

## DESCRIPTION OF THE COURSE OF STUDY

<b>Course code</b>	<b>0912-7LEK-C6.13-PO</b>	
<b>Name of the course in</b>	Polish	<b>Diagnostyka obrazowa</b>
	English	<b>Diagnostic imaging</b>

### 1. LOCATION OF THE COURSE OF STUDY WITHIN THE SYSTEM OF STUDIES

<b>1.1. Field of study</b>	Medicine
<b>1.2. Mode of study</b>	Full-time
<b>1.3. Level of study</b>	Uniform Master's studies
<b>1.4. Profile of study*</b>	Practical
<b>1.5. Specialization*</b>	Lack
<b>1.6. Unit running the course of study</b>	Faculty of Medicine and Health Sciences
<b>1.7. Person/s preparing the course description</b>	dr n. med. Michał Spalek
<b>1.8. Person responsible for the course of study</b>	dr n. med. Michał Spalek
<b>1.9. Contact</b>	Wnoz_inm@ujk.edu.pl

### 2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

<b>2.1. Affiliation with the module</b>	Practical clinical sciences
<b>2.2. Language of instruction</b>	English
<b>2.3. Semesters in which the course of study is offered</b>	8 <sup>th</sup> semester
<b>2.4. Prerequisites*</b>	Knowledge of anatomy and biophysics in the scope of curriculum and undergraduate degree-level exam / final passing of anatomy, biophysics

### 3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

<b>3.1. Form of classes</b>	lecture – 15, classes – 15, practical classes - 25	
<b>3.2. Place of classes</b>	lecture - Courses in the teaching rooms of the UJK classes – Courses in the teaching rooms of the UJK as well as Świętokrzyskie Oncology Center practical classes - Courses in the teaching rooms of the UJK as well as Świętokrzyskie Oncology Center	
<b>3.3. Form of assessment</b>	lecture – exam, classes – credit with grade, practical classes – credit with grade	
<b>3.4. Teaching methods</b>	lecture–informative lecture with oral transmission of knowledge and use of visual means, demonstration, conversational lecture, didactic discussion connected with the lecture classes- conversational lecture, discussion connected with the lecture, demonstration with the description practical classes - case study	
<b>3.5. Bibliography</b>	<b>Required reading</b>	<ol style="list-style-type: none"> <li>Learning Radiology: Recognizing the Basics 3rd Edition 2015. William Herring, MD</li> <li>Imaging for Students Fourth Edition, 2012 by David A. Lisle.</li> </ol>
	<b>Further reading</b>	<ol style="list-style-type: none"> <li>Fundamentals of Diagnostic Radiology 2012; Authors: William E Brant MD; Clyde Helms MD</li> <li>Netter's Introduction to Imaging, 1st Edition, 2011; Authors: Larry R. Cochard&amp; Lori A Goodhartz&amp; Carla Harmath&amp; Nancy M. Major &amp; Srinivasan Mukundan</li> </ol>

#### 4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED TEACHING OUTCOMES

##### 4.1. Course objectives *(including form of classes)*

Lecture, Classes and Practical Classes

Introduction to:

- modern diagnostic methods and clinical application,
- the principles of commission and prepare the patient for various diagnostic imaging,
- the indications and contraindications for various diagnostic imaging methods and principles of the use of contrast agents,
- the principles of evaluation and interpretation of images and test results,
- the basic issues in the field of interventional radiology,
- the basic issues in the field of radiobiology and radiation protection.

##### 4.2. Detailed syllabus *(including form of classes)*

###### Lectures

- Physical and technical basics of modern methods of diagnostic imaging: ultrasound, magnetic resonance imaging (MRI), positron emission tomography / computed tomography (PET / CT) and X-ray, including mammography and computed tomography (CT).
- Essential issues of radiobiology and radiation protection. Types of ionizing radiation.
- Diagnostic imaging methods safety. Contrast agents. Indications and contraindications for various diagnostic imaging methods and apply appropriate contrast agents. Adverse reactions.
- Commission and preparing a patient for various diagnostic imaging. Evaluation of the picture obtained. Rules for the interpretation of the results of individual diagnostic imaging.
- Interventional radiology and obstetrics imaging

###### Classes

- Chest Imaging – techniques, effectiveness, patient preparation, radiological anatomy of organs and symptomatology.
- Cardiac Imaging – techniques, effectiveness, patient preparation, radiological anatomy of organs and symptomatology.
- Gastrointestinal Imaging – techniques, effectiveness, patient preparation, radiological anatomy of organs and symptomatology.
- Genitourinary Imaging – techniques, effectiveness, patient preparation, radiological anatomy of organs and symptomatology.
- Musculoskeletal Imaging – techniques, effectiveness, patient preparation, radiological anatomy of organs and symptomatology.
- Neurologic Imaging – techniques, effectiveness, patient preparation, radiological anatomy of organs and symptomatology.
- Head and Neck Imaging - techniques, effectiveness, patient preparation, radiological anatomy of organs and symptomatology.
- Vascular Imaging – techniques, effectiveness, patient preparation, radiological anatomy of organs and symptomatology.
- Pediatric Imaging – techniques, effectiveness, patient preparation, radiological anatomy of organs and symptomatology.
- Breast Imaging – techniques, effectiveness, patient preparation, radiological anatomy of organs and symptomatology.

- Pediatric Imaging – techniques, effectiveness, patient preparation, radiological anatomy of organs and symptomatology.

**Practical classes:**

- selected lung, bronchial, mediastinal, pleural and chest wall disorders in diagnostic imaging
- selected esophagus, stomach, duodenum and small bowel, colon, liver, pancreas, biliary system, spleen, peritoneum and abdominal wall diseases in diagnostic imaging
- selected kidneys, bladder, urethra, retroperitoneum, male and female pelvis disorders in diagnostic imaging
- selected esophagus, stomach, duodenum and small bowel, colon, liver, pancreas, biliary system, spleen, peritoneum and abdominal wall diseases in diagnostic imaging
- selected congenital and acquired heart diseases in diagnostic imaging
- selected disorders of bones, joints and muscles in diagnostic imaging
- selected disorders of the brain and the spinal cord in diagnostic imaging
- selected temporal bone, orbit, pharynx, larynx, sinuses, nasal cavity, oral cavity and salivary glands diseases in diagnostic imaging
- selected vascular diseases in diagnostic imaging
- selected diseases of the breast in diagnostic imaging
- selected diseases in pediatric diagnostic imaging

**4.3. Education outcomes in the discipline**

Code	A student, who passed the course	Relation to teaching outcomes
within the scope of <b>KNOWLEDGE</b> , the graduate knows and understands:		
W01	the basic ways of diagnosis and treatment of the fetus;	E.W5.
W02	environmental and epidemiological conditions for the most common diseases;	E.W1.
W03	eligibility rules for basic surgeries, invasive diagnostic and treatment procedures, principles concerning conducting these procedures and most common complications;	F.W3.
W04	the issues concerning modern imaging tests, in particular: 1) radiological symptomatology of basic diseases, 2) instrumental methods and imaging techniques used to perform medical procedures, 3) the indications, contraindications and preparation of patients to particular types of imaging tests and contraindications the use of contrast agents;	F.W10.
W05	the causes, symptoms, principles of diagnosis and therapeutic procedures for the most frequent diseases of the central nervous system in terms of: 1) a swelling of the brain and its consequences, with particular emphasis on the states of emergency, 2) other forms of intracranial narrowness of their consequences, 3) cranio-cerebral injuries 4) vascular malformations of the central nervous system, 5) tumors of the central nervous system, 6) diseases of the spine and spinal cord;	F.W13.
within the scope of <b>ABILITIES</b> , the graduate knows how to:		
U01	makes conclusions as to the relationship between anatomical structures on the basis of intravital diagnostic tests, in particular in the field of radiology (plain images, tests using contrast agents, CT scans and magnetic resonance imaging);	A.U4.
U02	assess harmful ionizing radiation dose and adhere to the principles of radiation protection;	B.U2.
U03	comply with the aseptic and antiseptic rules;	F.U3.

4.4. Methods of assessment of the intended teaching outcomes																					
Teaching outcomes (code)	Method of assessment (+/-)																				
	Exam written (test) – practical and theoretical parts			Test*			Project*			Effort in class*			Self-study*			Group work*			Others* Final passing out written and practical parts		
	Form of classes			Form of classes			Form of classes			Form of classes			Form of classes			Form of classes					
	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...	L	C	PC
W01	X																		X	X	
W02	X																		X	X	
W03	X																		X	X	
W04	X																		X	X	
W05	X																		X	X	
within the scope of <b>ABILITIES:</b>																					
U01	X																		X	X	
U02	X																		X	X	
U03	X																		X	X	

\*delete as appropriate

4.5. Criteria of assessment of the intended teaching outcomes		
Form of classes	Grade	Criterion of assessment
lecture (L)	3	Acquiring 51- 60% of possible points
	3,5	Acquiring 61- 70% of possible points
	4	Acquiring 71- 80% of possible points
	4,5	Acquiring 81- 90% of possible points
	5	Acquiring 91- 100% of possible points
classes (C)*	3	Acquiring 51- 60% of possible points
	3,5	Acquiring 61- 70% of possible points
	4	Acquiring 71- 80% of possible points
	4,5	Acquiring 81- 90% of possible points
	5	Acquiring 91- 100% of possible points
Practical classes*	3	Acquiring 51- 60% of possible points
	3,5	Acquiring 61- 70% of possible points
	4	Acquiring 71- 80% of possible points
	4,5	Acquiring 81- 90% of possible points
	5	Acquiring 91- 100% of possible points

**5. BALANCE OF ECTS CREDITS – STUDENT’S WORK INPUT**

Category	Student's workload
	Full-time studies
<i>NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER /CONTACT HOURS/</i>	<b>55</b>
<i>Participation in lectures*</i>	<b>15</b>
<i>Participation in classes, seminars, laboratories*</i>	<b>40</b>
<i>Preparation in the exam/ final test*</i>	
<i>Others*</i>	
<i>INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/</i>	<b>20</b>
<i>Preparation for the lecture*</i>	<b>5</b>
<i>Preparation for the classes, seminars, laboratories*</i>	<b>10</b>
<i>Preparation for the exam/test*</i>	<b>5</b>
<i>Gathering materials for the project/Internet query*</i>	
<i>Preparation of multimedia presentation</i>	
<i>Others*</i>	
<b>TOTAL NUMBER OF HOURS</b>	<b>75</b>
ECTS credits for the course of study	<b>3</b>

**Accepted for execution** (date and signatures of the teachers running the course in the given academic year)

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