INSTITUTO POLITÉCNICO DE BRAGANÇA

Course Unit	System and Network Management			Field of study	Computer Engineering										
Bachelor in	Informatics Engineering			School	School of Technology and Management										
Academic Year	2022/2023	Year of study	3	Level	1-3	ECTS credits	6.0								
Type	Semestral	Semester	1	Code	9119-706-3102-00-22										
Workload (hours)	162	Contact hours	T -	TP 60	PL -	TC -	S -	E -	OT -	O -					

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s)	Rui Pedro Sanches de Castro Lopes, Hélder Miguel Gonçalves Pereira, Luis Filipe Rodrigues Corredeira Lobo, Sergio Paulo Perdigao do Vale

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:
1. use a basic set of virtualization tools
2. install and configure both disconnected and networked computer systems
3. manage secondary storage medium, user accounts and system startup and shutdown procedures
4. install and configure basic network services
5. install and configure network file servers and authentication domains
6. identify and describe the role of integrated network management in modern organizations, and use some related tools

Prerequisites

Before the course unit the learner is expected to be able to:
1. identify TCP/IP computer networks concepts
2. use (including command line) Windows and Linux systems

Course contents

Virtualisation concepts. Disconnected Systems. Networked Systems. Integrated Network Management.

Course contents (extended version)

1. Virtualization Concepts
   - Systems Virtualization
   - Cloud Computing
2. Disconnected Systems
   - Disks, Partitions and File Systems
   - RAID and Volume Management
   - Local Backups
   - Local User Accounts
   - File System Security
   - Startup and Shutdown
3. Networked Systems
   - Basic Services (DNS, DHCP and e-Mail)
   - Network File Systems (NFS and SMB)
   - Network Authentication (NIS, SMB Workgroups, SMB Domains, LDAP)
   - Fault Tolerance
4. Integrated Network Management
   - Network Management Areas
   - Network Management Architectures
   - Network Management and Diagnostic Tools

Recommended reading

1. Thomas Limoncelli et all; "The Practice of System and Network Administration (3ed)"; Addison-Wesley Professional; 2017
2. E. Nemeth et all; "UNIX and Linux System Administration Handbook (5th Ed)"; Prentice Hall; 2017
3. W. E. Shotts Jr. ; "The Linux Command Line: A Complete Introduction (1st Ed)"; No Starch Press; 2012
4. Ed Bott et all; "Windows 10 Inside Out"; Microsoft Press; 2016
5. Brian Svidergol, Vladimir Meloski, Byron Wright, Santos Martinez, Doug Bassett, "Mastering Windows Server 2016", Sybex, 2018.

Teaching and learning methods

The unit will be taught using a combination of theoretical and practical lectures (including installation and configuration of systems, services and applications, in virtualized test-beds). The unit documentation will be supplied through e-learning facilities. Learning experiences are developed individually and in group.

Assessment methods

- Alternative 1 - (Regular, Student Worker) (Final, Supplementary, Special)
  - Experimental Work - 100% (Grading is performed according to a gamification structure, defined for the curricular unit.)

Language of instruction

1. English
2. Portuguese

Electronic validation

Rui Pedro Sanches de Castro Lopes	José Luís Padrão Exposto	Luísa Maria Garcia Jorge	Paulo Alexandre Vara Alves
16-10-2022	27-10-2022	30-10-2022	01-11-2022

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