GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Radiology, PG_00065011		
Field of study	Mechanical and Medical Engineering		
Date of commencement of studies	February 2025	Academic year of realisation of subject	2024/2025
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	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	Anna Glińska	
	Teachers		

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	8.0	22.0	75

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_W01] describes constructions of medical devices and their functioning on the base of knowledge related to the medical engineering	She/he has in-depth knowledge of the structure and principles of operation of medical equipment.	[SW1] Assessment of factual knowledge
[K7_U03] uses knowledge related to diagnostic techniques, medical and rehabilitation procedures, anatomy and physiology to formulate assumptions referring to design and research procedures	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

Subject contents

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

Prerequisites and co-requisites

Basic knowledge of physics

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>presentation</td><td>50.0%</td><td>30.0%</td></tr>
<tr><td>colloquium</td><td>60.0%</td><td>70.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>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</td></tr>
<tr><td>Supplementary literature</td><td>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</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2"></td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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