

## Gas Sensor



ECTS  
5 crédits



Hourly volume  
34h

## Introducing

### Objectives

At the end of this module, the student will have understood and be able to explain (main concepts):

- the approach and the different steps for the conception and realization of a micro- and nano-electronic by integration of nano-objects synthesized as a colloidal solution;
- the operating model of a nano-sensor

the student will have understood and be able to explain:

- the main concepts and the experimental practices about nano-object synthesis and stabilization of colloidal solutions;
- the main concepts and the experimental practices about deposition of nano-objects from a solution into 2D and 3D arrays on a surface;
- the physical principles of nanoparticles based sensors (gaz sensor, strain sensor  $\dot{\epsilon}$ ).

The student will be able to:

- produce a sensor relying on nanoparticle arrays with particles synthesized and assembled during the project;
- measure the sensor properties and describe how it works;
- discuss the results obtained and suggest improvements..

The student will be able to:

- suggest a reasonable solution for the realization of a

sensor gathering the different concepts described above;

- produce an expertise on the conception and the practical realization on a novel sensor.

### Necessary prerequisites

Master 1 in Physics, Applied Physics, Chemistry or Material Science or equivalent

## Practical info

### Location(s)

Toulouse