

Level: bachelor			
Course title: History of Physics			
Status: obligatory			
ECTS: 4			
Requirements: none			
Learning objectives Understanding of the historical aspect of science (physics) development.			
Learning outcomes Students should have developed skills in use of the scientific literature and analyze of different historical aspects of physic development. Student should be able to use different examples from the history of physics and famous scientists' biographies in further work, especially with students.			
Syllabus Introduction. Reasons for study of History of Physics. Different approaches to study. First civilizations. Babylon and Egypt. Greece. Mechanics: Aristotle and Archimedes. Optics. Electricity, magnetism, acoustics. Astronomy: Eudox, Aristotle, Hipparch, Ptolemy and Almagest. Structure of matter from Tales to Epicure. Roman empire: Lucretius and "De Rerum Natura". Arabian word. Europe, medieval and renaissance. Astronomy: Copernicus, Brache, Kepler. Mechanics: scholastics, Steven. Galileo. Optical instruments. Gilbert and "De Magnete". XVII century – age of genius. Mechanics: Descartes, Huygens. Newton and "Principia". Leibniz. Fluids: Torricelli, Pascal, Guericke, Boil, Marriott. Heat. Optics: Descartes, Snell, Fermat. Sped of the light: Romer and Bradley. Theories of the light: Hook, Huygens, Newton. XVIII century. Mechanics: Boshkovic, Bernoulli, Maupertuis, Euler, D'Allembert, Laplace. Optics. Thermometry. Heat: Black. Industrial revolution and steam machine. Flogiston. Electricity and magnetism: Gray, Duffet, Franklin, Cavendish, Coulomb, Galvani and Volta. XIX century. Mechanics: Hamilton and Jacoby. Acoustics: brothers Weber, Helmholtz. Optics: wave theory, Young, Fresnel, Arago, Malus and polarization. Speed of the light: Fizeau, Foucault, Michelson. Electromagnetism. Electrolysis. Oersted's experiment, work of Ampere. Ohm, Faraday, Henry, Joule, Kirchhoff, Gauss and Weber. Maxwell and "Treatise". Hertz and Lorentz. Tesla. Technical applications. Spectra. Gas discharge. Thomson and electron. Heat: discard of caloric theory. Thermometry. Ideal and real gases: Charles, Gay-Lussac, Dalton, Regnault, Andrews, van der Waals. Thermodynamics: Carnot, Clapeyron, Kelvin, Clausius. Helmholtz, Meier and Joule. Structure of mater, kinetic theory of gasses and statistical Physics. Avogadro, Maxwell, Boltzmann, Gibbs.			
Weekly teaching load			Other:
Lectures: 3	Exercises:	Other forms of teaching: 2	