

**DESCRIPTION OF COURSE UNIT FOR DOCTORAL STUDIES
AT VILNIUS UNIVERSITY**

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|--|---|-----------------|----------------------|-------------------|
| Scientific Area/eas, Field/ds of Science | Medical and Health Sciences (M 000): Medicine (M 001) Natural Sciences (N 000): Biology (N 010) | | | |
| Faculty, Institute, Department/Clinic | Faculty of Medicine Institute of Biomedical Sciences Department of Radiology, Nuclear Medicine and Medical Physics | | | |
| Course unit title (ECTS credits, hours) | Modern Radiological Diagnosis of Tumors 10 credits (265 hours) | | | |
| Study method | Lectures | Seminars | Consultations | Self-study |
| Number of ECTS credits | - | 2 | 2 | 6 |
| Method of the assessment (in 10 point system) | Presentation and evaluation of the report: the report is presented on a target topic, which is coordinated with the coordinating lecturers. Criteria for evaluating the report (minimum score - 5): (a) relevance and novelty of the material submitted (2 points); (b) general structure and scope of the report, clear presentation of the knowledge, reasoning, brevity and specificity (2 points); (c) Summary, presentation and justification of conclusions (1 point); (d) raising problematic issues, presenting the application of the reviewed knowledge in the dissertation (3 points); (e) organization of visual aids, ability to participate in a discussion, management of questions, oratory skills (2 points). | | | |
| PURPOSE OF THE COURSE UNIT | | | | |
| Application of modern radiology (imaging) technologies in the diagnosis of tumors. | | | | |
| THE MAIN TOPICS OF COURSE UNIT | | | | |
| <p><u>General part.</u> Basic principles of radiology imaging in conventional X-ray diagnostics, computed tomography, ultrasound diagnostics, magnetic resonance imaging. Nuclear medicine. Basic methods of radionuclide diagnostics and treatment. Application of radiology technologies in tumor diagnostics. Principles of operation of conventional radiology, ultrasound, computed tomography, magnetic resonance imaging, nuclear medicine equipment and comparative characteristics in oncology patients.</p> <p><u>Special part.</u> Imaging of the bone and joint system. X-ray diagnostics of tumors of the organs of the bone and joint system: classification, stage evaluation, differential diagnosis.</p> <p>Imaging of the respiratory system and the basics of anatomy. Radiological diagnosis of respiratory system tumors, stage evaluation, differential diagnosis. TNM classification.</p> <p>Imaging and basics of anatomy of cardiovascular organs. Radiological diagnosis of cardiovascular tumors.</p> <p>Imaging of the digestive system and the basics of anatomy. Radiological diagnosis of gastrointestinal tumors. Specifics of gastrointestinal metastasis. TNM classification. Follow-up of patients after medical and surgical treatment.</p> <p>Imaging and basics of anatomy of the urogenital system. Radiological diagnosis of urogenital system tumors. Peculiarities of diagnostics of kidneys, ureters, bladder, urethra, prostate, uterine body, cervix, ovarian tumors, stage evaluation, follow-up during treatment.</p> | | | | |

Screening for breast tumors. Methods used for diagnostics, their peculiarities, the main features of diagnostics.
Imaging and basics of anatomy of central and peripheral nervous system organs. Classification, diagnosis, symptoms of nervous system tumors.
Radiological diagnosis of hematological oncological diseases, methods, symptoms, patient follow-up. Evaluation of stages.
Radiological diagnosis and anatomy of oncological diseases of the ear, nose, throat and eyes.
Basics of radiotherapy planning.
The main intervention procedures, diagnostic and therapeutic procedures for oncology patients, their purpose, principles of performance. Interventional radiology: angiographic examinations and procedures, pulmonary interventional examinations and procedures, X-ray contrast examinations and procedures of the nervous system, contrast examinations and procedures of the urological system, contrast examinations and procedures of the gallbladder and bile ducts. Breast interventional procedures
Contrast media for X-rays, MRI and ultrasound. Radiopharmaceuticals for nuclear magnetic resonance imaging. Possible complications and first aid.

RECOMMENDED LITERATURE SOURCES

1. Oncologic Imaging: A Multidisciplinary Approach. Elsevier 2012.
<http://www.sciencedirect.com/science/book/9781437722321#anep1>
2. Learning Radiology: Recognizing the Basics. Elsevier 2015.
<http://store.elsevier.com/Learning-Radiology/William-Herring/isbn-9780323328074/>
3. An introduction to molecular imaging in radiation oncology: A report by the AAPM Working Group on Molecular Imaging in Radiation Oncology (WGMIR).
https://aapm.org/pubs/reports/RPT_255.pdf
4. Lietuvos vėžio registras <https://www.nvi.lt/vezio-registras/>
5. www.eurorad.org
6. www.myesr.org/education/online-services

CONSULTING LECTURERS

1. Coordinating lecturer: Algirdas Edvardas Tamošiūnas (Prof. Dr.).
2. Jūratė Dementavičienė (Assoc. Prof. Dr.).
3. Dileta Valančienė (Assoc. Prof. Dr.).
4. Artūras Samuilis (Assoc. Prof. Dr.).

APPROVED:

By Council of Doctoral School of Medicine and Health Sciences at Vilnius University:
29th of September 2022

Chairperson of the Board: Prof. Janina Tutkuvienė