GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Mechanics for engineers, PG_00061898		
Field of study	Materials Engineering, Materials Engineering		
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	5.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Institute of Nanotechnology and Materials Engineering -> Faculty of Applied Physics and Mathematics -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Jakub Karczewski	
	Teachers	mgr inż. Joanna Pośpiech dr hab. inż. Jakub Karczewski	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	30.0	0.0	0.0	0.0	60

E-learning hours included: 0.0

eNauczanie source addresses:

Moodle ID: 4874 Mechanika dla inżynierów
https://enauczanie.pg.edu.pl/2025/course/view.php?id=4874

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	60	5.0	60.0	125

Subject objectives

Getting to know the basic laws of classical physics. Acquiring the ability to analyze physical phenomena and technical issues based on the laws of physics.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W02] has knowledge of physics and chemistry, useful for formulating and solving simple problems within the scope of materials science	The student has basic knowledge of classical mechanics, basic optics and thermodynamics.	[SW1] Assessment of factual knowledge
[K6_U01] Can properly use selected analytical, simulation and experimental methods, as well as devices for measuring the fundamental properties of materials and technological processes.	The student is able to solve tasks related to the basics of classical physics. Knows basic research methods and ways of defining and determining basic physical quantities	[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools
[K6_K01] Understands the need to improve professional and personal competencies; is conscious of own limitations and knows when to turn to experts, properly establishes priorities helping to accomplish tasks defined by oneself or others.	The student has knowledge of the basics of classical physics. Understands the need to understand them in the context of solving professional problems. Can independently deepen knowledge in this area.	[SK2] Assessment of progress of work [SK5] Assessment of ability to solve problems that arise in practice

<table>
<tr><td>Subject contents</td><td>Course content – lecture

Vector AlgebraKinematicsDynamicsConservation LawsWavesOpticsFluid MechanicsThermodynamics</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>knowledge of basic physics at secondary school level</td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>written exam</td><td>40.0%</td><td>20.0%</td></tr>
<tr><td>oral exam</td><td>50.0%</td><td>30.0%</td></tr>
<tr><td>passing physics tasks</td><td>50.0%</td><td>50.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>• M.Herman, A.Kalestyński, L.Widomski, Podstawy Fizyki dla kandydatów na wyższe uczelnie i studentów, WN PWN, Warszawa
• J. Massalski, M. Massalska Fizyka dla Inżynierów, WNT Warszawa</td></tr>
<tr><td>Supplementary literature</td><td>D.Halliday, R.Resnick, J.Walker, Podstawy Fizyki, PWN, Warszawa</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>• describe the distribution of forces on an inclined plane
• Newton's laws of dynamics
• explain idea of inertial force
• write the equation harmonic motion
• explain the phenomenon of total internal reflection</td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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