

INSTITUTE OF ENGINEERING PHYSICS FOR BIOMEDICINE

APPROVED ИТС ИФИБ

Protocol No. 3.1

dated 30.08.2024

**ACADEMIC COURSE OUTLINE**

**ФТИЗИАТРИЯ / РНТНISIATRY**

Educational program track (speciality) [1] 31.05.01 General Medicine

| <b>Semester</b> | <b>Labour input, credits</b> | <b>Total course academic, hours</b> | <b>Lectures, hrs.</b> | <b>Practical sessions, hrs.</b> | <b>Laboratory sessions, hrs.</b> | <b>In the form of practical studies, hrs.</b> | <b>Independent studies, hrs.</b> | <b>Independent studies monitoring, hrs.</b> | <b>Course progress, Exam/Pass-fail exam/Term</b> |
|-----------------|------------------------------|-------------------------------------|-----------------------|---------------------------------|----------------------------------|---|----------------------------------|---|--|
| 12              | 3                            | 108                                 | 16                    | 44                              | 0                                |   | 48                               | 0   | PFE  |
| Total           | 3                            | 108                                 | 16                    | 44                              | 0                                | 44  | 48                               | 0   |  |

## **ABSTRACT**

The discipline program has been developed in accordance with the requirements for the learning outcomes of the specialist degree program. A graduate (physician in General Medicine) must be prepared to solve tasks related to the diagnosis, treatment, and prevention of diseases. In the process of mastering the discipline, students acquire knowledge, skills, and abilities in the diagnosis, treatment, and prevention of tuberculosis.

### **1. ACADEMIC COURSE GOALS AND OBJECTIVES**

The aim is to develop competencies in the diagnosis, treatment, and prevention of tuberculosis.

Discipline Objectives:

- To build a systematic knowledge of the etiology, pathogenesis, clinical manifestations, methods of diagnosis, treatment, and prevention of tuberculosis.
- To develop the ability to identify the main symptoms and syndromes, forms of tuberculosis, formulate a preliminary diagnosis, and conduct differential diagnosis.
- To develop the skills to determine medical indications for imposing restrictive measures (quarantine) and to carry out anti-epidemic measures in the event of an infection outbreak.
- To develop the skills and abilities for creating an examination and treatment plan for a tuberculosis patient, and for interpreting the results of additional tests in accordance with clinical guidelines to establish a diagnosis.
- To develop the skills to provide medical care upon identifying signs of emergency and life-threatening conditions, including in emergency situations.
- To develop the skills and abilities for selecting rational treatment for tuberculosis, considering the severity of the disease, risk to others, and in accordance with clinical guidelines; the ability to assess the effectiveness and safety of prescribed treatment.
- To develop the readiness to conduct tuberculosis prevention measures, promote healthy lifestyles, and provide sanitary-hygienic education to the population.
- To cultivate clinical thinking, the ability to work with scientific literature and regulatory documents, and to maintain medical documentation, including completing and submitting an emergency notification to the relevant authorities upon detection of an infectious disease.

### **2. PLACE OF THE ACADEMIC COURSE IN THE MAIN HIGHER EDUCATION CURRICULUM**

The discipline is implemented as part of the core component of the educational program. It is based on the knowledge, skills, and abilities acquired during the study of the following disciplines: Pathological Anatomy and Pathological Physiology, Medical Microbiology and Virology, Immunology, Pharmacology, Internal Diseases (Hospital Course), Surgical Diseases (Hospital Course), Infectious Diseases, Dermatovenereology, Diagnostic Radiology, as well as Diagnostic, Therapeutic, and Surgical practice placements.

The knowledge, skills, and abilities acquired through mastering this discipline are essential for successful professional activity.

### 3. DEVELOPED COMPETENCIES AND INTENDED LEARNING OUTCOMES

Universal and/or general professional competencies:

| <b>Competency code and title</b>  | <b>Code and title of competency-based rubrics</b>   |
|---|---|
| <p>OPIK-2 [1] – Capable of conducting and monitoring the effectiveness of measures for prevention, healthy lifestyle promotion, and sanitary-hygienic education of the population</p> | <p>3-OPIK-2 [1] – Know: - regulatory foundations for conducting preventive medical examinations and health check-ups; - rules for implementing sanitary and anti-epidemic measures; - forms and methods of health education work; - sanitary rules and regulations; - national immunization schedule; - main hazardous and harmful occupational factors.</p> <p>Y-OPIK-2 [1] – Be able to: - determine medical indications for imposing restrictive measures (quarantine) and conduct anti-epidemic measures in case of an infection outbreak; - conduct preventive medical examinations and health check-ups in accordance with current regulatory legal acts and other documents; - monitor the effectiveness of measures for disease prevention, health promotion, and sanitary-hygienic education of the population; - develop and implement health promotion programs aimed at eliminating harmful effects of environmental factors on human health; - establish cause-effect relationships between changes in health status and exposure to environmental factors.</p> <p>B-OPIK-2 [1] – Possess skills in: - organizing and conducting preventive medical examinations and health check-ups for the adult population to prevent the occurrence and/or spread of diseases and identify risk factors; - preparation (formation) and sending to the territorial office of the Federal Service for Surveillance on Consumer Rights Protection and Human Wellbeing an emergency notification upon detection of an infectious or occupational disease; -educating patients and their relatives on methods of self-monitoring key physiological indicators.</p> |
| <p>OPIK-4 [1] – Capable of using medical devices stipulated by the medical care procedures, as well as conducting patient examination for diagnosis establishment.</p>                | <p>3-OPIK-4 [1] – Know: - modern diagnostic instrumental examination methods for patients, including functional, radiological, ultrasound, radionuclide diagnostics, and endoscopy; - diagnostic capabilities of instrumental examination methods; - medical devices stipulated by the procedure for providing medical care to the adult population in the "Therapy" specialty, and the equipment standard for a therapeutic room; - main medical devices stipulated by the procedures for providing medical care to the adult population in major surgical specialties, obstetrics, and gynecology; - indications for referring patients for instrumental examinations and functional diagnostics; - techniques for physical examination of patients using medical devices stipulated by procedures and considering medical care standards</p> <p>Y-OPIK-4 [1] – Be able to: - use medical devices stipulated by the medical care procedure; - determine the required volume and content of instrumental and functional diagnostics to establish a diagnosis; - interpret results of the most common functional and instrumental diagnostic methods</p>  |

|   |   |
|---|---|
|   | B-OPIK-4 [1] – Possess skills in: - using basic medical devices (stethoscope, blood pressure monitor, sphygmomanometer, pulse oximeter, height-weight scale, measuring tape, neurological hammer, scalpel, forceps, and other devices); - operating electrocardiographs and devices for measuring external respiratory function; - interpreting results of the most common functional and instrumental diagnostic methods   |
| OPIK-6 [1] – Capable of organizing general nursing, providing primary medical care, ensuring the organization of work and making professional decisions in emergencies at the pre-hospital stage, in emergency situations, epidemics and in areas of mass destruction | 3-OPIK-6 [1] – Know: - a set of measures for general nursing with diseases of various organs and systems; Signs of clinical and biological death; - indications for patient hospitalization for the most common diseases with typical progression.<br>Y-OPIK-6 [1] – Be able to: - organize care for patient when providing medical care in an outpatient setting; - determine the need for patient hospitalization; - ensure the organization of work in emergency situations, epidemics, and in mass casualty zones.<br>B-OPIK-6 [1] – Possess skills in: - general care of a patient (general nursing); - providing first aid; - making medical decisions in emergencies at the prehospital stage, including in emergency situations, epidemics, and in mass casualty zones. |

Professional competencies in compliance with the goals and professional knowledge areas:

| <b>Professional activity goal</b>                                    | <b>Professional activity knowledge area</b>  | <b>Professional competency code and title;<br/>Based on the professional standard, experience analysis</b>                                 | <b>Code and title of competency-based rubrics</b>   |
|--|--|--|---|
| medical  |  |  |   |
| Diagnostics of diseases and pathological conditions of the patients. | Individuals (patients); the population; the set of means and technologies aimed at creating conditions for preserving and strengthening the health of the adult population | PIK-3.2 [1] - Capable of conducting patient examinations to establish a diagnosis<br><br><i>The base:</i><br>Professional standard: 02.009 | 3-PIK-3.2[1] - Know: - clinical diagnosis establishment algorithm; - patient history-taking and physical examination methodology; - laboratory and instrumental research methods for health assessment to establish a diagnosis; - semiotics of diseases of different organs and systems; - structure, principles of the current International Statistical Classification of Diseases and Related Health Problems (hereinafter - ICD).;<br>Y-PIK-3.2[1] - Be able to: - conduct patient history-taking and physical |

|   |   |  |  |
|---|---|--|--|
|   |   |  | <p>examination; - interpret history, physical examination data, laboratory and instrumental results to recognize a condition or establish the presence/absence of a disease, establish a diagnosis; - distinguish and recognize in each specific case tissue damage, the reaction to it, and the form of adaptability; - develop a patient examination plan, justify the necessity and scope of laboratory and instrumental examination; - identify main pathological conditions, symptoms and syndromes, nosological forms in the patient according to the current ICD.;</p> <p>B-IIK-3.2[1] - Possess skills in: - patient history-taking and physical examination; Formulating a preliminary diagnosis; - developing a patient examination plan; Interpreting laboratory and instrumental results; - establishing a diagnosis considering the current ICD</p> |
| <p>Providing primary medical care in outpatient settings and day hospital settings.</p> | <p>Individuals (patients); the population; the set of means and technologies aimed at creating conditions for preserving and strengthening the health of the adult population</p> | <p>IIK-3.3 [1] - Able to provide primary medical care in an outpatient setting</p> <p><i>The base:</i><br/>Professional standard: 02.009</p> | <p>3-IIK-3.3[1] - Know: - general issues of organizing medical care for the population and organizing medical care for the adult population in outpatient settings, including at home; - features of medical care using telemedicine technologies; - Clinical picture, differential diagnosis, features of the course of the disease, complications and outcomes of internal diseases; - diagnostic</p>  |

|  |  |  |   |
|--|--|--|---|
|  |  |  | <p>criteria for the most common diseases of internal organs and systems; - indications for referring patients for specialist consultations according to clinical guidelines and considering relevant medical care standards; - indications for referring patients for specialized medical care in inpatient settings and day hospitals according to clinical guidelines and considering relevant medical care standards; - features of managing and treating elderly patients in outpatient settings. ;</p> <p>Y-IIK-3.3[1] - Be able to: - perform differential diagnosis of internal diseases; - monitor the course of physiological pregnancy; - justify the need for referring patients to specialist consultations; - recognize the main and concomitant diseases; - assess disease or condition severity - the degree of organ and/or system damage or functional impairment due to the disease/condition or its complications; - determine management, examination and treatment tactics for patients with specific diseases (nosological units) depending on disease severity and condition, according to clinical guidelines and considering relevant medical care standards.;</p> <p>B-IIK-3.3[1] - Possess skills in: - conducting differential diagnosis with other diseases/conditions, including emergencies; -</p> |
|--|--|--|---|

|  |  |  |  |
|--|--|--|--|
|  |  |  | interpreting data obtained from patient consultations with specialists; - prescribing additional tests to clarify the diagnosis; - formulating a clinical diagnosis; - prescribing treatment according to clinical guidelines and considering relevant medical care standards. |
|--|--|--|--|

#### 4. PEDAGOGIC POTENTIAL OF THE COURSE

| Pedagogic tracks/objectives | Pedagogic goals (code)  |
|-----------------------------|---|
| Professional education      | Establishing conditions for: formation of responsibility for professional choice, professional development and professional decisions (B18)   |
| Professional education      | Establishing conditions for: formation of motivation to improve the quality of medical care to the population and the desire to follow the rules and norms of interaction between the doctor, colleagues and the patient, contributing to the creation of the most favorable environment for the patient's recovery (B34) |

#### 5. ACADEMIC COURSE STRUCTURE AND CONTENT

Academic course sections, their scope, terms of study and assessment:

| No. | Academic course section name | Weeks | Lectures/ Practical (seminars)/ Laboratory sessions, hrs. | Compulsory current assessment (form*, week) | Maximum grade per section** | Section assessment (form*, week) | Competency-based rubrics  |
|-----|------------------------------|-------|---|---|-----------------------------|----------------------------------|---|
|     | <i>12 Semester</i>           |       |   |   |                             |                                  |   |
| 1   | Part One                     | 1-8   | 8/22/0  |   | 25                          | S-8                              | 3-ОПК-2,<br>У-ОПК-2,<br>В-ОПК-2,<br>3-ОПК-4,<br>У-ОПК-4,<br>В-ОПК-4,<br>3-ОПК-6,<br>У-ОПК-6,<br>В-ОПК-6,<br>3-ПК-3.2,<br>У-ПК-3.2,<br>В-ПК-3.2, |

|   |  |      |         |  |    |         |   |
|---|--|------|---------|--|----|---------|---|
|   |  |      |         |  |    |         | 3-ПК-3.3,<br>У-ПК-3.3,<br>В-ПК-3.3  |
| 2 | Part Two                                 | 9-15 | 8/22/0  |  | 25 | Task-14 | 3-ОПК-2,<br>У-ОПК-2,<br>В-ОПК-2,<br>3-ОПК-4,<br>У-ОПК-4,<br>В-ОПК-4,<br>3-ОПК-6,<br>У-ОПК-6,<br>В-ОПК-6,<br>3-ПК-3.2,<br>У-ПК-3.2,<br>В-ПК-3.2,<br>3-ПК-3.3,<br>У-ПК-3.3,<br>В-ПК-3.3 |
|   | <i>Totals for 12 Semester</i>            |      | 16/44/0 |  | 50 |         |   |
|   | <b>Assessment events for 12 Semester</b> |      |         |  | 50 | PFE     | 3-ОПК-2,<br>У-ОПК-2,<br>В-ОПК-2,<br>3-ОПК-4,<br>У-ОПК-4,<br>В-ОПК-4,<br>3-ОПК-6,<br>У-ОПК-6,<br>В-ОПК-6,<br>3-ПК-3.2,<br>У-ПК-3.2,<br>В-ПК-3.2,<br>3-ПК-3.3,<br>У-ПК-3.3,<br>В-ПК-3.3 |

\* – abbreviated name of assessment

\*\* – 100 maximum points per semester including a pass/fail exam and (or) an exam

Abbreviated current assessment forms and section assessment

| Abbreviation | Full name             |
|--------------|-----------------------|
| S            | Summary               |
| Task         | Task                  |
| PFE          | Pass/fail examination |

## SYLLABUS

| Weeks      | Topics / Content   | Lect., hrs. | Pr./sem., hrs. | Lab., hrs. |
|------------|--------------------|-------------|----------------|------------|
|            | <i>12 Semester</i> | 16          | 44             | 0          |
| <b>1-8</b> | <b>Part One</b>    | 8           | 22             | 0          |

|             |  |        |    |   |
|-------------|--|--------|----|---|
| 1 - 4       | <b>Epidemiology of Tuberculosis, Detection Methods and Prevention</b><br>The module covers key epidemiological indicators for tuberculosis: incidence, mortality, prevalence, and infection rate. Particular emphasis is placed on modern methods of tuberculosis detection.   | All    |    |   |
|             |  | 4      | 10 | 0 |
|             |  | Online |    |   |
|             |  | 0      | 0  | 0 |
| 5 - 8       | <b>Clinical Forms of Tuberculosis</b><br>Students master the principles of formulating a clinical diagnosis of tuberculosis. The curriculum includes the study of respiratory and extrapulmonary forms of tuberculosis, their specific manifestations, and diagnostic particularities.                                     | All    |    |   |
|             |  | 4      | 12 | 0 |
|             |  | Online |    |   |
|             |  | 0      | 0  | 0 |
| <b>9-15</b> | <b>Part Two</b>  | 8      | 22 | 0 |
| 9 - 12      | <b>Treatment of Tuberculosis. Emergency Conditions in Tuberculosis</b><br>This section addresses the comprehensive approach to tuberculosis treatment, including modern chemotherapy regimens. It also analyzes emergency conditions arising from respiratory tuberculosis and the corresponding emergency care protocols. | All    |    |   |
|             |  | 4      | 12 | 0 |
|             |  | Online |    |   |
|             |  | 0      | 0  | 0 |
| 13 - 15     | <b>Differential Diagnosis of Tuberculosis</b><br>The focus is on the principles of differential diagnosis for respiratory tuberculosis, distinguishing it from other diseases with similar clinical and radiological presentations.  | All    |    |   |
|             |  | 4      | 10 | 0 |
|             |  | Online |    |   |
|             |  | 0      | 0  | 0 |

Abbreviated names of online options:

| Abbreviation | Full name             |
|--------------|-----------------------|
| EC           | E-course              |
| FtM          | Full-text material    |
| FtL          | Full-text lectures    |
| VM           | Video materials       |
| AM           | Audio materials       |
| Prs          | Presentations         |
| T            | Tests                 |
| ERM          | E-reference materials |
| IS           | Interactive site      |

#### PRACTICAL SESSIONS TOPICS

| Weeks | Topics / Content  |
|-------|---|
|       | <i>12 Semester</i>  |
| 1 - 4 | <b>Epidemiology, Detection and Prevention of Tuberculosis</b><br>Key epidemiological indicators of tuberculosis (incidence, mortality, prevalence, infection rate). Components of the epidemiological process. Risk factors for tuberculosis. High-risk groups. Global epidemiological situation of tuberculosis.<br>Early detection methods for children and adolescents (immunodiagnostics) and adults (fluorography). Laboratory and instrumental diagnostic methods (including imaging) for respiratory and extrapulmonary tuberculosis.<br>Social prevention of tuberculosis. Specific prevention (BCG vaccination, chemoprophylaxis). Sanitary prevention measures. |
| 5 - 8 | <b>Clinical Forms of Tuberculosis and Its Treatment</b>   |

|        |   |
|--------|---|
|        | <p>Formulation of clinical diagnosis for respiratory tuberculosis. Tuberculous intoxication in children and adolescents.</p> <p>Tuberculosis of intrathoracic lymph nodes. Primary tuberculous complex. Miliary tuberculosis. Disseminated pulmonary tuberculosis. Focal pulmonary tuberculosis. Infiltrative pulmonary tuberculosis. Pulmonary tuberculoma. Cavernous pulmonary tuberculosis. Fibrous-cavernous pulmonary tuberculosis. Cirrhotic pulmonary tuberculosis. Tuberculous pleurisy. Tuberculosis of upper respiratory tract, trachea and bronchi. Extrapulmonary tuberculosis locations. Extrapulmonary manifestations of tuberculosis. Comprehensive treatment of tuberculosis. Chemotherapy for respiratory tuberculosis patients. Non-specific treatment for tuberculosis patients. Surgical treatment methods. Emergency conditions in respiratory tuberculosis. Spontaneous pneumothorax. Pulmonary hemorrhage.</p> |
| 9 - 15 | <p><b>Differential Diagnosis of Respiratory Tuberculosis</b></p> <p>Differential diagnosis of respiratory diseases presenting with radiological syndrome of intrathoracic lymphadenopathy. Differential diagnosis of diseases with radiological dissemination syndrome in lungs. Differential diagnosis of diseases with radiological shadowing syndrome in lungs. Differential diagnosis of diseases with radiological cavity syndrome in lungs.</p>   |

## 6. EDUCATIONAL TECHNOLOGIES

The teaching of this discipline incorporates methods based on modern scientific advancements and information technologies in education. These approaches aim to enhance the quality of specialist training by developing students' creative abilities and capacity for independent work. To achieve this, the program utilizes both traditional teaching methods (lectures, clinical practical sessions) and interactive formats for seminars and clinical case analyses:

- Training-based formats for practical sessions (clinical scenario problems, case studies, role-playing through clinical case analysis or patient management);
- Interactive clinical case demonstrations with patient presentations;
- Engagement of students in scientific preclinical and clinical research, including the preparation of presentation materials, reports, essays, or research papers.

## 7. ASSESSMENT TOOLKIT

The assessment toolkit ensures verification of the intended learning outcomes achievement (competency-based rubrics) using current, midterm and interim assessment of the course.

The link between developed competencies and their assessment is presented in the following table:

| Competency | Achievement rubrics | Assessment activity (Syl 1) |
|------------|---------------------|-----------------------------|
| ОПК-2      | 3-ОПК-2             | PFE, S-8, Task-14           |
|            | У-ОПК-2             | PFE, S-8, Task-14           |
|            | В-ОПК-2             | PFE, S-8, Task-14           |
| ОПК-4      | 3-ОПК-4             | PFE, S-8, Task-14           |
|            | У-ОПК-4             | PFE, S-8, Task-14           |
|            | В-ОПК-4             | PFE, S-8, Task-14           |
| ОПК-6      | 3-ОПК-6             | PFE, S-8, Task-14           |
|            | У-ОПК-6             | PFE, S-8, Task-14           |
|            | В-ОПК-6             | PFE, S-8, Task-14           |

|        |          |                   |
|--------|----------|-------------------|
| ПК-3.2 | 3-ПК-3.2 | PFE, S-8, Task-14 |
|        | У-ПК-3.2 | PFE, S-8, Task-14 |
|        | В-ПК-3.2 | PFE, S-8, Task-14 |
| ПК-3.3 | 3-ПК-3.3 | PFE, S-8, Task-14 |
|        | У-ПК-3.3 | PFE, S-8, Task-14 |
|        | В-ПК-3.3 | PFE, S-8, Task-14 |

### Educational achievement rubrics scales

The scale of each assessment activity varies from 0 to the maximum established point, inclusive. The final assessment of the course is performed on a 100-point scale and represents the sum of the points earned by the student in the section assessments, framework of current and interim assessment.

Sections and interim assessments are considered passed when the student achieves a minimum score equal to 60% of the maximum. The final grade is assigned only upon passing all sections and the interim assessment.

The final grade is assigned in accordance with the following scale:

| Total score | Rating on a 4-point scale   | Pass/fail examination | ECTS assessment |
|-------------|-----------------------------|-----------------------|-----------------|
| 90-100      | 5 – « <i>excellent</i> »    | « <i>pass</i> »       | A               |
| 85-89       | 4 – « <i>good</i> »         |                       | B               |
| 75-84       |                             |                       | C               |
| 70-74       |                             |                       | D               |
| 65-69       | 3 – « <i>satisfactory</i> » |                       | E               |
| 60-64       |                             | F                     |                 |
| below 60    | 2 – « <i>fail</i> »         | « <i>fail</i> »       |                 |

An “excellent” grade indicates a deep and solid mastery of the program material by a student who presents their answers consistently, clearly, and logically, is able to closely link theory with practice, and uses materials from monographic literature in their answers.

A “good” grade corresponds to a student’s solid knowledge of the material, who presents their answers competently and to the point, without any significant inaccuracies.

A “satisfactory” grade corresponds to the basic level of mastery of the material by the student, in which the main material has been mastered, but its details have not been assimilated, the answers contain inaccuracies, insufficiently correct wording and logical inconsistencies.

A grade “pass” corresponds to at least a basic level of mastery of the program material, in which the student possesses the necessary knowledge, skills, and abilities, and is able to apply theoretical principles to solve typical practical problems.

A grade “fail” is given to a student who lacks a significant understanding of the curriculum material, makes significant errors in their answers, or fails all required assignments. These students are generally unable to continue their studies without additional classes.

## **8. ACADEMIC COURSE EDUCATIONAL, METHODOLOGICAL AND INFORMATIONAL SUPPORT**

### **CORE READING:**

1. ЭИ К76 Phthisiatry : учебник, Koshechkin V.A., Москва: ГЭОТАР-Медиа, 2017
2. ЭИ Ф93 Фтизиатрия : учебник, Гиллер Д.Б., Мишин В.Ю., Москва: ГЭОТАР-Медиа, 2024

### **FURTHER READING:**

1. ЭИ Б83 Лучевая диагностика туберкулеза легких : учебное пособие, Бородулина Е.А., Кузнецова А.Н., Бородулин Б.Е., Москва: ГЭОТАР-Медиа, 2021
2. ЭИ П83 Противотуберкулезный диспансер: эффективная междисциплинарная концепция : руководство : практическое руководство, , Москва: ГЭОТАР-Медиа, 2023
3. ЭИ М 64 Туберкулез : учебное пособие для вузов, Мирошина Ю. Д., Мирошин Г. Ф., Москва: Юрайт, 2024
4. ЭИ П 27 Фтизиатрия : практическое руководство, Перельман М.И. [и др.], Москва: ГЭОТАР-Медиа, 2010
5. ЭИ Б 87 Фтизиатрия : учебник для вузов, Браженко О. Н., Москва: Юрайт, 2024
6. ЭИ М71 Фтизиатрия. Схема написания истории болезни : учебно-методическое пособие, Мишин В.Ю., Мишина А.В., Москва: ГЭОТАР-Медиа, 2024

### **SOFTWARE:**

No special softwares is required

### **LMS AND ONLINE RESOURCES**

<https://online.mephi.ru/>

<http://library.mephi.ru/>

## **9. LOGISTICAL SUPPORT**

1. Мышь, клавиатура (Клиническая база)
2. Проектор SMART P109 (Клиническая база)
3. Монитор (Клиническая база)
4. Медицинское оборудование для практической подготовки обучающихся, предусмотренное договором (Клиническая база)
5. Иное оснащение, предусмотренное порядками оказания медицинской помощи по соответствующему профилю (Клиническая база)

## **10. EDUCATIONAL AND METHODOLOGICAL RECOMMENDATIONS FOR STUDENTS**

### Guidelines for seminar preparation

The plan for practical classes, including topics, recommended literature, and the aims and objectives of the discipline, is provided by the instructor during introductory sessions or in the course syllabus. Practical classes are designed to deepen the understanding of the study material and develop skills in working creatively with scientific literature.

Before starting to study a topic, familiarize yourself with the main points of the practical lesson plan and the list of recommended literature.

When beginning preparation for a practical class, first review your lecture notes and the relevant sections in textbooks and study guides to gain a general understanding of the topic's place and significance within the course. Subsequently, work with additional literature and take notes from the recommended sources. While studying the recommended material, strive to understand the structure of the topic, identify key concepts, trace their logical connections, and thus grasp the essence of the subject matter. It is essential to take notes on the material being studied in the form of a summary; this engages motor memory in addition to visual memory and helps build a personal repository of auxiliary materials for quick review and mobilization of accumulated knowledge.

Primary forms of note-taking include outlines (simple and detailed), excerpts, and abstracts. During preparation, it is important to compare sources, contemplate the material, develop an action algorithm, and carefully plan your oral presentation.

### Clinical practical classes

A crucial stage of practical classes is the independent work of students to master practical skills: in simulated environments, at the patient's bedside, in functional diagnostic rooms, etc. Depending on the specific topic of the class, the student independently (or under the supervision of an instructor) interviews a patient, performs a clinical examination, observes instrumental diagnostic procedures, studies the results of additional tests, summarizes the data, presents it in the form of parts of a medical history, and reports the findings to the instructor. Achievements are assessed individually for each student, based on the level of proficiency in practical skills and their theoretical foundations.

Clinical case analyses of thematic patients are conducted for the entire group or through student participation in clinical case discussions and periodic scientific-practical conferences at the healthcare organizations where practical training takes place. During these analyses, the instructor assesses the active participation of each student and their ability to think clinically.

### Guidelines for preparing for tests

Test: 10 - 15 - 20 - 25 points.

Each question: 1 (or 2) point(s).

Topics: Specified in each respective section.

Answer Requirements: A clear, detailed answer (2 points/task) or selecting the correct answer in a test task (1 point/task).

### Guidelines for preparing for the credit/exam

Answer requirements and grading criteria:

Excellent (5/A - 45–50 points on the credit/exam): Awarded for a correct, complete, and logically structured answer; the ability to use specialized terminology effectively; the ability to illustrate theoretical points with practical examples.

Good (4/B - 35–44 points on the exam): Awarded for a correct, complete, and logically structured answer with minor errors or inaccuracies; the ability to use specialized terminology, but with conclusions or generalizations that are not entirely comprehensive.

Satisfactory (3/C - 30–34 points on the exam): Awarded for a schematic, incomplete answer; difficulty in using specialized terminology or lack of knowledge thereof; or the presence of one significant error.

Fail (2/F - <30 points on the exam): Awarded if the answer to all ticket questions contains significant errors; an inability to use specialized terminology; an inability to provide examples of the practical application of scientific knowledge.

Admission to the course exam is granted with a total of more than 30 points.

During the semester, a student can accumulate between 30 and 50 points.

The minimum score for the exam answer is 30, the maximum is 50.

## **11. EDUCATIONAL AND METHODOLOGICAL RECOMMENDATIONS FOR TEACHERS**

Effective time management and organizational skills are fundamental for successful course delivery, enabling balanced distribution of teaching workload. Instructors must maintain active engagement in the educational process through thorough preparation. Continuous updating of lecture, seminar, and practical session materials is essential to reflect contemporary approaches, perspectives, and current research findings. Preparation should include systematic review of modern clinical guidelines, scientific publications, and emerging technologies.

The primary instructional objective is to ensure students' effective comprehension of the material. The following teaching modalities should be implemented: lectures, seminars, practical sessions, and independent work. For each modality, instructors should utilize appropriate educational technologies including interactive presentations, computer-based learning programs, and critical thinking development strategies (effective lecture techniques, conceptual tables, group work methodologies).

Practical sessions should incorporate:

Monitoring students' assimilation of theoretical knowledge

Supervised patient management

Assessment of clinical skills

Skills demonstration and training should utilize visual aids, simulators, equipment trainers, and live procedure demonstrations. Clinical reasoning evaluation should include case scenarios, clinical histories, test assignments, clinical case analyses, and participation in medical conferences, consultations, and scientific symposia.

Active and interactive learning methods should be widely implemented, including small group activities, creative task stimulation, computer-assisted learning programs, and conference-style sessions.

Instructors are responsible for monitoring:

Independent student work

Essay preparation

Student research activities

Supervised patient interactions

Interpretation of diagnostic test results

Medical documentation completion

Academic literature study is recognized as a formal learning activity within designated time allocations. All students must have access to institutional and departmental electronic library resources.

Student training should cultivate:

Patient communication skills adhering to ethical and deontological principles

Clinical documentation proficiency

Analytical thinking capabilities

Professional discipline and accuracy

Knowledge assessment structure:

Baseline evaluation: standardized testing

Ongoing assessment: oral examinations during sessions, clinical case discussions, standardized scenario solutions, and test assignments

Final evaluation: combined mid-term and final knowledge assessment utilizing written tests, practical skills evaluation, and situational task resolution

Assessment Criteria and Grading System:

1. Tests: 1 point per correct answer. Non-attempted work: (-1) point deduction
2. Open-ended assignments: Complete answer - 2 points; Partial answer - 1 point; No answer - 0 points; Non-attempted work: (-2) point deduction
3. Homework: Mandatory completion for final examination eligibility. Late submission: (-1) point deduction from final grade
4. Presentation Assessment: 100-point to 10-point (5-point) scale conversion
5. Essay Evaluation (Maximum 10 points, convertible to 5-point scale):
  - 10 points: All requirements met - clear problem identification with relevance justification, concise analysis with logical personal perspective, formulated conclusions, complete article analysis, proper length and formatting
  - 9 points: Substantive requirements met with minor formatting/length deviations
  - 8 points: Major requirements fulfilled with minor deficiencies in content organization, logical flow, length, or formatting
  - 7 points: Major requirements met with deficiencies in material presentation, logical consistency, conclusion formulation, length, or formatting
  - 6 points: Significant deviations from requirements - partial topic coverage, factual errors, missing conclusions and personal perspective
  - 5 points: Substantial deviations - partial topic coverage, methodological errors, missing conclusions and perspective, format non-compliance
  - 4 points: Critical deficiencies - unrevealed relevance, methodological errors, missing conclusions, format non-compliance
  - 3 points: Formal length compliance without analysis of relevance, approaches, or methods
  - 2 points: Topic not addressed with fundamental misunderstanding, despite formal requirements met
  - 1 point: Topic not addressed with fundamental misunderstanding
  - 0 points: Essay not submitted

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