

Subject card

Subject name and code	Physics, PG_00048910							
Field of study	Chemistry in Construction Engineering							
Date of commencement of studies	October 2023		Academic year of realisation of subject			2023/2024		
Education level	first-cycle studies		Subject group			Obligatory subject group 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			3.0		
Learning profile	general academic profile		Assessment form			assessment		
Conducting unit	Department of Theoretical Physics and Quantum Information -> Faculty of Applied Physics and Mathematics							
Name and surname	Subject supervisor		dr inż. Ewa Erdmann					
of lecturer (lecturers)	Teachers							
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	0.0		0.0	30
	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	30		5.0		40.0		75
Subject objectives	Introduction to the topics of classical mechanics							
Learning outcomes	Course outcome		Subject outcome			Method of verification		
	K6_U02		Solving physics problems develops capabilities of individual work			[SU2] Assessment of ability to analyse information		
	K6_W02		Knows fundamental physical structures and is able to solve concrete models			[SU1] Assessment of task fulfilment		

Subject contents	Vectors						
	Velocity and acceleration as time derivatives						
	Newton's laws						
	Momentum conservation						
	Examples of forces						
	Potential forces						
	Examples of potentials						
	Work as an integral						
	Harmonic oscillator						
	Integration of Newton equations for various forces						
	Kinetic energy						
	Energy conservation for potential forces						
	Angular momentum						
	Rotations						
	Angular momentum conservation						
Prerequisites and co-requisites	no requirements						
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade				
	exam	60.0%	50.0%				
	exercises	60.0%	50.0%				
Recommended reading	Basic literature AK Wróblewski, JA Zakrzewski, Wstęp do fizyki, PWN, 1979						
	Supplementary literature Berkeley course of physics						
	eResources addresses Adresy na platformie eNauczanie:						
Example issues/ example questions/ tasks being completed	Solve equations of motion of a harmonic oscillator Prove that total energy in constant gravitational field is time-independent						
	Prove angular momentum conservation in a central potential						
Work placement	Not applicable						