

Eléments de physique et chimie nucléaire

Lecturer

Nicolas PAULY (Coordinator)

Course mnemonic

MEDI-H502

ECTS credits

5 credits

Language(s) of instruction

French

Course period

First term

Course content

> Basic nuclear physics :

Ordres of magnitudes, general properties of nuclei, radioactive decay alpha, beta and gamma emissions, nuclear fission

> Interaction of ionizing radiation with matter :

interactions of charges particles : ions, electrons, positrons
interaction of photons : photoelectric, compton and pair production processes

> Introduction to nuclear detectors and to particle transport formalism,...

Objectives (and/or specific learning outcomes)

This course is a prerequisite for more advanced courses in nuclear metrology and radiation dosimetry.

Its aim is to give students an intuitive understanding of basic nuclear physics as well

as of the interactions of ionizing radiation with matter.

Teaching method and learning activities

24h course

12h exercises

24h laboratories

Contribution to the teaching profile

This teaching unit contributes to the following competences:

- > Mesurer les grandeurs physiques liées au vivant, tant morphologique que fonctionnel

References, bibliography and recommended reading

K. S. Krane, Introductory Nuclear Physics, Wiley (1988)

G.F. Knoll, Radiation Detection and Measurement, Wiley (2010)

Other information

Contact(s)

Prof. Nicolas Pauly

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room DB3-150

Evaluation method(s)

Other

Evaluation method(s) (additional information)

oral examination for the theory ad exercises

continuous evaluation for the laboratories

Determination of the mark (including the weighting of partial marks)

Theory and exercises : 75%

laboratories : 25%

Main language(s) of evaluation

French

Programmes

Programmes proposing this course at the Brussels School of Engineering

MA-IRCB | Master of science in Biomedical Engineering | finalité Professional/unit 2