

Course title: DIAGNOSTIC IMAGING 1/2

ECTS credit allocation (and other scores): 2

Semester: spring

Level of study: ISCED-7 - second-cycle programmes (EQF-7)

Branch of science: Medical and health sciences

Language: English

Number of hours per semester: 30

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Type of classes: classes and lectures

Substantive 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.

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.

LECTURES: 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.

Learning purpose: 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.

On completion of the study programme the graduate will gain:



Knowledge: The student know the problems of currently used imaging tests, in particular: a) radiological symptomatology of basic diseases, b) instrumental methods and imaging techniques used to perform medical procedures c) indications, contraindications and preparation of patients for specific types of imaging tests and contraindications to the use of contrast agents. Student knows the physical basics of selected imaging techniques in medicine and the principles of radiological protection, including radioisotope, functional and structural diagnostics in nuclear medicine. The student knows the structure of the human body on the basis of vital diagnostic tests, in particular x-rays, ultrasound images, computed tomography and magnetic resonance imaging.

Skills: The student complies with the principles of radiological protection, draws conclusions about the presence of a pathological process on the basis of selected imaging tests, carries out differential diagnosis. The student assesses the harmfulness of the ionizing radiation dose and complies with the principles of radiological protection. The student draws conclusions about the relationships between anatomical structures on the basis of vital diagnostic tests, in particular in the field of radiology (overview photos, tests with the use of contrast, computed tomography and nuclear magnetic resonance).

Social Competencies: The student can establish and maintain a deep, respectful contact with the sick person. The student is guided by the good of the patient, putting them first. The student observes medical confidentiality and patient rights. The student is aware of his own limitations and the ability to constantly learn.

Basic literature: 1) Lange S. Walsh G.Herring William., Learning Radiology, 2nd Edition. Recognizing the Basics ., wyd. Elsevier, 2011 ; 2) Geraldine Walsh, Sebastian Langemil Reif , Radiology of Chest Diseases, wyd. Thieme, 2017, t. I-III

Supplementary literature: Richard B. Gunderman, Essential Radiology: Clinical Presentation, Pathophysiology, Imaging, wyd. Thieme, 2016 ; 2) William E Brant, Clyde Helms, Fundamentals of Diagnostic Radiology, wyd. LWW, 2012

The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 32

Student's independent work: 18