



Subject card

Subject name and code	Physics, PG_00044538						
Field of study	Transport						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2022/2023		
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			3.0		
Learning profile	general academic profile	Assessment form			assessment		
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	15.0	15.0	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	Knowledge of basic principles of thermodynamics and modern physics. Ability of analyzing physical phenomena, solving of technical problems.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[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	Students know basic problems of thermodynamics, understand physical laws and analyze technical problems.			[SW1] Assessment of factual knowledge		
	[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	Students identify basic physical phenomena, formulate and apply them.			[SW1] Assessment of factual knowledge		
	[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	Students can analyze experimental results and formulate conclusions.			[SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information		

Subject contents	<p>Fundamental laws of macroscopic thermodynamics.</p> <p>Elements of special relativity theory.</p> <p>Black body radiation.</p> <p>Corpuscular and wave character of electromagnetic radiation.</p> <p>Atom models.</p> <p>Schroedinger equation.</p> <p>Elements of solid state physics.</p> <p>Radioactivity.</p>											
Prerequisites and co-requisites	Continuation of the physics course, given during the first semester (mechanics, electricity, magnetism)											
Assessment methods and criteria	<table border="1" data-bbox="451 779 1487 884"> <thead> <tr> <th data-bbox="451 779 794 817">Subject passing criteria</th> <th data-bbox="794 779 1137 817">Passing threshold</th> <th data-bbox="1137 779 1487 817">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="451 817 794 851">Exercises -practical test</td> <td data-bbox="794 817 1137 851">50.0%</td> <td data-bbox="1137 817 1487 851">60.0%</td> </tr> <tr> <td data-bbox="451 851 794 884">Lecture - exam in theory</td> <td data-bbox="794 851 1137 884">50.0%</td> <td data-bbox="1137 851 1487 884">40.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Exercises -practical test	50.0%	60.0%	Lecture - exam in theory	50.0%	40.0%
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Recommended reading	<p>Basic literature</p> <p>Supplementary literature</p> <p>eResources addresses</p>	<p>Ohanian, Markert, Physics for Engineers and Scientists, NY Norton, 2007</p> <p>www.ftims.pg.edu.pl/Studenci/Materialy_dydaktyczne (University Physics)</p> <p>Tipler, Llewellyn, Modern Physics, 6ed, Freeman, 2012</p>	<p>Adresy na platformie eNauczenie:</p> <p>FIZYKA II - TRANSPORT_22/23 - Moodle ID: 26430</p> <p>https://enauczenie.pg.edu.pl/moodle/course/view.php?id=26430</p>									
Example issues/ example questions/ tasks being completed	<p>First and second thermodynamics laws.</p> <p>Lorentz transformations.</p> <p>Photoelectric effect.</p> <p>Postulates of Bohr model of atom.</p> <p>Broglie theory.</p> <p>Radioactive desintegration law.</p>											
Work placement	Not applicable											