data centre
- Know how to reconfigure and recompile a system kernel, optimizing it according to particular needs
- Understand centralized advanced tools to manage data center systems
- Know the procedures for the integration of computer systems for management environments and global services of data centers
- Learn to configure and manage in an optimal and secure way the basic and advanced network services.
- Understand and know how to deploy a basic environment of high availability and load balancing for a given service, using common tools
- To know the basic techniques of protection and security of which the Operating System consists

4. OBJECTIVES
This course aims to expand the student's knowledge acquired in the subject of "Computer Systems", giving a deeper and more specialized view of the administration of computer systems:
To know the basic aspects of the "data center", as far as its organization, design and mechanisms of energy efficiency.
To know the basic aspects of the administration of computer systems for environments "data center"; Responsibilities, obligations and good practices
Work on the design and INTEGRATION of its main components for the implementation of advanced services in operating systems dedicated to the management of computer resources, distributed storage and network, both in the field of the INTRANET and INTERNET.
Analyzing and implementing the main security mechanisms for the "secularization" of the system's basic services.
know how to deploy tools and remote mechanisms for monitoring, supervision and management of services and computer systems.

6. COURSE ORGANIZATION	
CONTENTS	
1	Fundamentals about "the system administrator": Tasks, responsibilities and DevOps
2	Active directory secure service: LDAP
3	Computer systems for deploying 3party NETWORKING services: DHCP, DNS and NTP
4	Computer systems for deploying network FILE systems and RESOURCE sharing management: NFS and SAMBA
5	Computer systems for WEB hosting service management: HTTP
6	Computer systems for electronic MAIL service management: SMTP and IMAP
7	Configuration managers and Monitoring tools: ANSIBLE, WEBMIN, GANGLIA and NAGIOS
8	Fundamentals about "Data Centers": Design, supports systems, efficient and rating

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
For the continuous evaluation (EC), 2 exams will be carried out along the course time; EC1 (40%) and EC2 (60%) At the same time, each of them will be composed of two parts: theory and laboratory Laboratory: The evaluation continuous final score for lab wi	Activity evaluation with Virtual Media	No	Yes	60,00
Theory: The evaluation continuous final score for theory will be the average of both parts of theory (50%) The continuous evaluation final score (EC) is the average or EC1 and EC2 scores.	Activity evaluation with Virtual Media	No	Yes	40,00
The final make-up exam will be composed by two part too; theory and laboratory part, in the same way as continuous evaluation tests (EC1 and EC2) The final test will only be necessary if the average of EC score is 5 points at least.	Activity evaluation with Virtual Media	Yes	No	0,00
TOTAL				100,00

Observations

If the average of the theory and/or practice midterm exams does not exceed a grade of 5, the student must take the corresponding part of the make-up exam.

Observations for part-time students

For part-time students, the evaluation will be done through the Final Exam, as described in the 'Final Recovery Exam' section.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

UNIX & LINUX Administration Handbook
Autor: Evi Nemeth, et al.
Editorial: Prentice Hall, (5th Edition) (2018)
ISBN: 978-0-13-427755-4