

Optionnal Course: code UE HAE905E

Embedded electronics and wireless communication, (6 ECTS)

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Learning Outcomes:

- This course will deal with wireless sensors (different types of wirelessly connected sensors), reminder on communications (technologies, associated electronics, how to make a choice according to the specifications, . . .), focus on RFID & Sensors. The sensor networks will then be discussed (general, physical layer and hardware architecture, example Internet of Things). A project will be proposed.

Description :

- Labview
 - Recap of LabVIEW basics
 - Project management, executable generation, advanced programming (events, execution speed, memory management, waveform manipulation, etc.)
 - Advanced acquisition techniques, Implementation of signal processing libraries
 - Internet tools (mail, web, remote control, etc.), Mathscript (Matlab)
 - IMAQ Vision (Real-time image and video acquisition, image processing)
 - LabVIEW Embedded Systems Programming
- IOT (Internet of Things)
 - Description of connected objects
 - Communication protocols: BLE, Lora, NB IoT
 - IoT electronic architecture
 - Consumption management
 - Definition of antenna and range of systems
 - Applications (autonomous car, smart building, Digital factory)

