# 2IN5030 – Experimental physics work

**Instructors:** Brahim Dkhil
**Department:** DÉPARTEMENT PHYSIQUE
**Language of instruction:** FRANCAIS
**Campus:** CAMPUS DE PARIS - SACLAY
**Workload (HEE):** 40
**On-site hours (HPE):** 27,00
**Elective Category :** Fundamental Sciences
**Advanced level :** No

**Description**
It is an experimental learning in physics that aims to (i) illustrate and experimentally apply the content of CentraleSupélec's physics teaching, (ii) demonstrate creativity and initiative, (iii) work in groups and in a concerted manner, (iv) transmit knowledge. In order to achieve these objectives, the pupils will have at their disposal a set of equipment and apparatus from which, with the help of their teachers/teachers, they will have to imagine and implement their own experiments in order to illustrate the following 5 physical themes: structure of matter, radiation-matter interaction, phase transition, transport phenomena, energy conversion.

**Quarter number**
Intensive week of the SG6 and SG8

**Prerequisites (in terms of CS courses)**
Basics in Physics

**Syllabus**
Each group will be made up of 10 students divided into 5 pairs (one pair = one physical theme) and must have a common thread (guideline). The capacity of reception and supervision (4 teachers) allows a total of 30 students.
At the beginning of the sequence, during two half-day sessions, which will be called "preparatory" sessions, and with all the supervisors, the students will have to divide themselves up and will have the free will to define their common thread and the experiences they will have to implement and present in April over 4 days.
During the preparatory sessions, the students will have access to a list of equipment and materials (visit to the InnoPhysLab room + SPMS laboratory equipment) which will be made fully available to them to carry out their experiments. Within a certain limit and according to the needs expressed,

small additional equipment may be purchased to complete the equipment already made available.
Each group will have 4 days to set up their experiments in accordance with the physical themes, to take measurements, to criticize the results, and to make a "youtube" type video which will be submitted to an external committee of physics teachers from CentraleSupélec.

**Class components (lecture, labs, etc.)**
2 sessions of 3 hours to prepare the experimental work
4 days of 7.5 hours of experimental work implementation and presentation

**Grading**
The evaluation is based on the behaviour and work done during the experimental sessions as well as on the video realized by the students which aims at describing their work

**Resources**
4 teachers for 30 students distributed into 3 groups of 10 students
Acces to InnoPhys room and SPMS lab equipments

**Learning outcomes covered on the course**
consolidate their knowledge in Physics
knowhow for mounting an experiment
work in a groupe, exchange and orgnaize the work
develop creativity and initiative
learn how to transmit their knowledge