

**Subject card**

<b>Subject name and code</b>	Fundamentals of Physics - lecture, PG_00132716						
<b>Field of study</b>	Criminology						
<b>Date of commencement of studies</b>	October 2024	<b>Academic year of realisation of subject</b>			2024/2025		
<b>Education level</b>	Master's studies	<b>Subject group</b>			Optional subject group		
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	1	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>	1	<b>ECTS credits</b>			2.0		
<b>Learning profile</b>	academic	<b>Assessment form</b>			credit		
<b>Conducting unit</b>	Faculty of Law and Administration -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		dr hab. Anna Synak				
	<b>Teachers</b>						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	30.0	0.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	<b>Number of study hours</b>	30		0.0		20.0	50
<b>Subject objectives</b>	<p>Objectives of the course:</p> <ul style="list-style-type: none"> <li>- learning the basic laws and principles of physics.</li> <li>- learning the physical phenomena underlying physicochemical research in forensics,</li> <li>- learning various physical quantities, their units and physical terminology,</li> <li>- learning how to formulate research problems in commissioned expert opinions in the language of physics.</li> </ul>						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[KRYMMU2_UW01] The graduate utilizes theoretical knowledge in the field of criminology and the related scientific disciplines to analyze and interpret problems connected with widely understood crime	The student is able to apply knowledge of physics to describe and analyze the results of physical and physicochemical tests. He/She has the ability to present them clearly. He/She verifies the credibility of information obtained from various sources based on known laws and principles of physics. He/She is able to critically select various pieces of information based on the laws of physics learned and recognizes the importance of the subject for forensics. He/She is able to propose an appropriate research method to verify a specific problem.	[SU5] implementation of a problem task
	[KRYMMU2_KK01 ] The graduate is aware of the level of his/her knowledge and skills, and also understands the need of lifelong learning	The student is able to independently assess the value of expert report results. The student – as a future ordering of expert reports – is able to start a scientific conversation between experts and representatives of the justice system. He/She has knowledge of physics, enabling him to understand the methods used by the expert to perform the commissioned reports. He/She knows the physical basis of operation of equipment used in various expert tests in forensics. He/She develops logical, creative and critical thinking. He/She gets used to working in a team, acquires the ability to discuss and precisely formulate statements.	[SK1] oral statement/conversation/discussion
	[KRYMMU2_WG01] The graduate demonstrates widened knowledge about legal science and related penal sciences, their the place in the system of sciences and mutual relation	The student has knowledge of the basics of physics necessary for understanding various phenomena in nature and information presented in other subjects provided for in the course of study. He/She has basic knowledge of the principles and laws of physics and understands their importance not only for physics, but also for other sciences and knowledge of the world. He/She knows the basics of physics in the following areas of physics: 1. Measurement of physical quantities, units; 2. Interactions in nature; 3. Work, power and energy; 4. Vibrations and waves; 5. Gravity 6. Elements of thermodynamics; 7. Motion of bodies and its causes; 8. Atom and atomic nucleus; 9. Electricity and magnetism, elements of optics. 10. Elements of hydrostatics and hydrodynamics.	[SW4] test/exam - oral or written
Subject contents	Due to the addressees of the lecture, mathematical derivations of the laws and principles of physics will be omitted, while the relationships between various physical quantities and the analysis of physical phenomena in terms of their usefulness and use in various physical and physicochemical studies used in expertise will be emphasized. Lecture topics: Kinematics and dynamics of a material point and a rigid body. Conservation principles: momentum, angular momentum, energy. Vibrations and waves. Elements of fluid mechanics. Thermodynamics of physical processes. Electromagnetism: electric and magnetic properties of matter, electric and magnetic fields, electromagnetic waves. Geometrical and wave optics. Atomic and molecular physics: structure of atoms, atomic and molecular spectra. Elements of nuclear physics: properties of atomic nuclei, radioactivity.		
Prerequisites and co-requisites	not applicable		

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	written exam		51.0%
Recommended reading	Basic literature	Halliday and Resnics, Principles of Physics, John Wiley&Sons	
	Supplementary literature	Atkins P.W., Physical Chemistry, Oxford University Press R.P Feynman, The Feynman Lectures on Physics, Basic Books	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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