

Level: bachelor				
Course title: Selected chapters in mechanics and electrodynamics				
Status: elective				
ECTS: 6				
Requirements: Introduction to theoretical physics				
Learning objectives Deepening knowledge in certain areas of classical mechanics and electrodynamics.				
Learning outcomes After taking the course, students should have developed: General abilities: basic knowledge of this field, following the literature, analysis of various solutions and the choice of the most adequate solution, application in practice and other subjects. Subject-specific abilities: knowing in details canonical formalism, dynamics of rigid body and continuum, electrical and magnetic properties of the medium and quickly alterable electromagnetic fields, laws of optics, electromagnetic theory of light, reflection, refraction, diffraction, dispersion of light and the laws of thermal electromagnetic radiation.				
Syllabus <i>Theoretical instruction</i> Poisson's brackets. Canonical transformations. Hamilton-Jacobi method. Small oscillation and normal modes of the system. Central motion, Kepler's problem. Collisions of particles. Dynamical elements of ideal fluid. Dynamic of relative motion. Rapidly changing fields and electromagnetic waves. Laws of macrophysical optics, electromagnetic theory of light, reflection and refraction of light and diffraction of light. Dispersion of light, electromagnetic field in the cavity and heat radiation. <i>Practical instruction</i> Problem solving sessions				
Weekly teaching load				Other:
Lectures: 3	Exercises: 1	Other forms of teaching: 1	Student research:	