

Academic Year/course: 2022/23

## 30388 - Network Design and Evaluation

### Syllabus Information

**Academic Year:** 2022/23

**Subject:** 30388 - Network Design and Evaluation

**Faculty / School:** 110 - Escuela de Ingeniería y Arquitectura

**Degree:** 581 - Bachelor's Degree in Telecommunications Technology and Services Engineering

**ECTS:** 6.0

**Year:** 4

**Semester:** Second semester

**Subject Type:** Optional

**Module:**

## 1. General information

## 2. Learning goals

## 3. Assessment (1st and 2nd call)

## 4. Methodology, learning tasks, syllabus and resources

### 4.1. Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as lectures (M1, M8), lab sessions (M9), evaluation (M11) and autonomous work (M13, M14, M15).

Classroom materials will be available via Moodle. These include a repository of the lecture notes used in class, the course syllabus, as well as other course-specific learning materials.

### 4.2. Learning tasks

This is a 6 ECTS course organized as follows:

**A01/A02: Lectures (16 hours) and practice sessions (8 hours).** The teacher explains the course contents and solves representative applied problems. The practice sessions may require previous work from the students (A07).

**A03: Lab sessions (36 horas).** Students will do 3-hour lab sessions each week. The practical work will be based on configuring and analyzing different network scenarios, related to the theoretical concepts seen in the lectures. Each lab practice may consist of one or more sessions. When needed for the lab, the presentation of previous work will be required (A07). In addition, at the end of each lab, a test will be done (A08).

**A06: Tutorials.** Teacher's office hours allow students to solve questions and discuss unclear course contents. It is advisable to come with clear and specific questions.

**A08: Assesment.** Students will complete lab assignments and exams related to concepts seen in laboratory sessions and lectures.

### 4.3. Syllabus

#### Lecture and lab contents:

- Design of Local Area Networks (LAN), TCP/IP configuration in a corporate environment:
  - Firewall-NAT implementation (*Network Address Translation*), DHCP (*Dynamic Host Configuration Protocol*) and DNS (*Domain Name System*)

- Switched Ethernet and VLAN.
- Design of Wide Area Networks (WAN), global connectivity:
  - Intra-AS Routing or IGP (*Interior Gateway Protocol*)
  - Inter-AS Routing or EGP (*Exterior Gateway Protocol*)
- Software Defined Networks
- Evaluation of characteristic parameters on communications, equipment and network technologies.

#### **4.4. Course planning and calendar**

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class or please refer to the EINA website (<http://eina.unizar.es>).

#### **4.5. Bibliography and recommended resources**

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=30388>