



## Subject card

Subject name and code	Physics II, PG_00039392						
Field of study	Medical and Mechanical Engineering, Medical and Mechanical Engineering						
Date of commencement of studies	October 2020	Academic year of realisation of subject			2020/2021		
Education level	first-cycle studies	Subject group			Obligatory subject group in the field of study		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			1.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Physics of Electronic Phenomena -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Ireneusz Linert				
	Teachers		dr inż. Ireneusz Linert				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	E-learning hours included: 0.0						
Fizyka 2 - Kurs dla IMM oraz MiBM niestacjonarne - 2020/21 sem. letni - Moodle ID: 9359 <a href="https://enauzanie.pg.edu.pl/moodle/course/view.php?id=9359">https://enauzanie.pg.edu.pl/moodle/course/view.php?id=9359</a>							
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	15		3.0		7.0	25
Subject objectives	to get knowledge of selected laws and phenomena in physics giving ground to understand phenomena in universe and to study specialized subjects						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_U01		is able to study independently and is able to acquire needed information in physics		[SU2] Assessment of ability to analyse information		
	K6_W02		The student knows the basics of classical physics		[SW1] Assessment of factual knowledge		
	K6_U05		Student is able to solve analytically physical problems in the field of classical physics. With this knowledge he can solve other engineering problems in the field of mechanical and medical engineering		[SU1] Assessment of task fulfilment		
Subject contents	Elastic properties of bodies:Hooke's law, Young modulus, Hydrostatics: properties of liquids, Pascal's law, hydrostatic pressure, Archimedes' law. Hydrodynamics: fluid motion, Bernoulli's law, viscosity, laminar and turbulent flow, Reynolds number. Heat and mass transport: conductivity, convection and diffusion. Wave optics: Huyghens principle, diffraction and interference of light, diffraction grating, Polarization of light, law of Malus and Brewster, birefringence. Structure of matter: atomic structure, hydrogen atom according to Bohr, energy levels. Spectroscopy: absorption and emission spectra. Orbital and spin moment of the momentum of the electron in the atom, types of orbitals, quantum numbers. Classification of elements: multi-electron atom,Pauli exclusion principle, periodic table of elements and properties of elements. Chemical bonds: potential energy of a diatomic molecule, types of bonds and properties of crystals. Basics of physical chemistry: classical thermodynamics, internal energy, the first law of thermodynamics, enthalpy, entropy, second law of thermodynamics. Laser physics.						
Prerequisites and co-requisites	Course credit Physics I - E (07001W0)						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	lecture test		50.0%		100.0%		

Recommended reading	Basic literature	1. Bobrowski Cz., Fizyka: krótki kurs, WNT, Warszawa 2005 2. Orear J., Fizyka t. 1,2, WNT, Warszawa 1993 3. Skorko M., Fizyka, PWN, Warszawa 4. Kozłowski K., Zieliński R., I laboratorium z fizyki, cz.1, WPG 2003.
	Supplementary literature	1. Halliday D., Resnick R., Walker J., Podstawy fizyki t. 2, 4, 5 PWN, Warszawa 2003
	eResources addresses	
Example issues/ example questions/ tasks being completed	Explain the reasons for the dynamic lifting force	
Work placement	Not applicable	