



## Subject card

Subject name and code	Radiology, PG_00057488						
Field of study	Mechanical and Medical Engineering						
Date of commencement of studies	February 2023	Academic year of realisation of subject			2022/2023		
Education level	second-cycle 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			4.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Faculty of Mechanical Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		Anna Glińska				
	Teachers		Anna Glińska				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	15.0	45
	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	45		10.0		45.0	100
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_U12] He/she uses augmented knowledge referring to the medical physics and imagine diagnoses in the scope of the field of study of mechanical-medical engineering		She/he uses the acquired knowledge to create new solutions to improve the work of medical units, can talk about the applications of the apparatus in question.		[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject		
	[K7_W02] He/she has in-depth knowledge related to the medical physics and imagine diagnoses in medicine		She/he has in-depth knowledge of the structure and principles of operation of medical equipment.		[SW1] Assessment of factual knowledge		
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
	colloquium	60.0%	70.0%
	presentation	50.0%	30.0%
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		