UCLouvain

wmds1100

2017

10 credits	80.0 h + 40.0 h	Q1

Teacher(s)	Piraux Bernard ;
Language :	French
Place of the course	Bruxelles Woluwe
Main themes	The course starts with a chapter on mathematics dealing with the exponential processes which play an important role in the medical context while allowing one to revise important and indispensable concepts that will be used in the following. The next part of the course focuses on point, solid and fluid mechanics. The course will concentrate on the basic notions and their possible applications in medecine. In the same spirit, thermal physics, electricity, magnetism and optics will be studied. The course ends with special questions of biophysics concerning transport phenomena (Fick's laws, osmotic pressure etc') and ionising radiations.
Aims	1 The objective of this course is twofold : on the one hand, to introduce the student to the scientific approach and on the other hand, to stimulate his motivation and commitment in order to make this course meaningful and to give him the opportunity to learn and practice the casuistry i.e. solving concrete problems from the general theoretical principles and from the study of similar cases (a competence that is essential for physicians !). The student should therefore be able to analyse and interpret a given physical situation after having identified the important parameters and eliminated the irrelevant ones. The students must acquire good knowledge of the basic notions of general physics in a medical context. The content of the course is in agreement with the learning outcomes defined by all universities of the french community of Belgium. - - - - *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	
Teaching methods	The teaching activities include the theoretical course, many tutorials and guidance sessions. During the lectures, experiments will be shown on a big screen. Furthermore, at the end of each chapter, a video sequence will be projected. These sequences will present an experiment about a physical situation that is very familiar at the beginning and then progressively replaced in a medical context. Each student will then have to answer to a series of multiple choice questions, the objective being to measure their capacity of analysing a given physical situation. The tutorials, given in auditorium, will be devoted to the resolution of many problems. Finally, guidance sessions will be organized every day of the week.
Content	The course is divided in the following nine chapters : 1. Exponential processes 2. Elements of biomechanics 3. Point and solid dynamics 4. Periodic phenomena 5. Static of fluids and dynamics 6. Elements of thermal physics 7. Electricity and magnetism 8. Optics and medical imaging 9. Special questions of biophysics
Bibliography	Le support du cours comprend un syllabus et des transparents disponibles sur icampus avant le cours magistral. Comme livre de référence, nous conseillons celui de J. Kane et M. Sternheim intitulé « PHYSIQUE » édité par Dunod.
Faculty or entity in charge	MED

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Bachelor in Dentistry	DENT1BA	10		
Bachelor in Medecine	MD1BA	10		