



Subject card

Subject name and code	Physics, PG_00044539						
Field of study	Transport						
Date of commencement of studies	October 2023		Academic year of realisation of subject		2023/2024		
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		6.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Department of Solid State Physics -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Anna Rybicka				
	Teachers		dr inż. Anna Rybicka dr hab. inż. Natalia Wójcik				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	45.0	0.0	0.0	0.0	75
	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	75		5.0		70.0	150
Subject objectives	Learning the basic laws of classical physics. Developing of ability to analyze physical phenomena and solving technical problems based on the physical laws.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U06] able to plan and conduct simple laboratory and operational experiments and simulations in the area of transport; able to interpret the results and formulate conclusions		Student can analyze experimental results and knows how to formulate conclusions based of them.		[SU4] Assessment of ability to use methods and tools		
	[K6_W03] has basic knowledge of hydromechanics, thermodynamics, machine design, materials science and electrical engineering required for understanding the principles of construction and operation of means of transport		Student knows fundamental problems of classical physics. Student understands physical laws and based on them can analyze technical problems.		[SW1] Assessment of factual knowledge		
	[K6_W02] has basic knowledge of physics which includes technical mechanics, fluid mechanics, solid state physics, optics and acoustics required for understanding basic phenomena of physics which occur in transport		Student can recognize physical phenomena. Student can formulate, understand and use basic laws and principles.		[SW1] Assessment of factual knowledge		

Subject contents	Kinetics of progressive and rotational motion.		
	Newton's principles.Dynamisc of progressive and rotational motion.		
	Work and energy. Principles of conservation of momentum and energy.		
	Harmonic and wave motion.		
	Electrostatic. Coulomb's and Gauss's laws,		
	Electric current. Ohm's and Kirchhoff's laws.		
	The magnetic fiels. Ampere's, Biot's - Savart's and Faraday's laws.		
	Maxwell's exuations.		
Prerequisites and co-requisites	Course for Students, who completed mathematicsc and physics at the advanced level in the secondary school.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test 2	50.0%	30.0%
	Exam	50.0%	40.0%
	Test 1	50.0%	30.0%
Recommended reading	Basic literature	e-book "University Physics" (www.ftims.pg.edu.pl/Studenci/Materialy_dydaktyczne) D.Halliday, R.Resnick, J.Walker, "Fundamentals of physics", Jon Willey &Sons, 2001	
	Supplementary literature	J.Orear, "Physics", Macmillan Publishing Co.	
	eResources addresses	Adresy na platformie eNauczanie: FIZYKA I_TRANSPORT_23/24 - Moodle ID: 30537 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=30537	
Example issues/ example questions/ tasks being completed	Equations of motion in the gravitational field.		
	Elastic and inelastic collisions.		
	Moment of inertia of the rigid body.		
	Mathematical and physucal pendulum.		
	Electric field strenght and potential. Field superposition.		
	Movement of charge in an electric and magnetic fields.		
	Magnetic field around a current carrying conductor.		
Work placement	Not applicable		

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