Smart devices

Skills	B	Evaluation method
Introduction to Sensors		
Understand basic notions of sensors, data acquisition: physics, electronics and metrology point of view	1	Exercise of application by project group to be inserted in the portfolio
Be able to manufacture a nano-particles sensor using micro-electronics tools: chemical synthesis, assembly,	1	Cleanroom training
Be able to design the datasheet of the sensor manufactured	1	Datasheet inserted in portfolio
Microcontrollers and Open Source Hardware		
Understand microcontroller archictecture and how to use them	1	Portfolio
Be able to design data acquisition system (sensor, conditioner, microcontroller) with respect to the application	1	Portfolio
Be able to design the electronic circuit of a sensor's signal conditioner (design + simulation)	1	Portfolio
Be able to design a shield to accommodate the gas sensor	1	Portfolio
Be abe to design the sofware to use the gas sensor and its HMI	1	Portfolio
Be able to combine all of the above mentioned components into a smart device	1	Portfolio

1-level of application: follow-up of instructions or procedures
2-level analysis: improvement or optimization of solutions or proposals
3-level of control: design of programs or definitions of specifications
4-level of expertise: definition of guidelines or strategies