

**2010-11 academic year**

# Principles of Telecommunications (21300)

**Degree/study:** Bachelor's Degree in Telematics Engineering

**Year:** 1st year

**Term:** 1st term

**Number of ECTS credits:** 4 credits

**Hours of study dedication:** 100 hours

**Teaching language or languages:** Catalan

**Teaching Staff:** Vanesa Daza, Àngel Lozano

## 1. Presentation of the subject

"Principles of Telecommunications (21300)" is a compulsory subject offered within the Degree in Telematics Engineering at the Universitat Pompeu Fabra. It consists of 4 ECTS credits and is taught during the first term (September-December) of the academic year.

It offers students an overview of the different parts that make up a telecommunications system, along with some vocabulary and concepts that they will use throughout their academic and professional life. Students will later acquire deeper and specific knowledge on each of the parts of a communications system thanks to the different subject of their degree studies (*Signals and Systems, Data Transmission and Encoding, Means of Transmission and Electronic Circuits, etc.*)

There will be a historical review on the evolution of the communication systems up to the various communication technologies available today.

This is an introductory course and therefore the students are not expected to be related to these technologies. The expected prior knowledge in order to take this course is that of a baccalaureate or of a higher-level training cycle.

The focus of this course is more descriptive than analytical: a wide range of aspects (from the electromagnetic signal generation to the mechanisms allowing the transmission of data) will be thoroughly described. These concepts will be discussed during the lectures and with the help of all technologies used, in order to complete the explanation. The course also includes a practical part in which problems dealing with the concepts explained on the lectures will be solved (seminar sessions) and simulated (laboratory sessions).

## 2. Competences to be obtained in the subject

Transferable skills	Specific competences
<p><b>Instrumental</b></p> <ol style="list-style-type: none"> <li>1. Ability to think analytically and to summarize.</li> <li>2. Ability to apply knowledge to analyze situations and solve problems.</li> <li>3. Ability to communicate orally in writing in Catalan and Spanish both with experienced and inexperienced audiences.</li> </ol> <p><b>Interpersonal</b></p> <ol style="list-style-type: none"> <li>1. Ability to work as a team.</li> <li>2. Leadership, coordination and initiative.</li> <li>3. Develop a critical opinion.</li> </ol>	<p><b>(S)</b></p> <ol style="list-style-type: none"> <li>1. Ability to analyze and specify the basic parameters of a communications system.</li> <li>2. Ability to assess the advantages and disadvantages of various technological alternatives for deployment or implementation of communications systems from the point of view of signal space, perturbation and noise and analog and digital modulation systems.</li> <li>3. Ability to acquire a basic vocabulary of communications.</li> <li>4. Ability to define the main</li> </ol>