

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

DEPARTMENT OF FUNDAMENTAL MEDICINE

APPROVED ИТС ИФИБ

Protocol No. 3.1

dated 30.08.2024

ACADEMIC COURSE OUTLINE

ГОСПИТАЛЬНАЯ ХИРУРГИЯ / HOSPITAL SURGERY

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
10	4	144	20	40	0		48	0	Ex
9	3	108	20	60	0		28	0	PFE
Total	7	252	40	100	0	100	76	0	

ABSTRACT

The course program is based on the requirements for the completion of the specialist program. Graduates (physicians) must be prepared to diagnose, treat, and prevent diseases. In the course of studying the discipline, students acquire knowledge, skills, and abilities in the diagnosis of surgical diseases, learn to determine the scope of additional studies necessary to confirm and refine the diagnosis, select the optimal scope of surgical intervention and the scope of the operation, and determine effective ways to prevent diseases.

1. ACADEMIC COURSE GOALS AND OBJECTIVES

The aim of the course is to develop competencies in diagnosis, differential diagnosis, determination of treatment tactics, and provision of emergency care for the most common surgical diseases in their typical and atypical manifestations, as well as in complicated forms of pathology.

Objectives:

- to develop a system of knowledge about the causes, pathogenesis, semiotics, methods of diagnosis, treatment, and prevention of diseases requiring surgical treatment;
- to develop the ability to identify the main pathological conditions, symptoms, and syndromes, nosological forms of surgical diseases, and formulate a diagnosis;
- to develop the skills and abilities to draw up a plan for examination and treatment of surgical pathology, to interpret the results of special studies in accordance with clinical recommendations in order to establish a diagnosis;
- to develop the readiness and ability to provide medical care to patients when signs of urgent and life-threatening conditions are detected;
- developing the skills and abilities to make rational choices, indications and contraindications for use, the scope of surgical and conservative treatment of surgical diseases, including minimally invasive, endoscopic, endovascular methods, 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;
- develop the skills and abilities to carry out preventive measures aimed at preventing the development of diseases, complications, and relapses;
- develop clinical thinking, the ability to work with scientific literature, regulatory documents in the field of surgery, and medical record keeping.

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

The discipline is implemented as part of the main part of the educational program. It is based on the knowledge, skills, and abilities acquired in the course of studying such disciplines as normal and pathological anatomy, normal and pathological physiology, topographic anatomy and operative surgery, medical microbiology and virology, immunology, pharmacology, propaedeutics of internal diseases, radiation diagnostics, general surgery, faculty therapy, faculty surgery, obstetrics, neurology and neurosurgery, dermatology and venereology.

To gain a comprehensive understanding of the symptomatology of diseases, the pathogenesis of symptoms, general diagnostic methodology, and the development of clinical thinking, it is advisable to study the hospital course of surgery and the hospital course of internal medicine, gynecology, interventional cardiology, and infectious diseases in parallel.

The knowledge, skills, and abilities acquired as a result of mastering the discipline are necessary for the subsequent successful mastery of clinical disciplines, surgical and obstetric-gynecological internships, the "Polyclinic Practice" internship, and internships in emergency conditions.

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 Y-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 B-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 professional decisions in emergencies at the pre-hospital stage, in emergency situations,	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. Y-ОПК-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

epidemics and in areas of mass destruction	work in emergency situations, epidemics, and in mass casualty zones. 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.
OPIK-7 [1] – Capable of prescribing treatment and monitoring its effectiveness and safety.	3-OPIK-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-OPIK-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-OPIK-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.
OPIK-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-OPIK-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-OPIK-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-OIPK-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.
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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	IIPK-3.1 [1] - Able to provide medical care to patients in urgent or emergency forms <i>The base:</i> Professional standard: 02.009	3-IIPK-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-IIPK-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 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.
organizational and managerial			
Collection of medical data, medical and statistical analysis of information on the population health	Individuals (patients); the population; the set of means and technologies aimed at creating conditions for	IIK-3.4 [1] - Able to analyze population health indicators <i>The base:</i>	3-IIK-3.4[1] - Know: - factors shaping human health; - main medical-statistical indicators characterizing population

indicators for various age and sex groups.	preserving and strengthening the health of the adult population	Professional standard: 02.022	health, methods for their calculation; - methodologies for collecting medical-statistical information.; Y-IIK-3.4[1] - Be able to: - analyze statistical indicators of morbidity with temporary disability, disability, mortality.; B-IIK-3.4[1] - Possess skills in: - analyzing official statistical reporting, including federal and industry statistical observation forms.
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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
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	<i>9 Semester</i>						
1	The First Section	1-8	8/28/0	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-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, 3-ПК-3.4, У-ПК-3.4, В-ПК-3.4
2	The Second Section	9-16	12/32/0	T-16 (25)	25	T-16	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-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, 3-ПК-3.4, У-ПК-3.4, В-ПК-3.4
	<i>Totals for 9 Semester</i>		20/60/0		50		
	Assessment events for 9 Semester				50	PFE	3-ПК-3.3, У-ПК-3.3,

							В-ПК-3.3, 3-ПК-3.4, У-ПК-3.4, В-ПК-3.4, 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-ПК-3.1, У-ПК-3.1, В-ПК-3.1, 3-ПК-3.2, У-ПК-3.2, В-ПК-3.2
	<i>10 Semester</i>						
1	The First Section	1-8	10/20/0	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-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, 3-ПК-3.4, У-ПК-3.4, В-ПК-3.4
2	The Second Section	9-15	10/20/0	T-14 (25)	25	T-14	3-ОПК-4, У-ОПК-4, В-ОПК-4, 3-ОПК-6, У-ОПК-6,

							В-ОПК-6, З-ОПК-7, У-ОПК-7, В-ОПК-7, З-ОПК-8, У-ОПК-8, В-ОПК-8, З-ПК-3.1, У-ПК-3.1, В-ПК-3.1, З-ПК-3.2, У-ПК-3.2, В-ПК-3.2, З-ПК-3.3, У-ПК-3.3, В-ПК-3.3, З-ПК-3.4, У-ПК-3.4, В-ПК-3.4
	<i>Totals for 10 Semester</i>		20/40/0		50		
	Assessment events for 10 Semester				50	Ex	З-ОПК-4, У-ОПК-4, В-ОПК-4, З-ОПК-6, У-ОПК-6, В-ОПК-6, З-ОПК-7, У-ОПК-7, В-ОПК-7, З-ОПК-8, У-ОПК-8, В-ОПК-8, З-ПК-3.1, У-ПК-3.1, В-ПК-3.1, З-ПК-3.2, У-ПК-3.2, В-ПК-3.2, З-ПК-3.3, У-ПК-3.3, В-ПК-3.3, З-ПК-3.4, У-ПК-3.4, В-ПК-3.4

* – 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
T	Testing
PFE	Pass/fail examination

Ex	Exam
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SYLLABUS

Weeks	Topics / Content	Lect., hrs.	Pr./sem., hrs.	Lab., hrs.
	<i>9 Semester</i>	20	60	0
1-8	The First Section	8	28	0
1 - 4	Thoracic surgery Purulent diseases of the lungs and pleura. Classification of purulent diseases of the lungs and pleura. Clinical symptoms. Lung abscesses, pleural empyema. Diagnosis. Principles of surgical tactics for acute purulent diseases of the lungs and pleura. Indications for surgical treatment, timing of surgical intervention, choice of surgical method. Results of treatment of acute purulent diseases of the lungs and pleura. Tumors and cysts of the mediastinum. Benign lung tumors. Lung cancer. Classification, main clinical syndromes, diagnosis, treatment, prevention, prognosis.	All		
		4	14	0
		Online		
		0	0	0
5 - 8	Dysphagia syndrome and surgical diseases of the esophagus. The most common causes of dysphagia (tumors, cardiospasm, achalasia of the cardia, hiatal hernias) pathogenesis, clinical manifestations, diagnosis and differential diagnosis, treatment, prevention, prognosis. Esophageal injuries. Benign diseases of the esophagus. Principles of surgical tactics for achalasia of the cardia and hiatal hernias. Esophageal cancer. Early diagnosis, possibilities of minimally invasive surgical treatment, radical surgical interventions. Radiation therapy for esophageal cancer. Treatment results.	All		
		4	14	0
		Online		
		0	0	0
9-16	The Second Section	12	32	0
9 - 12	Abdominal surgery. Surgery of the hepatopancreatoduodenal zone. Pancreatic tumors. Classification of pancreatic tumors. Clinical semiotics of pancreatic cancer. Liver tumors. Classification of the most common liver tumors. Epidemiology and etiology of hepatocellular carcinoma. Clinical picture of liver tumors. Diagnosis and differential diagnosis. Principles of surgical tactics. Treatment results Jaundice. Mechanical jaundice, etiology, clinical presentation, diagnosis, treatment. Diagnosis and differential diagnosis of mechanical and parenchymal jaundice. Principles of surgical tactics (indications for surgery, timing of surgery, preoperative preparation, choice of surgical method). Treatment outcomes. Postcholecystectomy syndrome. Causes of development, classification. Clinical manifestations. Residual choledocholithiasis, strictures of the common bile duct and duodenum, biliary fistulas, etc. Differential diagnosis and	All		
		6	16	0
		Online		
		0	0	0

	treatment tactics. Repeat operations on the biliary tract The main objectives of emergency endoscopic examination in urgent diseases of the pancreatobiliary zone. Basic and additional methods of endoscopic diagnosis. Definition of the concept of acute obstruction of the terminal part of the common bile duct and the major duodenal papilla. Endoscopic interventions for tumor and scar strictures of the biliary tract. Portal hypertension syndrome. Classification, diagnosis, complications, surgical treatment, prognosis. Diseases of the spleen. Differential diagnosis of forms of portal hypertension. Principles of surgical tactics. Surgical treatment. Timing of surgery. Results of treatment for portal hypertension			
13 - 16	Abdominal surgery. Diseases of the operated stomach. Gastrointestinal bleeding. Diseases of the operated stomach. Post-gastrectomy complications. Classification. Peptic ulcer of the jejunum, afferent loop syndrome, dumping syndrome, gastrocolic fistula, etc. Causes, clinical picture. Diagnostic methods. Treatment tactics. Reconstructive surgery methods. Stomach cancer Clinical presentation. Classification. Diagnostic methods. Treatment tactics Gastrointestinal bleeding. Etiology and pathogenesis. Classification. Clinical presentation, diagnosis. Differential diagnosis of bleeding. Surgical tactics. Conservative treatment methods. Choice of surgical treatment. Preoperative preparation, infusion therapy, and postoperative management. The main objectives of emergency endoscopic examination in acute gastrointestinal bleeding. Basic and additional methods of endoscopic diagnosis. The main sources of acute bleeding from the upper digestive tract (own data). Classification of ulcerative bleeding according to Forrest. Endoscopic criteria for high risk of recurrence of ulcerative gastroduodenal bleeding. Treatment tactics in patients with ulcerative gastroduodenal bleeding	All		
		6	16	0
		Online		
		0	0	0
	10 Semester	20	40	0
1-8	The First Section	10	20	0
1 - 3	Vascular surgery. Acute mesenteric circulatory disorders Acute mesenteric circulatory disorders. Mesenteric thrombosis. Classification, etiology, and pathogenesis. Clinical picture. Principles of diagnosis, differential diagnosis. Surgical tactics.	All		
		4	8	0
		Online		
		0	0	0
4 - 8	Vascular surgery Chronic obliterating diseases of the arteries of the extremities Acute thrombosis and embolism of the main arteries of the extremities. Aneurysms of the aorta and arteries Acute thrombosis of the main veins. Pulmonary artery thromboembolism Chronic venous insufficiency of the lower extremities. Diseases	All		
		6	12	0
		Online		
		0	0	0

	of the veins. Varicose veins, post-thrombophlebitic disease. Congenital diseases of the veins. Thrombophlebitis and phlebothrombosis of the extremities. Superior and inferior vena cava syndrome. Pulmonary embolism. VTE. Lymphedema			
9-15	The Second Section	10	20	0
9 - 12	Endocrine surgery Surgical treatment of goiter. Clinical classification of goiter. Etiology, pathogenesis, clinical picture of thyroid and parathyroid gland tumors. Principles of diagnosis and differential diagnosis. Examination plan. Basic principles of surgical treatment. Nature of surgical interventions. Possible complications of the disease and the likelihood of recurrence. Contraindications to surgical treatment. Risk assessment. Prognosis. Principles of patient management in the postoperative period.	All		
		4	10	0
		Online		
		0	0	0
13 - 15	Fundamentals of cardiac surgery. Fundamentals of transplantology. Fundamentals of cardiac surgery Surgical treatment of congenital and acquired heart defects. Surgical treatment of arrhythmias. Minimally invasive interventions for ischemic heart disease. Fundamentals of transplantology. Heart, liver, and kidney transplantation	All		
		6	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>9 Semester</i>
1 - 4	Thoracic surgery 1. Suppurative diseases of the lungs and pleura. Classification of purulent diseases of the lungs and pleura. Clinical symptoms. Lung abscesses, pleural empyema. Diagnosis. Principles of surgical tactics for acute purulent diseases of the lungs and pleura. Indications for surgical treatment, timing of surgical intervention, choice of surgical method. Results of treatment of acute purulent diseases of the lungs and pleura. 2. Mediastinal tumors and cysts. 3. Benign lung tumors. Lung cancer. Classification, main clinical syndromes, diagnosis, treatment, prevention, prognosis.

5 - 8	Dysphagia syndrome and surgical diseases of the esophagus. 1. The most common causes of dysphagia (tumors, cardiospasm, achalasia of the cardia, hiatal hernias) pathogenesis, clinical manifestations, diagnosis and differential diagnosis, treatment, prevention, prognosis. Esophageal injuries. Benign diseases of the esophagus. Principles of surgical tactics for achalasia of the cardia and hiatal hernias. 2. Esophageal cancer. Early diagnosis, possibilities of minimally invasive surgical treatment, radical surgical interventions. Radiation therapy for esophageal cancer. Treatment results.
9 - 12	Surgery of the hepatopancreatoduodenal zone. 1. Tumors of the pancreas. Classification of pancreatic tumors. Clinical semiotics of pancreatic cancer. 2. Liver tumors. Classification of the most common liver tumors. Epidemiology and etiology of hepatocellular carcinoma. Clinical picture of liver tumors. Diagnosis and differential diagnosis. Principles of surgical tactics. Treatment results. 3. Jaundice. Mechanical jaundice, etiology, clinical presentation, diagnosis, treatment. Diagnosis and differential diagnosis of mechanical and parenchymal jaundice. Principles of surgical tactics (indications for surgery, timing of surgery, preoperative preparation, choice of surgical method). Treatment outcomes. 4. Postcholecystectomy syndrome. Causes of development, classification. Clinical manifestations. Residual choledocholithiasis, strictures of the common bile duct and duodenal papilla, biliary fistulas, etc. Differential diagnosis and treatment tactics. Repeated operations on the biliary tract. 5. Emergency endoscopic examination for urgent diseases of the pancreatobiliary zone. Basic and additional methods of endoscopic diagnosis. Definition of acute obstruction of the terminal bile duct and major duodenal papilla. Endoscopic interventions for tumor and scar strictures of the biliary tract. 6. Portal hypertension syndrome. Classification, diagnosis, complications, surgical treatment, prognosis. Diseases of the spleen. Differential diagnosis of forms of portal hypertension. Principles of surgical tactics. Surgical treatment. Timing of surgery. Results of treatment of portal hypertension.
13 - 16	Abdominal surgery. Diseases of the operated stomach. Gastrointestinal bleeding. 1. Diseases of the operated stomach. Post-gastrectomy complications. Classification. Peptic ulcer of the jejunum, afferent loop syndrome, dumping syndrome, gastrocolic fistula, etc. Causes, clinical picture. Diagnostic methods. Treatment tactics. Reconstructive surgery methods. 2. Stomach cancer. Clinical presentation. Classification. Diagnostic methods. Treatment tactics 3. Gastrointestinal bleeding. Etiology and pathogenesis. Classification. Clinical presentation, diagnosis. Differential diagnosis of bleeding. Surgical tactics. Conservative treatment methods. Choice of surgical treatment. Preoperative preparation, infusion therapy, and postoperative management. 4. Main objectives of emergency endoscopic examination in acute gastrointestinal bleeding. Basic and additional methods of endoscopic diagnosis. Main sources of acute bleeding from the upper digestive tract (own data). Classification of ulcerative bleeding according to Forrest. Endoscopic criteria for high risk of recurrence of ulcerative gastroduodenal bleeding. Treatment tactics in patients with ulcerative gastroduodenal bleeding.
	<i>10 Semester</i>
1 - 3	Vascular surgery. Acute mesenteric circulatory disorders Acute mesenteric circulatory disorders. Mesenteric thrombosis. Classification, etiology, and pathogenesis. Clinical picture. Principles of diagnosis, differential diagnosis. Surgical

	tactics.
4 - 8	Vascular surgery 1. Chronic obliterating diseases of the arteries of the extremities 2. Acute thrombosis and embolism of the main arteries of the extremities. Aneurysms of the aorta and arteries 3. Acute thrombosis of the main veins. Pulmonary artery thromboembolism 4. Chronic venous insufficiency of the lower extremities. Diseases of the veins. Varicose veins, post-thrombophlebitic disease. Congenital diseases of the veins. Thrombophlebitis and phlebothrombosis of the extremities. Superior and inferior vena cava syndrome. 5. Pulmonary embolism. VTE. Lymphedema.
9 - 12	Endocrine surgery 1. Surgical treatment of goiter. Clinical classification of goiter. Etiology, pathogenesis, clinical picture of thyroid and parathyroid gland tumors. Principles of diagnosis and differential diagnosis. Examination plan. Basic principles of surgical treatment. Nature of surgical interventions. Possible complications of the disease and the likelihood of recurrence. Contraindications to surgical treatment. Risk assessment. Prognosis. Principles of patient management in the postoperative period.
13 - 15	Fundamentals of cardiac surgery. Fundamentals of transplantology. 1. Fundamentals of cardiac surgery. Surgical treatment of congenital and acquired heart defects. Surgical treatment of arrhythmias. Minimally invasive interventions for ischemic heart disease. 2. Fundamentals of transplantology. Heart, liver, and kidney transplants.

6. EDUCATIONAL TECHNOLOGIES

Along with the traditional method of conducting clinical practical classes, the following is provided for:

1. Conducting classes using computer training programs, with analysis of clinical cases
2. For independent work, students are encouraged to prepare abstracts, reports, and presentations for practical classes and to work with additional literature.
3. Work in a student research team

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	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
	У-ОПК-4	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
	В-ОПК-4	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14

ОПК-6	З-ОПК-6	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
	У-ОПК-6	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
	В-ОПК-6	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
ОПК-7	З-ОПК-7	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
	У-ОПК-7	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
	В-ОПК-7	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
ОПК-8	З-ОПК-8	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
	У-ОПК-8	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
	В-ОПК-8	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
ПК-3.1	З-ПК-3.1	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
	У-ПК-3.1	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
	В-ПК-3.1	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
ПК-3.2	З-ПК-3.2	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
	У-ПК-3.2	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
	В-ПК-3.2	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
ПК-3.3	З-ПК-3.3	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
	У-ПК-3.3	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
	В-ПК-3.3	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
ПК-3.4	З-ПК-3.4	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
	У-ПК-3.4	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, T-8, T-14
	В-ПК-3.4	PFE, T-8, T-16, T-8, T-16	Ex, T-8, T-14, 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 М59 Surgical diseases. Vol. 1. : учебное пособие, Merzlikin N.V., Москва: ГЭОТАР-Медиа, 2021
2. ЭИ Х 50 Хирургические болезни : , , Москва: ГЭОТАР-Медиа, 2022
3. ЭИ Р 61 Эндоскопия: методы диагностики и лечения в хирургической практике : учебное пособие для вузов, Соколов А. А. [и др.], Москва: Юрайт, 2024

FURTHER READING:

1. ЭИ A19 Acute Care Surgery Handbook : Volume 2 Common Gastrointestinal and Abdominal Emergencies, , Cham: Springer International Publishing, 2016
2. ЭИ J27 Atlas of Breast Surgery : , Kaufmann, Manfred. , Jatoi, Ismail. , Petit, Jean Y. , Berlin, Heidelberg: Springer Berlin Heidelberg,, 2006
3. ЭИ A90 Atlas of Endoscopic Plastic Surgery : , , Cham: Springer International Publishing, 2016
4. ЭИ A90 Atlas of Upper Gastrointestinal and Hepato-Pancreato-Biliary Surgery : , , Berlin, Heidelberg: Springer Berlin Heidelberg, 2016
5. ЭИ K85 Care for Surgical Patients : учебное пособие, Kondusova Yu.V., Kruchkova A.V., Poletayeva I.A., Москва: ГЭОТАР-Медиа, 2020
6. ЭИ E50 Emergency Surgery Course (ESC®) Manual : The Official ESTES/AAST Guide, , Cham: Springer International Publishing, 2016
7. ЭИ E54 Endoscopic Diagnosis of Superficial Gastric Cancer for ESD : , , Tokyo: Springer Japan, 2016
8. ЭИ Г 72 General surgery : Рекомендовано УМО по медицинскому и фармацевтическому образованию вузов России в качестве учебного пособия для иностранных студентов медицинских вузов, Гостищев В.К., Москва: ГЭОТАР-Медиа, 2020
9. ЭИ T44 The Course of Faculty (Analitical) Surgery in Pictures, Tables and Schemes : учебное пособие, , Москва: ГЭОТАР-Медиа, 2017
10. ЭИ И90 The Medical History of a Surgical Patient : учебник, , Москва: ГЭОТАР-Медиа, 2018
11. ЭИ А 13 Абдоминальная хирургия : , , Москва: ГЭОТАР-Медиа, 2021
12. ЭИ K89 Клиническая хирургия: обследование пациента : практическое руководство, Кузнецов Н.А., Москва: ГЭОТАР-Медиа, 2020
13. ЭИ М 48 Лапароскопия: метод биполярной биинструментальной коагуляции : учебное пособие для вузов, Малышев В. В., Мельников Н. В., Москва: Юрайт, 2024
14. ЭИ O75 Основы ангиологии : учебное пособие, , Москва: ГЭОТАР-Медиа, 2018
15. ЭИ P34 Результаты и качество жизни больных после пилоросохранной резекции желудка при раке : учебное пособие, Куликов Е.П., Мерцалов С.А., Москва: ГЭОТАР-Медиа, 2018
16. ЭИ Х 98 Трансплантология : , Хубутия М.Ш., Moscow: ГЭОТАР-Медиа, 2016
17. ЭИ О-28 Хирургические болезни. Руководство к практическим занятиям : учебное пособие, , Москва: ГЭОТАР-Медиа, 2023
18. ЭИ П14 Эндоскопия желудочно-кишечного тракта : монография, Палевская С.А., Короткевич А.Г., Москва: ГЭОТАР-Медиа, 2022

SOFTWARE:

1. Microsoft Office 2016+ ()

LMS AND ONLINE RESOURCES

1. Terminologia Anatomica (<http://terminologia-anatomica.org/en>)
 2. Anatomical Dictionary. (<https://www.memorixanatomy.com/dictionary>)
 3. Biopac Students System (<https://www.biopac.com/support/bsl-analysis-student-rsd-download/>)
 4. База данных elibrary.ru - научной электронной библиотеки. (<http://elibrary.ru/defaultx.asp/>)
 5. Электронная библиотека медицинского вуза. (<http://www.studmedlib.ru/>)
 6. www.book.ru ()
- <https://online.mephi.ru/>
- <http://library.mephi.ru/>

9. LOGISTICAL SUPPORT

1. Тренажер интубации с контроллером (64-301)
2. Манекен сердечно-легочной реанимации Р4201CPR ВОЛОДЯ. Модификация 1 (64-301)
3. Учебный автоматический наружный дефибриллятор МУ0353 (64-301)
4. Мышь, клавиатура (Клиническая база)
5. Проектор SMART P109 (Клиническая база)
6. Кушетка медицинская (Клиническая база)
7. Монитор (Клиническая база)
8. Медицинское оборудование для практической подготовки обучающихся, предусмотренное договором (Клиническая база)
9. Иное оснащение, предусмотренное порядками оказания медицинской помощи по соответствующему профилю (Клиническая база)
10. Интерактивный лапароскопический тренажер для отработки базовых навыков ЛТК-1.04 (МУ0614) с инструмен (64-301)
11. Персональный компьютер (База клиническая)

10. EDUCATIONAL AND METHODOLOGICAL RECOMMENDATIONS FOR STUDENTS

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, you should 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, consult additional literature and take notes on the recommended sources.

In the process of studying the recommended material, it is necessary to understand the structure of the topic being studied, identify the main points, follow their logic and thereby delve into the essence of the problem being studied.

It is necessary to keep records of the material being studied in the form of notes, which, along with visual memory, also includes motor memory and allows for the accumulation of an individual fund of auxiliary materials for the rapid repetition of what has been read, for the mobilization of accumulated knowledge.

Clinical practical classes

The most important stage of the practical lesson is the 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 topic of the lesson, the student independently (or under the supervision of the teacher) questions the patient, conducts a clinical examination, is present during instrumental diagnostics and studies the results of additional studies, summarizes the data, presents it in the form of fragments of the medical history and reports the results to the teacher.

Achievements are assessed individually for each student, based on the degree of 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.

Active and interactive forms of conducting classes are widely used in the educational process (work in small groups, activation of creative activities, use of computer training programs, conference classes).

The teacher supervises the students' independent work, preparation of abstracts, research and development work, work with the patient together with the teacher, interpretation of data from additional research methods, and completion of medical documentation.

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

Recommendations for preparing for the test.

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

TOPICS: Specified in each specific section

Answer requirements: A clear, detailed answer (2 points/question) or a choice of the correct answer to the test question (1 point/question).

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 based on a score of over 30 points.

A student can earn between 30 and 50 points per semester.

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

11. EDUCATIONAL AND METHODOLOGICAL RECOMMENDATIONS FOR TEACHERS

In the process of organizing and conducting the educational process, teachers must be able to plan and organize their time, which allows them to distribute the teaching load and is an important condition for successful teaching of the discipline.

Teachers should actively participate in the educational process and prepare for it. The need for constant preparation for lectures, seminars, and practical classes is due to the need to reflect modern approaches, views, and data on topics and sections. When preparing for the educational process, it is necessary to study modern methodological recommendations, the results of scientific research, new technologies, etc.

The goal of the teacher's work should be the effective perception of the material by the students. The following types of educational work are implemented in the teaching process: lectures, seminars and practical classes, and independent work. When implementing various types of educational activities, the teacher should use educational technologies (creation of interactive presentations, educational computer programs, thinking development technologies (effective lectures, tables, group work, etc.)).

When implementing the discipline, the following tasks should be focused on.

1. Formation of theoretical foundations: study of key concepts and principles of surgery, including anatomy, physiology, and pathophysiology of organs and systems, which is the basis for understanding surgical interventions.

2. Clinical skills: mastering the skills of preoperative preparation of patients, including diagnosis and selection of the optimal surgical intervention tactics.

3. Postoperative care and rehabilitation: significant attention is paid to methods of caring for patients after surgery, including assessment of the recovery period and possible complications.

4. Current treatment methods: familiarizing students with modern surgical technologies, such as minimally invasive, laparoscopic, and robotic surgery, as well as the use of innovative materials and instruments, and a modern approach to conservative treatment of surgical diseases.

5. Ethics, deontology, and legal aspects: discussion of issues of medical ethics and legal responsibility in surgical practice, which contributes to the formation of professional and moral guidelines for future doctors.

Grading and criteria for tests, extended response assignments, homework, and final exams:

- 1) - Tests are graded on a scale of 1 point per correct answer. If a student did not attempt the test, they receive (-1) point.

2) - Extended response tests are graded according to the following scheme: complete answer – 2 points, incomplete answer – 1 point, no answer – 0 points, student did not attempt the test – (-2) points.

3) – Homework must be completed by all students in order to be admitted to the final assessment. Late work will result in a deduction from the final score (-1) point.

4) - Criteria for evaluating the presentation report. Conversion from a 100-point to a 10 (5)-point system

5) - Criteria for evaluating the abstract. Maximum 10 points. May be converted to a 5-point system

10 points are awarded if all the requirements for writing an essay are met: the problem is identified and its relevance is justified, a brief analysis of the problem under consideration is made and one's own position is logically presented, conclusions are formulated, the article is analyzed in full, the volume 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 provided, and the author's position is logically presented, conclusions are formulated, the article is analyzed in full, but the length is not maintained and the formatting requirements are not met.

8 points – the basic requirements for the abstract have been met, but there are some shortcomings. In particular, there are inaccuracies in the presentation of the material; there is a lack of logical consistency in the arguments; the abstract does not meet the required length; 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 sequence in the arguments; conclusions have not been formulated, the volume of the abstract has not been maintained; there are omissions in the formatting.

6 points – there are significant deviations from the requirements for referencing; the topic is only partially covered; there are factual errors in the content of the abstract, there are no conclusions or personal opinion on the issue.

5 points – there are significant deviations from the requirements for the abstract: the topic is only partially covered; there are factual errors in the presentation of materials and methods, there are no conclusions or personal opinion on the issue, the format is not adhered to.

4 points – there are significant deviations from the requirements for the abstract: the relevance of the topic is not revealed; there are factual errors in the presentation of materials and methods, there are no conclusions or personal views on the issue, and the format is not adhered to.

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

2 points – the topic of the abstract is not revealed, there is a significant misunderstanding of the problem. At the same time, the volume of the abstract and formal requirements are met.

1 point – the topic of the abstract is not revealed, there is a significant misunderstanding of the problem.

0 points – the abstract has not been submitted by the student.

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