UNIVERSITY OF WARMIA AND MAZURY IN OLSZTYN
Faculty of Medicine

48SJ-DI12
ECTS: 1.28
CYCLE: 2022L

Course sylabus – part A
Diagnostic Imaging 1/2

SUBJECT MATTER CONTENT

CLASSES
Repetition of knowledge of radiological and clinical anatomy. Introduction and general information in the field of diagnostic imaging. Acquainted with the organization and functioning of the different lab in radiology department: X-ray, ultrasound, CT and MRI lab. The scope of different examinations methods performed in laboratories like radiography (X-rays), ultrasound, CT and MRI, and interpretation of images based on selected disease. Recognition of the normal anatomical structures of the chest and their variations and technically correct chest X-ray. Diagnostic imaging of selected diseases of lung, pleura and mediastinal organs - the interpretation of particular images in the field of radiology classic chest X-ray and CT studies in the field of diseases of the chest. Diagnostic imaging of selected diseases of the liver, biliary tract, pancreas and stomach, XII-old, small intestine, colon and rectum, in the particular images of classical radiology X-ray, CT and MRI - interpretation of certain radiological images. Radiological features of obstruction, bowel perforation, and nodular changes of the gastrointestinal tract.

LECTURE
Introduction to diagnostic imaging, selected methods of diagnostic imaging e.g. X-ray, MMG, ultrasound and CT and MRI. Radiation protection. How to prepare the patient for examination using different radiological diagnostic methods. Contrast media for radiology. Hospital Information Systems. Teleradiology. Diagnostic imaging of the chest on the basis of selected diseases: radiography and basic symptoms in the diagnosis of selected diseases of the chest. Diagnostic imaging in selected diseases of the mediastinum. Diagnostic imaging in selected diseases of the abdominal cavity, using different diagnostic imaging technique: classical radiology, CT and MRI.

SEMINAR
Understanding of the fundamentals of anatomy and identification of the correct structures of the chest and abdomen in CT images. Diagnostic imaging of selected diseases of the chest including the lung and pleura. Differentiation between disease alveolar and interstitial lung diseases. Recognition of pneumonia. Recognition and differentiation of edema, atelectasis and pleural fluid in the cavities and the pericardial cavity. Lung cancer - radiological signs, recognizing, differential diagnosis . Recognizing the fundamental heart disease. Recognition and interpretation of anomalies in the diagnosis image of the abdominal cavity with particular reference to selected diseases of the liver, biliary tract and pancreas, stomach, XII months, small intestine, colon and rectum.

TEACHING OBJECTIVE
Preparing student to recognize and understand different modern imaging methods in radiology, taking into account the physical and technical basis of selected imaging tests. Prepare the student to interpret the basic physical phenomena used in radiology and diagnostic imaging, and to

recognize some basic and symptoms as well as pathology in the diagnosis of specific diseases of the chest and abdomen based on the selected imaging. Shaping the professional attitudes of students focusing on patient needs, possibilities of cooperation in an interdisciplinary team and an indication of the possibility of deepening and updating the knowledge of radiology and diagnostic imaging.

DESCRIPTION OF THE LEARNING OUTCOMES OF THE COURSE IN RELATION TO THE DESCRIPTION OF THE CHARACTERISTICS OF THE SECOND LEVEL LEARNING OUTCOMES FOR QUALIFICATIONS AT LEVELS 6-8 OF THE POLISH QUALIFICATION FRAMEWORK IN RELATION TO THE SCIENTIFIC DISCIPLINES AND THE EFFECTS FOR FIELDS OF STUDY:

Symbols for outcomes related to the discipline:	M/NMA_P7S_UW+, M/NM+++, M/NMA_P7S_WG+
Symbols for outcomes related to the field of study:	K.2.+, KA7_WG2+, B.U2.+, K.3.+, K.1.+, KA7_UW3+, F.W10.+, A.U4.+

LEARNING OUTCOMES:
Knowledge:
W1 – Graduate knows and understands: F.W10. the problems of currently used imaging tests, 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 particular types of imaging tests and contraindications to the use of contrast agents;
W2 – Graduate knows and understands: KA7_WG2 knows the physical basics of selected imaging techniques in medicine and the principles of radiological protection, including radioisotope, functional diagnostics and structural diagnostics in nuclear medicine
W3 – Graduate knows and understands: KA7_WG1. human body structure based on vital diagnostic examinations, in particular x-rays, ultrasound images, computed tomography and magnetic resonance imaging;
Skills:
U1 – Graduate can: KA7_UW3 applies to the rules of radiological protection, draws conclusions about the presence of a pathological process on the basis of selected imaging tests, carries out differential diagnosis
U2 – Graduate can: B.U2. assess the harmfulness of ionizing radiation dose and follow the rules of radiation protection;
U3 – Graduate can: make conclusions about the relationships between anatomical structures on the basis of vital diagnostic examination, in particular in the field of radiology (radiological examinations, examinations with the use of contrast agents, computed tomography and nuclear magnetic resonance);
Social competence:
K1 – Graduate has the ability to: K.1. building and maintaining a deep and respectful contact with the patient, as well as showing understanding for worldview and cultural differences;
K2 – Graduate has the ability to: K.2. be guided by the good of the patient;
K3 – Graduate has the ability to: K.3. observes medical confidentiality and patient rights

TEACHING FORMS AND METHODS:

Classes(W1;W2;W3;U1;U2;U3;K1;K2;K3;):Analysis and interpretation of

selected imaging examinations

**FORM AND CONDITIONS OF VERIFYING LEARNING OUTCOMES:**
Classes: Competention test - Evaluation of the work and cooperation in the group - Skills assessment discussion and cooperation in the group including the assessment of the various methods and skills during analysis of various clinical cases test. Final test with 20 clinical cases in the form of OSCE using multimedia methods, Passing from 60% (W1;W2;W3;U1;U2;U3;);

BASIC LITERATURE:
1. Lange S. Walsh G.Herring William., *Learning Radiology, 2nd Edition. Recognizing the Basics* ., Wyd. Elsevier, R. 2011, s.
2. Geraldine Walsh, Sebastian Langemil Reif , *Radiology of Chest Diseases*, Wyd. Thieme, R. 2007, s.

SUPPLEMENTARY LITERATURE:
1. Richard B. Gunderman, *Essential Radiology: Clinical Presentation, Pathophysiology, Imaging*, Wyd. Thieme, R. 2006, s.
2. William E Brant, Clyde Helms, *Fundamentals of Diagnostic Radiology*, Wyd. LWW, R. 2012, s.
3. Andy Adam, Adrian K. Dixon, Jonathan Gillard, Cornelia Schaefer-Prokop, Ronald G. Grainger, *GRAINGER ALLISON'S DIAGNOSTIC RADIOLOGY 6TH EDITION*, Tom I-II, Wyd. Medipage, R. 2014
1. https://radiopaedia.org/
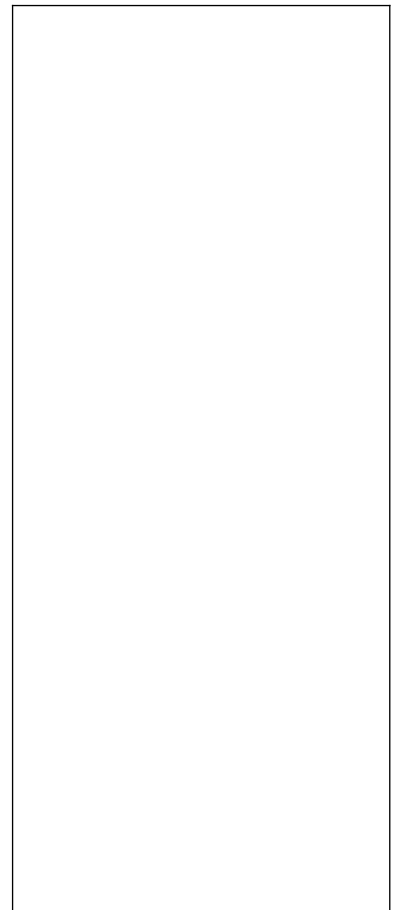
Detailed description of ECTS credits awarded - part B

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The number of ECTS credits awarded consists of:

1. Contact hours with the academic teacher:

- participation in: Lecture	10.0 h
- participation in: Seminar	10.0 h
- participation in: Classes	10.0 h
- consultation	2.0

Total: 32.0 h.

2. Independent work of a student:

Total: 0 h

contact hours + independent work of a student Total: 32.0 h

1 ECTS credit = 25-30 h of an average student's work, number of ECTS credit = 32.0 h : 25.0 h/ECTS = 1.28 ECTS on average: 2.0 ECTS

- including the number of ECTS credits for contact hours with the direct participation of an academic teacher: 0,00 ECTS points,

- including the number of ECTS credits for hours of independent work of a student: