

## Faculty of Applied Sciences



### ELEC2590 Seminars in electronics and communications

[30h] 3 credits

This course is taught in the 2nd semester

**Teacher(s):** Christophe Craeye, Denis Flandre, Isabelle Huynen, Jean-Pierre Raskin (coord.)  
**Language:** English  
**Level:** Second cycle

#### Aims

The aim of this course is to offer to students the opportunity to open their mind towards domains not given during their engineering studies through the courses in microelectronics, microwaves, and telecommunications. The proposed seminar titles will be related to the most recent research subjects and industrial activities in the field of the electrical engineering. At the end of the seminars series, debates and personal work, the students will have a global view on the most recent developments in their domain of expertise, i.e., electrical engineering. They will be able to analyze the evolution of these technologies and products, and complete their view with the most recent published scientific articles.

#### Main themes

Identical to the contents of the course

#### Content and teaching methods

##### Content

The main topic of the proposed seminars will be defined each year and then it could change depending on the progresses of the related fields in electrical engineering. The discussions will be strongly focused on the present industrial problems and research thematics in order to bring solutions to the industrial needs.

This year the topic is "Wireless micro sensors and actuators"

- micro and nanofabrication of micro sensors and actuators (MEMS) in CMOS technology
- packaging and interconnection sensors-electronics
- integration of antennas on semiconductor substrates
- energy sources, sensors power supply
- system aspects : sensors/actuators - electronic circuits - communication
- network of wireless sensors : communication protocoles

##### Methods

Series of seminars followed by debates between specialists and students.

Work in group on a subject chosen by the students and in agreement with the teachers and with the specific topic of the course (bibliography, experiments, simulations, etc...).

Frequent interactions with teachers (individual or collective -course) to solve the faced problems.

Interactions with researchers of the laboratories (and collaborations outside UCL).

Oral presentations and writing of a report (publication on the WEB).

#### Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

##### Prerequisites

Basic formation in electronics, microwaves and telecommunications

##### Evaluation

Evaluation based on a personal work, on a subject approved by the teachers, oral presentation and writing of a report (about 15 to 20 pages written as a journal article).

**Programmes in which this activity is taught**

**FSA3DS**            Diplôme d'études spécialisées en sciences appliquées

**Other credits in programs**

**FSA3DA**            Diplôme d'études approfondies en sciences appliquées            (3 credits)