

Academic Year/course: 2022/23

## 30211 - Computer Networks

### Syllabus Information

**Academic Year:** 2022/23

**Subject:** 30211 - Computer Networks

**Faculty / School:** 110 - Escuela de Ingeniería y Arquitectura  
326 - Escuela Universitaria Politécnica de Teruel

**Degree:** 330 - Complementos de formación Máster/Doctorado  
439 - Bachelor's Degree in Informatics Engineering  
443 - Bachelor's Degree in Informatics Engineering

**ECTS:** 6.0

**Year:** 2

**Semester:** First semester

**Subject Type:** Compulsory

**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:

1. Continuous study and work, starting from the first day.
2. The learning of concepts and methodologies for the analysis and design of computer networks during the lectures, in which the students' participation will be fostered.
3. The application of such knowledge in the classes of problem-solving. In these classes, students will play an active role in the analysis and design of specific layers of network architecture.
4. In the laboratory practical classes, the student will review network architecture, learn to program network applications, and study in detail various protocols of network architecture, local network configuration, and Internet organization.
5. The practical work will be carried out by developing a project of a network application proposed by the teachers.

#### 4.2. Learning tasks

**The course includes the following learning tasks:**

**Activity Type 1 (lectures):** 30 hours

- Teach the course syllabus.

**In the School of Engineering and Architecture Campus Rio Ebro:**

**Activity Type 2 (class of problems):** 15 hours

- Solve problems concerning the content of the lectures.

**Activity Type 3 (practical classes):** 15 hours

- 6 sessions of laboratory practice network.

**Activities type 6 (practical work): 12 hours**

- The student will do practical work-based programming network applications.

**In the Polytechnic School Campus Teruel:**

**Activity Type 2 (kinds of problems): 16 hours**

- Solve problems concerning the content of the lectures.

**Activity Type 3 (practical classes): 14 hours**

- 7 sessions of laboratory practice network.

**Activities type 6 (practical work): 08 hours**

- The student will do practical work-based programming network applications.

### 4.3. Syllabus

The course will address the following topics:

- Introduce the idea of network architecture
- Basic physical principles that underpin it
- Elements that provide point-to-point communication between two entities
- Networking and IP protocol
- Communication elements that provide end-to-end between two entities
- Orthogonal aspects such as congestion and quality of service
- Conceptual layers above the level of data transport

### 4.4. Course planning and calendar

**In the School of Engineering and Architecture Campus Rio Ebro:**

During the 15 weeks (3 hours/week):

- Development of lectures
- Development of classes of problems

During the 15 weeks (every other week, 2 hours / 2 weeks)

- Development of laboratory practice sessions

Also, in specific weeks:

- Supervising practical work

**In the Polytechnic School Campus Teruel:**

The course is given for 15 weeks with the following distribution of activities:

During the 15 weeks (3 hours/week):

- Development of lectures
- Development of classes of problems

During the 15 weeks (every other week, 2 hours / 2 weeks)

- Development of laboratory practice sessions.

### 4.5. Bibliography and recommended resources

**Teruel:**

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=30211&Identificador=12946>

**Zaragoza:**

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=30211&Identificador=13378>