



## 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	<p>Kinetics of progressive and rotational motion.</p> <p>Newton's principles. Dynamisc of progressive and rotational motion.</p> <p>Work and energy. Principles of conservation of momentum and energy.</p> <p>Harmonic and wave motion.</p> <p>Electrostatic. Coulomb's and Gauss's laws,</p> <p>Electric current. Ohm's and Kirchhoff's laws.</p> <p>The magnetic fiels. Ampere's, Biot's - Savart's and Faraday's laws.</p> <p>Maxwell's exuations.</p>														
Prerequisites and co-requisites	Course for Students, who completed mathematic and physics at the advanced level in the secondary school.														
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="456 792 794 815">Subject passing criteria</th> <th data-bbox="799 792 1137 815">Passing threshold</th> <th data-bbox="1142 792 1481 815">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 822 794 844">Test 2</td> <td data-bbox="799 822 1137 844">50.0%</td> <td data-bbox="1142 822 1481 844">30.0%</td> </tr> <tr> <td data-bbox="456 851 794 873">Exam</td> <td data-bbox="799 851 1137 873">50.0%</td> <td data-bbox="1142 851 1481 873">40.0%</td> </tr> <tr> <td data-bbox="456 880 794 902">Test 1</td> <td data-bbox="799 880 1137 902">50.0%</td> <td data-bbox="1142 880 1481 902">30.0%</td> </tr> </tbody> </table>			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%
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Test 2	50.0%	30.0%													
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Test 1	50.0%	30.0%													
Recommended reading	<p>Basic literature</p> <p>Supplementary literature</p> <p>eResources addresses</p>	<p>e-book "University Physics" (<a href="http://www.ftims.pg.edu.pl/Studenci/Materialy_dydaktyczne">www.ftims.pg.edu.pl/Studenci/Materialy_dydaktyczne</a>)</p> <p>D.Halliday, R.Resnick, J.Walker, "Fundamentals of physics", Jon Willey &amp; Sons, 2001</p> <p>J.Orear, "Physics", Macmillan Publishing Co.</p> <p>Adresy na platformie eNauczenie:  FIZYKA I_TRANSPORT_23/24 - Moodle ID: 30537  <a href="https://enauczenie.pg.edu.pl/moodle/course/view.php?id=30537">https://enauczenie.pg.edu.pl/moodle/course/view.php?id=30537</a></p>													
Example issues/ example questions/ tasks being completed	<p>Equations of motion in the gravitational field.</p> <p>Elastic and inelastic collisions.</p> <p>Moment of inertia of the rigid body.</p> <p>Mathematical and physucal pendulum.</p> <p>Electric field strenght and potential. Field superposition.</p> <p>Movement of charge in an electric and magnetic fields.</p> <p>Magnetic field around a current carrying conductor.</p>														
Work placement	Not applicable														