GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Physics I, PG_00039851		
Field of study	Mechanical Engineering, Mechanical Engineering		
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
Mode of study	Full-time studies	Mode of delivery	e-learning
Year of study	1	Language of instruction	Polish
Semester of study	1	ECTS credits	5.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Department of Physics of Electronic Phenomena -> Faculty of Applied Physics and Mathematics		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Grażyna Jarosz	
	Teachers	dr inż. Marcin Dampc dr hab. inż. Grażyna Jarosz dr inż. Ireneusz Linert	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	15.0	0.0	0.0	0.0	45

E-learning hours included: 45.0

Adresy na platformie eNauczanie:
Fizyka I dla MiBM 2020/2021 - Moodle ID: 7292
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=7292

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	75.0	125

Subject objectives

Student knows fundamentals of classical mechanics, electricity and magnetism as well as geometric optics.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W02] possesses an organized knowledge on physics, including classic mechanics, acoustics, optics, electricity and magnetism, shows knowledge of the elements of quantum physics	The student knows the foundations of classical physics	[SW1] Assessment of factual knowledge
[K6_U01] is able to acquire information from specialized literary sources, databases and other resources, essential for solving engineering tasks; is able to compile the obtained information pieces and to interpret them, additionally is able to form conclusions and present justified opinion	The student knows how to predict qualitatively and quantitatively the effects of the laws of physics	[SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment

Subject contents	1. Units 2. Introduction to Kinematics, Vectors 3. Projectile Motion 4. Uniform Circular Motion 5. Newton's Laws of Motion 6. Frictional Force 7. Work and Energy 8. Simple Harmonic Motion 9. Damped Simple Harmonic Motion, Forced Oscillations and Resonance, 10. Momemtum, Conservation of Linear of Momentum 11. Inelastic and Elastic Collisions 12. Rotation of Rigid Body, Angular Momentum, Conservation of Angular Momentum 13. Equilibrium 14. Sound Waves 15. Electric Field and Dipoles 16. Electric Flux and Gauss' Law 17. Electric Potential and Electric Potential Energy 18. Electrostatic Shielding, High-Voltage Breakdown, Capacitors 19. Polarization and Dielctrics 20. Electric Current, Resistance, Ohm's Law 21. Batteries and EMF 22. Magnetic Field and Lotentz Force 23. Moving Charge in B-field 24. Biot-Savart Law and Ampere's Law 25. Electromahnetic Induction

	26. Magnetic Materials 27. Light 28. Geometric Optics
Prerequisites and co-requisites	Ability to use simple mathematical apparatus (vector algebra).

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
exam	50.0%	70.0%
2 tests	50.0%	30.0%

Recommended reading

Basic literature	D. Halliday, R. Resnick, J .Walker, Fundamentals of Physics, 8th Edition, Wiley 2008. G. Jarosz, Kurs: Fizyka I dla MiBM na e-nauczaniu
Supplementary literature	Fizyka na Politechnice Gdańskiej - materiały pomocnicze (http://www.mif.pg.gda.pl/kfze/wyklady/wyklady.html#SKRYPT)
eResources addresses	Fizyka I dla MiBM 2020/2021 - Moodle ID: 7292 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=7292

Example issues/ example questions/ tasks being completed	A body of mass 2.0 kg makes an elastic collision with another body at rest and continues to move in the original direction but with one-fourth of its original speed. (a) What is the mass of the other body? (b) What is the speed of the two-body center of mass if the initial speed of the 2.0 kg body was 4.0 m/s?
Work placement	Not applicable