OBJECTIVES

Basic foundations of computing, telematics, communications and electronics.

DESCRIPTION OF CONTENTS: PROGRAMME

Computer basics

1.- IoT information systems: data storage, management and visualization
2.- From SQL databases to those used in IoT: No SQL
3.- IoT deployment hardware / software platforms: free or proprietary
4.- Ambient Intelligence as a paradigm of IoT applications
5.- The Smart concept and the IoT

Fundamentals of Telematics

1- Introduction to computer networks, layer model and protocols
2- Link layer principles, link layer services, protocols
multiple access
3- Link layer addressing. Wifi link protocol.
4- Principles of the network layer, IP protocol
5- IP addressing

Fundamentals of Signal Theory

1. Signals and systems
2. Representation of signals in the frequency domain (Fourier transforms)
3. Filtering and sampling of signals.
4. Communications systems. Channels with noise.
5. Modulation and demodulation.

Electronics basics:

1.- Analog and Digital Signals. Digital representation of information. Basic concepts of circuit analysis.

2.- Analog / Digital and Digital / Analog Conversion.

3.- Analog components. The Operational Amplifier.

4.- Digital components. Basic concepts of microprocessor-based digital systems

5.- Digital components. Basic concepts of programming embedded systems.

ASSESSMENT SYSTEM

A work on the presented concepts

% end-of-term-examination: 0

% of continuous assessment (assigments, laboratory, practicals…):   100