

Ministry of Science and Higher Education of the Russian Federation
Federal State Autonomous Institution of Higher Education
“National Research Nuclear University “MEPhI”
INSTITUTE OF ENGINEERING PHYSICS FOR BIOMEDICINE

APPROVED ИТС ИФИБ

Protocol No. 3.1

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ACADEMIC COURSE OUTLINE

ФАКУЛЬТЕТСКАЯ ТЕРАПИЯ С ОСНОВАМИ ФИЗИОТЕРАПИИ/ INTERNAL DISEASES

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

Semester	Labour input, credits	Total course academic, hours	Lectures, hrs.	Practical sessions, hrs.	Laboratory sessions, hrs.	In the form of practical studies, hrs.	Independent studies, hrs.	Independent studies monitoring, hrs.	Course progress, Exam/Pass-fail exam/Term
7	4	144	30	80	0		34	0	PFE
8	6	216	30	80	0		70	0	Ex
Total	10	360	60	160	0	160	104	0	

ABSTRACT

The course curriculum is designed based on the requirements for completion of the specialist degree program. Graduates (medical practitioners) must be prepared to address the challenges of diagnosing, treating, and preventing diseases.

During the course, students acquire knowledge, skills, and abilities in diagnosing the main diseases of internal organs, as well as the ability to synthesize and apply this knowledge to establish a clinical diagnosis, examine, and treat patients with internal diseases. Understanding the fundamentals of internal medicine is of paramount importance in the training of physicians in all specialties. Studying internal medicine develops the foundations of clinical reasoning and medical ethics, refines patient examination skills, and develops skills in prescribing effective and safe treatment and disease prevention.

1. ACADEMIC COURSE GOALS AND OBJECTIVES

The purpose of studying this discipline is to develop competencies in the diagnosis, treatment and prevention of common diseases of internal organs that occur in a typical form.

Tasks:

- formation of a system of knowledge about the causes, pathogenesis, clinical manifestations of typical forms, methods of diagnosis, treatment and prevention of diseases of internal organs, the role of social factors in the development of the disease;
- consolidation and improvement of skills for examining a medical patient;
- development of readiness to identify the main pathological conditions, symptoms and syndromes, nosological forms of diseases, and formulate a diagnosis;
- development of skills and abilities in drawing up an examination and treatment plan for diseases of internal organs, interpretation of the results of additional studies in accordance with clinical recommendations in order to establish a diagnosis;
- formation of knowledge for mastering the method of differential diagnostics;
- development of skills to provide medical assistance when identifying signs of emergency and life-threatening conditions;
- to develop skills and abilities in rational choice of treatment for diseases, taking into account the severity of the disease and in accordance with clinical recommendations; the ability to evaluate the effectiveness and safety of the prescribed treatment;
- to develop skills and abilities in implementing medical rehabilitation programs, conducting preventive measures aimed at preventing the development of diseases, complications, and relapses;
- develop clinical thinking from the standpoint of the functional unity of the organism, understanding the role of the environment, the characteristic semiotics of nosologies, the ability to work with scientific literature, regulatory documents in the field of therapy, and maintaining medical records.

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

This course is offered as part of the core curriculum. It builds on the knowledge, skills, and abilities acquired through the study of such disciplines as normal and pathological anatomy, normal

and pathological physiology, topographic anatomy and operative surgery, medical microbiology and virology, immunology, pharmacology, internal medicine, radiation diagnostics, and general surgery.

To obtain a comprehensive understanding of the symptomatology of diseases, the pathogenesis of symptoms, the general methodology of diagnosis, and the development of clinical thinking, it is advisable to study in parallel the faculty course in internal medicine and the faculty course in surgery, obstetrics, interventional cardiology, dermatovenereology, and neurology.

The knowledge, skills and abilities acquired as a result of mastering the discipline are necessary for the subsequent successful mastering of such disciplines as internal medicine hospital course, surgical diseases hospital course, industrial practice of therapeutic, surgical and obstetric-gynecological profile, industrial practice "Outpatient care", industrial practice in emergency conditions and other clinical disciplines.

3. DEVELOPED COMPETENCIES AND INTENDED LEARNING OUTCOMES

Universal and/or general professional competencies:

Competency code and title	Code and title of competency-based rubrics
ОПК-4 [1] – Capable of using medical devices stipulated by the medical care procedures, as well as conducting patient examination for diagnosis establishment.	3-ОПК-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 У-ОПК-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 В-ОПК-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
ОПК-6 [1] – Capable of organizing general nursing, providing primary medical care, ensuring the organization of work and making	3-ОПК-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.

professional decisions in emergencies at the pre-hospital stage, in emergency situations, epidemics and in areas of mass destruction	Y-OIPK-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. B-OIPK-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.
OIPK-7 [1] – Capable of prescribing treatment and monitoring its effectiveness and safety.	3-OIPK-7 [1] – Know: - pharmacological groups of medicinal drugs and their intended purposes; - mechanisms of action of pharmacological and non-pharmacological treatments, indications and contraindications for their use, side effects, and complications caused by their application; - methods for monitoring the effectiveness and safety of various treatment approaches. Y-OIPK-7 [1] – Be able to: - make rational choices for pharmacological and non-pharmacological treatments based on clinical guidelines and in accordance with medical care standards; - develop a treatment plan for a disease or condition considering the diagnosis, age, disease course characteristics, and comorbidities, based on clinical guidelines and medical care standards; - prescribe medications, medical devices, and therapeutic nutrition considering the diagnosis, age, disease course characteristics, and comorbidities, based on clinical guidelines and medical care standards; - justify prescribed pharmacological and non-pharmacological treatments; - evaluate the effectiveness and safety of medications, medical devices, therapeutic nutrition, and other treatment methods. B-OIPK-7 [1] – Possess skills in: - administering medications through various routes of administration; - developing treatment plans for diseases or conditions considering diagnosis, age, disease course characteristics, and comorbidities; - assessing the effectiveness and safety of prescribed treatments.
OIPK-8 [1] – Capable of implementing and monitoring the effectiveness of medical rehabilitation of patients, including during the implementation of individual rehabilitation and habilitation programs for persons with disabilities, and to assess patients' capacity for work.	3-OIPK-8 [1] – Know: - signs of temporary disability and persistent disorders of body functions leading to limitations in life activities; - procedures for conducting temporary disability examinations; - procedures for referring patients for medical and social expertise; - the concept of "Individual Rehabilitation and Habilitation Program for Persons with Disabilities"; - medical indications and contraindications for prescribing spa treatment; - medical indications and contraindications for conducting medical rehabilitation measures, considering the diagnosis, clinical guidelines, procedures, and standards of medical care. Y-OIPK-8 [1] – Be able to: - determine the need for applying natural therapeutic factors, pharmacological and non-pharmacological therapies, and other methods for patients requiring medical rehabilitation and spa treatment; - monitor the effectiveness of medical rehabilitation for patients, including during the implementation of individual rehabilitation and

	habilitation programs for persons with disabilities; - assess patients' capacity for work; - perform medical rehabilitation measures for patients in accordance with current medical care procedures, clinical guidelines, and medical care standards. B-OPIK-8 [1] – Possess skills in: - identifying signs of temporary disability and persistent disorders of body functions leading to limitations in life activities; - referring patients in need of medical rehabilitation to specialist physicians for the implementation of individual rehabilitation program measures, including spa treatment; - completing sick note, referrals for medical and social expertise, and sanatorium treatment cards.
OPIK-9 [1] – Capable of implementing quality management principles in professional activities.	3-OPIK-9 [1] – Know: - principles of quality management; The concept of quality of medical care; - procedure for providing medical care to the adult population in the "Therapy" specialty; - procedure for prescribing medications. Y-OPIK-9 [1] – Be able to: - analyze the results of one's own professional activities to prevent errors; - apply medical care standards and clinical guidelines (treatment protocols) in practical work; - evaluate the correctness of chosen methods of prevention, diagnosis, treatment, and rehabilitation when providing medical care to a specific patient; - assess the degree of achievement of the planned treatment outcome. B-OPIK-9 [1] – Possess skills in: - making medical decisions based on evidence-based medicine (selection of diagnostic, treatment, prevention, and rehabilitation methods), including using electronic knowledge bases; - applying the procedure for prescribing medications; - participating in the assessment of the quality of medical care provided.

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

Professional activity goal	Professional activity knowledge area	Professional competency code and title; Based on the professional standard, experience analysis	Code and title of competency-based rubrics
medical			
Providing medical care to patients in urgent and emergency forms.	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-3.1 [1] - Able to provide medical care to patients in urgent or emergency forms <i>The base:</i> Professional standard: 02.009	3-PIK-3.1[1] - Know: - clinical signs of sudden cessation of breathing, circulation, loss of consciousness, life-threatening mental disorders for the patient or others; - indications for external defibrillation; - principles of external electro-impulse therapy (defibrillation) devices and

			rules for performing external defibrillation; - rules for performing basic cardiopulmonary resuscitation.; Y-IIK-3.1[1] - Be able to: - recognize conditions (sudden acute illnesses, exacerbations of chronic diseases) requiring medical care in urgent or emergency forms; - identify clinical signs of sudden cessation of breathing, circulation, loss of consciousness, life-threatening mental disorders for the patient or others; - organize and perform basic cardiopulmonary resuscitation and external defibrillation measures.; B-IIK-3.1[1] - Possess skills in: - assessing the patient's condition requiring medical care in urgent and emergency forms; - performing basic cardiopulmonary resuscitation; - using medications and medical devices for providing medical care in emergency or urgent forms.
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	IIK-3.2 [1] - Capable of conducting patient examinations to establish a diagnosis <i>The base:</i> Professional standard: 02.009	3-IIK-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).; Y-IIK-3.2[1] - Be able to: - conduct patient history-taking and physical 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.; 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
Providing primary medical care in outpatient settings and day hospital settings.	Individuals (patients); the population; the set of means and technologies aimed at creating conditions for preserving and strengthening the health of the adult population	IIK-3.3 [1] - Able to provide primary medical care in an outpatient setting <i>The base:</i> Professional standard: 02.009	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 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. ; 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.; B-IIK-3.3[1] - Possess
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			skills in: - conducting differential diagnosis with other diseases/conditions, including emergencies; - 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.
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4. PEDAGOGIC POTENTIAL OF THE COURSE

Pedagogic tracks/objectives	Pedagogic goals (code)
Vocational and labor education	Establishing conditions for: formation of a deep understanding of the profession's social role, a positive and active commitment to the values of the chosen specialty, and a responsible attitude towards professional activity and work (B14)
Vocational and labor education	Establishing conditions for: formation of psychological readiness for professional activity in the chosen profession (B15)
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
	7 Semester						

1	The First Section	1-8	20/50/0	T-8 (25)	25	T-8	3-ОПК-4, У-ОПК-4, В-ОПК-4, 3-ОПК-6, У-ОПК-6, В-ОПК-6, 3-ОПК-7, У-ОПК-7, В-ОПК-7, 3-ОПК-8, У-ОПК-8, В-ОПК-8, 3-ОПК-9, У-ОПК-9, В-ОПК-9, 3-ПК-3.1, У-ПК-3.1, В-ПК-3.1, 3-ПК-3.2, У-ПК-3.2, В-ПК-3.2, 3-ПК-3.3, У-ПК-3.3, В-ПК-3.3
2	The Second Section	9-16	10/30/0	T-15 (25)	25	T-15	3-ОПК-4, У-ОПК-4, В-ОПК-4, 3-ОПК-6, У-ОПК-6, В-ОПК-6, 3-ОПК-7, У-ОПК-7, В-ОПК-7, 3-ОПК-8, У-ОПК-8, В-ОПК-8, 3-ОПК-9, У-ОПК-9, В-ОПК-9, 3-ПК-3.1, У-ПК-3.1, В-ПК-3.1, 3-ПК-3.2, У-ПК-3.2, В-ПК-3.2, 3-ПК-3.3, У-ПК-3.3, В-ПК-3.3
	<i>Totals for 7 Semester</i>		30/80/0		50		
	Assessment events for 7 Semester				50	GP	3-ОПК-4, У-ОПК-4, В-ОПК-4,

							3-ОПК-6, У-ОПК-6, В-ОПК-6, 3-ОПК-7, У-ОПК-7, В-ОПК-7, 3-ОПК-8, У-ОПК-8, В-ОПК-8, 3-ОПК-9, У-ОПК-9, В-ОПК-9
	<i>8 Semester</i>						
1	The First Section	1-8	15/40/0	T-8 (25)	25	T-8	3-ОПК-4, У-ОПК-4, В-ОПК-4, 3-ОПК-6, У-ОПК-6, В-ОПК-6, 3-ОПК-7, У-ОПК-7, В-ОПК-7, 3-ОПК-8, У-ОПК-8, В-ОПК-8, 3-ОПК-9, У-ОПК-9, В-ОПК-9, 3-ПК-3.1, У-ПК-3.1, В-ПК-3.1, 3-ПК-3.2, У-ПК-3.2, В-ПК-3.2, 3-ПК-3.3, У-ПК-3.3, В-ПК-3.3
2	The Second Section	9-15	15/40/0	T-14 (25)	25	T-14	3-ОПК-4, У-ОПК-4, В-ОПК-4, 3-ОПК-6, У-ОПК-6, В-ОПК-6, 3-ОПК-7, У-ОПК-7, В-ОПК-7, 3-ОПК-8, У-ОПК-8, В-ОПК-8, 3-ОПК-9, У-ОПК-9, В-ОПК-9,

							3-ПК-3.1, У-ПК-3.1, В-ПК-3.1, 3-ПК-3.2, У-ПК-3.2, В-ПК-3.2, 3-ПК-3.3, У-ПК-3.3, В-ПК-3.3
	<i>Totals for 8 Semester</i>		30/80/0		50		
	Assessment events for 8 Semester				50	Ex	В-ПК-3.1, 3-ПК-3.2, У-ПК-3.2, 3-ОПК-4, У-ОПК-4, В-ОПК-9, 3-ПК-3.1, У-ПК-3.1, В-ОПК-4, 3-ОПК-6, У-ОПК-6, В-ОПК-6, 3-ОПК-7, У-ОПК-7, В-ОПК-7, 3-ОПК-8, У-ОПК-8, В-ОПК-8, 3-ОПК-9, У-ОПК-9, В-ПК-3.2, 3-ПК-3.3, У-ПК-3.3, 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
GP	Graded pass
T	Testing
PFE	Pass/fail examination
Ex	Exam

SYLLABUS

Weeks	Topics / Content	Lect., hrs.	Pr./sem., hrs.	Lab., hrs.
	<i>7 Semester</i>	30	80	0

1-8	The First Section	20	50	0
1 - 8	Diseases of the circulatory system Introduction. Tasks of faculty therapy as an integral part of the study of internal organs diseases. Case history outline. Hypertension. Definition. Etiology and pathogenesis. Risk factors. Classification (stages, degrees). Diagnostics. Clinical manifestations. Additional diagnostic methods. Formulating a diagnosis. Treatment: goals, target blood pressure level. Classes of antihypertensive drugs, approaches to their selection. Prevention. Atherosclerosis. Etiology and pathogenesis of atherosclerosis. Risk factors for the development of cardiovascular diseases. Target organ damage. Criteria. Diagnostic methods. Associated clinical conditions. Dyslipidemia. Lipid-lowering drugs. The place of statins. Cardiovascular risk scale. Coronary artery disease. Risk factors. The role of atherosclerosis in the development of ischemic heart disease. Etiology and pathogenesis. Classification of coronary heart disease. Typical clinical variants. Angina pectoris. Diagnostics. Electrocardiographic signs of myocardial ischemia. Exercise and pharmacological tests, 24-hour ECG monitoring. The role of coronary angiography in diagnostics. Drug treatment of angina. The role of surgical treatment. Aortocoronary bypass grafts, balloon angioplasty, stenting. Prognosis. Prevention. Myocardial infarction. Pathogenesis. Classification. Clinical manifestations. Diagnostics. Treatment. Understanding acute coronary syndrome. Indications and contraindications for the use of drugs and their side effects. Chronic heart failure. Definition. Etiology. Classification by stages, functional classes (NYHA) and ejection fraction. Clinical manifestations taking into account the form, stage and functional class. Instrumental and laboratory diagnostics. Drug and non-drug treatment. Prevention. Prognosis. Arrhythmias. Rhythm and conduction disorders. The role of electrocardiography in diagnostics. The clinical significance of arrhythmias. Treatment. Main groups of antiarrhythmic drugs. Indications and contraindications for the use of drugs for various types of arrhythmias. Indications for cardiac pacing, cardioablation. Rheumatism. Acute rheumatic fever and chronic rheumatic heart diseases. Etiology, pathogenesis, hemodynamic characteristics in various malformations. The significance of streptococcal infections. Diagnostic criteria. Formulating a diagnosis. Treatment. Non-drug and drug treatment, primary and secondary prevention.	All		
		20	50	0
		Online		
		0	0	0
9-16	The Second Section	10	30	0
9 - 16	Diseases of the respiratory system. Acute and chronic bronchitis. Etiology, pathogenesis, classification, clinical manifestations, complications. Protective mechanisms of the respiratory system. The role of smoking in the development of lung and heart diseases. The importance of spirometry in the diagnosis of respiratory failure. Treatment, prevention, prognosis. Acute pneumonia. Etiology, pathogenesis, classification. Atypical pneumonia.	All		
		10	30	0
		Online		
		0	0	0

	Microorganisms. Features of the course. Lung abscess. Bronchiectasis. Pleurisy. Etiology. Diagnosis. The importance of pleural tapping. Treatment. Bronchial asthma. Classification, features of the course, treatment of various types of bronchial asthma. Asthmatic status. Chronic obstructive pulmonary disease. Emphysema. Pulmonary hypertension. Causes, clinical picture, treatment. Chronic pulmonary disease. Etiology, pathogenesis, clinical manifestations, diagnosis, complications, treatment.			
	<i>8 Semester</i>	30	80	0
1-8	The First Section	15	40	0
1 - 3	Acid-dependent diseases of the gastrointestinal tract. Acid-dependent diseases of the gastrointestinal tract. Gastritis. Etiology, pathogenesis, classification, clinical manifestations, diagnosis, treatment, prevention, prognosis. The role of H. pylori. Peptic ulcer of the stomach and duodenum. Etiology, pathogenesis, classification. Clinical manifestations. Diagnosis. Evaluation of gastric secretory function. Treatment and prevention of relapse. Complications of peptic ulcer disease. Gastroesophageal reflux disease. Esophagitis. Barrett's esophagus. Etiology, pathogenesis, clinical manifestations, diagnosis, treatment, prevention. The importance of pH-impedancemetry and high-resolution esophageal manometry for treatment selection.	All		
		6	15	0
		Online		
		0	0	0
4 - 6	Diseases of the liver, gallbladder and pancreas. Diseases of the liver, gallbladder and pancreas. Hepatitis. Etiology, pathogenesis, classification. Diagnostics. Detection of hepatitis markers and other etiologic factors. Clinical manifestations. Non-alcoholic fatty liver disease. Alcoholic liver damage. Diagnostics of liver diseases. Syndromes of cytolysis, cholestasis, hyperbilirubinemia, mesenchymal inflammation, hepatocellular insufficiency. Indications and contraindications for antiviral therapy. Treatment of chronic hepatitis and acute hepatitis of non-viral etiology. Prevention, prognosis. Liver cirrhosis. Classification. Etiology, pathogenesis. Leading clinical and clinical laboratory syndromes. Portal hypertension and hypersplenism syndrome. Features of the clinical course and outcome. Complications. Possibilities of clinical, laboratory and instrumental diagnostics. Drug and non-drug treatment methods. Liver failure. Liver transplantation. Primary biliary cirrhosis of the liver. Etiology, pathogenesis. Clinical data, treatment. Hemochromatosis, Wilson's disease. Etiology, pathogenesis. Clinical data, diagnosis, treatment. Pancreatitis. Etiology, pathogenesis, clinical manifestations, complications, diagnosis. Chronic pancreatitis with exocrine insufficiency. Treatment, prevention, prognosis. Chronic cholecystitis and cholelithiasis. Etiology, pathogenesis, complications, treatment, prevention.	All		
		6	15	0
		Online		
		0	0	0
7 - 8	Bowel diseases. Diverticular disease of the colon. Etiology, pathogenesis, clinical presentation, complications, diagnosis, treatment, and	All		
		3	10	0
		Online		

	prevention. Irritable bowel syndrome. Etiology, pathogenesis, clinical presentation, course variations, diagnosis, diagnostic criteria, and treatment.	0	0	0
9-15	The Second Section	15	40	0
9 - 11	Diseases of the urinary system. Pyelonephritis. Etiology, pathogenesis, classification, clinical presentation, diagnosis, treatment, prevention. Glomerulonephritis. Nephrotic syndrome. Etiology, pathogenesis, clinical presentation, complications, diagnosis, treatment, prevention, outcomes. Renal amyloidosis. Clinical presentation, visceral manifestations. The role of biopsy in the diagnosis of amyloidosis. Acute and chronic renal failure. Etiology, pathogenesis, clinical and laboratory data, diagnosis, complications, treatment. Hemodialysis. Indications and contraindications for its use. Kidney transplantation.	All		
		4	13	0
		Online		
		0	0	0
11 - 13	Blood diseases Anemia, classification. Microcytic, macrocytic, normocytic anemia. Normochromic, hyper- and hypochromic anemia. Iron deficiency anemia. Etiology, pathogenesis, iron metabolism in the body, calculation of iron deficiency. Clinical picture, main syndromes. Diagnostics. Treatment, monitoring of effectiveness, prevention. B12-deficiency and folate deficiency anemia. Megaloblastic anemia. Causes of vitamin B12 and folic acid deficiency. Pathogenesis of anemia, clinical picture. Laboratory diagnostics. Treatment, prevention, prognosis. Hemolytic anemia. Etiology, principles of diagnosis and treatment. Classification. Main forms. Etiology and pathogenesis of autoimmune anemias. Signs of intracellular and intravascular hemolysis. Clinical picture. Laboratory diagnostics. Treatment of autoimmune hemolytic anemias. Aplastic anemia. Etiology, pathogenesis, clinical manifestations, diagnostics, hemoblastoses classification. Acute leukemia. Definition. Etiology and pathogenesis. Classification. Main syndromes and stages of the disease. Laboratory diagnostics. Clinical manifestations. Treatment principles. Outcomes. The role of bone marrow transplantation. Multiple myeloma. Pathogenesis, clinical and laboratory data. Treatment principles. Lymphomas, Hodgkin's disease. Clinical data. Treatment principle. Hemorrhagic conditions.	All		
		5	14	0
		Online		
		0	0	0
13 - 15	Joint diseases Rheumatoid arthritis. Etiology, pathogenesis (the role of autoimmune disorders and genetic factors). Classification. Clinical manifestations. Articular and extra-articular manifestations. Laboratory diagnostics. Instrumental diagnostics. Diagnostic criteria. Course. Prognosis. Treatment. Ways to achieve remission, basic therapy, supportive therapy, monoclonal antibodies. Osteoarthritis. Epidemiology. Etiology and pathogenesis. Clinical picture. The main clinical forms and stages of the course. Diagnostic criteria. Modern approaches to therapy. The drugs used. Indications for orthopedic treatment. Ankylosing spondylitis. Etiology, pathogenesis, clinical picture, diagnosis, treatment. Prognosis. Gout and gouty	All		
		6	13	0
		Online		
		0	0	0

	arthritis. Epidemiology. Etiology and pathogenesis. Clinical picture: acute attack, chronic course. Features of gouty arthritis, tophaceous form. Kidney damage in gout. Diagnostic criteria. Prognosis. Treatment. Prevention, prognosis. Reiter's syndrome. Etiology, pathogenesis, clinical manifestations, diagnosis, complications, treatment.			
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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>7 Semester</i>
1 - 8	Diseases of the circulatory system 1. Introduction. Objectives of faculty therapy as an integral part of studying internal organs diseases. Course structure. Case history outline. 2. Hypertension. 3. Atherosclerosis. Dyslipidemia. 4. Coronary heart disease. Angina. 5. Myocardial infarction. 6. Acute heart failure. 7. Chronic heart failure. 8. Arrhythmias. 9. Myocardial conduction disorders. 10. Acute rheumatic fever and chronic rheumatic heart diseases. 11. Emergencies in cardiology. 12. Modern approaches to diagnostics of heart pain: differential diagnosis, treatment. 13. Cardiomegaly: differential diagnosis. 14. Acute pulmonary heart disease. Pulmonary embolism. 15. Chronic pulmonary heart disease
9 - 16	Respiratory diseases 1. Bronchitis 2. Pneumonia 3. Differential diagnosis of focal lung lesions 4. Bronchiectasis 5. Pleurisy 6. Bronchial asthma 7. Chronic obstructive pulmonary disease 8. Pulmonary hypertension 9. Respiratory failure
	<i>8 Semester</i>

1 - 8	Gastrointestinal diseases 1. Gastritis. 2. Peptic ulcer of the stomach and duodenum. 3. Gastroesophageal reflux disease. Barrett's esophagus. 4. Hepatitis 5. Liver cirrhosis. Portal hypertension 6. Primary biliary cirrhosis 7. Hemochromatosis, Wilson's disease 8. Pancreatitis 9. Chronic cholecystitis and cholelithiasis 10. Diverticular disease of the colon 11. Irritable bowel syndrome
9 - 15	Diseases of the urinary system. Blood diseases. Joint diseases. 1. Acute and chronic pyelonephritis. 2. Glomerulonephritis. 3. Renal amyloidosis. Nephrotic syndrome. 4. Acute renal failure. 5. Chronic renal failure. Blood diseases. 6. Anemia, classification. Iron deficiency anemia. 7. B12-deficiency and folate deficiency anemia. Megaloblastic anemia. 8. Hemolytic anemia. 9. Aplastic anemia. 10. Hemoblastoses. Acute leukemia. 11. Multiple myeloma. 12. Lymphomas, Hodgkin's disease. Joint diseases. 13. Rheumatoid arthritis. 14. Osteoarthritis and osteoarthritis. Ankylosing spondylitis. 15. Gout and gouty arthritis. 16. Reiter's syndrome. Etiology, pathogenesis, clinical manifestations, diagnosis, complications, treatment. 17. Differential diagnosis in articular syndrome.

6. EDUCATIONAL TECHNOLOGIES

The following educational technologies, methods and techniques for developing competencies are used in the process of teaching the discipline:

master class (on basic methods of patient examination);

small group method;

analysis of clinical cases;

practicing practical skills;

patient care and writing of medical history fragments;

preparation and defense of the educational case history;

Elements included in the student's independent work:

preparation for clinical practical classes and midterm certification;

patient supervision and writing of case histories;

working with additional literature and Internet resources.

Clinical practical classes are conducted in medical organizations (clinical bases).

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)	Assessment activity (Syl 2)
ОПК-4	3-ОПК-4	GP, T-8, T-15, T-8, T-15	Ex, T-8, T-14, T-8, T-14
	У-ОПК-4	GP, T-8, T-15, T-8, T-15	Ex, T-8, T-14, T-8, T-14
	В-ОПК-4	GP, T-8, T-15, T-8, T-15	Ex, T-8, T-14, T-8, T-14
ОПК-6	3-ОПК-6	GP, T-8, T-15, T-8, T-15	Ex, T-8, T-14, T-8, T-14
	У-ОПК-6	GP, T-8, T-15, T-8, T-15	Ex, T-8, T-14, T-8, T-14
	В-ОПК-6	GP, T-8, T-15, T-8, T-15	Ex, T-8, T-14, T-8, T-14
ОПК-7	3-ОПК-7	GP, T-8, T-15, T-8, T-15	Ex, T-8, T-14, T-8, T-14
	У-ОПК-7	GP, T-8, T-15, T-8, T-15	Ex, T-8, T-14, T-8, T-14
	В-ОПК-7	GP, T-8, T-15, T-8, T-15	Ex, T-8, T-14, T-8, T-14
ОПК-8	3-ОПК-8	GP, T-8, T-15, T-8, T-15	Ex, T-8, T-14, T-8, T-14
	У-ОПК-8	GP, T-8, T-15, T-8, T-15	Ex, T-8, T-14, T-8, T-14
	В-ОПК-8	GP, T-8, T-15, T-8, T-15	Ex, T-8, T-14, T-8, T-14
ОПК-9	3-ОПК-9	GP, T-8, T-15, T-8, T-15	Ex, T-8, T-14, T-8, T-14
	У-ОПК-9	GP, T-8, T-15, T-8, T-15	Ex, T-8, T-14, T-8, T-14
	В-ОПК-9	GP, T-8, T-15, T-8, T-15	Ex, T-8, T-14, T-8, T-14
ПК-3.1	3-ПК-3.1	T-8, T-15	Ex, T-8, T-14
	У-ПК-3.1	T-8, T-15	Ex, T-8, T-14
	В-ПК-3.1	T-8, T-15	Ex, T-8, T-14
ПК-3.2	3-ПК-3.2	T-8, T-15	Ex, T-8, T-14
	У-ПК-3.2	T-8, T-15	Ex, T-8, T-14
	В-ПК-3.2	T-8, T-15	Ex, T-8, T-14
ПК-3.3	3-ПК-3.3	T-8, T-15	Ex, T-8, T-14
	У-ПК-3.3	T-8, T-15	Ex, T-8, T-14
	В-ПК-3.3	T-8, T-15	Ex, T-8, T-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 И 24 Internal diseases propedeutics : Рекомендовано УМО по медицинскому и фармацевтическому образованию вузов России в качестве учебного пособия для студентов медицинских вузов, обучающихся на английском языке, Ивашкин В.Т., Охлобыстин А.В., Москва: ГЭОТАР-Медиа, 2019

2. ЭИ Н99 Internal Diseases. Volume I : , Martynov A.I. [и др.], Москва: ГЭОТАР-Медиа, 2022
3. ЭИ Н99 Internal Diseases. Volume II : , Martynov A.I. [и др.], Москва: ГЭОТАР-Медиа, 2022
4. ЭИ В56 Внутренние болезни. В 2 томах. Том 1. : учебник, , Москва: ГЭОТАР-Медиа, 2021
5. ЭИ В 60 Внутренние болезни. В 2 томах. Том 2. : , , Москва: ГЭОТАР-Медиа, 2023

FURTHER READING:

1. ЭИ Я 49 Актуальные вопросы кардиологии : учебное пособие, Якушина С.С., Москва: ГЭОТАР-Медиа, 2019
2. ЭИ М22 Аритмии сердца. Тахикардии и брадикардии : Серия "Библиотека врача-специалиста", Заглиева С.С., Заглиев С.Г., Маммаев С.Н., Москва: ГЭОТАР-Медиа, 2019
3. ЭИ К 65 Внутренние болезни. Избранные лекции : учебник, Смотров В. Н. [и др.], Москва: Юрайт, 2024
4. ЭИ Г22 Гастроэзофагеальная рефлюксная болезнь : учебное пособие, Парцвания-Виноградова Е.В. [и др.], Москва: ГЭОТАР-Медиа, 2019
5. ЭИ Г 33 Гематология : национальное руководство : практическое руководство, , Москва: ГЭОТАР-Медиа, 2017
6. ЭИ Ч-96 Клиническая диагностика : учебник, Чучалин А.Г., Бобков Е.В., Москва: ГЭОТАР-Медиа, 2019
7. ЭИ У74 Нефрология : учебное пособие, Гуранова Н.Н., Усанова А.А., Москва: ГЭОТАР-Медиа, 2019
8. ЭИ Л 25 Сердечная недостаточность: актуальные вопросы диагностики, лечения и профилактики с позиций доказательной медицины : учебник для вузов, Таратухин Е. О. [и др.], Москва: Юрайт, 2024

SOFTWARE:

1. Microsoft Office 2016+ ()
2. Windows Media Player ()

LMS AND ONLINE RESOURCES

1. База данных elibrary.ru - научной электронной библиотеки. (<http://elibrary.ru/defaultx.asp/>)
2. Электронная библиотека медицинского вуза. (<http://www.studmedlib.ru/>)
3. www.book.ru ()
4. www.studentlibrary.ru ()
5. www.iprbooks.ru ()

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

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

9. LOGISTICAL SUPPORT

1. Весы напольные с ростомером медицинские Твес ВМЭН-200С-50/100-СТ (64-301)
2. Кушетка смотровая КМС-01 (64-301)
3. Тренажер аускультации сердца и легких Р1060 ФОМА (64-301)
4. Манекен-симулятор для отработки навыков пальпации живота (с контроллером) Z980А (64-301)
5. Электрокардиограф ЭК12Т-01-Р-Д/141 (64-301)
6. Спирограф СМП21-01РД (64-301)
7. Учебный автоматический наружный дефибриллятор МУ0353 (64-301)
8. Мешок Амбу КД-МП-В (64-301)
9. Кушетка медицинская (Клиническая база)
10. Монитор (Клиническая база)
11. Кушетка смотровая (Клиническая база)
12. Иное оснащение, предусмотренное порядками оказания медицинской помощи по соответствующему профилю (Клиническая база)
13. Мышь, клавиатура (Клиническая база)
14. Проектор SMART Р109 (Клиническая база)
15. Видеокамера Microsoft LifeCam Cinema HD (Клиническая база)
16. Кушетка медицинская (Клиническая база)
17. Медицинское оборудование для практической подготовки обучающихся, предусмотренное договором (Клиническая база)
18. Иное оснащение, предусмотренное порядками оказания медицинской помощи по соответствующему профилю (Клиническая база)

10. EDUCATIONAL AND METHODOLOGICAL RECOMMENDATIONS FOR STUDENTS

Recommendations for preparing for classes.

The practical lesson plan, topics, recommended readings, and the course's goals and objectives are communicated by the instructor during introductory classes or in the course's curriculum. Practical

lessons help students gain a deeper understanding of the course material and develop skills for creatively working with scientific literature.

Before you begin studying the topic, you need to familiarize yourself with the main questions of the practical lesson plan and the list of recommended literature.

When preparing for a practical lesson, it's important to first review lecture notes, textbook sections, and teaching aids to gain a general understanding of the topic's place and significance in the course being studied. Then, work with additional literature and take notes on the recommended sources. While studying the recommended material, it's important to understand the structure of the topic being studied, identify key concepts, and follow their logic, thereby gaining insight into the problem being studied. It's important to keep notes of the material being studied, which, along with visual memory, engages motor memory and allows you to accumulate a personalized resource for quickly reviewing what you've read and mobilizing your accumulated knowledge.

Basic note-taking forms: outline (simple and detailed), excerpts, and abstracts. During preparation, it's important to compare sources, consider the material being studied, develop an action plan, and carefully consider your oral presentation.

Clinical practical classes

A key stage of the practical lesson is students' independent work on mastering practical skills: in simulated conditions, at the patient's bedside, in the functional diagnostics room, etc. Depending on the specific lesson topic, the student independently (or under the instructor's supervision) interviews the patient, conducts a clinical examination, observes instrumental diagnostics, and studies the results of additional tests, summarizes the data, presents it as fragments of the patient's medical history, and reports the results to the instructor. Each student's achievements are assessed individually, based on their development of practical skills and their theoretical foundations.

Clinical case studies of specific patients are conducted for the entire group or through students' participation in clinical case studies and periodic scientific and practical conferences at the medical institutions where their practical training takes place. During these case studies, the instructor evaluates each student's active participation and clinical reasoning skills.

Solving situational problems proposed by the teacher, which develop clinical thinking and force the student to use knowledge gained in various subjects of the specialty.

Recommendations for preparing for the test.

Test – 10-15 – 20-25 points. Each question – 1 (2) point.

TOPICS: are indicated in each specific section

Answer requirement: a clear, detailed answer (2 points/task) or choosing the correct answer to the test task (1 point/task).

Recommendations for preparing for a test/exam

Response requirements and evaluation criteria:

An "excellent" grade of 45-50 points on a test/exam is awarded for: a correct, complete, and logically constructed answer; the ability to use specialized terminology; the ability to illustrate theoretical principles with practical material.

A "good" grade of 35–44 points on the exam is awarded for: a correct, complete, and logically constructed answer with minor errors or inaccuracies; the ability to use specialized terminology, but incomplete conclusions or generalizations are made.

A "satisfactory" grade of 30–34 points on the exam is given for: a schematic, incomplete answer; inability to use special terms or ignorance of them; with one serious error;

An "unsatisfactory" grade of <30 points on the exam is given for: answering all questions on the ticket with serious errors; inability to use specialized terminology; inability to give examples of the practical use of scientific knowledge.

Admission to the exam in a discipline is granted if the number of points exceeds 30.

A student can score from 30 to 50 points per semester.

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

11. EDUCATIONAL AND METHODOLOGICAL RECOMMENDATIONS FOR TEACHERS

A key stage of the practical lesson is students' independent work on mastering practical skills: in simulated conditions, at the patient's bedside, in the functional diagnostics room, etc. Depending on the specific lesson topic, the student independently (or under the instructor's supervision) interviews the patient, conducts a clinical examination, observes instrumental diagnostics, and studies the results of additional tests, summarizes the data, presents it as fragments of the patient's medical history, and reports the results to the instructor. Each student's achievements are assessed individually, based on their development of practical skills and their theoretical foundations.

Clinical case studies of specific patients are conducted for the entire group or through students' participation in clinical case studies and periodic scientific and practical conferences at the medical institutions where their practical training takes place. During these case studies, the instructor evaluates each student's active participation and clinical reasoning skills.

Solving situational problems proposed by the teacher, which develop clinical thinking and force the student to use knowledge gained in various subjects of the specialty.

Grading and criteria for test papers, extended answer tests, homework assignments, and the final test:

1) - Test papers are graded according to the following scheme: 1 point for every 1 correct answer. A student who has not started work receives (-1) point.

2) - Tests with a detailed answer are assessed according to the following scheme: complete answer – 2 points, incomplete answer – 1 point, no answer – 0 points, student did not start work – (-2) points.

3) – All students must complete their homework to be eligible for the final assessment. Late submissions will result in a -1 point deduction from the final grade.

4) - Report/presentation evaluation criteria. Recalculation from a 100-point to a 10 (5)-point system

5) - Essay evaluation criteria. Maximum 10 points. It may be expanded to a 5-point system.

10 points are awarded if all requirements for writing an abstract are met: the problem is identified and its relevance is justified, a brief analysis of the problem under consideration is made and the author's position is logically presented, conclusions are formulated, the article is analyzed in full, the length is maintained, and the formatting requirements are met.

9 points are awarded if the following requirements for writing an abstract are met: the problem is identified and its relevance is justified, a brief analysis of the problem under consideration is made and the author's position is logically stated, conclusions are formulated, the article is analyzed in full, but the volume is not maintained and the formatting requirements are not met.

8 points – the paper meets the basic requirements, but some shortcomings remain. Specifically, there are inaccuracies in the presentation of the material; there is a lack of logical consistency in the arguments; the paper's length is not maintained; and there are omissions in the formatting.

7 points – the main requirements for the abstract have been met, but the following shortcomings have been made: there are inaccuracies in the presentation of the material; there is no logical consistency in the judgments; conclusions have not been formulated, the length of the abstract is not maintained; there are omissions in the design

6 points – there are significant deviations from the abstracting requirements; the topic is only partially covered; there are factual errors in the abstract content, conclusions and a personal point of view on the problem are missing.

5 points – there are significant deviations from the abstract requirements: the topic is only partially covered; there are factual errors in the presentation of materials and methods, conclusions and a personal point of view on the problem are missing, the format is not maintained.

4 points – there are significant deviations from the requirements for the abstract: the relevance of the topic is not disclosed; factual errors were made in the presentation of materials and methods, conclusions and a personal point of view on the problem are missing, the format is not maintained

3 points – there is no analysis of the relevance of the research topic, approaches and methods used, while the volume of the abstract is formally observed.

2 points – the topic of the paper is not fully explored, revealing a significant lack of understanding of the problem. However, the paper's length and formal requirements are met.

1 point – the topic of the paper is not covered, a significant misunderstanding of the problem is revealed.

0 points – the student did not submit an abstract.

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