University of Gdańsk

Subject card

Subject name and code	Contemporary Radiological Techniques, PG_00207565						
Field of study	Medical Physics						
Date of commencement of studies	October 2027		Academic year of realisation of subject		2027/2028		
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	1		ECTS credits		3.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Faculty of Mathematics, Physics and Informatics -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Małgorzata Grzywińska				
	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_K04] He is ready to take care of the achievements and traditions of the medical physicist profession by improving his competencies and popularising knowledge.	The student is ready to uphold the legacy of the medical physicist profession. They are prepared to continuously expand their competencies in medical image analysis to ensure the highest quality of services provided. They demonstrate a proactive attitude in promoting knowledge about the proper interpretation of radiological findings, for example, by sharing their expertise with the team.	[SK2] presentation/project/paper/ report
[FIZMEDMU2_W06] Knows and understands to an in-depth degree the current directions of development in physics and medical sciences, particularly in the field of medical physics, as well as the fundamental dilemmas of contemporary civilization	The student knows and understands the latest trends in digital radiology and image analysis, including the application of artificial intelligence. They understand the fundamental challenges associated with interpreting complex imaging data in medical diagnostics and can propose solutions.	[SW2] presentation/project/paper/ report
[FIZMEDMU2_U07] Can lead a team, interact with team members from various backgrounds (e.g. doctors, technicians, hospital staff, scientists), and take the initiative in managing an interdisciplinary team.	The student can collaborate with radiologists, technicians, and other staff to optimize imaging and analysis protocols. They can take initiative in managing tasks related to image analysis, especially in complex diagnostic cases.	[SU2] presentation/project/paper/ report
[FIZMEDMU2_W01] Knows and understands in depth selected issues in the field of physics and medicine, the complex relationships between them, and development trends in the exact and natural sciences, health sciences, and others.	The student knows and understands advanced methods of medical image analysis and their application in clinical diagnostics. They understand how the critical interpretation of image analysis results influences diagnosis and treatment.	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
[FIZMEDMU2_W04] Knows and understands in depth the theoretical foundations and principles of operation of measurement systems and research, diagnostic and therapeutic equipment specific to the field of physics and medicine.	The student knows and understands the theoretical principles of radiological imaging equipment, including methods for acquiring images in various modalities. They are familiar with fundamental software tools used for the analysis and processing of medical images. They understand how equipment parameters affect image quality and potential artifacts.	[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 can apply the scientific method to critically analyze and interpret medical images. They can select and use appropriate software tools for image data analysis, forming reliable conclusions based on this data. They can identify and assess uncertainties and limitations in the process of medical image analysis.	[SU2] presentation/project/paper/ report

Subject contents

Fundamentals of medical image analysis obtained using modern radiological techniques. Familiarity with basic image analysis tools and the critical interpretation of the obtained results.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
presentation	51.0%	100.0%

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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