



Subject card

Subject name and code	Advanced methods in radiology, PG_00057884						
Field of study	Mechanical and Medical Engineering						
Date of commencement of studies	February 2024	Academic year of realisation of subject			2024/2025		
Education level	second-cycle studies	Subject group					
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			1.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		Anna Marcinkowska				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	0.0	0.0	15.0	15
	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	15		0.0		0.0	15
Subject objectives	Introduction to imaging methods used in the diagnosis of various human anatomical areas. Presentation of the diagnostic possibilities of individual imaging methods - indications and contraindications, advantages and disadvantages of examinations, protection against radiation, safety of examinations and the physical basis of the imaging techniques discussed.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_W09] He/she in-depth knowledge related to diagnosis techniques and medical procedures in the scope of the field of study of mechanical-medical engineering		She/He has in-depth knowledge of diagnostic techniques and medical procedures in the field of radiology.		[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge		
	[K7_U13] He/she uses in-depth knowledge related to the diagnoses techniques and medical procedures in the scope of the field of study of mechanical-medical engineering		She/He can use in-depth knowledge of diagnostic techniques and medical procedures in the field of radiology.		[SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment		
Subject contents	<p>The following imaging techniques will be discussed during the course:1. Classic X-ray examinations - basics of physics, types of apparatus, indications and contraindications for examinations,2. Ultrasonography - physical basics, types of apparatus and transducers, methods of examination, projections, indications and contraindications for examinations,3. Forms of recording and archiving imaging tests,4. Computed tomography - basics of physics, types of apparatus, image formation, Hounsfield scale, reconstructions, indications and contraindications for research,5. Nuclear magnetic resonance tomography - basics of physics, apparatus construction, image formation, artifacts, reconstructions, indications and contraindications for research, imaging sequences6. Elements of radiological protection and safety of individual tests7. Contrasting agents used in radiology</p>						
Prerequisites and co-requisites	Basic knowledge of physics						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Completion of a term paper based on a selected scientific article concerning radiology.	60.0%	100.0%
Recommended reading	Basic literature	Anatomia radiologiczna - RTG, TK, MR, USG, SC - Bohdan Daniel, Bogdan Pruszyński, PZWL Wydawnictwo Lekarskie	
		From Picture to Proton - Donald W. McRobbie, Elizabeth A. Moore, Martin R Prince, Martin J. Graves, wyd. 3, Cambridge University Press	
	Supplementary literature	Anatomia radiologiczna - RTG, TK, MR, USG, SC - Bohdan Daniel, Bogdan Pruszyński, PZWL Wydawnictwo Lekarskie	
		From Picture to Proton - Donald W. McRobbie, Elizabeth A. Moore, Martin R Prince, Martin J. Graves, wyd. 3, Cambridge University Press	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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