Course Specifications

Valid as from the academic year 2018-2019

Course

Physics I (J000376)

Invalid as from the academic year 2018-2019

Course Specifications

Lecturers in academic year 2018-2019

Poelman, Dirk

WE04 lecturer-in-charge

Course offerings and teaching methods in academic year 2018-2019

A (semester 1)

Dutch

seminar: coached exercises 15.0 h

lecture 30.0 h

Offered in the following programmes in 2018-2019

Bachelor of Science in Pharmaceutical Sciences

6 A

Teaching languages

Dutch

Keywords

General physics, basic laws, mechanics

Position of the course

The goal of this course is to establish conceptual insights in the basic principles of physics, by stimulating and developing the scientific approach, rather than focusing on basic reproduction of facts and equations.

Contents

- Measurements, measurement errors and estimation
- Kinematics of point particles
- Dynamics: Newton's laws of motion
- Friction, circular motion
- Gravity and Newton's synthesis
- Work and energy
- Potential energy and conservation of energy
- Linear momentum
- Rotational motion
- Static equilibrium, elasticity and fracture
- Statics and dynamics of fluids
- Vibrations, waves and sound
- Temperature, thermal expansion and the ideal gas law
- Kinetic gas theory

Initial competences

Basic knowledge of mathematics on an average secondary school level is sufficient. Since the course starts from the basis, no specific knowledge of physics is required.

Final competences

1 To know the basic laws of physics (see section "content") and to define all occurring quantities.
2 To apply all basic laws of physics (see section “content”), in an integrated way, to derived problems and in exercises.
3 To use the correct units in formulas and in numerical results.
4 To interpret, to apply and, where possible, to present formulas in a graph.
5 To reduce physical problems to their physical essence or model (figure with indication of all relevant quantities and possibly the conditions of validity)
6 To perform the necessary steps leading to a certain formula, starting from the basic laws, in a mathematically correct way.

(Approved)
7 To have some sense about orders of magnitude.

Conditions for credit contract
Access to this course unit via a credit contract is determined after successful competences assessment.

Conditions for exam contract
This course unit cannot be taken via an exam contract.

Teaching methods
Lecture, seminar: coached exercises

Extra information on the teaching methods
Theory: lectures supported by demonstrations and audiovisual material.
Seminars: exercises under the guidance of the professor or an assistant. The problems to be treated are distributed well in advance using Minerva.

Learning materials and price
- D. C. Giancoli, Natuurkunde, deel 1, 4e editie: Mechanica en thermodynamica (English version available): ~ 75 Euro
- The powerpoint presentations, used in theory lectures, are made available to the students in electronic form.
- Formularium, made available through Minerva.

References
See course material.

Course content-related study coaching
There is always a possibility to ask questions and to get additional, personalised explanation by professor and/or assistant(s). If necessary an appointment is made, e.g. by e-mail or before or after a teaching session.
Extra study coaching is possible in small groups (via announced group sessions) or individually (on appointment) by the study coach Peter De Smet of the monitorate of the Faculty of Pharmaceutical Sciences: (petdsmet.DeSmet@UGent.be).

Evaluation methods
end-of-term evaluation

Examination methods in case of periodic evaluation during the first examination period
Written examination with multiple choice questions

Examination methods in case of periodic evaluation during the second examination period
Written examination with multiple choice questions

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation
not applicable

Extra information on the examination methods
Written exam for which a (fixed) set of equations can be used. Multiple choice questions in standard setting. The exam contains both theory questions probing conceptual understanding, as well as numerical and non-numerical exercises.

Calculation of the examination mark
Theory and exercises (100%).

(Approved)