Federal State Autonomous Educational Institution of Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
NAMED AFTER PATRICE LUMUMBA
RUDN University
Institute of Medicine

educational division (faculty/institute/academy) as higher education programme developer

COURSE SYLLABUS

Radiotherapy of Diseases

course title

Recommended by the Didactic Council for the Education Field of:

31.05.01 General Medicine

field of studies / speciality code and title

The course instruction is implemented within the professional education programme of higher education:

General Medicine

higher education programme profile/specialisation title

2026

1. COURSE GOAL(s)

The course " Radiology of Diseases" is included in the program of the specialty "General Medicine" in the direction of 31.05. 01 "General Medicine" and is studied during the 9th semester of the 5th year. The discipline is implemented by the Department of Oncology and Radiology named after Academician V.P. Kharchenko. The discipline consists of 5 sections and 14 topics , it is aimed at training specialists, in particular computed tomography (CT) and magnetic resonance imaging (MRI).

The purpose of mastering the course is to deepen the competencies of future physicians in the field of radiological diagnostics of diseases of various organs and systems, in particular, using CT and MRI.

2. REQUIREMENTS FOR LEARNING OUTCOMES

The development of the course "Subspecialty Radiology" is aimed at the formation of the following students' competencies (parts of competencies):

Table 2.1. List of competences that students acquire through the course study

Competence code	**Competence**	**Indicators of Competence Formation** (within the framework of this discipline)
PC-2	Capable of conducting a patient examination in order to establish a diagnosis	PC -2.7. Able to carry out differential diagnosis with other diseases/conditions, including urgent ones, as well as to establish a diagnosis taking into account the current International statistical classification of diseases and health-related problems

3. COURSE IN THE HIGHER EDUCATION PROGRAMME STRUCTURE

The course refers to the core/variable/elective* component of (B1) block of the higher educational programme curriculum.

* - Underline whatever applicable.

Within the higher education programme students also master other (modules) and / or internships that contribute to the achievement of the expected learning outcomes as results of the course study.

Table 3.1. The list of the higher education programme components/disciplines that contribute to the achievement of the expected learning outcomes as the course study results

Competence code	**Competence descriptor**	**Previous courses/modules***	**Subsequent courses/modules***

PC-2	Capable of conducting a patient examination in order to establish a diagnosis	Surgical practice: assistant to a surgeon; Obstetric and gynecological practice: assistant to a gynecologist; General surgery; Dermatovenereology; Neurology, medical genetics, neurosurgery; Ophthalmology; Faculty Surgery; Obstetrics and Gynecology; Otorhinolaryngology; Faculty Internal Medicine; Propaedeutics of Internal Diseases; Urology; Medical Enzymology**; Molecular and Genetic Methods; Microbiology, Virology; Immunology; Evidence-Based Medicine; Molecular Genetics in Practical Biology and Medicine**; Radiology; Pathophysiology, clinical pathophysiology; Pathological anatomy, clinical pathological anatomy; Medical elementology;	Obstetrics and Gynecology practice: Assistant to an Obstetrician; General Medicine: Assistant to a Pediatrician; Hospital Therapy; Endocrinology; Outpatient Therapy; Hospital Surgery, Pediatric Surgery; Pediatrics; Obstetrics and Gynecology; Anesthesiology, resuscitation, intensive therapy; Oncology, radiation therapy; Reproductive health; Traumatology, orthopedics; Maxillofacial surgery; General medical skills; Emergency conditions; Infectious diseases; Psychiatry, medical psychology; Allergology; Phthisiology; Endoscopic urology; Telemedicine; Cardiology in quests; Section course; Outpatient pulmonology;

* To be filled in according to the competence matrix of the higher education programme.

4. THE COURSE WORKLOAD AND ACADEMIC ACTIVITIES

The total workload of the discipline "Radiology of Diseases" is 2 credits (72 academic hours).

*Table 4.1. Types of academic activities during the periods of higher education programme mastering (**full-time training**)**

Type of academic activities		**Total academic hours**	**Semesters/training modules**	
			9	
Contact academic hours		*34*	*34*	
including:				
Lectures (LC)				
Lab work (LW)				
Seminars (workshops/tutorials) (S)		*34*	*34*	
Self-studies		*38*	*38*	
Evaluation and assessment (exam/passing/failing grade)				
Course workload	academic hours	**72**	72	

* To be filled in regarding the higher education programme correspondence training mode.

5. COURSE MODULES

Table 5.1. Course contents and academic activities types

Course module title	Course module contents (topics)	Course module title
Section 1 Applications of radiological and radioisotope methods of examinations in the diagnosis of various diseases of bone and soft tissue	1.1 MRI, CT methods in the diagnosis of diseases of the bone system, including the use of artificial intelligence Features of the use of CT and MRI in the diagnosis of bone system diseases, including the use of artificial intelligence technologies. Indications and contraindications. Image analysis	S
	1.2 MRI, CT methods in the diagnosis of diseases of soft tissues, including the use of artificial intelligence Features of the use of CT and MRI in the diagnosis of soft tissue diseases, including the use of artificial intelligence. Indications and contraindications. Image analysis.	S
	1.3 Methods of radionuclide examinations Physical basis of radio-nuclide diagnostics. The role of radio-isotopes in the study of disorders of organs and systems. Indications and contraindications for conducting. Methods of conducting various modes of PET and OFET CT.	S
Section 2. Application of radiological methods in the diagnosis of diseases of the brain and spinal cord	2.1 CT technique Physical basis of CT. The role of CT in the study of the brain and spinal cord. Indications and contraindications for CT. Methods of CT in different modes.	S
	2.2 MRI technique Physical basis of MRI. The role of MRI in the study of the brain and spinal cord. Indications and contraindications for MRI. Methods of MRI in different modes.	S
	2.3 Use of artificial intelligence The role of AI in diagnosing brain and spinal cord diseases based on CT and MRI scans in correctly interpreting images and making diagnoses.	S
Section 3	3.1	S

Application of radiological methods in the diagnosis of chest organ diseases	CT method in the diagnosis of lung and chest diseases, including the use of artificial intelligence The use of CT in the diagnosis of lung and chest diseases. Indications and contraindications. Analysis of the obtained images.	
	3.2 MRI, CT method in the diagnosis of mediastinal organs diseases, including the use of artificial intelligence Application of MRI, CT in the diagnosis of mediastinal diseases. Indications and contraindications. Analysis of the obtained images.	S
	3.3 CT, MRI method in the diagnosis of breast diseases, including the use of artificial intelligence Application of MRI, CT in the diagnosis of breast diseases. Indications and contraindications. Analysis of the obtained images.	S
Section 4. Application of radiological methods in the diagnosis of abdominal diseases	4.1 MRI, CT techniques in the diagnosis of diseases of hollow abdominal organs, including the use of artificial intelligence Application of CT and MRI in the diagnosis of diseases of hollow organs of the abdominal cavity, including the use of artificial intelligence. Indications and contraindications. Image analysis.	S
	4.2 MRI, CT techniques in the diagnosis of diseases parenchymatous abdominal organs, including the use of artificial intelligence Application of CT and MRI in the diagnosis of diseases of the parenchymatous organs of the abdominal cavity, including the use of artificial intelligence. Indications and contraindications. Image analysis.	S
	4.3 MRI, CT techniques in the diagnosis of diseases retroperitoneal organs, including the use of artificial intelligence Application of CT and MRI in the diagnosis of diseases of the retroperitoneal abdominal organs, including the use of artificial intelligence. Indications and contraindications. Image analysis.	S
Section 5. Application of radiological methods in the diagnosis of diseases of the pelvic organs	5.1 MRI and CT techniques in the diagnosis of diseases of the pelvic organs in men, including the use of artificial intelligence. The use of CT and MRI in the diagnosis of pelvic diseases in men, including the use of artificial intelligence. Indications and contraindications. Image	S

	analysis.	
	5.2 MRI and CT techniques in the diagnosis of diseases of the pelvic organs in women, including the use of artificial intelligence. The use of CT and MRI in the diagnosis of pelvic diseases in women, including the use of artificial intelligence. Indications and contraindications. Image analysis.	S

* - to be filled in only for **full** -time training: *LC - lectures; LW - lab work; S - seminars.*

6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENT

Table 6.1. Classroom equipment and technology support requirements

Type of academic activities	**Classroom equipment**	**Specialised educational / laboratory equipment, software, and materials for course study** (if necessary)
Seminar	An auditorium for conducting seminar-type classes, group and individual consultations, ongoing monitoring and interim certification, equipped with a set of specialized furniture and multimedia presentation equipment.	A laptop, a projector, educational videos, diagrams, and tables.
Self-studies (lecture room).	An auditorium for independent work of students (can be used for seminars and consultations), equipped with a set of specialized furniture and computers with access to Electronic Informational-Educational Media.	-
An auditorium at the department's clinical base for conducting laboratory and clinical sessions	An auditorium for conducting laboratory work and clinical sessions, individual consultations, current control, and intermediate attestation, equipped with a set of specialized furniture and equipment.	Laboratory and diagnostic equipment of the department's clinical bases

7. RESOURSES RECOMMENDED SOURCES FOR COURSE STUDY:

Main readings:

1. Лежнев Д. А., Иванова И. В., Егорова Е. А. Основы лучевой диагностики. учебное пособие [Электронный ресурс]. - М. : ГЭОТАР-Медиа, 2022. 128 с. ISBN 978-5-9704-7267-5 URL: https://mega.rudn.ru/MegaPro/UserEntry?Action=Link_FindDoc&id=518424&idb=0
2. Физические основы методов лучевой диагностики : учебное пособие : [16+] / В. Н. Федорова, А. И. Мещеряков, А. Ю. Силин [и др.]. – Москва : Физматлит, 2023. – 229 с. : ил., табл. – Режим доступа: по подписке. – URL: https://biblioclub.ru/index.php?page=book&id=704834 (дата обращения: 21.12.2023). – Библиогр. в кн. – ISBN 978-5-9221-1968-9. – Текст : электронный.
3. Черенков Вячеслав Григорьевич, Манцырев Евгений Олегович. Онкология. учебник : 5-е изд., испр. и доп / под редакцией В.Г. Черенкова [Электронный ресурс]. - М. : ГЭОТАР-Медиа, 2025. 767 с. ISBN 978-5-9704-9393-9 URL: https://mega.rudn.ru/MegaPro/UserEntry?Action=Link_FindDoc&id=525534&idb=0
4. Кармазановский Г. Г., Шимановский Н. Л. Контрастные средства для лучевой диагностики. практическое руководство [Электронный ресурс]. - М. : ГЭОТАР-Медиа, 2022. 672 с. ISBN 978-5-9704-6604-9 URL: https://mega.rudn.ru/MegaPro/UserEntry?Action=Link_FindDoc&id=518441&idb=0

Additional readings:

1. Лучевая диагностика. Учебное пособие, Москва, ГОЭТАР-МЕДИА ,2021г. Ильясова и соавт
2. Лучевая диагностика. Учебник. Под редакцией Г.У. Труфанова Москва. ГОЭТАР-МЕДИА. 2021.-208 с. ISBN 978-5-9704-4419-1/
3. Онкология. учебник [Электронный ресурс] / Янушевич О. О. [и др.]. - М. : ГЭОТАР-Медиа, 2023. 592 с. ISBN 978-5-9704-7436-5 URL: https://mega.rudn.ru/MegaPro/UserEntry?Action=Link_FindDoc&id=518355&idb=0
4. Джалолова Ф.М., Ибрагимова М.С. КОМПЛЕКСНАЯ ЛУЧЕВАЯ ДИАГНОСТИКА В СКРИНИНГЕ РАКА МОЛОЧНОЙ ЖЕЛЕЗЫ // Экономика и социум. 2024. Выпуск номер 4-1 (119), С.1362-1365
5. Коваленко А.А., Кармазановский Г.Г., Кондратьев Е.В. ЛУЧЕВАЯ ДИАГНОСТИКА ОПУХОЛЕЙ И ОПУХОЛЕПОДОБНЫХ ЗАБОЛЕВАНИЙ ЖЕЛЧНОГО ПУЗЫРЯ // Вестник Национального медико-хирургического Центра им. Н. И. Пирогова. 2023. Выпуск номер 2 том 18, С.121-127
6. Глаголев Николай Алексеевич, Огурцов Павел Петрович. Краткая компьютерная томография внутренних органов: анатомия, методики, протоколы. монография [Электронный ресурс]. - М. : РУДН, 2019. 300 с. ISBN 978-5-209-08714-4 URL: https://mega.rudn.ru/MegaPro/UserEntry?Action=Link_FindDoc&id=477614&idb=0

Internet-based sources

- 1. Electronic libraries with access for RUDN students:
  -Electronic library network of RUDN – ELN RUDN http://lib.rudn.ru/MegaPro/Web
  - ELN «University Library online» http://www.biblioclub.ru
  - ELN Urait http://www.biblio-online.ru
  - ELN «Student Advisor» www.studentlibrary.ru
  -ELN «Znanium» https://znanium.ru/

- 2. Databases and search engines:

- Sage https://journals.sagepub.com/
- Springer Nature Link https://link.springer.com/

- Wiley Journal Database https://onlinelibrary.wiley.com/
- Scientometric database Lens.org https://www.lens.org

Educational and methodological materials for students' independent work in the course of mastering the discipline/module*: 1. Course of lectures on the discipline Subspecialty Radiology".
* - all educational and methodological materials for students' independent work are placed in accordance with the current procedure on the discipline page in TUIS!

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