GDAŃSK UNIVERSITY OF TECHNOLOGY

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 2025	Academic year of realisation of subject	2025/2026
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	Institute Of Physics And Applied Computer Science -> Faculty Of Applied Physics And Mathematics -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Ireneusz Linert	
	Teachers	mgr inż. Łukasz Haryński dr inż. Ireneusz Linert mgr inż. Michał Jurkowski	

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_U04] plans and conduct experiments, critically analyzes their results, draw conclusions and forms 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
[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_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

Subject contents

1. Determination of a denisty 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 fucntion of pressure.
12. Determination of thermal conductivity coefficient of selected materials.

<table>
<tr><td>Prerequisites and co-requisites</td><td colspan="3">No requirements</td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Laboratory</td><td>60.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">1. Materiały dydaktyczne na http://www.mif.pg.gda.pl/

2. D. Holliday, R. Resnick, J. Walker, Fundamental of Physics, 8th Edition, Wiley 2008.</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">No requirements</td></tr>
<tr><td>eResources addresses</td><td colspan="2">Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">Newton's law of gravity.</td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
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