GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Mechanics and heat, PG_00059004		
Field of study	Materials Engineering, Materials Engineering, Materials Engineering		
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	7.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Division of New Functional Materials for Energy Conversion -> Institute of Nanotechnology and Materials Engineering -> Faculty of Applied Physics and Mathematics		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Jakub Karczewski	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	30.0	15.0	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	10.0	90.0	175

Subject objectives

Knowledge of the basic laws of classical physics. Acquisition of the ability to analyze physical phenomena and solve technical problems based on the laws of physics.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_U01	The student is able to independently acquire and systematize knowledge in the field of physics from academic textbooks in Polish or English and other sources of scientific knowledge. The student is able to assess the reliability of the analyzed sources.	[SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information
K6_W02	The student is able to explain and interpret basic physical phenomena based on the laws of physics.	[SW1] Assessment of factual knowledge
K6_U05	The student acquired the ability to independently deepen knowledge in the field of physics.	[SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information
K6_K01	The student knows his level of knowledge in the field of basic physics and knows how to ask for help in understanding difficult issues	[SK5] Assessment of ability to solve problems that arise in practice [SK4] Assessment of communication skills, including language correctness

Subject contents

Mechanics and Heat is part of a basic physics course covering mechanics and thermodynamics. The topics of the classes are: kinematics, dynamics, harmonic and wave motion, basics of optics, wave, basics of thermodynamics.

Prerequisites and co-requisites

basic knowledge of physics at the secondary school level

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Final evaluation from the laboratory</td><td>50.0%</td><td>20.0%</td></tr>
<tr><td>The final grade of calculation exercises</td><td>50.0%</td><td>40.0%</td></tr>
<tr><td>exam</td><td>50.0%</td><td>40.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>[1] K. Jezierski, K. Sierański, I.Szlufarska, Fizyka -- Repetytorium, zadania z rozwiązaniami, kurs powtórkowy

dla studentów I roku i uczniów szkół średnich, Oficyna Wydawnicza Scripta, Wrocław 2005

[2] M.Herman, A.Kalestyński, L.Widomski, Podstawy Fizyki dla kandydatów na wyższe uczelnie i studentów,

WN PWN, Warszawa 2004

[3] J.Jędrzejewski, W.Kruczek, A.Kujawski, Zbór zadań z fizyki dla uczniów szkół średnich i kandydatów na

studia, WNT, Warszawa, 2000

[4] D.Halliday, R.Resnick, J.Walker, Podstawy Fizyki, PWN, Warszawa</td></tr>
<tr><td>Supplementary literature</td><td>[1] D.Halliday, R.Resnick, J.Walker, Podstawy Fizyki, Zbiór zadań, PWN, Warszawa

[2] Zbiór zadań z fizyki, skrypt Politechniki Gdańskiej, http://www.mif.pg.gda.pl/zz/

[3] W.Moebs, S.J.Ling, J.Sanny, Fizyka dla szkół wyższych, Tom 1, OpenStax Polska</td></tr>
<tr><td>eResources addresses</td><td>Podstawowe
https://openstax.org/details/books/fizyka-dla-szk%C3%B3%C5%82-wy%C5%BCszych-tom-1 - online manual
Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">1. Kinematics: basic concepts and kinematic quantities, uniform rectilinear motion; uniformly variable motion; relativity of motion. 2. Dynamics: principles of dynamics; inertial and non-inertial frames of reference; dynamics of progressive movement; rotational dynamics. 3. Conservation laws in mechanics: work, energy and power; the principle of conservation of energy; momentum; momentum conservation principle; angular momentum; momentum conservation principle.</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
</table>

Document generated electronically. Does not require a seal or signature.