

In view of the health context linked to the spread of the coronavirus, the methods of organisation and evaluation of the learning units could be adapted in different situations; these possible new methods have been - or will be - communicated by the teachers to the students.

4 credits

30.0 h + 30.0 h

Q1

Teacher(s)	Lecomte Olivier ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	<i>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.</i>
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	<p>1 General introduction to electromagnetism and electromagnetic waves</p> <p>-----</p> <p><i>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".</i></p>
Evaluation methods	<b>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</b> 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.
Teaching methods	<b>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</b> Lectures 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	<a href="https://moodleucl.uclouvain.be/course/view.php?id=7467">https://moodleucl.uclouvain.be/course/view.php?id=7467</a>
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

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Aims
Bachelor : Business Engineering	<a href="#">INGE1BA</a>	4	<a href="#">LINGE1114</a>	