

7.00 credits

54.0 h + 36.0 h

Q2

Teacher(s)	Lemaitre Vincent ;
Language :	French
Place of the course	Louvain-la-Neuve
Main themes	• Solids and elasticity (elastic properties of bodies, different types of elasticity, hysteresis). • Oscillations and mechanical waves (oscillatory movements and wave propagation, principle of superposition and interference, elastic waves and spherical waves, Doppler effect). • Electromagnetism (electrostatics, electric current, conductors, magnetic field, electromagnetic induction, magnetic properties of matter, Maxwell's equations and electromagnetic waves). • Geometrical and physical optics (nature and propagation of light, image formation, interference, diffraction, polarisation).
Learning outcomes	
Evaluation methods	The exam is a written exam consisting in several questions (possibly including multiple choice). The questions will include, on the one hand, one or more problems similar to those solved in the tutorial sessions, during the practical work or during the lecture, and, on the other hand, questions which aim to verify that the concepts and developments presented during the course have been assimilated (questions of understanding or possibly demonstrations made during the lecture, ...). An examination worth a maximum of 2/20 of the overall grade will be organized during the semester. The precise date will be communicated one or two weeks in advance. The exam will therefore count for a maximum of 18/20 of the overall grade. It is also essential to bring a simple scientific calculator to the exam. The terms mentioned above are valid regardless of the session.
Teaching methods	The teaching activities include (1) the theoretical course, (2) guided exercise sessions, (3) a practical laboratory work and (4) the tutorial. It is essential to have a simple scientific calculator for the guided exercise sessions and the practical laboratory work. The different subjects are presented in the theoretical course via slides and blackboard notes. The fundamental concepts are illustrated using applications from modern life, short films or animations, and experiments. The guided exercise sessions play an essential role in the comprehension of the theoretical course and allow the application of the studied theoretical concepts to real problems. Participation in practical laboratory work sessions is not compulsory but is strongly recommended. A test will also be proposed before each laboratory session and this test may have an impact on the success of the course (see the section on the method of evaluation). A laboratory report can be drawn up and submitted at the end of the session. This will be corrected by the assistant for pedagogical purposes but the mark obtained will not have any influence on the final mark of the exam. Tutorials, during which students can ask questions to an assistant, is organized every week. The golden rule is of course continuous work. In particular, it is essential that the student regularly solves exercises on his own, without just reading their solutions.
Content	Volume1 of Benson (5th edition) : 14.1 Density 14.2 Modulus of elasticity Volume 2 of the Benson (5th edition): Chapters 1 to 13 Volume 3 of the Benson (5th edition): Chapters 1 to 7
Inline resources	Copy of the trasparents presented during the course

Bibliography	• Volume 2 et 3 du Benson Les livres de physique "Benson" (si possible la 5ème édition) Edition de boeck Une dizaine de pages du volume 1 pour la partie solides/élasticité Le volume 2 "Electricité & Magnétisme" pour la partie électromagnétisme (incluant E et B dans la matière) Le Volume 3 "Ondes, optique et physique moderne " pour les parties oscillations, ondes mécaniques, ondes électromagnétiques et optique géométrique.
Other infos	Following the sanitary conditions, the modalities of the teaching AND the examination could be reassessed according to the situation and the rules in force.
Faculty or entity in charge	SC

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Chemistry	CHIM1BA	7		
Minor in Scientific Culture	MINCULTS	7		
Bachelor in Geography : General	GEOG1BA	7		