



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 2022	Academic year of realisation of subject			2022/2023		
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 inż. Daniel Pelczarski					
	Teachers	dr inż. Daniel Pelczarski dr Małgorzata Franz dr inż. Ireneusz Linert					
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_W02	Has extended, detailed knowledge regarding mechanics and heat.			[SW1] Assessment of factual knowledge		
	K6_W12	Knows principles of occupational safety and hygiene.			[SW1] Assessment of factual knowledge		
	K6_W08	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_W07	Knows the structure and operating principles of physical instruments, and measuring apparatus.			[SW3] Assessment of knowledge contained in written work and projects		
	K6_U04	Knows how to plan and conduct physical experiments. Knows how to assess experimental results properly.			[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task		

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		<ol style="list-style-type: none"> 1. Materiały dydaktyczne na https://fims.pg.edu.pl/wydzial/laboratoria-wydzialowe/i-pracownia-fizyczna 2. D. Halliday, R. Resnick, J. Walker, Fundamentals of Physics, 8th Edition, Wiley 2008. 3. J. Orear, Physics, 1979. 	
	Supplementary literature		No requirements	
	eResources addresses		Podstawowe https://enauczanie.pg.edu.pl/moodle/user/index.php?id=30244 - Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	Newton's law of gravity.			
Work placement	Not applicable			