



Subject card

Subject name and code	Physics laboratory I (mechanics and heat), PG_00034522						
Field of study	Technical Physics						
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 Subject group related to scientific research 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			4.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Instytut Fizyki i Informatyki Stosowanej -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr Małgorzata Franz					
	Teachers	dr inż. Ireneusz Linert dr Małgorzata Franz					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	45.0	0.0	0.0	45
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	45	5.0		50.0		100
Subject objectives	Learn how to perform basic experiments and determine physical quantities related to mechanics and heat.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_W08] Has knowledge of planning and conducting physical experiments, and critical analysis of its results.	Has extended knowledge on planning and conducting experiments and critical analyses of the obtained results.			[SW3] Assessment of knowledge contained in written work and projects		
	[K6_W12] Knows basic health and safety rules.	Knows principles of occupational safety and hygiene.			[SW1] Assessment of factual knowledge		
	[K6_W07] Has knowledge of the construction and operation of physical instruments, measurement and research equipment.	Knows the structure and operating principles of physical instruments, and measuring apparatus.			[SW3] Assessment of knowledge contained in written work and projects		
[K6_U04] Can plan and conduct experiments, critically analyze their results, draw conclusions and form opinions. Has laboratory work experience.	Knows how to plan and conduct physical experiments. Knows how to assess experimental results properly.			[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment			
Subject contents	<ol style="list-style-type: none">1. Determination of a density of a liquid.2. Motion along a straight line with constant acceleration.3. Free fall of a body - analysis of motion and determination of acceleration due to gravity.4. Analysis of elastic collisions of two bodies.5. Determination of a spring constant.6. Determination of a moment of inertia.7. Determination of a Young's modulus.8. Determination of a shear modulus by Gauss method.9. Investigation of a centripetal force.10. Determination of a coefficient of linear thermal expansion.11. Measurement of the boiling point of water as a function of pressure.12. Determination of thermal conductivity coefficient of selected materials.						

Prerequisites and co-requisites	No requirements		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Laboratory	60.0%	100.0%
Recommended reading	Basic literature	1. Materiały dydaktyczne na http://www.mif.pg.gda.pl/ 2. D. Holliday, R. Resnick, J. Walker, Fundamental of Physics, 8th Edition, Wiley 2008.	
	Supplementary literature	No requirements	
	eResources addresses	Podstawowe https://enauczanie.pg.edu.pl/moodle/course/view.php?id=37199 - Course for the subject on the e-learning platform titled "Mechanics and heat - Laboratory - 2024". Adresy na platformie eNauczanie: Mechanika i ciepło - Laboratorium - 2024 - Moodle ID: 37199 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=37199	
Example issues/ example questions/ tasks being completed	Newton's law of gravity.		
Work placement	Not applicable		