University of Gdańsk

Subject card

Subject name and code	Advanced Medical Physics Laboratory, PG_00182192						
Field of study	Medical Physics						
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 Subject group related to scientific research 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	2		ECTS credits	3.0			
Learning profile	academic		Assessment form	credit			
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr Michał Mońka				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	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		0.0		45.0	75
Subject objectives	not applicable						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[FIZMEDMU2_W05] Knows and understands in depth the theoretical foundations of computational methods and computer techniques used to model and simulate physical and biological systems.	The student knows: • advanced methods of physiological signal analysis; • the theoretical foundations of computational methods used in the analysis of medical signals.	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
[FIZMEDMU2_U02] Can plan and conduct an experiment using new or adapt existing methods and tools, and critically analyse the results of measurements, observations or numerical calculations, assessing the accuracy of the results using known methods and tools.	The student is able to: • plan and carry out measurements of physiological signals; • critically analyze measurement results and draw conclusions from physiological signal measurements.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[FIZMEDMU2_W03] Knows and understands advanced experimental and numerical techniques that allow you to plan and perform a complex physical experiment.	The student distinguishes between various experimental techniques and numerical methods used to record medical signals and is able to analyze them. The student is able to correctly perform medical signal acquisition, identify errors, and verify the accuracy of the recording.	[SW2] presentation/project/paper/ report
[FIZMEDMU2_U01] Can apply the scientific method in solving physical and medical problems, carrying out experiments and drawing conclusions in the field of physics, medical physics and other fields, based on in-depth knowledge, appropriate selection of sources, and mathematical and computer science methods and tools.	The student knows the principles of the scientific method and the stages of the research process, and possesses advanced knowledge in physics and medical physics, enabling the formulation and analysis of research problems. The student understands the role of mathematical and computational tools in the description and analysis of physical and medical phenomena. Furthermore, the student is familiar with sources of scientific knowledge and the principles of their critical evaluation and appropriate selection. The student is able to formulate research problems and hypotheses in accordance with the scientific method. The student can design and carry out a physical or medical experiment. The student analyzes experimental data and draws conclusions based on them. The student applies mathematical and computational tools to modeling and problem-solving. The student makes use of scientific literature and critically evaluates its value.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report

	Course outcome	Subject outcome	Method of verification
	[FIZMEDMU2_W07] Knows and understands the principles of occupational health and safety to a degree that allows for independent work in medical facilities and research laboratories.	The student knows the regulations and standards concerning occupational health and safety in medical units and laboratories. The student understands the principles of workplace organization in compliance with OHS requirements, is familiar with procedures to follow in case of threats to health or life, and understands the importance of adhering to OHS rules for the safety of patients, staff, and the quality of research. The student is able to independently apply OHS principles in professional tasks, can identify and assess potential hazards in the work environment. The student is able to select and correctly use individual and collective protective measures, respond to emergency situations in accordance with applicable procedures, and organize the workplace in a way that ensures safety for themselves and others.	[SW1] oral statement/ conversation/discussion
Subject contents	not applicable		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	not applicable	51.0%	40.0%
	not applicable	51.0%	60.0%
Recommended reading	Basic literature	not applicable	
	Supplementary literature	not applicable	
	eResources addresses		
Example issues/ example questions/ tasks being completed	not applicable		
Work placement	Not applicable		

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