



RADIOLOGY

1. IMPRINT	
Academic Year	2020/2021
Department	Diagnostic Ultrasound
Field of study	Diagnostic Imaging
Main scientific discipline <i>(in accord with appendix to the Regulation of Minister of Science and Higher education from 26th of July 2019)</i>	MD
Study Profile <i>(general academic / practical)</i>	General academic
Level of studies <i>(1st level /2nd level/ uniform MSc)</i>	Uniform MSc
Form of studies	stationary
Type of module / course <i>(obligatory / non-compulsory)</i>	obligatory
Form of verification of learning outcomes <i>(exam / completion)</i>	exam
Educational Unit / Educational Units <i>(and address / addresses of unit / units)</i>	4 ECTS

Head of Educational Unit / Heads of Educational Units	Assoc Prof Rafał Słapa MD, PhD
Course coordinator (title, First Name, Last Name, contact)	Assoc Prof Bartosz Migda MD, PhD
Person responsible for syllabus (First name, Last Name and contact for the person to whom any objections concerning syllabus should be reported)	Assoc Prof Rafał Słapa MD, PhD
Teachers	Dr hab. n. med. Rafał Słapa, Prof. dr hab. n. med. Iwona Sudoł-Szopińska, Prof. dr hab. n. med. Wiesław Jakubowski, Dr hab. n. med. Bartosz Migda, Lek. med. Maciej Jakuciński, Dr n. med. Anna Lewicka, Dr n. med. Andrzej Lewicki, Dr n. med. Ewa Białek, Lek. med. Dominika Jaguś, Lek. med. Dominik Nguyen, Lek. med. Remigiusz Krysiak, Lek. med. Maciej Jędrzejczyk.

2. BASIC INFORMATION

Year and semester of studies	2020/2021 winter	Number of ECTS credits	4.00
FORMS OF CLASSES		Number of hours	ECTS credits calculation
Contacting hours with academic teacher			
Lecture (L)			
Seminar (S)			
Discussions (D)			
e-learning (e-L)		63	2,4
Practical classes (PC)		4	0,2
Work placement (WP)			
Unassisted student's work			
Preparation for classes and completions		33	1,4

3. COURSE OBJECTIVES

O1	To acquaint students with conventional X-ray and ultrasound examinations.
O2	To acquaint students with modern advanced imaging techniques MR, CT.
O3	To teach students the basic skills to perform ultrasound which is the stethoscope of contemporary physician.

4. STANDARDS OF LEARNING – DETAILED DESCRIPTION OF EFFECTS OF LEARNING <i>(concerns fields of study regulated by the Regulation of Minister of Science and Higher Education from 26 of July 2019; does not apply to other fields of study)</i>	
A.U4.	Deduce on the relation between the anatomical structures on the basis of in vivo diagnostic tests, particularly in the scope of radiology (ultrasound, x-ray, imaging with contrast agents, computed tomography and magnetic resonance imaging)
B.W8.	Physical rudiments of non-invasive imaging methods
B.U2.	To evaluate the harmfulness of ionizing radiation dose and apply the radiation protection rules
F.W10.	Issues concerning contemporary applied imaging tests, particularly: <ol style="list-style-type: none"> 1) Radiological symptomatology of basic diseases, 2) Instrumental methods and imaging techniques applied for medical procedures, 3) Indications, contraindications and preparation of the patient for individual types of imaging examinations and contraindications for contrast agents application;
F.U7.	Evaluate the result of imaging examination in regard to the most common types of fractures, especially fractures of long bones;
Knowledge – Graduate* knows and understands:	

G.K1	fizyczne podstawy nieinwazyjnych metod obrazowania
G.K2	Issues concerning contemporary applied imaging tests, particularly: <ol style="list-style-type: none"> 1) Radiological symptomatology of basic diseases, 2) Instrumental methods and imaging techniques applied for medical procedures, 3) Indications, contraindications and preparation of the patient for individual types of imaging examinations and contraindications for contrast agents application;

Skills– Graduate* is able to:

G.S1	Deduce on the relation between the anatomical structures on the basis of in vivo diagnostic tests, particularly in the scope of radiology (ultrasound, x-ray, imaging with contrast agents, computed tomography and magnetic resonance imaging)
G.S2	To evaluate the harmfulness of ionizing radiation dose and apply the radiation protection rules
G.S3	Evaluate the result of imaging examination in regard to the most common types of fractures, especially fractures of long bones;
G.S4	Getting acquainted with the issues concerning contemporary applied imaging tests, acquires the basic of practical skill to use the contemporary stethoscope – ultrasonography.

* In appendix to the Regulation of Minister of Science and Higher education from 26th of July 2019 „graduate”, not student is mentioned.

5. ADDITIONAL EFFECTS OF LEARNING (non-compulsory)

Number of effect of learning	Effects of learning i time
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Knowledge – Graduate knows and understands:

K1	
K2	

Skills– Graduate is able to:

S1	
S2	

Social Competencies – Graduate is ready for:

SC1	
SC2	

6. CLASSES

Form of class	Class contents	Effects of Learning
e-L, PC	SEMINARS (e-learning) S1: Introduction to medical imaging (Physics!) Hazards and precautions in medical imaging	

<p>Effects of Learning: G.K1, G.K2, G.S1, G.S2, G.S3, G.S4</p>	<p>(contrast media, radiation hazards, MRI issues)</p> <p>S2: Cardiovascular system. Emergencies in cardiovascular system</p> <p>S3: Head and Neck (soft tissues, glands in the neck, cervical spine).</p> <p>S4: Breast imaging (US, Mammography, MRI)</p> <p>S5: Central nervous system + spinal cord. Emergencies in CNS</p> <p>S6: Radiological Anatomy (abdominal cavity in CT, MRI). Pathologies in abdominal cavity in CT, MRI</p> <p>S7: Female reproductive system. Emergencies in female reproductive system</p> <p>S8: How to read and abdomen X -ray. Gastrointestinal tract. Acute abdomen. Emergencies in GI tract</p> <p>S9: Musculoskeletal system. Skeletal trauma</p> <p>S10: How to read chest X-ray. Diagnostic of the chest. Emergencies in the chest</p> <p>S11: Urinary tract and the male reproductive system. Emergencies in urinary tract and male reproductive system</p> <p>S12: Diagnostic algorithm in oncology</p> <p>S13: Vascular System (peripheral arteries and veins, thoracic and abdominal aorta in US, CT, MRI). Emergencies in vascular diseases</p> <p>S14: Radiological anatomy (abdominal cavity in US). Pathologies in abdominal cavity in US</p> <p>S15: Multiorgan Trauma</p> <p>WORKSHOPS (e-learning & in the Bródnowski hospital)</p> <p>W1: Workshop ultrasound 1: scanner, settings, types of images and artefacts</p> <p>W2: Workshop ultrasound 2: Cases</p> <p>W3: Workshop CT</p> <p>W4: Workshop MRI</p> <p>LECTURES (e-learning)</p> <p>L1: Imaging in Rheumatology</p> <p>L2: Imaging of Respiratory System</p> <p>L3. Imaging of Endocrine Glands - selected issues -</p> <p>L4. Imaging of Genito-urinary System</p>	
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	L5: Imaging of the Breasts	
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7. LITERATURE
Obligatory
<ol style="list-style-type: none"> 1. D. Lisle Imaging for Students. Hodder Education, 2007. 2. Gibson R, et al.: Essential Medical Imaging. Cambridge University Press, 2009. 3. Brant William E., Helms Clyde A.; Fundamentals of diagnostic radiology; Lippincott Williams & Wilkins, 2006.
Supplementary
<ol style="list-style-type: none"> 1. Daffner R., et al.: Clinical Radiology. Lippincott Williams & Wilkins, 2007. 2. Vilensky J. et al.: Medical Imaging of Normal and Pathologic Anatomy. WB Saunders Company, 2010. 3. Suetens P.: Fundamentals of Medical Imaging, Cambridge University Press, 2009.

8. VERIFYING THE EFFECT OF LEARNING		
Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion
G.K1, G.K2, G.S1, G.S2, G.S3, G.S4	test	pass an exam, >59%

9. ADDITIONAL INFORMATION <i>(information essential for the course instructor that are not included in the other part of the course syllabus e.g. if the course is related to scientific research, detailed description of, information about the Science Club)</i>
<ol style="list-style-type: none"> 1) The final exam consists of multiple choice questions (only one answer correct). 2) Students who failed the Final Exam are obliged to retake the test. 3) The final scores of the final exam are not changeable. 4) The scores of the failed final exam and the retake will be confirmed by a signature in the Student Book as two separated scores but not as the mean of these two.