

## 30211 - Computer Networks

### Syllabus Information

**Academic year:** 2024/25

**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

#### Context

The subject is taught in the first four-month period of the second year and is included in a common subject, together with the subjects "Operating Systems" and "System Administration".

#### Requirements

It is highly recommended to have an intermediate level of programming and to have passed or be taking the subject "Operating Systems".

#### Objectives

- Know the layers of the network architecture and how they interact with each other.
- To know the operation of the most common protocols of each layer.
- Be able to describe and design computer networks.
- Be able to implement client-server applications over TCP/IP.

### 2. Learning results

- Know and apply the characteristics, functionalities and structure of computer networks and the Internet.
- Know how to design and implement applications that use basic network communications.

### 3. Syllabus

- Introduction and network architecture
- Basic physical fundamentals underpinning networks
- Media access control and point-to-point communication
- Network interconnection and IP protocol
- End-to-end communication and data transport layer protocols
- Orthogonal aspects such as congestion and quality of service
- Conceptual layers above the data transport layer

### 4. Academic activities

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

Type 1 activity (lectures): 30 hours

-Deliver the syllabus

Type 2 activity (problem classes): 15 hours

-Solve problems related to the content of the lectures.

Type 3 activity (practical classes): 15 hours

-6 sessions of networking practices in the laboratory with their respective preparation and delivery.

Type 6 activities (teaching assignments): 12 hours

-The student will perform a practical work based on the programming of network applications.

Optionally, the realization of extraordinary voluntary activities that may be proposed.

**At the Polytechnic University School of the Teruel Campus:**

Type 1 activity (lectures): 30 hours

-Deliver the syllabus

Type 2 activity (problem classes): 15 hours

-Solve problems related to the content of the lectures.

Type 3 activity (practical classes): 15 hours

-6 sessions of laboratory networking practices

Optionally, the realization of extraordinary voluntary activities that may be proposed.

## 5. Assessment system

For all the tests, the correct development of the answers will be assessed, with a level of demand equal to that required during the classes.

**At the School of Engineering and Architecture of the Ebro River Campus:**

- Written exam (open questions and/or exercises): 75 %
- Practical written exam (short answer questions), and optionally, questionnaires and delivery of practices submitted in due time and form throughout the four-month period of the course: 10 %
- Work: 15 %

**At the Polytechnic University School of the Teruel Campus:**

- Written exam (open questions and/or exercises): 75 %
- Written exam of practices (exercises on the practices), and optionally questionnaires and deliveries of practices presented in due time and form throughout the four-month period: 25 %.

If the questionnaires and deliveries of practices are presented in due time and form, and an average qualification of 5 or higher is achieved, the student will exempt from the written practical exam in the first call, if they so desire. In this case, 25% of the final grade will be the grade obtained in the questionnaires and deliverables.

## 6. Sustainable Development Goals

9 - Industry, Innovation and Infrastructure