Level: bachelor

Course title: Electromagnetism

Status: obligatory

ECTS: 7

Requirements: none

Learning objectives

Introduction to the basic laws of electromagnetism.

Learning outcomes

Students should develop:

General abilities: following the literature; search and using the Internet.

Specific abilities: Adopting the knowledge from electromagnetism and understanding the basic laws.

Syllabus

Theoretical instruction

Electric charge and electrostatic field in vacuum. Electrostatic field in presence of conductors and dielectrics. Electric field energy. Stationary and quasistationary currents. Properties of conductors. Electric circuits. Work and power of electric currents. Fields of moving charges. Stationary magnetic field in vacuum and in magnetics. Electromagnetic induction. Electromagnetic oscillations and AC circuits. Magnetic field energy. The electromagnetic field. Solving selected numerical problems.

Practical instruction

Selected experimental exercises: Dielectric permittivity, Ohm's law, Wheatstone bridge, RC-circuit, RLC-circuit, Specific conductivity of fluids, Tangent compass

Weekly teaching load				Other:
Lectures: 3	Exercises: 2	Other forms of teaching: 1	Student research:	