UCLouvain

linge1213

2020

Physics

Due to the COVID-19 crisis, the information below is subject to change, in particular that concerning the teaching mode (presential, distance or in a comodal or hybrid format).

4 credits	30.0 h + 30.0 h	Q1

Teacher(s)	Lecomte Olivier ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	*The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.*
Main themes	The course is divided into two parts. The first part is a week-by-week presentation of the basic laws of electromagnetism, and their applications. It begins with an introduction to the laws of electrostatics in a vacuum, drawing on concepts studied in Physics 1. Students are shown how these laws are adapted to the study of dielectric and conducting materials. This is followed by lectures on aspects of the theory of circuits and magnetic fields in a vacuum and in matter. This part of the course ends with a study of magnetic induction phenomena and the development of an integrated approach towards the phenomenon of electromagnetism. The second part expands the concept of waves introduced in Physics 1 to the study of electromagnetic waves and ends with an introduction to optics. The experimental approach adopted in Physics 1, focused on determining the orders of magnitude in circuits and simple mechanical systems, is pursued in this course.
Aims	1 General introduction to electromagnetism and electromagnetic waves - - - - *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Evaluation methods	**Due to the COVID-19 crisis, the information in this section is particularly likely to change.** Main evaluation based on a written exam, including questions on both theoretical and practical concepts covered in the course. Standard questions such as those asked in this final exam will be presented in class to prepare students for this assessment. The final mark will also take into account a continuous evaluation carried out during the semester. This part of the grade will be used for each session and this part of the evaluation can only be taken during the course semester. In the event of changes in sanitary conditions towards an orange or red code, the written examination may take place remotely (depending on the color code) via computer software provided to teachers by the university institution. The technical conditions of this remote examination will be specified to you when the state authorities have decided on the sanitary conditions for university institutions according to these changes.
Teaching methods	**Due to the COVID-19 crisis, the information in this section is particularly likely to change.** Lectures (in-person teaching and asynchronous remote teaching) backed up by demonstrations and electromagnetic experiments in auditorium. Exercise-centred learning.
Content	Electrostatics in a vacuum - Electrostatics in matter - Ohm's and Kirchhoff's Laws - Aspects of electric circuits - source, resistance, capacity concepts - Electric potential and energy - Magnetostatics in a vacuum - Magnetostatics in matter - Phenomena of magnetic induction - Aspects of electromagnetic waves and optics
Inline resources	https://moodleucl.uclouvain.be/course/view.php?id=7467
Bibliography	Tout est déposé sur le Moodle du cours, à l'exception du livre de référence
Other infos	Course entry requirements: Students should have completed Physics 1 (or equivalent) and Mathematics 1 (or equivalent).
Faculty or entity in charge	ESPO

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Bachelor : Business Engineering	INGE1BA	4	LINGE1114	🔍