

Subject: **NANOSENSORS**

Semester: **Spring**

ECTS credits: **2.5**

Professors: **Dra. Olga Casals**  
[olga.casals@ub.edu](mailto:olga.casals@ub.edu)  
**Dr. J. Daniel Prades**  
[dprades@el.ub.es](mailto:dprades@el.ub.es)

Department / Faculty: **Dept. Electronics**  
**Physics – UB**

### **Objectives:**

The main goal of this subject is to provide the student with a deep understanding of the concepts of nanosensors covering aspects as fundamental theories, fabrication, functionalization, characterization and the real world applications.

Starting by the concept of sensor, the subject will be focused on the transition from macro/microscopic sensors to nanosensors, analyzing the most up-date and hot topics in the nanosensors field.

### **Contents:**

1. **Backgrounds of (nano)sensors** (8 h)
  - 1.1. **Concepts**
  - 1.2. **Classifications (working principles, measurands,...)**
  - 1.3. **Working (nanoprinciples)**
2. **State of the art in nanosensing**
  - 2.1. Chemical gas sensors
  - 2.2. Photosensors
  - .....

### **METHODOLOGY**

- Lecture sessions
- Independent study of the theory by the student.
- Reading of Scientific works
- Discussion of Scientific work

### **EVALUATION**

Lectures: Attendance, participation and intervention during the course.

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**Adress:** Facultat de Física, c/ Marti Franques 1, 08028 Barcelona – Espanya

**Master Community:** <http://campusvirtual.ub.edu/course/view.php?id=427>

**Website:** <http://www.ub.edu/nanotec/>

**E-mail:** [nanotec@ub.edu](mailto:nanotec@ub.edu)

Individual seminar.

**Plan**

<b>Lectures:</b>	<b>12 Hours</b>
<b>Seminars:</b>	<b>10 Hours</b>
<b>Self-studying:</b>	<b>10 Hours</b>
<b>Individual seminar preparation:</b>	<b>16 Hours</b>

**Bibliography**

1. K. Kalantar-zadeh and B. Fry, *Nanotechnology-Enabled Sensors* (Springer, 2008).
2. L. Nagahara, N. Tao, and T. Thundat, *Introduction to Nanosensors (Nanostructure Science and Technology)*, 1 st ed. (Springer, 2008).