



PHY1211 General Physics 3

[30h+30h exercises] 4 credits

This course is taught in the 1st semester

Teacher(s): Denis Favart, Jan Govaerts
Language: French
Level: First cycle

Aims

Pursues the discussion of the basic principles of general physics as initiated in the courses PHY 1111 and PHY 1112, with the Maxwell equations of electromagnetism and the wave phenomena of classical physics, including an introduction to electromagnetic waves and light propagation. Exploits also experimental laboratory practicals focused onto the general physics of the first two years of the Bachelor's degree.

Main themes

Electromagnetism :

- . electromagnetic induction and Maxwell's equations ;
- . electrical circuits and alternating currents ;
- . basics of electric and magnetic fields in matter.

Physics of waves :

- . wave packets, phase velocity, group velocity ;
- . waves in two and three dimensions, polarisation ;
- . interference and diffraction ;
- . basics of electromagnetic waves, light propagation.

Content and teaching methods

Traditional teaching organisation, with oral presentations of the content material in a lecture theater in combination with experimental demonstrations, then followed by supervised tutorials and laboratory practicals. The detailed content of the course is structured along the above specifications. The course material is based on, and follows closely the approach and discussions of Volumes 2 and 3 of the Berkeley Physics Course, namely Electricity and Magnetism by E. M. Purcell, and Waves by F. S. Crawford, Jr.

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

Prerequisites

The mathematics and general physics courses of the first year of the Bachelor's degree in both the mathematical and the physical sciences.

Other credits in programs

PHYS12BA	Deuxième année de bachelier en sciences physiques	(5 credits)	Mandatory
SINF13BA	Troisième année d'études de bachelier en sciences informatiques	(4 credits)	