Level: Bachelor

Course title: Physics

Status: Obligatory

ECTS:6

Requirements: none

Learning objectives

Students are given the basics of physical principles that allow them to monitor and understand, draw independent conclusions, take up further studies in the field of natural science disciplines and especially in chemistry. The aim of the course is to prepare students to understand the approaches to solving the problems appearing in the application of physics to chemistry. Students must master the techniques used in physics with applications in chemistry.

Learning outcomes

Developing general skills and knowledge of the kinematics and dynamics of motion, electromagnetism and optics, atomic physics, and artificial radioactivity.

Syllabus

Theoretical instruction

Developing general skills and knowledge of the kinematics and dynamics of motion, electromagnetism and optics, atomic physics and artificial radioactivity. Rotational motion and energy of rotating body. Electromagnetism: electric charge, electric field, potential difference, electric capacity, dielectrics in an electric field, DC electric current, Ohm's law, electromotive force, Kirchhoff's rule, passage of current through the electrolyte and gas, chemical and thermal power sources. Magnetism: magnetic field, the magnetic properties of materials, electromagnetic induction, Maxwell's equations, electromagnetic waves. Optics: geometrical optics, diffraction and polarization, diffraction and interference of light wave-particle dualism. Atom physics: the structure of the atom, the nucleus of the atom, spontaneous changes of core, nuclear reactions, natural and artificial radioactivity.

Practical instruction

Selected experimental exercises that follow from theoretical physics classes.

Weekly teaching load				Other:
Lectures: 3	Exercises:	Other forms of teaching: 2	Student research:	