



Subject card

Subject name and code	Physics elementary issues, PG_00040091						
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	1	ECTS credits			3.0		
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	0.0	30.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						
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	30		5.0		40.0	75
Subject objectives	To review and improve understanding of physics from secondary school						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_U01		The student learns the methods of solving and analyzing physical problems. With this knowledge he can solve other engineering problems.		[SU4] Assessment of ability to use methods and tools		
	K6_W02		The student knows the basics of physics at the level of secondary school		[SW1] Assessment of factual knowledge		
	K6_U05		Student is able to analytically solve physical problems at the level of high school curriculum. With this knowledge he can solve other engineering problems in the field of mechanical and medical engineering		[SU1] Assessment of task fulfilment		
Subject contents	EXERCISES: Motion: uniformly linear motion, resultant motion, uniformly variable motion, circular motion, two-dimension projections. Dynamics law: laws of dynamics, linear momentum, conservation of linear momentum, friction Work and energy: work, power, kinetic energy, potential energy, conservation of energy Harmonic motion: deflection, velocity, acceleration in harmonic motion, mathematical pendulum, damped harmonic motion Mechanic waves: properties of mechanical waves, types of mechanical waves, wave interference, standing wave, sound wave, sound wave formation Electric field: Coloumbs law, electric field strength, electrostatic induction, potential of electric field, electrical capacitance. Electric current: current strength, Ohm's law, Kirchhoff's law, current work current power, Magnetic field: Magnetic field created by current conductors with electrodynamics force, Lorentz's force, phenomenon of electromagnetic induction, Lenz's law, Geometrical optics: reflection and refraction law, mirrors, optical lens, lens assembly, phenomenon of total internal reflection.						
Prerequisites and co-requisites	High school level physics knowledge						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Midterm colloquium		50.0%		100.0%		
Recommended reading	Basic literature		1. Czerwińska A., Sagnowska B., Fizyka dla szkół średnich, Wyd. "Zamiast korepetycji", 2000 2. Chyla K., Fizyka, Wyd. Debit, 1999				
	Supplementary literature		No requirements				
	eResources addresses						

Example issues/ example questions/ tasks being completed	A horse is pulling a sledge of mass m with constant velocity acting with force F directed at an angle α to the horizontal. Find friction force and coefficient of friction.
Work placement	Not applicable