

**122040038 - Bachelor of Computer Science****0038017 - Networks II****General information**

Id:	0038017
Type:	OB
Semester:	4
Credits:	6.0
Language of instruction:	English

Prerequisites**Id - Subject**

0038012 - Networks I

Professor(s)**Professor(s) in charge**

Sau Batlle, Jan (Degree: Grau en Enginyeria Informàtica i Màster en Educació i TIC; Area of knowledge: Ciències tecnològiques; Research group: Grup de recerca en tecnologia)

Information**Presentation of the subject:**

This subject provides an advanced view of the world of computer networks and servers. We focus on the planning, management and maintenance of networks, servers and shared resources, and on the different tools needed to carry out these tasks.

Objectives:

The aim of the course is to equip professionals with a solid knowledge in computer networks. Students should be able to install, configure and manage networks and

servers.

Methodology:

Master classes combining theory and practice.

Continuous assessment:

Three assignments (TV) must be delivered during the course, the average score (QV) will give the overall grade for these assignments, and 3 exams (CP), the average of which (QP) will give the overall qualification for the theoretical component of the course. If $QP \geq 4$ and $QV \geq 4$, then the final grade of the subject is obtained with the following formula: $QV * 0.6 + QP * 0.4$. If $QP < 4$ or $QV < 4$, then the final grade will be the lesser of QP and QV.

Final assessment:

Students have the possibility of taking a single final exam, which will be the QP grade. This grade, and the grades of the online assignments (QV), are used to calculate the grade for the course. If $QP \geq 4$ and $QV \geq 4$, then the final grade for the subject is obtained with the following formula: $QV * 0.6 + QP * 0.4$. If $QP < 4$ or $QV < 4$, then the final grade will be the lesser of QP and QV.

Basic bibliography:

Computer Networks, 5th edition.
ANDREW S. TANENBAUM, DAVID J. WETHERALL
PEARSON, 2011
ISBN-13: 978-0-13-212695-3

Additional bibliography:

Unix and Linux System Administration Handbook, 5th edition.
NEMETH E., SNYDER G., HEIN, T.R., WHALEY B., MACKIN D.
PEARSON, 2018
ISBN-13: 978-0-13-427755-4

Specific competences (1)

Id - Specific competences

BINFO06 - Administració de xarxes i sistemes de comunicació

Transversal competences (3)

Id - Transversal competences

Area

UdA05 - TIC

Gestió del coneixement i autonomia en el treball

UdA07 - Autonomia i iniciativa

Gestió del coneixement i autonomia en el treball

UdA10 - Comunicació i expressió oral i escrita

Comunicació

Contents (26)

1. Virtualization

- 1.1. Introduction
- 1.2. Desktop vs. Server
- 1.3. CPU, Memory and other resources sharing
- 1.4. Network configuration
- 1.5. Virtualization vs. Containerization
2. Servers administration
 - 2.1. The GNU/Linux Operating System
 - 2.2. Basic server installation
 - 2.3. Basic usage and service installation
 - 2.3.1. DNS
 - 2.3.2. Mail
 - 2.3.3. HTTP
 - 2.3.4. LDAP
 - 2.3.5. File Sharing
3. Security applied to computer networks
 - 3.1. Common ciphers and attacks
 - 3.2. PKI Infrastructure
 - 3.3. Building a CA
 - 3.4. Server and client certificates
 - 3.5. Hashing and Signing
 - 3.6. Firewalls and perimeter security
4. Distributed operating systems
 - 4.1. Single points of failure
 - 4.2. Scaled and redundant services
 - 4.3. Scaled and redundant storage

Activities (6)

Id - Activity	Description	Competences	Percentage
1 - TV1	Treball Virtual 1	BINFO06, UdA05, UdA07	12,00%
2 - CP1	Control presencial 1	BINFO06, UdA05, UdA07	13,30%
3 - TV2	Treball Virtual 2	BINFO06, UdA05, UdA07	24,00%
4 - CP2	Control presencial 2	BINFO06, UdA05, UdA07	13,30%
5 - TV3	Treball Virtual 3	BINFO06, UdA05, UdA07	24,00%
6 - CP3	Control presencial 3	BINFO06, UdA05, UdA07	13,40%