



PHYS2181 Analogical electronics

[22.5h+22.5h exercises] 5 credits

This course is taught in the 1st semester

Teacher(s): René Prieels
Language: French
Level: Second cycle

Aims

Electronics is present everywhere in the world, and especially in the experimental physicist's world through measuring tools. This course aims to familiarize the user with the basics of electronic components and gives the ability to analyse analogue circuits build with classical discrete constituent: semi-conductor diodes, transistors and operational amplifiers.

Main themes

This course teaches the circuit theory and the rules to be respected when interconnecting different electronic units. It treats the essential points of linear systems and the case of amplification of small signals. The characteristics of various operational amplifiers circuits are discussed. The origin of noises and the methods used to limit them are treated. Adaptation of lines in signal transport is also studied. Laboratory sessions' putting the theoretical material from lecture into context completes the lectures with a ratio of about 1 to 1.

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

Prerequisites: thorough knowledge in general physics (mainly in electromagnetism) and in mathematics (integral calculus, derivatives, serial development).

Laboratories are the illustration and the application of concepts seen during the theoretical course. They are an indispensable complement of the theoretical course.

Evaluation: the exam includes a theoretical part and an instrumental part based on a experimental realisation in laboratory.