



Subject card

Subject name and code	Physics elementary issues, PG_00039854						
Field of study	Mechanical Engineering, 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			e-learning		
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. Marcin Dampc				
	Teachers		dr inż. Marcin Dampc 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: 30.0						
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_W02] possesses an organized knowledge on physics, including classic mechanics, acoustics, optics, electricity and magnetism, shows knowledge of the elements of quantum physics	The student knows the theoretical foundations of classical physics			[SW1] Assessment of factual knowledge		
	[K6_U01] is able to acquire information from specialized literary sources, databases and other resources, essential for solving engineering tasks; is able to compile the obtained information pieces and to interpret them, additionally is able to form conclusions and present justified opinion	The student knows how to solve simple physical problems using fundamental principles of classical physics			[SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment		
Subject contents	Motion along a straight line. Velocity and acceleration. Free-fall acceleration. Graphical integration in motion analysis. Force. Mass. Newton's First Law. Newton's Second Law. Some particular forces. Newton's Third Law. Friction. Work and energy. Conservation of Energy. Linear momentum. The linear momentum of a system of particles. Conservation of Linear Momentum. Momentum and kinetic energy in collisions. Simple harmonic motion. Simple pendulum. Waves. Wavelength and frequency. The speed of traveling wave. Interference of waves. Electric charge. Coulomb's Law. Capacitors. Capacitors in parallel and in series. Electric current. Ohm's Law. Magnetic field. Force between two parallel conductors with current. Faraday's Law of Induction.						
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. K. Jezierski, K. Sierański, I. Szlufarska, "Repetytorium. Zadania z fizyki", Oficyna Wydawnicza Script, Wrocław 1997. 2. G. Jarosz, "Zadania na repetytorium" umieszczone na e-nauczaniu przy kursie Fizyka I
	Supplementary literature	No requirements
	eResources addresses	
Example issues/ example questions/ tasks being completed	Three capacitors, $C_1=0,1 \text{ nF}$, $C_2=0,01 \text{ nF}$ i $C_3=0,001 \text{ nF}$, were first connected in series and then in parallel. Which connection can store more charge?	
Work placement	Not applicable	