INFORMATION ABOUT THE COURSE

Imaging diagnostics

1. Basic information

Field of studies field of medical and health sciences, discipline: medical sciences **Unit responsible for the field of studies** Faculty of Medicine Bydgoszcz University of Science and Technology **Level of studies** Uniform master's studies **Profile of studies** General academic **Form of studies** Full-time	**Studies cycle** …….. **Course code** 17-EMS-IDI-SP1 **Language** English **Obligatory** Yes

Prerequisites	Basic Anatomy: Students must have a detailed knowledge of human anatomy, including knowledge of anatomical structures that are important in diagnostic imaging. Basic Physiology: Students must understand the basic physiological processes occurring in the body to correctly interpret the results of imaging studies. Basic Pathophysiology: Students should know the basic disease processes to be able to identify pathological changes in imaging studies. Basic Biophysics: Students must have a knowledge of the basics of biophysics, including the principles of operation of diagnostic devices. Verification of prerequisites in the form of entrance tests.
Introductory courses	Anatomy, Physiology with clinical physiology, Pathophysiology, Biophysics
Coordinator	Prof. Zbigniew Serafin

Study period	**Form of assessment** **Form and hours of classes**	**ECTS credits**
Winter semester	Passing with a grade Lecture 30h Exercise 30h	4.0

2. Learning outcomes

Code	**Description of learning outcomes**	**Learning outcomes reference**
Knowledge (student knows and understands):		
K1	The student knows and understands the diagnostic procedures appropriate for specific disease states.	O.W3.
K2	The student knows and understands the issues of currently used imaging examinations, in particular: 1) radiological symptomatology of basic diseases, 2) instrumental methods and imaging techniques used to perform medical procedures, 3) indications, contraindications and preparation of the patient for individual types of imaging examinations and contraindications to the use of contrast agents	F.W17

K3	knows and understands the principles of diagnosis in the case of the most common diseases requiring surgical treatment in adults: 1) acute and chronic diseases of the abdominal cavity 2) diseases of the chest 3) diseases of the limbs, head and neck 4) bone fractures and organ injuries 5) tumors	F.W1.
K4	Knows the structure of the human body based on diagnostic tests, in particular, general images, ultrasound images, computed tomography and magnetic resonance imaging	O.W1.
K5	Knows the principles of performing an ultrasound examination (USG) and the basic principles of performing fine- and core needle biopsy	F.W3.
Abilities (student can do/perform):		
A1	The student is able to plan a diagnostic procedure and interpret its results.	O.U3.
A2	The student is able to evaluate the results of radiological examination in terms of the most common types of fractures, especially fractures of long bones.	F.U5.
A3	The student is able to recognize the most common life-threatening conditions, including the use of various imaging techniques.	F.U4.
Social skills (the student is ready to):		
S1	The student notices and recognizes his/her own limitations and makes a self-assessment of educational deficits and needs.	O.K5.
S2	The student is ready to draw conclusions based on his/her own measurements or observations.	O.K8.

3. Programme contents

No.	Programme contents	Form of studies	Learning outcomes covered by the programme content
1	Outline of the history of imaging diagnostics. Theoretical foundations of imaging studies; construction, operation, imaging systems and application of imaging diagnostics equipment; radiobiology; contrast agents used in imaging studies; indications for imaging studies and basics of their interpretation; atomic law	Lecture	K1, K2, K3, K4, K5
2	Diagnostics of the central nervous system with particular emphasis on emergency conditions, trauma and oncology	Lecture, Exercise	K1, K2, A1
3	Basics of nuclear medicine	Lecture, Exercise	K1, K2, K3, A1
4	Reactive or metastatic lymph nodes - possibilities and limitations of imaging diagnostics	Lecture	K1, K2, K4, K5

5	Application of imaging tests, qualification (indications and contraindications), contrast agents and contraindications to their use, interpretation of test results in individual locations: 1. Head and neck - CNS, eye socket, temporal bone, nasal cavity and paranasal sinuses, oral cavity, pharynx and larynx, thyroid 2. Chest - lungs and pleura, mediastinum, esophagus, diaphragm, mammary gland 3. Abdominal cavity - stomach and duodenum, small and large intestine, liver, gallbladder and bile ducts, pancreas, spleen 4. Urinary system - kidneys, adrenal glands, retroperitoneal space, female and male reproductive system. 5. Cardiovascular System 6. Interventional Radiology 7. Pediatric Radiology 8. Multiple Organ Injuries 9. Musculoskeletal System 10. Spinal Canal and Spinal Cord 11. Ultrasonography - Abdominal and Pelvic Organs 12. Pediatric Radiology and Multiple Organ Injuries	Exercise	K1, K2, K3, K4, K5, A1, A2, A3, S1, S2

4. Methods of verifying and assessing the learning outcomes achieved by the student

Winter semester

Form of studies		
Lecture	**Methods of studies form:**	
	Lecture, Discussion	
	Methods of verification:	**Involvement:**
	Written test	100%
	Conditions for passing the course:	
	The condition for passing the course is to obtain a positive grade from the written test. The test will cover the issues discussed during lectures. The test will include theoretical questions, practical tasks and case analysis, consistent with the topics covered in class.	
Exercise	**Methods of studies form:**	
	Laboratory exercise, Clinical exercise	
	Methods of verification:	**Involvement:**
	Written test	80%

	Observation	20%
	Conditions for passing the course:	
	The condition for passing the subject is to obtain a positive grade in the written test. The test will cover the issues discussed during the exercises. The test will include theoretical questions, practical tasks and case analysis, consistent with the topics discussed in class.	

Learning outcomes	**Methods of verification**	
	Written test	Observation
K1	X	X
K2	X	X
K3	X	X
K4	X	X
K5	X	X
A1		X
A2		X
A3		X
S1		X
S2		X

5. Student workload – balance of hours and ECTS credits

Students activity		**Student workload Number of hours**
Classes conducted with the direct participation of an academic teacher or other persons conducting classes	Lecture	30
	Exercise	30
Student's own work	Preparing for classes	15
	Studying literature	15
	Preparing for a test	15
Total student workload		105
ECTS		4

One (teaching) hour is 45 minutes.

6. Literature

The list of required and recommended literature will be provided by the lecturer at the first meeting.