GDAŃSK UNIVERSITY OF TECHNOLOGY

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 2026	Academic year of realisation of subject	2026/2027
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	Patrycja Naumczyk	
	Teachers		

Lesson types

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_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 can use in-depth knowledge of diagnostic techniques and medical procedures in the field of radiology.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information
[K7_W02] has structured and well-founded knowledge covering fundamental issues in the field of medical sciences allowing to design medical devices, rehabilitation systems and to formulate research procedures	She/He has in-depth knowledge of diagnostic techniques and medical procedures in the field of radiology.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects

Subject contents

Course content – seminar

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>Completion of a term paper based on a selected scientific article concerning radiology.</td><td>60.0%</td><td>100.0%</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></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2"></td></tr>
<tr><td>Practical activites within the subject</td><td colspan="2">Not applicable</td></tr>
</table>

Document generated electronically. Does not require a seal or signature.