Federal State Budget Educational Institution
of Higher Education
Pacific State Medical University
of the Ministry of Health of the Russian Federation

APPROVED BY
First Vice-Rector
_____ / Trankovskaya L.V./
"9" июня 2025

# DISCIPLINE WORK PROGRAM

## Б1.О.40 Diagnostic radiology

(name of discipline)

| | |
|---|---|
| **Specialty** | **31.05.01 General Medicine for international students (in English)** (code, name) |
| **Degree** | Specialist's degree |
| **Profile** | 02 "Healthcare" (in the field of providing primary health care to the population in medical organizations: polyclinics, outpatient clinics, inpatient/outpatient facilities of the municipal health care system) |
| **Mode of study** | Full-time |
| **Period of mastering the BEP** | **6 years** (nominal length of study) |
| **Department** | of Therapy (Internal Medicine) with Diagnostic Radiology Course |

Vladivostok, 2025

Program of the discipline **Б1.О.40 Diagnostic radiology** is based on:
1) Federal State Educational Standard of Higher Education for the specialty approved by the Order No. 988 of Ministry of Science and Higher Education of the Russian Federation dated August 12, 2020.

2) Curriculum for the 31.05.01 General Medicine for international students (in English), profile 02 "Healthcare" (in the field of providing primary health care to the population in medical organizations: polyclinics, outpatient clinics, inpatient/outpatient facilities of the municipal health care system), approved by the Academic Council of FSBEI HE PSMU of the Ministry of Health of Russia, Report No. 8/24-25 dated March 31, 2025.

Work program for the discipline was developed by the writing team of the Department of Therapy (Internal Medicine) with Diagnostic Radiology Course of the FSBEI HE PSMU of the Ministry of Health of Russia, under the guidance of the head of the Department, Doctor of Medical Sciences Kabalyk M.A.

**Developed by:**

| | | |
|---|---|---|
| Professor | Doctor of Medical Sciences | Kabalyk M.A. |
| (position held) | (academic degree, academic title) | (full name) |
| Assistant Professor | Candidaye of Medical Sciences | Primak N.V. |
| (position held) | (academic degree, academic title) | (full name) |

## 1. GENERAL PROVISIONS

### 1.1. Purpose and Objectives of Mastering Б1.О.40 Diagnostic radiology

**The purpose** of mastering the discipline is to achieve competencies necessary to perform professional functions; to develop skills of multifaceted application of modern imaging methods in order to identify the most common diseases in clinical practice.

**Objectives** of mastering the discipline:

1. Study principles of achieving an image using radiological diagnostic methods;
2. Examine diagnostic potential of various methods of diagnostic radiology;
3. Learn to select optimal diagnostic method in patients with the most common diseases; to use imaging methods in order to identify diseases in patients of different age groups;
4. Develop skills of identifying organs and their main anatomical structures on the images achieved with radiological diagnostic methods;
5. Study radiological symptoms and syndromes of the main pathologic conditions of organs and organ systems;
6. Develop skills of interpreting results of imaging methods.

## 2. DISCIPLINE AS PART OF THE BASIC EDUCATIONAL PROGRAM

Discipline **Б1.О.40 Diagnostic radiology** is included in the Mandatory part of the Unit 1 of the basic educational program for the specialty 31.05.01 General Medicine for international students (in English), profile 02 "Healthcare" (in the field of providing primary health care to the population in medical organizations: polyclinics, outpatient clinics, inpatient/outpatient facilities of the municipal health care system), and is part of the 6th and 7th semesters' curriculum

## 3. PLANNED LEARNING OUTCOMES OF THE DISCIPLINE

3.1. Mastering the discipline **Б1.О.40 Diagnostic radiology** is aimed at the development of students' competencies. The discipline facilitates the development of students' competencies corresponding to the types of professional activity.

| Name of competency category (group) / Labor function | **Code and Name of competency of the graduate** | **Competency Indicators** |
|---|---|---|
| **General Professional Competencies** | | |
| Instrumental Diagnostics | GPC-4. Is able to use medical devices included in the healthcare guidelines, as well as perform medical examination to make a diagnosis | CI.GPC-$4_1$- uses medical devices for diagnosis, treatment and rehabilitation in accordance with healthcare guidelines<br>CI.GPC-$4_2$- performs medical examination of a patient using basic and general clinical skills, laboratory tests and diagnostic procedures<br>CI.GPC-$4_3$- evaluates medical examination results in order to make a diagnosis |
| **Professional Competencies** | | |
| A/02.7 Examination of the patient in order to make a diagnosis | PC-3 Ability and readiness to collect and analyze complaints that a patient presents with, anamnestic data, examination results, results of laboratory and instrumental tests, biopsy and other studies in order to identify patient's condition or establish the presence or absence of a disease | CI.PC-$3_1$- collects patient's anamnesis, conducts examination, palpation, percussion and auscultation in healthy people with noninfectious and infectious diseases of internal organs, provides a diagnostic assessment of the identified symptoms, diagnoses syndromes;<br>CI.PC-$3_2$- identifies pathogenetic and pathomorphological features of diseases of internal organs;<br>CI.PC-$3_3$- selects required additional diagnostic methods, evaluates their results in |

| | | |
|---|---|---|
| | | order to recognize patient's condition, establish the presence or absence of the disease |
| | PC-4 Ability and readiness to identify main pathological conditions, syndromes, symptoms of diseases, specific diseases of a patient in accordance with International Statistical Classification of Diseases and Related Health Problems | CI.PC-$4_1$- diagnoses syndromes and makes preliminary diagnoses based on the results of a physical examination in noninfectious and infectious diseases of internal organs;<br>CI.PC-$4_2$- conducts differential diagnosis of noninfectious and infectious diseases of internal organs, assesses the prognosis, formulates the need for additional counseling by doctors of different specialties;<br>CI.PC-$4_3$- makes the final diagnosis and formats it in accordance with the ICD |

3.2. Types of professional activity corresponding to competencies developed over the course of mastering **Б1.О.40 Diagnostic radiology**:

Types of professional activity objectives

1. *Medical*

Kinds of professional activity objectives

1. *Diagnostics*

3.3. Planned learning outcomes of mastering the discipline are represented by knowledge, skills, abilities and/or experience, characterize the stages of developing competencies and ensure achievement of the planned outcomes of mastering the basic educational program. Learning outcomes of a discipline are correlated with competency indicators.

## 4. SCOPE AND CONTENT OF THE DISCIPLINE

4.1. Scope of the Discipline and Types of Academic Work

| **Type of Academic Work** | | **Total Hours** | **Semesters** | |
|---|---|---|---|---|
| | | | **6** | **7** |
| | | | **hours** | **hours** |
| 1 | | 2 | 3 | 4 |
| **Classroom hours (total),** including: | | **72** | **24** | **48** |
| Lectures (L) | | 20 | 8 | 12 |
| Practical classes (C) | | 52 | 16 | 36 |
| **Independent work of the student (IW),** including: | | **36** | **12** | **24** |
| *Electronic educational resource (EER)* | | 4 | 2 | 2 |
| *Preparing for classes (CP)* | | 12 | 4 | 8 |
| *Preparing for continuous assessment (CAP)* | | 12 | 4 | 8 |
| *Preparation for interim assessment (IAP)* | | 8 | 2 | 6 |
| Interim assessment | | | | |
| **Type of interim assessment** | pass/fail test (T) | T | | T |
| | exam (E) | | | |
| **TOTAL: TOTAL credit value** | hrs. | **108** | **36** | **72** |
| | credits | **3** | **1** | **2** |

4.2. Contents of the Discipline

4.2.1. Topics of Discipline Lectures and Academic Hours per Semester

| No. | Lecture Topic | Hours |
|---|---|---|
| 1 | 2 | 3 |
| | Semester No. 6 | |
| 1. | Methods and physical and technical basis of diagnostic radiology. Radiation safety. Diagnostic radiopaque agents | 2 |
| 2. | Diagnosing diseases of the musculoskeletal system using imaging methods | 2 |
| 3. | Diagnosing diseases and injuries of bones and joints using imaging methods | 2 |
| 4. | Diagnosing diseases and injuries of the brain using imaging methods. Semiotics and advantages of the MRI and CT methods | 2 |
| | **Hours per semester total** | **8** |
| | Semester No. 7 | |
| 1. | X-ray examination methods and their potential for diagnosing lung diseases. Radiological anatomy of respiratory organs. Radiological diagnostics of infectious pneumonia, complications of pneumonia: radiographic signs of abscesses and pulmonary fibrosis | 2 |
| 2. | Diagnosing tuberculosis of the lungs using imaging methods. Forms of tuberculosis, radiographic signs | 2 |
| 3. | Diagnosing tumors of the thoracic cavity and diseases of the bronchi using imaging methods | 2 |
| 4. | Methods of examining hollow organs of the gastrointestinal tract. Radiographic semiotics of diseases of hollow organs of the GI tract, classic imaging methods and CT | 2 |
| 5. | Diagnosing diseases and lesions of solid abdominal organs using imaging methods | 2 |
| 6. | Diseases of the kidneys and other organs of the urinary system; classic and modern imaging methods | 2 |
| | **Hours per semester total** | **12** |

4.2.2. Topics of Discipline Practical Classes and Academic Hours per Semester

| No. | Practical Class Topic | Hours |
|---|---|---|
| 1 | 2 | 3 |
| | Semester No. 6 | |
| 1 | Imaging methods. Physical and technical basis of diagnostic radiology. Radiation safety. Diagnostic radiopaque agents and their application | 4 |
| 2 | Radiological anatomy of the skeletal system. Diagnosing diseases of the musculoskeletal system using imaging methods. Diagnosing diseases and injuries of bones and joints using imaging methods. Classic and modern methods of examining the skeletal system | 8 |
| 3 | Diagnosing diseases and injuries of the head and neck using imaging methods. Diagnosing lesions of the brain and stroke using imaging methods | 4 |
| | **Hours per semester total** | **16** |
| | Semester No. 7 | |
| 1 | Radiological anatomy of the respiratory organs. Radiographic signs of inflammatory diseases of the lungs and pleura. Diagnosing pneumonia and tuberculosis of the lungs, diseases of the bronchi using imaging methods | 12 |
| 2 | Diagnosing tumors of the lungs and pleura using imaging methods | 4 |
| 3 | Radiological anatomy of the mediastinum. Diagnosing diseases of the mediastinum using imaging methods. Lesions of the mediastinum | 4 |

| | | |
|---|---|---|
| 4 | Radiological anatomy of the abdominal organs. Diagnosing diseases and injuries of the digestive organs using imaging methods. Classic and modern methods of examining hollow organs of the GI tract | 8 |
| 5 | Radiological anatomy of the urinary system. Diagnosing diseases of the genitourinary system using imaging methods | 8 |
| | **Hours per semester total** | **36** |

4.2.3. Independent Work of the Student

| No. | Name of the Discipline Section | Type of IW | Total Hours |
|---|---|---|---|
| 1 | 3 | 4 | 5 |
| | Semester No. 6 | | |
| 1 | Imaging methods. Radiation safety. Diagnostic radiopaque agents | Preparing for practical classes; preparing for tests, preparing for continuous and interim assessment | 2 |
| 2 | Diagnosing diseases of the musculoskeletal system using imaging methods | Preparing for practical classes; preparing for tests, preparing for continuous and interim assessment | 6 |
| 3 | Diagnosing diseases of the head and neck | Preparing for practical classes; preparing for tests, preparing for continuous and interim assessment | 4 |
| | **Hours per semester total** | | **12** |
| | Semester No. 7 | | |
| 4 | Diagnosing diseases of the respiratory organs using imaging methods | Preparing for practical classes; preparing for tests, preparing for continuous and interim assessment | 6 |
| 5 | Diagnosing diseases of the mediastinum using imaging methods | Preparing for practical classes; preparing for tests, preparing for continuous and interim assessment | 6 |
| 6 | Diagnosing diseases of the digestive and abdominal organs using imaging methods | Preparing for practical classes; preparing for tests, preparing for continuous and interim assessment | 6 |
| 7 | Diagnosing diseases of the urinary system and lesser pelvis using imaging methods | Preparing for practical classes; preparing for tests, preparing for continuous and interim assessment | 6 |
| | **Hours per semester total** | | **24** |

## 5. REQUIREMENTS FOR IMPLEMENTATION OF DISCIPLINE

### 5.1. Discipline Requirements for Educational Materials and Provided Information

Essential reading

| No. | Name/Title, Resource Type | Author(s)/Editor | Publisher Imprint, Web Address | Number of Copies (accesses) in the Library and Information Center |
|---|---|---|---|---|
| **1** | **2** | **3** | **4** | **5** |
| **1** | Radiation diagnostics: a textbook [Electronic resource] | E. B. Ilyasova, M. L. Chekhonatskaya, V. N. Priezzheva | M.: GEOTAR-Media, 2021. - 432 p. URL: http://www.studentlibrary.ru | Unlimited access |
| **2** | Computed tomography | edited by S. | M.: Knowledge Laboratory, | Unlimited |

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|---|---|---|---|---|
| | in emergency medicine [Electronic resource] | Mirsadre, K. Mankad, E. Chalmers | 2021. - 242 p. URL: http://www.studentlibrary.ru/ Unlimited acc. | access |
| **3** | Diagnostic radiology : | G. E. Trufanov, R. M. Akiev, K. N. Alekseev [et al.] ; ed. by V. Yu. Grigorieva | M. : ГЭОТАР-Медиа, 2021. - 444 с. - ЭБС «Консультант студента» | Unlimited access |

Supplementary reading

| **No.** | **Name/Title, Resource Type** | **Author(s)/Editor** | **Publisher Imprint, Web Address** | **Number of Copies (accesses) in the Library and Information Center** |
|---|---|---|---|---|
| **1** | **2** | **3** | **4** | **5** |
| **1** | Radiation diagnostics: textbook [Electronic resource] | edited by G. E. Trufanov | M.: GEOTAR-Media, 2015. - 496 p. URL: http://www.studentlibrary.ru | Unlimited access |
| **2** | Radiation diagnostics of the chest organs: national guidelines [Electronic resource] | Edited by V. N. Troyan, A. I. Shekhter | M.: GEOTAR-Media, 2014. - 584 p. URL: http://www.studentlibrary.ru/ | Unlimited access |
| **3** | Atlas of X-ray anatomy and positioning: manual for doctors [Electronic resource] | M. V. Rostovtsev, G. I. Bratnikova, E. P. Korneva, et al. | M.: GEOTAR-Media, 2023. - 320 p. URL: http://www.studentlibrary.ru | Unlimited access |

Online resources

1. Electronic library system "Student Consultant" http://studmedlib.ru/
2. Electronic library system "University Library Online"http://www.biblioclub.ru/
3. Electronic library system "Urait" https://urait.ru/
4. Electronic library system "BookUp" https://www.books-up.ru/
5. Resources owned by the Library and Information Center of FSBEI HE PSMU of the Ministry of Health of Russia https://tgmu.ru/university/bibliotechno-informacionnyj-centr/resursy-bic/sobstvennye/

Online resources and respective user guides are available on the Library and Information Center website Library and Information Center — PSMU (tgmu.ru)

**5.2. Discipline Requirements for Facilities and Resources**

Information on the facility and resource availability and requirements of the discipline is available on the Facility and resource availability and requirements. FSBEI HE PSMU of the Ministry of Health of Russia (tgmu.ru)" page of the official website of the university.

**5.3. List of Information Technologies, Information and Reference Systems, Licensed and Free Software (Including Domestically-developed Software):**

1. PolycomTelepresence M100 Desktop Conferencing Application (Videoconference system)
2. SunRav Software tTester
3. 7-PDF Split & Merge
4. ABBYYFineReader
5. Kaspersky Endpoint Security
6. INDIGO online testing system
7. Microsoft Windows 7
8. Microsoft Office Pro Plus 2013
9. 1C:University
10. GARANT system
11. MOODLE (Modular Object-Oriented Dynamic Learning Environment)

## 6. ASPECTS OF THE IMPLEMENTATION OF THE DISCIPLINE FOR STUDENTS WITH DISABILITIES AND SPECIAL NEEDS

6.1. Availability of Accessible Environment

For students with disabilities and special needs, if a written application is submitted, lectures and practical classes are carried out taking into account health limitations, individual capabilities and medical status (hereinafter referred to as individual characteristics) of the student. Compliance with the following general requirements is ensured: teaching aids for collective and individual use are provided, required technical assistance is provided by an assistant; buildings and premises where lectures and practical classes are taking place meet accessibility requirements, other arrangements lack of which makes it impossible or difficult to master the discipline are made.

6.2. Ensuring Compliance with General Requirements

When lectures and practical classes are carried out at the written application of the student, the following general requirements are met: lectures and practical classes for students with disabilities and special needs take place at the same location as for students who do not have disabilities, if this does not cause difficulties for students; an assistant (assistants), who provide(s) students with the necessary technical assistance taking into account individual characteristics of the student, is (are) provided; necessary teaching aids are provided, taking into account individual characteristics of the student.

6.3. Availability of the Internal Policies and Procedures of FSBEI HE PSMU of the Ministry of Health of Russia to Students with Disabilities in a Format Accessible to Them.

All internal policies and procedures of FSBEI HE PSMU of the Ministry of Health of Russia concerning the discipline are made available to students with disabilities in a format accessible to them.

6.4. Increase in the Time Limit of Interim Assessment for Students with Disabilities and Special Needs in Relation to the Established duration

Format of the interim assessment of academic performance within the scope of the discipline conducted for students with disabilities and special needs is selected taking into account individual characteristics of the students (orally, by writing on paper, by typing on a computer, as a test, etc.). The duration of the interim assessment in relation to the established duration is increased at the written application of the student with disabilities. Time limit for the student's preparation for the test is increased by at least 0.5 hours.

## 7. STAFFING REQUIREMENTS OF THE DISCIPLINE

Academic teaching personnel that ensure the implementation of the discipline education process meet the requirements of the Federal State Educational Standard of Higher Education for

the 31.05.01 General Medicine for international students (in English) specialty; list of the aforementioned personnel is available on the website of the educational organization.

## 8. TUTORIAL WORK

| Type of tutorial work | Forms and approaches to tutorial work | Assessment criteria |
|---|---|---|
| Assistance in personal growth | Overt<br>Talks and problem-centric debates aimed at promotion of healthy lifestyle.<br>Participation in interdepartmental conferences aimed at formation of healthy lifestyle and development of skills necessary to preserve and improve health. | Portfolio |
| | Covert – creating atmosphere and infrastructure.<br>Developing a culture of healthy lifestyle, the ability to preserve and improve health.<br>Creating atmosphere of kindness and respect with a high level of communication during implementation of the discipline. | |
| Civic position and values | Overt<br>Conducting events that facilitate development of civil culture (roundtable discussions, discussions/debates, and talks).<br>Short discussions on current significant events in case the latter occur. | Portfolio |
| | Covert<br>Focusing on civic values-oriented position and legal awareness.<br>Cultivating mindful social position during professional activity. | |
| Social values | Overt<br>Highlighting aspects of organization of healthy lifestyle based on health-preserving technologies.<br>Highlighting ecology-related questions, environmental issues as a factor affecting population health and select population risks. | Portfolio |
| | Covert<br>Identification in social structure during period of education and in professional activity. | |