

## SYSTEMS AND NETWORK ADMINISTRATION

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Code: 322002

Main Scientific Area: Computer networks and architecture

Lecturer: José Carlos Miranda Nova Arnaud

Language of Instruction: Portuguese

Regime: S1

Contact Hours: 60h Total Workload: 108h

ECTS: 6,0

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### **Objectives**

The main goal is:

1. Know and use the main network management tools;
2. Create and configure a network domain;
3. Install and configure network services;
4. Know and implement security policies.

### **Learning Outcomes**

- General aspects of the administration of networks and systems;
- Domains and working groups. Introduction to Active Directory;
- Protocols and solutions for authentication, authorization, registration and accounting;
- Management and implementation of security mechanisms and procedures;
- Network servers, WWW and Email;
- Backup and restore;
- Licensing, support and maintenance policies;
- HelpDesk services.

### **Course Contents**

1- General approach of networking and systems.

1.1 Challenges of networking administration

1.2 Network infrastructures

1.2.1 Network technologies

## 2 – Introduction to Active Directory

### 2.1 Group Work

### 2.2 Domain

### 2.3 Organisational units

### 2.4 Trees

### 2.5 Forests

### 2.6 Management of users

### 2.7 Installation and setting of the Active Directory

## 3 – Protocols and solutions to authentication, authorization, register and accountability.

### 3.1 AAA Protocols

### 3.2 Authentication credentials

### 3.3 Register of user activity

## 4 – Safety procedures

### 4.1 Threats

### 4.2 Safe communication

### 4.3 Firewalls

#### 4.3.1 Firewall Iptables installation and setting

#### 4.3.2 Tables e Chains

#### 4.3.3 Assessment of rules / laws and policies

## 5 - WWW server and Email

### 5.1 Installation and setting

## 6 - Backup and restore

## 7 - Policies of licensing, support and maintenance

### **Recommended Bibliography**

1. Administração de Redes Informáticas (2ª edição). Fernando Boavida, Mário Bernardes, Pedro Vapi. FCA.ISBN: 978-972-722-695-5

2. Engenharia de Redes Informáticas (10ª edição). Edmundo Monteiro, Fernando Boavida. FCA.ISBN: 978-972-722-694-8

3. Integrated Management of Networked Systems: concepts, architectures and their operational application. Heinz-Gerd Hegerind, Sebastian Abeck, Bernhard Neumair. Morgan Kaufmann Publishers. ISBN: 1-55860-571-1

### **Learning and Teaching Methods**

One of the objectives of the Network and Systems Administration Course is to know the general aspects of network and system administration. In this sense the first chapter introduces the basic concepts about server administration.

It is also intended that students master the installation of different operating systems, so will be used operating systems in Windows and/or Linux environments, both on Web servers and on e-mail servers. This will be approached from the second chapter.

The unit also aims to install, configure and administer WWW and E-mail servers, as well as implement security mechanisms and procedures. Topics covered in chapters three, four and five.

This unit also aims at safety. This topic will be covered in more detail in chapter four.

Finally, students are expected to be able to schedule automatic backups as well as use them for any data recovery needs, which will be covered in chapter six.

### **Assessment Methods**

- Two Written Tests (25% + 25%)
- Practical component (40%) - mandatory for all students
- Attendance + Participation (10%)
- Presence at least two thirds of contact hours
- It is required to obtain 7.5 values for each of the components, final average must be greater than or equal to 10 values, for approval.