University of Gdańsk

Subject card

Subject name and code	Mechanoscopy and physical methods of examining traces - laboratory classes, PG_00132514						
Field of study	Criminology						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2026/2027		
Education level	Master's 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		1.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Faculty of Law and Administration -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Anna Synak				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	10.0	0.0	0.0	10
	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	10		0.0		15.0	25
Subject objectives	Familiarization with research equipment used in modern forensics to identify traces, mainly in mechanoscopy. Familiarization with its capabilities and limitations from the perspective of its use in measurements necessary to prepare an expert opinion. Acquisition of basic skills: a) performing research based on microscopic and X-ray techniques, b) preliminary analysis and interpretation of measurement data, C) their presentation and assessment of usefulness. Learning basic physical phenomena and processes necessary to understand the discussed research methods and the equipment used.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[KRYMMU2_K05] Is able to independently and critically complement knowledge and skills, extended by the interdisciplinary dimension	The student is able to expand their knowledge and skills in various fields of science related to physical methods of examining traces of crimes. Verifies the credibility of information obtained from various sources based on basic knowledge of physics.	[SK1] oral statement/conversation/ discussion
[KRYMMU2_UW02] Is able to acquire knowledge and develop professional skills independently, using a variety of sources (native and foreign language) and modern technologies	The student is able to expand knowledge and skills in criminology using traditional forms and e-resources in Polish and English. Verifies the credibility of information obtained from various sources based on basic knowledge of physics. Understands the need for education in the direction of modern technological solutions, appreciates the participation of other fields of science in the development of criminology.	[SU1] oral statement/conversation/ discussion
[KRYMMU2_UW01] I able to apply theoretical knowledge of criminology and related disciplines to analyse and interpret problems in criminology in a broad sense	The student is able to use knowledge from criminology and physics to propose solutions and interpret specific problems. Is able to use the knowledge acquired to determine the direction of further education. Is able to analyze the results of their own research and that of other specialists.	[SU1] oral statement/conversation/ discussion [SU3] text preparation/written work
[KRYMMU2_UW05] Has the ability to independently propose solutions to a specific problem and carry out a procedure to reach a decision on it	The student is able to apply knowledge of physics to describe and analyze the results of physical and physicochemical tests. Has the ability to present them clearly. Verifies the credibility of information obtained from various sources based on known laws and principles of physics. 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. Is able to propose an appropriate research method to verify a specific problem.	[SU1] oral statement/conversation/ discussion

Subject contents

-Examination of traces left by tools using a stereoscopic and scanning electron microscope.-Refractive index as an important parameter in forensic examinations-X-ray methods in the examination of hidden objects.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
written report	51.0%	50.0%
oral/written response	51.0%	50.0%

Recommended reading	Basic literature	[1]. K. Sikorski, A. Szummer - Podstawy ilościowej mikroanalizy rentgenowskiej". Wydawnictwo Naukowo - Techniczne, Warszawa 1994 [2] A. Barbacki, Mikroskopia elektronowa, Wyd. Politechniki Poznańskiej, 2005 [3] J. Widacki - Kryminalistyka",Wydawnictwo C.H. Beck, 2012 [4] A. Filewicz, W. Krawczyk, A. Musiał - Ślady fizykochemiczne. Ślady kryminalistyczne. Ujawnianie, zabezpieczenie, wykorzystanie" pod redakcjąM. Goca i J. Moszczyńskiego, Diffin, Warszawa 2007 [5] J.A.Litwin, M. Gajda, Podstawy technik mikroskopowych, Wydawnictwo Uniwersytetu Jagiellońskiego, 2011
	Supplementary literature	[1] M. Pluta, Mikroskopia optyczna, PWN, Warszawa, 1980. [2] D. Halliday, R. Resnick, J. Walker, Podstawy fizyki, t. 4, PWN, 2012. [3]D.B. Murphy, Fundamentals of Light Microscopy and Imaging, John Wiley and Sons, 2001r [4] I. Sołtyszewski, P. Polak - Badania kryminalistyczne", Wydawnictwo UMW, Olsztyn 2007 [5]Springer Handbook of Microscopy
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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