GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00052067		
Field of study	Nanotechnology		
Date of commencement of studies	October 2020	Academic year of realisation of subject	2020/2021
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	1	ECTS credits	7.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Instytut Nanotechnologii i Inżynierii Materiałowej -> Faculty of Applied Physics and Mathematics		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Leszek Wicikowski	
	Teachers	dr inż. Leszek Wicikowski dr hab. inż. Agnieszka Witkowska dr hab. inż. Natalia Wójcik	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	60.0	0.0	0.0	0.0	60

E-learning hours included: 0.0

Adresy na platformie eNauczanie:
Physics I - Moodle ID: 9148
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=9148

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	15.0	100.0	175

Subject objectives

This course provides a general education in the basic principles of classical physics,

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_W03	The student knows the basic problems of classical mechanics, in particular kinematics and dynamics of translational and rotational motion. He can describe the harmonic motion and mechanical waves	[SW1] Assessment of factual knowledge
K6_U02	The student solves the classical physics problems. He can analyze physical phenomena by making necessary drawings. It derives the final results from the physical laws, performs calculations and derives final results. He applies the conversion of units and performs numerical calculations.	[SU4] Assessment of ability to use methods and tools
K6_U01	The student prepares to solve physics problems using the recommended textbooks. He remembers basic physical laws and understands them.	[SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information

<table>
<tr><td>Subject contents</td><td>Physics is a first-year physics course which introduces students to classical mechanics. Topics include: space and time; straight-line kinematics; motion in a plane; forces and equilibrium; Newton"s laws of dynamics; particle dynamics; collisions and conservation laws; work and potential energy; vibrational motion; conservative forces; inertial forces and non-inertial frames; rigid bodies and rotational dynamics, harmonic motion and mechanical waves</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Course is dedicated for students that not have taken high school physics and mathematics at extended 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>two tests during the semestr</td><td>50.0%</td><td>100.0%</td></tr>
</table>
</td></tr>
<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>D.Halliday, R.Resnick, J.Walker, Funadamental of physics, Wiley</td></tr>
<tr><td>Supplementary literature</td><td>Ohanian, Markert, Physics for Engineers and Scientists, vol.1, 3rd ed., New York, NY: Norton, 2007. ISBN:9780393930030</td></tr>
<tr><td>eResources addresses</td><td>Podstawowe
https://openstax.org/details/books/university-physics-volume-1 -
https://openstax.org/details/books/fizyka-dla-szk%C3%B3%C5%82-wy%C5%BCszych-polska -
Physics I - Moodle ID: 9148
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=9148</td></tr>
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</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>The position of a particle changes from
$\mathbf{r}_1 = (2.0\,\hat{\mathbf{i}} + 3.0\,\hat{\mathbf{j}})\text{cm}$
to
$\mathbf{r}_2 = (-4.0\,\hat{\mathbf{i}} + 3.0\,\hat{\mathbf{j}})\text{cm}.$
What is the particle’s displacement?

A body of mass m moves in a horizontal direction such that at time t its position is given by
$x(t) = at^4 + bt^3 + ct,$
where a, b, and c are constants. (a) What is the acceleration of the body? (b) What is the time-dependent force acting on the body?</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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