


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.

3 credits	22.5 h	Q2
-----------	--------	----

Teacher(s)	Froment Pascal ;
Language :	French
Place of the course	Louvain-la-Neuve
Main themes	Presentation of practical applications of radioisotopes in industrial and medical environments. All aspects of on-site radio management : production, packaging, transport, implementation and disposal for various applications.
Aims	<p>a. Contribution of the teaching unit to the learning outcomes of the programme (PHYS2M) 1.2, 1.3, 2.2, 2.5, 5.3, 9.1, 9.2, 9.3.</p> <p>b. Specific learning outcomes of the teaching unit</p> <p>1 At the end of this teaching unit, the student will be able to correctly manage the use of sources of ionizing radiation (radioactive sources and X-ray tubes) in a laboratory, a medical establishment or an industrial establishment.</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	<p>Due to the COVID-19 crisis, the information in this section is particularly likely to change. The evaluation consists of a written examination consisting of about ten questions followed directly by a discussion with the teacher. Complementary questions make it possible to specify the answers given at the written exam</p>
Teaching methods	<p>Due to the COVID-19 crisis, the information in this section is particularly likely to change. Teaching activities will be provided by the holder of the teaching unit. The concrete examples are adapted to the questions and wishes of the students.</p>
Content	<p>All aspects of on-site radio management: production, packaging, transport, implementation and disposal for various applications.</p> <ol style="list-style-type: none"> Reminder of fundamental principles of nuclear physics Production of artificial radioisotopes : nuclear reactor cyclotron Packaging and transport of radioisotopes: packages, packaging Establishment authorizations Design of a controlled area : armor calculation, rules of good practice in the zone Medical applications and industrial applications : industrial gauges, radiosterilization, gamma radiography, tracers, radiotherapy, nuclear medicine (each type of use is detailed and illustrated) Disposal of radioactive waste <p>The teaching unit contains many current and concrete examples. These examples are chosen according to the orientation chosen by the students.</p>
Bibliography	<p>Des ouvrages en relation avec les disciplines seront présentés lors des cours. Books related to the disciplines addressed will be presented during the theoretical lectures.</p>
Faculty or entity in charge	PHYS

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Master [120] in Physics	PHYS2M	3		
Master [120] in Biomedical Engineering	GBIO2M	3		