



## Subject card

Subject name and code	Physics II, PG_00040036						
Field of study	Mechanical Engineering						
Date of commencement of studies	October 2021	Academic year of realisation of subject			2021/2022		
Education level	first-cycle studies	Subject group			Obligatory subject group in the field of study		
Mode of study	Part-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Zakład Energetyki i Automatyki Morskiej -> Institute of Ocean Engineering and Ship Technology -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Klaudia Wrzask					
	Teachers	mgr inż. Jacek Frost dr inż. Klaudia Wrzask					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	0.0	0.0	30
	E-learning hours included: 0.0						
	Fizyka II, MiBM, sem. 2, W/L, lato 2021/2022 - Moodle ID: 19914 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=19914">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=19914</a>						
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	The aim of the course is to acquaint students with the issues of modern physics.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[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 has the ability to self-study and can find the necessary information in the field of physics		[SU2] Assessment of ability to analyse information		
	[K6_W02] possesses an organized knowledge on physics, including classic mechanics, acoustics, optics, electricity and magnetism, shows knowledge of the elements of quantum physics		Lecture contents (together with the I term course) covers the range of suggested topics		[SW1] Assessment of factual knowledge		
Subject contents	<p>LECTURE: Wave optics: Huyghens principle, diffraction and interference of light, diffraction grating, polarization of light, Malus and Brewster's laws. Structure of matter: atom structure, hydrogen atom according to Bohr, energy levels. Spectroscopy: absorption spectrum and emission spectrum, prismatic and mesh spectroscopy. Orbital and spin momentum of the electron in the atom, types of orbitals, quantum numbers. Elemental classification: multi-electron atom, Pauli ban, system Periodic table of elements and properties of elements. Laser physics.</p> <p>EXPERIMENTS (examples) Determination of the spring constant. Determination of the gravity acceleration. Determination of the specific heat. Liquid viscosity testing. Waves. Wheatstone Bridge. Mohr's balance. Determination of Young's modulus.</p>						
Prerequisites and co-requisites	Knowledge of the basic laws of physics, the ability to use calculus, basic knowledge of handling simple measuring instruments (ammeter, voltmeter)						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Lecture credit	70.0%	50.0%
	Laboratory final grade	100.0%	50.0%
Recommended reading	Basic literature	OpenStax Fizyka tom 3 <a href="https://openstax.org/details/books/fizyka-dla-szk%C3%B3%C5%82-wy%C5%BCszych-tom-3">https://openstax.org/details/books/fizyka-dla-szk%C3%B3%C5%82-wy%C5%BCszych-tom-3</a>  Laboratorium z Fizyki I, Małgorzata Śmiałek-Telega	
	Supplementary literature	D. Halliday, R. Resnick, J. Walker, "Podstawy fizyki tomy 1-5", PWN, Warszawa	
	eResources addresses	Podstawowe <a href="https://openstax.org/details/books/fizyka-dla-szk%C3%B3%C5%82-wy%C5%BCszych-tom-3">https://openstax.org/details/books/fizyka-dla-szk%C3%B3%C5%82-wy%C5%BCszych-tom-3</a> - OpenStax Fizyka tom 3	
Example issues/ example questions/ tasks being completed	What is the polarization of light?  What is photoelectric effect?		
Work placement	Not applicable		