Syllabus

Department **of "Propaedeutics of Internal Diseases"**
Department **of Pediatrics-1**
Department **of Pathology and Forensic Medicine**
Department **of Pharmacology, Pharmacotherapy and Clinical Pharmacology**
Department **of Biology and Biochemistry**

Working curriculum of the discipline **"Cardiorespiratory system in pathology"**
Educational program **6B10115 "Medicine"**

1.	**General information about the discipline**		
1.1	**Course code:** KSP 3302	1.6	**Academic year:** 2024-2025
1.2	**Course name:** Cardiorespiratory system in pathology	1.7	**Course:** 3
1.3	**Prerequisites:** General pathology, cardiorespiratory system is norm	1.8	**Semester**: 5
1.4	**Postrequisites:** Cardiorespiratory diseases	1.9	**Number of credits (ECTS)**: 9/270
	Cycle: PD	1.10	**Component**: IC

2.	**Description of the discipline**
Integrated discipline: development of fundamental knowledge on the basics of semiotics, syndromology, physical examination methods and the main parameters of laboratory tests, issues of etiology, pathogenesis, morphogenesis, biological characteristics of microorganisms of frequently occurring pathological processes of the cardiovascular and respiratory systems in their relationship, acquisition of skills in choosing examination methods for diagnostics and drugs for the treatment of the most common diseases in adults and children	

3.	**Summative Assessment Form**		
3.1	● Testing	3.5	Coursework
3.2	Written	3.6	Essay
3.3	Oral	3.7	Project
3.4	● reception of practical skills	3.8	Other (specify)

4.	**Objectives of the discipline**
Development of a holistic understanding of the main symptoms and syndromes of diseases of the cardiorespiratory system, as well as methods of their study. Ensuring the achievement of final learning outcomes based on the integrated study of propaedeutics of internal and pediatric diseases with fundamental disciplines. Development of clinical thinking skills based on knowledge of etiology, pathophysiological mechanisms of the course, pathological changes, complications and outcomes of diseases, physical and clinical laboratory methods of examination and selection of drugs in adults and children with the main clinical syndromes of diseases of the cardiorespiratory system. Development of research skills through the analysis of scientific articles, experimental studies and project activities.	

5.	**Final learning outcomes (LO of the discipline)**
LO1	Demonstrates knowledge and understanding of the basics of semiotics and syndromology, etiology, pathogenesis and morphogenesis of pathological changes in the cardiorespiratory system.
LO2	Proficient in methods of conducting questioning and physical examination of adults and children, uses clinical thinking in collecting information when making an examination plan; outlines the scope of basic and additional studies to clarify the syndrome of damage in pathology of the cardiorespiratory system.

LO3	Uses clinical thinking in collecting information when interpreting the results of morphological, laboratory and instrumental methods of examining patients with cardiorespiratory pathology, formulates a syndromic diagnosis, fills out a history of disease.
LO4	Communicates information, ideas, problems and solutions to patients and their family members, and is proficient in ethical and deontological practices when communicating with patients, their relatives and colleagues.
LO5	Determines pathological processes at the organ and cellular levels, interprets data on the pathophysiology and morphology of diseases taking into account the clinical data of patients, makes conclusions, explains the patterns of development of complications and outcomes of pathology of the cardiorespiratory system, evaluates the results of experimental studies.
LO6	Selects medications in accordance with the diagnosis, writes prescriptions, determines the dosage regimen, recognizes adverse effects of medications, predicts the development of side effects and drug interactions in cardiorespiratory pathology.
LO7	Analyzes professional literature when working with scientific articles, completes a project, demonstrates a desire for continuous improvement of his/her activities.

5.1	**LO of discipline**	**Learning outcomes of the EP, which are associated with the discipline LO**
	LO 1 LO 2	LO 1 Assesses population health indicators and its physical, radiological, chemical and biological-ecological determinants.
	LO 3 LO 4	LO 2 Performs professional duties efficiently based on self-control and continuous improvement of his/her activities.
	LO 5 LO 6 LO 7	LO 6 Apply the results of modern research methods in their professional activities, taking into account bioethics.

6. Detailed information about the discipline

6.1

- Location of the Department of Biology and Biochemistry: Shymkent, Al-Farabi sq., 1, main academic building of SKMA, 4th floor.
- Location of the Department of Pathology and Forensic Medicine: Shymkent, Al-Farabi sq., 3, academic building No. 2 of SKMA, 4th floor, rooms No. 404 a, b, No. 406, No. 408, No. 409, No. 411 a, b;

e-mail: Patan.gisto@mail.ru

- Location of the Department of Pharmacology, Pharmacotherapy and Clinic of Pharmacology:

Shymkent, Al-Farabi sq., 1, main educational building of SKMA, 4th floor, room No. 419,
No. 421, No. 425, No. 429, No. 431, No. 434, No. 417, lecture hall No. 4;
tel. 40-82-06 (ATS), 227 (ext.).

- Location of the Department of Propaedeutics of Internal Diseases: Shymkent,
  Clinic "ParkHealth", Kurmanbekova, st., 2;
  tel: 8 701 738 6114,
  e-mail: propedevtica_vb@mail.ru
- Location of the Department of Pediatrics-1: Shymkent, Argynbekov St., 125, Regional Children's Hospital;
  e-mail: ped.rez@mail.ru

6.2

Number of hours	Lectures	Practical classes	Lab. Classes	SIWT	SIW
	18	72	-	25	155

6.3 Study plan for the discipline

Days / Form of the class		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Hours
Propaedeutics of internal diseases (2 credits)	Lecture	1					1					1					1							**4**
	Practical	3					3					3					3					2	2	**16**
	SIWT	1					1					1					2						1	**6**
	SIW	6					6					6					6						4	28+6(IA)= **34**
Pathological anatomy (1.5 credits)	Lecture		1					1					1											**3**
	Practical		2					3					3					2			2			**12**
	SIWT		1					1					1 **ME №1**										1 **ME №2**	**4**
	SIW		6					6					5										5	22+4(IA)= **26**
Pathophysiology (1.5 credits)	Lecture			1										1					1					**3**
	Practical			3				2						2					3				2	**12**
	SIWT			1					1					1					1					**4**
	SIW			6					3					6					6					21+5(IA)= **26**
Pharmacology (2 credits)	Lecture				1					1					1			1						**4**
	Practical				3					3				1	3					4		2		**16**
	SIWT				2					1					1					1		1		**6**
	SIW				6					6					6					5		5		28+6(IA)= **34**
Propaedeutics of children diseases (1.5 credits)	Lecture					1					1					1								**3**
	Practical					3					3					3					3			**12**
	SIWT					1					1					1					1			**4**
	SIW					6					6					5					4			21+5(IA)= **26**
Biochemistry (0.5 credits)	Lecture								1															**1**
	Practical		1						1									1					1	**4**
	SIWT								1															**1**
	SIW								8															8+1(PA)= **9**

7. Information about teachers

No.	Full name	Degrees and Position	Email address	Scientific interests etc.	Note
Department of Biology and Biochemistry					
1	Kenzhebekov Pernebek Kenzhebekovich	CChS, professor	kenzhebekov.p@gmail.com	"Study of the chemical composition of volatile aroma-forming compounds in some meat products"	Author of 42 scientific publications 1 teaching aid
2	Ordabekova Asmira Baltabaevna	Master of biology, Senior Lecturer	asmira75@mail.ru	“Bauyrdyn uly zakymdanuyndagy selenin antioxidanttyk kasiyeti”	Author of 22 scientific publications 1 teaching aid
3	Asilbekova Gulshakhar Kenesbekovna	Master of Biology, Senior Lecturer	shahats@mail.ru	"Microelementoses"	Author of 14 scientific publications 1 teaching aid
4	Kanzhigitova Moldir Zharkynbekkyzy	Master of Biology, Senior Lecturer	Molya_1503	Alka zhane burshak tұkymdas osimdikterdi homologilyk katarlar zanyy zertteu	Author of 10 scientific publications
5	Zhienbaeva Aliya Aitbaevna	Teacher	alia.zhienbaeva@mail.ru	-	Author of 3 scientific publications
6	Beisebaeva Lyazzat Mukhtarovna	Senior Lecturer	lyzzatb70@list.ru	"Organization of clinical diagnostic laboratory service in modern conditions in the Republic of Kazakhstan"	Author of 3 scientific publications
Department of Pathology and Forensic Medicine					
1	Sadykova Aliya Shamilevna	Head of Department pathology and forensic medicine, doctor of medicine, acting professor	aliya.sadykova.66@mail.ru	The topic of the scientific direction "Pathology of the immune system, pathological anatomy of tumors"	Author of 84 scientific publications, 5 textbooks, 1 patent for invention, 1 monograph
2	Bisimbaeva Saule	PhD, Acting	Bisimbaeva@inbox.ru	The topic of the scientific direction is	Author of 40 scientific publications, 2 provisional

	Babatovna			“Okpe tuberculosis ontayly emdeudin hygienalyk turgydan negizdeu”	patents, 1 patent, 1 monograph and 2 acts of implementation of the results of scientific research work
3	Dosybaev Bakhytzhan Krykbaevich	PhD, Acting Associate Professor	Krik85 @mail.ru	The topic of the scientific direction "Prognostic assessment of the health of workers in cement production"	Author of 14 scientific publications
4	Kulbalieva Zhannat Zhakslikovna	PhD, Acting Associate Professor	zhann_7 @mail.ru	The topic of the scientific direction is "The influence of lead on the oxidative metabolism of lipids and proteins in the blood and its correction with biofenikol"	Author of 44 scientific publications, 1 teaching aid, 2 acts of implementation of the results of scientific research work and 3 acts of implementation of the results of educational and methodological work
5	Kerimov Rasim Azatovich	Master, Senior Lecturer	Kir-2004 @list.ru	The topic of the scientific direction "Diagnostics and prevention of colorectal cancer"	Author of 20 scientific publications
6	Abildina Kalamkas Berzhanovna	Master, Assistant	Mskas1972 @mail.ru	The topic of the scientific direction is “Shymkent kalasy turgyndarynyn kolka zhane buyrek arteries of atherosclerosis morphogenesis”	Author of 19 scientific publications 1 teaching aid
7	Ignatyeva Anastassiya Sergeevna	Senior teacher	zhelonkina_88@ mail.ru	-	-
8	Berdalieva Gulmira Bakhytkyzy	Senior Lecturer	Mira-3505 @mail.ru	-	Author of 6 scientific publications
9	Kurymbaeva Ainur Rashidkyzy	Assistant	Smp_zoj @mail.ru	-	-
10	Seydakbar Aisana Usenovna	Teacher	aseydakbar@mai l.ru	-	Author of 2 scientific publications
14	Duysembieva Zhazira Mereikyzy	Teacher	zhazira0508 @mail.ru	Topic of the scientific direction “Ontustik Kazakhstan aymagyndagy turgyndardyn salauatty omir saltyn kalyptastyrudyn gyly	Author of 3 scientific publications

				negizderi”	
Department of Pharmacology, Pharmacotherapy and Clinical Pharmacology					
1	Ibragimova Aigul Gaffarovna	PhD, Acting Associate Professor	aygul_ibr @mail.ru	"Problems of rational use of medicines: effective and safe pharmacotherapy, pharmacoepidemiological, pharmacoeconomic, pharmacogenetic aspects. Personalized therapy. Development of herbal preparations and effective herbal therapy of various diseases"	Author of more than 20 scientific papers, textbooks, and methodological recommendations
2	Abuova Gulnara Turganbaevna	PhD, Acting Associate Professor	abuova@mail.ru	"Pharmacoeconomic approaches to optimizing the treatment of acute respiratory infections in outpatient settings"	Author of more than 20 scientific papers, textbooks, and methodological recommendations
3	Korganbaeva Zaure Sarybaevna	PhD, Acting Associate Professor	korganbaeva055 @mail.ru	“Korgasynmen uyttananu kezinde kan zhane bauyrdan zakymdanuyna phytopreparatardyn protektorlyk aserin negizdeu”	Author of more than 20 scientific works, teaching aids, methodological recommendations
4	Syrmanova Nurgul Rakhmanovna	Master of Medical Sciences, Senior teacher	n_rakchman @mail.ru	“Taspa tuysy asimdikterinen bolinip alyngan extracttardyn specificity belsendylykterin zertteu”	Author of more than 20 scientific papers, textbooks, and methodological recommendations
5	Muyutova Makhsuda Nasyrovna	Master of Medical Sciences, Senior teacher	mahsu_med @mail.ru	Clinical pharmacology in general medicine and neurology	Author of 3 scientific articles
6	Sultanbekova Aidana Nasirllaqyzy	teacher	arnur.ernur89@ mail.ru	Clinical pharmacology in general medicine and pediatrics	Author of 3 scientific articles
Department of Propaedeutics of Internal Diseases					
1	Bekmurzaeva Elmira Kuanyshevna	Head of Department Doctor of Medical Sciences, professor	Elmira-bek @mail.ru	Scientific work: "Clinical and hygienic features of the formation of diseases of the digestive organs in workers of a modern oil	Author of over 260 scientific and methodological publications, 2 textbooks, 8 teaching aids. Certificate of therapist, gastroenterologist

				refining production (on the example of JSC "SHNOS")"	and rheumatologist of the highest category. 2005 - Doctor of Medical Sciences, approved by the Higher Attestation Commission of the Republic of Kazakhstan (diploma FK No. 0000379), (14.00.50 - "Occupational Medicine"), professor in the specialty "Medicine" (diploma PR No. 0000446), Higher Attestation Commission of the Republic of Kazakhstan. Under the supervision of Bekmurzaeva E.K., 3 candidates of medical sciences were prepared, who received approval from the Committee for Control and Certification in the Sphere of Education and Science of the Ministry of Education and Science of the Republic of Kazakhstan. Awarded for high scientific achievements with medals, diplomas and certificates: Robert Koch 2012, Peterkoff 2014, Albert Schweitzer 2015, "Excellent Healthcare Worker of the Republic of Kazakhstan", Republican grant of the Ministry of Education and Science of the Republic of Kazakhstan "Best University Teacher - 2014"
2	Sadykova Gulzhan Saparovna	PhD, Acting Associate Professor	gulzhan2171 @mail.ru	Scientific work: “Uly hepatitister kesindegi pannuvladinnin hepatoprotectorlyk aseri”	Author of more than 35 scientific and scientific-methodical publications, 8 teaching aids, Certificate of the highest category therapist. Certificate of a specialist in general medicine
3	Baidullaev Bahram Muzaffarovich	Assistant	bbm2055 @mail.ru	-	Author of over 65 scientific and scientific-methodical publications, 6 teaching aids. Certificate of the highest

					category therapist
4	Akhaeva Laura Zhaksylykovna	Assistant	Laura1990a00 @mail.ru	-	Certificate of specialist general practitioner. Author of 25 scientific publications
5	Toktarova Gulnaz Abdimalikovna	Assistant	Toktar_8585 @mail.ru	-	Certificate of specialist therapist, functional diagnostics, cardiologist. Author of 8 scientific publications and co-author of 1 educational and methodological manual
6	Batkhieva Madina Bekenovna	Assistant	Madin_madina @mail.ru	-	Co-author of 1 teaching aid. International APTIS certificate. Therapist certificate
7	Tazhibaeva Azhar Bakytbekkyzy	Assistant	avril.tab@mail.ru	-	Certificate of General Practitioner Author of 29 scientific publications
8	Amangeldieva Gulfairuz Seytimovna	Assistant	Amangeldievag 71@mail.ru	-	Certificate of General Practitioner
Department of Pediatrics-1					
1	Kemelbekov Kanatzhan Sauhanbekovich	PhD	Kanat-270184@mail.ru	Pediatrics, Balalar surgery	Author of more than 80 scientific publications and 3 textbooks
2	Mustafina Kenzhegul Akhmetovna	Associate Professor	sayat.mka@mail.ru	Pediatrics	Author of more than 70 scientific publications and 3 textbooks
3	Baimakhanova Bakhtygul Bimendievna	PhD, Associate Professor	Bakhtigul059 @mail.ru	Pediatrics	Author of more than 40 scientific publications and 1 manual
4	Toleuova Akgulim Erbolatkyzy	assistant	ai_ol_ak.83 @mail.ru	Pediatrics	Author of more than 5 scientific publications and 1 textbook
5	Absadyk Aidana Erseitkyzy	assistant	aidana.absadyk@mail.ru	Pediatrics	Author of scientific publications -
6	Akhmetova Gaukhar Shakenovna	assistant	ahmetovagauhar2306@mail.ru	Pediatrics	Author of more than 5 scientific publications and 1 textbook
7	Baltabaeva Botakoz Serikyzy	assistant	Boti.asik@mail.ru	Pediatrics	Author of scientific publications -

8. Thematic plan

Day	Name of topic	Summary	LO disciplines	Hours	Forms/ methods/ learning technologies	Forms/ evaluation methods

1	**Propaedeutics of internal Diseases.** **Lecture 1** The importance of internal diseases in general medical education. Questioning, examination, palpation, percussion and auscultation of patients with respiratory diseases in norm and pathology. Diagnostic importance.	The importance of internal diseases in general medical education. Objectives and tasks of the discipline. Scheme of the medical history. Physical examination methods. Questioning, general examination, palpation, percussion and auscultation of patients with respiratory diseases in norm and pathology. Diagnostic value.	LO2	1	Overview lecture	Quick poll Feedback
	Propaedeutics of internal diseases. **1. Practical class** Questioning, examination, palpation, percussion, auscultation of the lungs in patients with diseases of the respiratory system in health and pathology. Diagnostic value.	Questioning patients with respiratory diseases: main and additional complaints. Peculiarities of the anamnesis of the disease and life. Determination of the respiratory rate, type and rhythm. Palpation of the chest: determination of tenderness, resistance and vocal fremitus. Percussion of the chest: comparative and topographic: determination of the upper and lower border, excursion and Kroening fields. Auscultation of the lungs: vesicular and bronchial breathing. Bronchophony. Additional respiratory sounds: wheezing, crepitation, pleural friction rub. Diagnostic value.	LO2 LO3 LO4	3	Discussion of the topic of the practical class, solving situational problems.	Checklist for oral questioning, checklist for solving a situational problem .
	Propaedeutics of internal diseases. **SIWT/SIW 1** Diagnostic value of laboratory and instrumental methods of studying respiratory organs. Study of external respiratory function.	Basic methods of laboratory research and instrumental research and determination of a number of diagnostic signs that serve as criteria for the pathological process of the respiratory system. Methods of functional diagnostics.	LO2 LO3	2/4	Presentation Defense	Presentation Evaluation Checklist
2	**Pathological anatomy.** **Lecture 1** Pathological anatomy of lung diseases	Acute and chronic bronchitis. Lobar pneumonia. Bronchopneumonia. Bronchial asthma. Bronchiectasis. Emphysema. Etiology. Pathogenesis. Morphogenesis. Pathological anatomy. Complications. Causes of death. Clinical significance	LO1	1	Overview lecture	Quick poll Feedback
	Pathological anatomy. **Practical class 1** Pathological anatomy of lung diseases	Acute and chronic bronchitis. Lobar pneumonia. Bronchopneumonia. Bronchial asthma. Bronchiectasis. Emphysema. Pulmonary edema. Hydrothorax. Lung cancer. Lung abscess. Pleurisy. Etiology. Pathogenesis.	LO3 LO5	2	Discussion of the topic, description of macro- and micro-preparations with the	Checklist descriptions of macro- and microprepar ations, case

		Morphogenesis. Pathological anatomy. Complications. Causes of death. Clinical significance			conclusion nim, case study	solution checklist
	Pathological anatomy. SIWT/SIW 1 Pathological anatomy of lung diseases	Pulmonary edema. Hydrothorax. Lung cancer. Lung abscess. Pleurisy. Interstitial (restrictive) lung diseases. Tuberculosis. Pneumosclerosis. Etiology. Pathogenesis. Morphogenesis. Pathological anatomy. Complications. Causes of death. Clinical significance	LO3 LO5	1/6	Case study	Case Solution Checklist
	Biochemistry. Practical class 1 Biochemistry of the respiratory system in pathology	Biochemistry of the respiratory system in pathology.	LO3 LO5	1	Discussion of the topic, solving situational problems, testing	Checklist for solving a situational problem
3	**Pathological physiology. Lecture 1** Pathophysiology of external respiration	Impaired pulmonary ventilation. Alveolar hypo- and hyperventilation. Obstructive and restrictive types of hypoventilation. Impaired gas diffusion through the alveolar-capillary membrane. Impaired pulmonary blood flow. Pulmonary hypertension. Impaired respiratory regulation. Insufficiency of external respiration, types, pathogenesis. Pulmonary edema. Clinical significance	LO1	1	Overview lecture	Quick poll Feedback
	Pathological physiology. Practical class 1 Pathophysiology of external respiration	Impaired pulmonary ventilation. Alveolar hypo- and hyperventilation. Obstructive and restrictive types of hypoventilation. Impaired gas diffusion through the alveolar-capillary membrane. Impaired pulmonary blood flow. Pulmonary hypertension. Impaired respiratory regulation. Insufficiency of external respiration, types, pathogenesis. Pulmonary edema. Clinical significance	LO3 LO5	3	Discussion of the topic, case study	Case Solution Checklist
	Pathological physiology. SIWT/SIW 1 Respiratory distress syndrome	Respiratory distress syndrome of newborns and respiratory distress syndrome of adults, concept, etiopathogenesis, manifestations. Clinical significance	LO3 LO5	1/6	Case study	Case Solution Checklist
4	**Pharmacology. Lecture 1** Pharmacology as a scientific discipline. Pharmacokinetics, pharmacodynamics of drugs. Interaction of drugs.	Definition of pharmacology, content and main tasks of pharmacology. Pharmacokinetics of drugs, definition and content. Main parameters of pharmacokinetics. Pharmacodynamics of drugs, definition and content. Types	LO1	1	Overview lecture	Quick poll Feedback

		of action of drugs. Factors influencing the pharmacokinetics and pharmacodynamics of drugs. Features of the pharmacokinetics of drugs in pregnant women. Features of the pharmacokinetics and pharmacodynamics of drugs in the fetus. Types of drug interactions. Combination of drugs.				
	Pharmacology. **Practical class 1** Chemotherapeutic agents. Antibacterial agents (antibiotics)	Classification. Mechanism and spectrum of antimicrobial action. Beta-lactam antibiotics. Penicillin group antibiotics: classification, mechanism and spectrum of action and pharmacokinetics of drugs. Features of action and use of semi-synthetic penicillins. Ureidopenicillins. Combination drugs with beta-lactamase inhibitors. Features of use in children.	LO6	3	Discussion of the topic, solving situational problems, writing out prescriptions	Checklist for solving a situational problem, checklist for writing prescriptions
	Pharmacology. **SIWT/SIW 1** 1. Antibiotic resistance. Antiseptic and disinfectants. 2. Drugs that affect efferent innervation: cholinergic drugs.	The concept of antibiotic therapy. Requirements imposed on it. Antibiotic resistance. Antiseptic and disinfectant agents. Classification. Mechanism of action. Application. Biological significance of antibiotics. History of obtaining and using antibiotics. Principles of classification. Principles of combining antibiotics. Features of use in children. M-N-cholinomimetic agents. Anticholinesterase agents. Toxic effect of muscarine, treatment of poisoning. M-N-cholinoblockers. Ganglionic blockers. Muscle relaxants. Classification, mechanism of action.	LO6 LO7	2/6	Presentation Defense Analysis of scientific articles	Presentation Evaluation Checklist Checklist conducting an analysis of a scientific article
5	**Propaedeutics of children diseases.** **Lecture 1** Introduction to propaedeutics of childhood diseases. Periods of childhood. Physical development. Questioning and general examination of sick children of different age groups. Questioning, examination, palpation, percussion, auscultation of the chest of sick children of different age groups	The purpose and objectives of the discipline. Scheme of the medical history. Diagnostic value of methods of clinical examination of sick children of different age groups. Questioning or medical interview; rules for collecting anamnesis. Physical examination methods.	LO 1	1	Overview lecture	Quick poll Feedback

	with respiratory pathology.					
	Propaedeutics of children diseases. **Practical class 1** Questioning and general examination of sick children of different age groups. Questioning, examination, palpation, percussion, auscultation of the chest of sick children of different age groups with respiratory pathology.	Diagnostic value of clinical examination methods for sick children of different age groups. Examination – examination of the skin, mucous membranes of the lips, fingertips; condition of external respiration - examination of the nose – condition of the septum and wings of the nose, nasolabial triangle; changes in them - examination of the chest – shape, symmetry of both halves, participation in the act of breathing; changes in them. Palpation of the chest: methods for determining the elasticity of the chest; methods for determining vocal fremitus and its changes. Percussion of the lungs: physical principles of percussion of the lungs and clear pulmonary sound; rules of percussion; methods and techniques for performing comparative and topographic percussion. Methodology for determining the upper and lower boundaries of the lungs, Kerning fields. Diagnostic value. Methodology for determining active mobility of the lower edge of the lungs. Basic rules for auscultation of the lungs in children. Basic respiratory sounds. The mechanism of occurrence of vesicular and bronchial breathing. Bronchophony. Adverse respiratory sounds. The mechanism of occurrence of wheezing, crepitations, pleural friction noise. Differential diagnostics of adverse respiratory sounds	LO2 LO3	3	Discussion of the topic, performance of practical skills.	Checklist for mastering practical skills
	Propaedeutics of children diseases. **SIWT/SIW 1** Diagnostic value of laboratory and instrumental methods of studying the respiratory organs	Study of external respiration function in children. Relevance of application of instrumental research methods. Types of laboratory and instrumental research methods. Their importance in differential diagnostics	LO 4 LO5 LO6	1/4	Performing practical skills	Practical Skills Assessment Checklist
6	**Propaedeutics of internal diseases.** **Lecture 2** Leading clinical syndromes (pulmonary tissue compaction, bronchial obstruction, increased	Predisposing factors and causes leading to the development of syndromes of lung tissue compaction, bronchial obstruction, increased airiness in the lung, the presence of fluid and cavity in the lung,	LO2	1	Overview lecture	Quick poll Feedback

	airiness in the lung, presence of fluid and cavity in the lung, respiratory failure) in patients with respiratory diseases.	respiratory failure. Clinical features and diagnostic values.				
	Propaedeutics of internal diseases. **Practical class 2** Leading clinical syndromes (lung tissue consolidation, bronchial obstruction, increased airiness in the lung) in patients with respiratory diseases. Diagnostic value.	Predisposing factors and causes leading to the development of pulmonary tissue compaction syndrome, bronchial obstruction, increased airiness in the lung. Clinical features.	LO3 LO4	3	Discussion of the topic of the practical class, solving situational problems	Checklist for oral questioni ng, situationa l tasks
	Propaedeutics of internal diseases. **SIWT/SIW 2** Laboratory and instrumental methods of examination for syndromes: compaction of lung tissue, bronchial obstruction, increased airiness in the lung. Palpation of the chest and percussion of the lungs in patients with respiratory pathology.	Laboratory and instrumental methods of examination for syndromes: compaction of lung tissue, bronchial obstruction, increased airiness in the lung. Palpation of the chest and percussion of the lungs in patients with respiratory pathology.	LO2 LO3 LO4	2/4	Presentation defense, practical implementatio n what skills	Presentation Protection Checklist, Checklist for mastering practical skills
7	**Pathological anatomy.** **Lecture 2** Pathological anatomy of heart diseases.	Acute ischemic heart disease. Ischemic myocardial dystrophy. Myocardial infarction. Chronic ischemic heart disease. Etiology. Pathogenesis. Morphogenesis. Pathological anatomy. Complications. Causes of death. Clinical significance.	LO1	1	Overview lecture	Quick poll Feedback
	Pathological anatomy. **Practical class 2** Pathological anatomy of heart diseases.	Acute ischemic heart disease. Ischemic myocardial dystrophy. Myocardial infarction. Chronic ischemic heart disease. Cardiosclerosis. Etiology. Pathogenesis. Morphogenesis. Pathological anatomy. Complications. Causes of death. Clinical significance.	LO3 LO5	3	Discussion of the topic, description of macro- and micro-preparations with the conclusion, case study	Checklist descriptions of macro- and micropreparations, case solution checklist
	Pathological anatomy. **SIWT/SIW 2** Pathological anatomy of heart diseases.	Congenital and acquired cardiomyopathies. Myocarditis. Infective endocarditis. Pericarditis. Etiology. Pathogenesis. Morphogenesis. Pathological anatomy. Complications. Causes of death. Clinical significance. Discussion and approval of the project topic on the	LO3 LO5 LO7	1/6	Analysis of scientific articles	Checklist conducting an analysis of a scientific article

		topic: "Emergency conditions. Pathological anatomy of acute cardiovascular failure".				
8	**Pathological physiology. Practical class 2** Coronary insufficiency.	Ischemic myocardial injury. Coronary insufficiency, pathogenesis. Myocardial infarction, pathogenesis, manifestations, complications. Pathogenesis of myocardial reperfusion injury. Endogenous mechanisms of cardiac protection during ischemia and reperfusion. Clinical significance.	LO3 LO5	2	Discussion of the topic, case study	Case Solution Checklist
	Pathological physiology. SIWT/SIW 2 Non-coronary - non-rheumatic cardiac pathology.	Etiopathogenesis, manifestations, myocardial dystrophy, myocarditis, infective endocarditis, pericarditis, cardiomyopathy. Clinical significance	LO3 LO5	1/3	Case study	Case Solution Checklist
	Biochemistry. Lecture 1 Biochemical changes in the cardiac myocardium.	Biochemical changes in the cardiac myocardium.	LO1	1	Overview	Quick poll Feedback
	Biochemistry. Practical class 2 Metabolic disorders in the lungs. Biochemical aspects of hypoxia, lactic acidosis, energy deficiency.	Metabolic disorders in the lungs. Biochemical aspects of hypoxia, lactic acidosis, energy deficiency. Disturbances in enzyme activity in respiratory system pathologies.	LO3 LO5	1	Discussion of the topic, solving situational problems, testing	Situational Task Assessment Checklist
	Biochemistry. SIWT/SIW 1 **Biochemical markers of cardiovascular diseases.**	Review of key markers used in clinical practice for the diagnosis of cardiac pathologies: troponins, creatine kinase-MB (CPK-MB), brain natriuretic peptide (BNP), C-reactive protein (CRP), lactate dehydrogenase (LDH) and others.	LO3 LO5	1/8	Discussion of the topic, solving situational problems, testing	Situational Task Assessment Checklist
9	**Pharmacology. Lecture 2** Agents affecting efferent innervation. Cholinergic agents.	General characteristics of the autonomic nervous system. Structure and function of the cholinergic synapse. Localization of M- and H-cholinergic receptors. Characteristics of M- and H-cholinergic receptors, their subtypes. M-N-cholinomimetic agents. Anticholinesterase agents. M-cholinomimetic agents. Toxic effect of muscarine, treatment of poisoning. N-cholinomimetic agents. M-cholinoblockers. Gangliblockers.	LO1 LO6	1	Overview lecture	Quick poll Feedback

		Muscle relaxants. Classification, mechanism of action.				
	Pharmacology. **Practical class 2** Chemotherapeutic agents. Antibacterial agents. Other antibiotics.	Antibiotics of the aminoglycoside, tetracycline, lincosamide, macrolide, glycopeptide, chloramphenicol and other groups. Classification, mechanism and spectrum of action and pharmacokinetics of drugs. Features of action and use of drugs. Features of use in children.	LO6	3	Discussion of the topic, solving situational problems, writing out prescriptions	Checklist for solving a situational problem, checklist for writing prescriptions
	Pharmacology. **SIWT/SIW 2** Irritants. Reflex action expectorants. Organophosphate poisoning. Atropine poisoning.	Expectorants with reflex action. Bitters, laxatives and choleretics with reflex action. Side effects. Organophosphate poisoning. Atropine poisoning. Symptoms, measures of assistance. Drugs used.	LO6 LO7	1/6	Presentation Defense Analysis of scientific articles	Presentation Evaluation Checklist Checklist conducting an analysis of a scientific article
10	**Propaedeutics of children diseases.** **Lecture 2** Clinical syndromes in pediatric pulmonology	Predisposing factors and causes leading to the development of pulmonary tissue compaction syndrome, bronchial obstruction, lung cavity syndrome, fluid accumulation in the pleural cavity. Clinical features in children of different age groups.	LO 1	1	Overview lecture	Quick poll Feedback
	Propaedeutics of children diseases. **Practical class 2** Clinical syndromes in pediatric pulmonology	Clinical manifestations of the leading syndromes in pediatric pulmonology: pulmonary tissue compaction syndrome, bronchial obstruction, lung cavity syndrome, fluid accumulation in the pleural cavity, upper respiratory tract obstruction syndrome, respiratory distress syndrome of newborns. Clinical features in children of different age groups.	LO2 LO3	3	Discussion of the topic, implementation of practical skills.	Checklist for mastering practical skills
	Propaedeutics of children diseases. **SIWT/SIW 2** Clinical syndromes (acute and chronic respiratory failure) in pediatric pulmonology	Predisposing factors and causes leading to the development of acute and chronic respiratory failure syndrome. Clinical features in children of different age groups.	LO 4 LO5 LO6	1/4	Discussion of the topic, implementation of practical skills	Checklist for mastering practical skills
11	**Propaedeutics of internal diseases.** **Lecture 3** Questioning, examination, palpation and percussion of patients with cardiovascular	Questioning, examination, palpation and percussion of patients with cardiovascular pathology. Methods of examining large and peripheral vessels. Auscultation of the heart in norm and pathology. Diagnostic	LO2	1	Overview lecture	Quick poll Feedback

	pathology. Methods of examining large and peripheral vessels. Auscultation of the heart in norm and pathology. Diagnostic value.	value.				
	Propaedeutics of internal diseases. **Practical class 3** Leading clinical syndromes (presence of fluid and cavity in the lung, respiratory failure) with diseases of the respiratory system. Diagnostic value.	Predisposing factors and causes leading to the development of fluid and cavity syndrome in the lung, respiratory failure. Clinical features.	LO2 LO3	3	Discussion of the topic, solving situational problems	Checklist for oral questioning, situational tasks
	Propaedeutics of internal diseases. **SIWT/SIW 3** Laboratory and instrumental methods of research in syndromes: presence of fluid and cavity in the lung, respiratory failure. Auscultation of the lungs in norm and in pathology in patients with the respiratory system.	Complaints, anamnestic features, examination and objective data of the patient. Laboratory and instrumental methods of research in syndromes: the presence of fluid and cavity in the lung, respiratory failure. Auscultation of the lungs in norm and in pathology (wheezing, crepitation, pleural friction noise) in patients with the respiratory system.	LO2 LO3 LO4	2/4	Presentation defense and practical skills implementation	Presentation Evaluation Checklist, checklist for mastering practical skills .
12	**Pathological anatomy.** **Lecture 3** Pathological anatomy of heart diseases	Rheumatism. Etiology. Pathogenesis. Morphogenesis. Pathological anatomy. Complications. Causes of death. Clinical significance	LO1	1	Overview lecture	Quick poll Feedback
	Pathological anatomy. **Practical class 3** Pathological anatomy of heart diseases	Rheumatism. Etiology. Pathogenesis. Morphogenesis. Pathological anatomy. Complications. Causes of death. Clinical significance	LO3 LO5	3	Discussion of the topic, description of macro- and micro-preparations with the conclusion nim, case study	Checklist descriptions of macro- and microprepar ations, case solution checklist
	Pathological anatomy. **Practical class 3** ***Midterm examination #1***	Topics of lectures, practical classes, independent work, covered during 1-12 days of training	LO1 LO2 LO3 LO4 LO5 LO6	1/5	Integrated control of educational achievements using control cases, testing	Checklist solutions to test cases

13	**Pathological physiology. Lecture 2** Heart rhythm disturbances	Heart rhythm disorders, types, development mechanisms, manifestations. Cardiac automatism disorders. Cardiac excitability disorders. Extrasystoles. Conduction disorders. Heart blocks. Clinical significance	LO1	1	Overview lecture	Quick poll Feedback
	Pathological physiology. Practical class 3 Heart rhythm disturbances	Heart rhythm disorders, types, development mechanisms, manifestations. Cardiac automatism disorders. Cardiac excitability disorders. Extrasystoles. Conduction disorders. Heart blocks. Clinical significance	LO3 LO5	2	Discussion of the topic, case study	Case Solution Checklist
	Pathological physiology. SIWT/SIW 3 Rheumatism	Rheumatism, concept, etiology, pathogenesis, manifestations, outcomes. Clinical significance	LO3 LO5	1/6	Case study	Case Solution Checklist
	Pharmacology **Practical class 3** Medicines that affect the function of the respiratory system.	Drugs used in bronchial conduction disorder syndrome alpha and beta adrenergic stimulants, M-anticholinergics, phosphodiesterase inhibitors, glucocorticosteroids. Drugs used in lung tissue consolidation syndrome: antibacterial therapy, antitussives and mucolytics. Drugs used in increased airiness of the lung. Drugs used in fluid accumulation syndrome, cavity in the lung and respiratory failure. The main mechanisms of action of drugs. Comparative characteristics. Indications for use. Side effects.	LO6	1	Discussion of the topic, solving situational problems, writing out prescriptions	Checklist for solving a situational problem, checklist for writing prescriptions
14	**Pharmacology. Lecture 3** Medicines that affect the function of the respiratory system.	Drugs used in bronchial conduction disorder syndrome alpha and beta adrenergic stimulants, M-anticholinergics, phosphodiesterase inhibitors, glucocorticosteroids. Drugs used in lung tissue consolidation syndrome: antibacterial therapy, antitussives and mucolytics. Main mechanisms of drug action. Comparative characteristics. Indications for use. Side effects.	LO1 LO6	1	Overview lecture	Quick poll Feedback
	Pharmacology. Practical class 4 Medicines that affect the function of the respiratory system.	Drugs used in fluid accumulation syndrome, pulmonary cavity and respiratory failure. The main mechanisms of drug action. Comparative characteristics. Indications for use. Side effects. Drugs used in chronic obstructive pulmonary	LO6	3	Discussion of the topic, solving situational problems, writing out prescriptions	Checklist for solving a situational problem, checklist for writing prescription

		disease, chronic bronchitis, bronchiectasis. The main mechanisms of drug action. Comparative characteristics. Indications for use. Side effects.				s
	Pharmacology. **SIWT/SIW 3** Drugs used for cavity syndrome in the lung Antiallergic agents.	Drugs used for cavity syndrome in the lung: Abcess, tuberculous cavity, echinococcal cyst. Antiallergic drugs. Mechanism of action and use of antiallergic drugs (diphenhydramine, suprastin, clemastine, chloropyramine, fexofenadine). Main mechanisms of action of drugs. Comparative characteristics. Indications for use. Side effects.	LO6 LO7	1/6	Presentation Defense Analysis of scientific articles	Presentation Evaluation Checklist Checklist conducting an analysis of a scientific article
15	**Propaedeutics of children diseases.** **Lecture 3** Questioning, examination, palpation and percussion of sick children of different age groups with cardiovascular pathology.	Questioning sick children of different ages with cardiovascular pathology. Data from physical methods of examination of the cardiovascular system in a physiological state.	LO2	1	Overview lecture	Quick poll Feedback
	Propaedeutics of children diseases. **Practical class 3** **Topic:** Questioning, examination, palpation and percussion of sick children of different age groups with cardiovascular pathology.	Percussion of the heart: boundaries of absolute and relative cardiac dullness, determination of the boundaries of the vascular bundle. Methodology for determination in children of different age groups. Diagnostic value. Determination of the cross-section of the heart, the position of the right and left contours and the configuration of the heart. Methods of examining large and peripheral vessels in children. Auscultation of the heart in norm and pathology in children. Examination of peripheral vessels: methods for determining the pulse, its properties - comparison of the pulse on both hands, frequency, rhythm, filling, tension, size, pulse shape; Concept and types of blood pressure; Auscultation of the heart: heart sounds, the origin of sounds or the mechanism of formation of 1 and 2 sounds. Determination of the projection of the valves on the anterior surface of the chest, rules, order and technique of auscultation of the heart: the order of listening to the heart valves, characteristics of normal	LO2 PO3	3	Discussion of the class topic, implementation of practical skills.	Oral Questioning Checklist, Practical Skills Mastery Checklist

		sounds - 1 and 2, their differences from each other during auscultation, a graphic image of the sonority of 1 and 2 sounds at the apex and base of the heart, types of changes, physiological causes of changes. Causes of Increased and Decrease in Heart Sounds in Children. Classification of Heart Murmurs				
	Propaedeutics of children diseases. **SIWT/SIW 3** Methodology of conducting ECG, EchoCG and functional tests in childhood	Diagnostic value of ECG, EchoCG in childhood. The concept of load-functional tests for heart diseases in children of different age groups. Ultrasound examination of the heart, its diagnostic value. Normal values in children.	LO2 LO3	1/4	Technique of performing the study and interpretation of ECG	ECG Performance and Interpretation Checklist
16	**Propaedeutics of internal diseases.** **Lecture 4** The leading clinical syndromes are: high blood pressure and ischemic heart disease, acute and chronic coronary insufficiency, damage to the valve apparatus in patients with cardiovascular diseases.	Predisposing factors and causes leading to the development of syndromes of increased blood pressure, and ischemic heart disease, acute and chronic coronary insufficiency, damage to the valve apparatus. Clinical features.	LO 2	1	Overview lecture	Quick poll Feedback
	Propaedeutics of internal diseases. **Practical class 4** Questioning, complaints and examination of the chest of patients with cardiovascular pathology. Palpation, percussion of the heart. Auscultation of the heart and blood vessels in norm and in pathology. Diagnostic value.	Questioning, complaints and examination of patients with cardiovascular pathology. Palpation of the heart area: determination of the apical impulse. Examination and palpation of large vessels. Percussion of the heart. Methods and techniques of auscultation of the heart. Mechanism of the occurrence of tones. Causes of strengthening and weakening of heart tones. Classification of heart murmurs.	LO2 LO3 LO4	3	Discussion of the topic of the class, practical Skills performance	Oral Questioning Checklist, Checklist for mastering practical skills
	Propaedeutics of internal diseases. **SIWT/SIW 4** Diagnostic value of laboratory and instrumental studies in diseases of the cardiovascular system. Diagnostic value. ECG in norm. Electrocardiographic examination technique.	The main methods of laboratory and instrumental research and determination of a number of diagnostic signs that serve as criteria for the pathological process of the cardiovascular system. ECG in norm. Electrocardiographic examination technique. ECG - signs of hypertrophy of the atria and ventricles of the heart and in ischemic heart disease.	LO2 LO3	2/4	Preparation and defense of the presentation	Presentation Evaluation Checklist

17	**Pathological anatomy.** **Practical class 4** Pathological anatomy of heart diseases	Atherosclerosis. Etiology. Pathogenesis. Morphogenesis. Pathological anatomy. Complications. Causes of death. Clinical significance Acute and chronic heart failure. Pulmonary heart. Congenital and acquired heart defects. Etiology. Pathogenesis. Morphogenesis. Pathological anatomy. Complications. Causes of death. Clinical significance	LO3 LO5	2	Discussion of the topic, description of macro- and micro-preparations with the conclusion, case study	Checklist descriptions of macro- and microprepar ations, case solution checklist
	Pathological anatomy. **SIW 4** Pathological anatomy of heart diseases.	Acute chronic failure. Pulmonary heart. Congenital and acquired heart defects. Etiology. Pathogenesis. Morphogenesis. Pathological anatomy. Complications. Causes of death. Clinical significance	LO3 LO5 LO7	7	Project Defense	Project Execution Checklist
	Pharmacology **Lecture 4** Drugs affecting the cardiovascular system.	Medicines used for arterial hypertension: diuretics, beta blockers, calcium antagonists, ACE inhibitors. Medicines used for coronary heart disease: antianginal drugs, anticoagulants, antiplatelet agents, fibrinolytics, lipid-lowering drugs. Antiarrhythmic drugs. Mechanism of action, indications, contraindications and side effects. Classification. Comparative characteristics of drugs and application. Side effects.	LO1 LO6	1	Overview lecture	Quick poll Feedback
	Biochemistry **Practical class 3** Heart biochemistry in pathology. Lipid metabolism disorders. The role of lipoproteins in the development of atherosclerosis.	Heart biochemistry in pathology. Lipid metabolism disorders. The role of lipoproteins in the development of atherosclerosis. Dyslipoproteinemia. Hyperlipoproteinemia.	LO3 LO5	1	Discussion of the topic, solving situational problems, testing	Checklist for solving a situational problem
18	**Pathological physiology.** **Lecture 3** Heart failure. Acquired heart defects	Heart failure, classification, etiopathogenesis, manifestations, mechanisms of compensation and decompensation. Myocardial hypertrophy. Acquired heart defects. Mitral insufficiency, mitral stenosis, defects of the tricuspid valve, aortic valves and pulmonary trunk, hemodynamic disorders, manifestations. Clinical significance	LO1	1	Overview lecture	Quick poll Feedback
	Pathological physiology. **Practical class 4** Heart failure. Acquired heart defects	Heart failure, classification, etiopathogenesis, manifestations, mechanisms of compensation and decompensation. Myocardial	LO3 LO5	3	Discussion of the topic, case study	Case Solution Checklist

		hypertrophy. Acquired heart defects. Mitral insufficiency, mitral stenosis, defects of the tricuspid valve, aortic valves and pulmonary trunk, hemodynamic disorders, manifestations. Clinical significance				
	Pathological physiology. SIWT/SIW 4 Congenital heart defects	Congenital heart defects, types, causes, manifestations. Mechanisms of development. Clinical significance	LO3 LO5	1/6	Case study	Case Solution Checklist
19	**Pharmacology. Practical class 5** Drugs used for arterial hypertension and ischemic heart disease	Medicines used for arterial hypertension: diuretics, beta-blockers, alpha 1-adrenoblockers, direct vasodilators, calcium antagonists, ACE inhibitors, central alpha-2-adrenomimetics. Medicines used for coronary heart disease: antianginal drugs, anticoagulants, antiplatelet agents, fibrinolytics, lipid-lowering drugs.	LO6	4	Discussion of the topic, solving situational problems, writing out prescriptions	Checklist for solving a situational problem, checklist for writing prescriptions
	Pharmacology. SIWT/SIW 4 Drugs used in acute coronary syndrome.	Medicines used in acute coronary syndrome: antianginal drugs, anticoagulants, antiplatelet agents, fibrinolytics, lipid-lowering drugs. Mechanism of action, indications, contraindications and side effects. Classification. Comparative characteristics of drugs and use. Side effects.	LO6 LO7	1/5	Presentation Defense Analysis of scientific articles	Presentation Evaluation Checklist Checklist conducting an analysis of a scientific article
20	**Pathological anatomy. Practical class 5** Pathological anatomy of heart diseases	Hypertension. Etiology. Pathogenesis. Morphogenesis. Pathological anatomy. Complications. Causes of death. Clinical significance	LO3 LO5	2	Discussion of the topic, description of macro- and micro-preparations with the conclusion nim, case study	Checklist descriptions of macro- and microprepar ations, case solution checklist
	Propaedeutics of children diseases. Practical class 4 Clinical syndrome of acute and chronic cardiac and vascular insufficiency in children.	Clinical manifestations of acute and chronic circulatory failure in children of different age groups: classification, etiopathogenesis, manifestations, age characteristics. Mechanisms of hemodynamic compensation in heart failure. Intra- and extracardiac compensation mechanisms The main symptoms of myocardial damage are: cardiac arrhythmia, cardiac failure, thromboembolic complications. Syndrome of arterial	LO 2 LO3	3	Discussion of the topic of the class, implementation of practical skills	Oral Questioning Checklist, checklist for mastering practical skills

		hypertension and hypotension in childhood: primary and symptomatic. Congenital and acquired carditis syndrome in children of different age groups.				
	Propaedeutics of children diseases. **SIWT/SIW 6** Syndromes of the most common congenital heart defects.	Congenital heart defects – definition of the concept, types, causes, hemodynamic features.	LO4 LO5 LO6	1/4	Performing practical skills	Checklist for mastering practical skills
21	**Propaedeutics of internal diseases.** **Practical class 5** Leading clinical syndromes (increased blood pressure and ischemic heart disease, acute and chronic coronary insufficiency) in patients with cardiovascular diseases. Dyslipidemia. Hypotension. Diseases of the myocardium and pericardium. Diagnostic value.	Predisposing factors and causes leading to the development of syndromes of increased blood pressure, ischemic heart disease, acute, chronic coronary insufficiency and dyslipidemia, hypotension, myocardial and pericardial disease. Clinical features and diagnostic value.	LO2 LO3 LO4	2	Discussion of the topic. Oral survey, implementation of practical skills	Oral Questioning Checklist, Practical Skills Mastery Checklist
	Pharmacology. **Practical class 6** Drugs used in acute and chronic heart failure. Drugs used in arrhythmias.	Drugs used in acute and chronic heart failure: Cardiac glycosides, ACE inhibitors, diuretics, beta-blockers. Antiarrhythmic drugs. Mechanism of action, indications, contraindications and side effects. Classification. Comparative characteristics of drugs and use. Side effects.	LO6	2	Discussion of the topic, solving situational problems, writing out prescriptions	Checklist for solving a situational problem, checklist for writing prescriptions
	Pharmacology. **SIWT/SIW 5** Medicines used for ventricular arrhythmias and prevention of sudden cardiac death. Medicines used for Tetralogy of Fallot.	Medicines used for ventricular arrhythmias and prevention of sudden cardiac death. Medicines used for Tetralogy of Fallot.	LO6 LO7	1/5	Presentation Defense Analysis of scientific articles	Presentation Evaluation Checklist Checklist conducting an analysis of a scientific article
22	**Pathological physiology.** **Practical class 5** Pathophysiology of blood vessels	Vascular tone disorders, types. Arterial hypertension. Primary arterial hypertension, etiology, pathogenesis. Symptomatic hypertension, types, etiopathogenesis. Vascular insufficiency, types, development mechanisms, manifestations. Atherosclerosis, concept, etiology, pathogenesis, manifestations, complications. Clinical significance	LO3 LO5	2	Discussion of the topic, case study	Checklist case solutions
	Propaedeutics of internal	Predisposing factors and causes	LO2	2	Oral survey,	Checklist

	diseases. **Practical class 6** Leading clinical syndromes (valvular apparatus lesions) in patients with cardiovascular diseases. Arrhythmias. Diagnostic value.	leading to the development of valve apparatus damage syndrome. Arrhythmias. Clinical features and diagnostic value.	LO3 LO4		discussion of the topic of the class, solution of situational tasks	for oral questioning, checklist for solving situational problems
	Biochemistry. **Practical class #4** Energy metabolism disorders in pathologies. Biochemical markers of heart failure, myocardial infarction.	Energy metabolism disorders in pathologies. Biochemical markers of heart failure, myocardial infarction.	LO3 LO5	1	Discussion of the topic, solving situational problems, testing	Checklist for solving a situational problem
	Propaedeutics of internal diseases. **SIWT/SIW 5** Laboratory and instrumental research methods for syndromes: high blood pressure and ischemic heart disease, acute and chronic coronary insufficiency, damage to the valve apparatus and arrhythmias.	Laboratory and instrumental research methods for syndromes: high blood pressure and ischemic heart disease, acute and chronic coronary insufficiency, damage to the valve apparatus and arrhythmias.	LO2 LO3	2/3	Preparation and defense of the presentation	Presentation Evaluation Checklist
	Pathological anatomy. **SIWT/SIW 4** **Midterm examination #2**	Topics of lectures, practical classes, independent work, covered during 13-24 days of training	RO1 PO2 PO3 PO4 RO5 RO6	1/5	Integrated control of educational achievements using control cases, testing	Checklist for solving control cases
	Preparation and implementation of interim assessment					**27 hours**

9.	**Teaching methods and forms of control**	
9.1	Lectures	Overview lectures
9.2	Practical classes	Work in small groups, discussion of the topic, oral questioning (solving situational problems), writing out prescriptions, case studies, description of macro- and micropreparations with a conclusion, implementation of practical skills, interpretation of clinical laboratory test results, discussion of the topic.
9.3	SIWT/SIW	Case study, analysis of scientific articles, project implementation Presentation defense and practical skills implementation, discussion of the topic, solutions to test cases
9.4	Midterm examination	Integrated monitoring of educational achievements using control educational cases, testing
10.	**Evaluation criteria**	
10.1	**Criteria for assessing the learning outcomes of the discipline**	

No. LO	**Name of learning outcomes**	**Unsatisfactory**	**Satisfactorily**	**Fine**	**Great**
LO 1	Demonstrates knowledge and understanding of the basics of	1. Does not have a basic understanding of	1. Does not have a knowledge of the	1. Has a basic understanding	1. Fluently masters the basics of

	semiotics and syndromology, etiology, pathogenesis and morphogenesis of pathological changes in the cardiorespiratory system	semiotics and syndromology, does not define symptoms and syndromes. 2. Cannot explain the etiology, pathogenesis and morphogenesis of pathological changes in the cardiorespiratory system	basics of semiotics and syndromology, makes gross errors when determining symptoms and syndromes in pathologies of the cardiorespiratory system. 2. Makes mistakes when explaining the etiology, pathogenesis and morphogenesis of pathological changes in the cardiorespiratory system	of semiotics and syndromology, identifies symptoms and syndromes. 2. Explains the etiology, pathogenesis and morphogenesis of pathological changes in the cardiorespiratory system, but allows for fundamental inaccuracies	semiotics and syndromology, independently identifies symptoms and syndromes. 2. Freely explains the etiology, pathogenesis and morphogenesis of pathological changes in the cardiorespiratory system
LO 2	Has knowledge of methods of conducting questioning, physical examination of adults and children, uses clinical thinking in collecting information when drawing up an examination plan; outlines the scope of basic and additional studies to clarify the syndrome of damage in pathology of the cardiorespiratory system	1. Does not know the basic physiological processes in the heart and lungs, does not understand the regulation of breathing and cardiac activity. 2. Unable to explain the mechanisms of gas exchange and transport of oxygen and carbon dioxide	1. Makes mistakes when describing the basic physiological processes in the heart and lungs, explaining the regulation of breathing and cardiac activity. 2. Is able to explain with mistakes the mechanisms of gas exchange and transport of oxygen and carbon dioxide.	1. Describes the basic physiological processes in the heart and lungs, understands the regulation of breathing and cardiac activity. 2. Is able to fully explain the mechanisms of gas exchange and transport of oxygen and carbon dioxide.	1. Demonstrates the basic physiological processes in the heart and lungs, has a deep understanding of the regulation of breathing and cardiac activity. 2. Is able to draw the mechanisms of gas exchange and transport of oxygen and carbon dioxide.
LO 3	Uses clinical thinking in collecting information when interpreting the results of morphological, laboratory and instrumental methods of examining patients with cardiorespiratory pathology, formulates a syndromic diagnosis, fills out a medical history	1. Does not know the main metabolic pathways that affect the function of the cardiorespiratory system. 2. Does not understand the biochemical processes associated with energy exchange in the heart muscles, breathing and gas exchange	1. Does not fully understand the basic metabolic pathways that affect the function of the cardiorespiratory system. 2. Poor understanding of the biochemical processes associated with energy metabolism in the heart muscles, respiration and gas exchange.	1. Explains the main metabolic pathways that affect the function of the cardiorespiratory system. 2. Understands and understands well the biochemical processes associated with energy	1. Possesses clinical thinking skills, applies knowledge in collecting information when interpreting the results of morphological, laboratory and instrumental methods of examining patients with cardiorespiratory system pathology. 2.

				metabolism in the heart muscles, respiration and gas exchange.	Formulates a syndromic diagnosis, fills out a medical history. 3. Effectively solves situational problems.
LO 4	Communicates information, ideas, problems and solutions to patients and their family members, and is proficient in ethical and deontological practices when interacting with patients, their relatives and colleagues	1. Does not know how to apply knowledge about the cardiorespiratory system in a clinical context, has not acquired the skills to collect a clinical history and perform a physical examination of patients with cardiorespiratory diseases to provide first aid. 2. Not able to interpret the results of laboratory and instrumental studies	1. Does not fully know how to apply knowledge about the cardiorespiratory system in a clinical context; collects clinical history and physical examination of patients with cardiorespiratory diseases to provide first aid with errors. 2. With Lab, he is well versed in interpreting the results of laboratory and instrumental studies	1. Lists information about the cardiorespiratory system in a clinical context, collects a clinical history and physical examination of patients with diseases of the cardiorespiratory system and provides first aid. 2.Student is well versed in interpreting the results of laboratory and instrumental studies	1. Fluently demonstrates knowledge of the cardiorespiratory system in a clinical context, and conducts clinical history taking and physical examination of patients with cardiorespiratory disorders. system with the provision of first aid. 2.Student is well versed in interpreting the results of laboratory and instrumental studies
LO 5	Determines pathological processes at the organ and cellular levels, interprets data on the pathophysiology and morphology of diseases taking into account the clinical data of patients, makes conclusions, explains the patterns of development of complications and outcomes of pathology of the cardiorespiratory system, evaluates the results of experimental studies	1. Is unable to determine pathological processes at the organ and cellular levels, makes gross errors. 2. Cannot interpret data on the etiology, pathophysiology and morphology of diseases taking into account the clinical data of patients. 3. Makes erroneous conclusions, has poor orientation and does not explain the patterns of development of complications and outcomes of cardiorespiratory pathology. 4. Is unable to evaluate	1. Determines pathological processes at the organ and cellular levels, but makes gross errors. 2. Cannot independently interpret data on the etiology, pathophysiology and morphology of diseases taking into account the clinical data of patients. 3. Makes erroneous conclusions, finds it difficult to independently explain the patterns of development of complications and	1. Determines pathological processes at the organ and cellular levels. 2. Interprets data on the etiology, pathophysiology and morphology of diseases, taking into account the clinical data of patients. 3. Draws conclusions and explains the patterns of development of complications and outcomes	1. Independently identifies pathological processes at the organ and cellular levels. 2. Independently interprets data on the etiology, pathophysiology and morphology of diseases, taking into account the clinical data of patients. 3. Draws conclusions and explains the patterns of development of complications and outcomes of cardiorespiratory system pathology.

		the results of experimental studies and makes fundamental mistakes. 5. Incapable of solving situational problems	outcomes of cardiorespiratory system pathology. 4. Finds it difficult to evaluate the results of experimental studies and makes fundamental inaccuracies. 5. Solves situational problems, but makes fundamental mistakes	of pathology of the cardiorespiratory system. 4. Evaluates the results of experimental studies, but allows for unfundamental inaccuracies. 5. Solves situational problems	4. Evaluates the results of experimental studies. 5. Effectively solves situational problems
LO 6	Selects medications according to the diagnosis, writes prescriptions, determines the dosage regimen, recognizes adverse effects of medications, predicts the development of side effects and drug interactions in cardiorespiratory pathology	1. Defines the general pharmacological group of drugs. 2. Writes out a prescription with errors	1. Selects a pharmacological group of drugs by organs and systems. 2. Writes out a prescription using reference literature/ sources	1. Selects medications for the treatment and prevention of the most common diseases. 2. Writes out a prescription for the specified medication without errors 3. Calculates the dose of the drug	1. Selects medications from various pharmacological groups in accordance with indications for use, contraindications and side effects. 2. Writes out a prescription for medications in the most appropriate dosage form depending on age, gender, and functional characteristics. 3. Calculates doses using various methods and determines the frequency and duration of use of the drug
LO 7	Analyzes professional literature when working with scientific articles, carries out a project, demonstrates a desire for continuous improvement of his/her activities	1. Does not have research skills. 2. Does not have a desire for continuous self-education and development	1. Cannot analyze the topics of the classes. 2. Participates in the implementation of the project 3. violates deadlines for completing tasks	1. Analyzes scientific articles on the topics of the class. 2. Participates in the implementation of the project. 3. Completes assignments on	1. Analyzes scientific articles on the topics of the class. 2. Uses international databases in work. 3. Successfully defends the completed project. 4. Demonstrates motivation for

				time	independent work, approaches tasks creatively

10.2 Methods and criteria for evaluation

Checklist for practical class

Form of control	Grade	Evaluation criteria
Performing practical skills	Excellent corresponds to points 95-100 90-94	- The student is well-versed in questioning and examining patients. Correctly and accurately selects questions when collecting anamnesis, accurately analyzes primary and secondary complaints, and is well-versed in the collected anamnesis of life and disease. - Accurately performs a basic physical examination: general examination, palpation, percussion, auscultation, measurement of blood pressure, determination of pulse characteristics, respiratory rate, etc.) in children and adolescents. - Conducts correct linking of objective physical examination data (palpation, auscultation, percussion), correctly interprets laboratory and instrumental examination data. - Able to evaluate pathophysiological patterns of research results. Finds and compares the connection between the main symptoms and syndromes. - Substantiates and establishes a presumptive syndrome-based diagnosis. - Used additional literature when preparing for the class. - Systematizes the material on the given topic. - Effectively communicates in medical practice, objectively conveys relevant information, knows and uses the norms of ethics and deontology when performing the skill;
	Good corresponds to points 85-89 80-84 75-79 70-74	- The student differentiates between primary and secondary complaints well, is well oriented in the collected anamnesis of life and disease. Is well oriented when questioning and examining patients, but allows minor inaccuracies or fundamental errors, corrected by the student himself. - Accurately performs a basic physical examination: general examination, palpation, percussion, auscultation, blood pressure measurement, determination of pulse characteristics, respiratory rate, etc. of children and adolescents. Incapable of correctly interpreting examination results. Does not accurately convey appropriate

		information; - Links data from objective physical examination (palpation, auscultation, percussion), and incorrectly interprets data from laboratory and instrumental studies. - Has errors in assessing pathophysiological patterns based on research results. Finds and compares the relationship between the main symptoms and syndromes. Establishes a presumptive syndrome-based diagnosis without substantiating the data
	Satisfactory corresponds to points 65-69 60-64 50-54	- The student is able to navigate when questioning and examining patients, differentiates between primary and secondary complaints with errors, and is poorly oriented in the collected anamnesis of life and illness. - Makes mistakes when conducting a physical examination (palpation, percussion, auscultation and general examination) and demonstrates incomplete knowledge of the material on the given topic, while making fundamental mistakes. - Links data from objective physical examination (palpation, auscultation, percussion), correctly interprets data from laboratory and instrumental studies. Has errors in assessing examination results. - Is unable to evaluate pathophysiological patterns of research results. Is unable to determine the relationships between the main symptoms and syndromes. Establishes a presumptive syndrome-based diagnosis without substantiating the data. - Has a low level of communication skills in medical practice; subjectively conveys appropriate information;
	Unsatisfactory corresponds to points 25-49	- The student has no idea about the main and secondary complaints, and is not oriented in the collected anamnesis of life and illness.
	Unsatisfactory corresponds to points 0-24	- Is unable to carry out practical skills to interpret their results. Cannot determine the relationship of objective physical examination data (palpation, auscultation, percussion), incorrectly interprets laboratory and instrumental examination data. - Does not know how to evaluate pathophysiological patterns of research results. Does not find and is not able to compare the relationship between the main symptoms and syndromes. Establishes a presumptive syndrome-based diagnosis without substantiating the data - Does not participate in the work of the group. Is not able to communicate in medical practice; does not convey proper information, does not know and is not able to use the norms of ethics

		and deontology when performing the skill. When answering the teacher's questions, gross errors, not using specific terminology in answers.
Case study	Excellent corresponds to points 95-100 90-94	- solved cases within a certain time; - gave full answers to all questions Demonstrates original thinking when analyzing a situational task. Fully utilizes theoretical knowledge necessary to solve a given task. Demonstrates excellent knowledge of reference biochemical parameters when interpreting the proposed biofluid analysis data. Demonstrates the ability to draw logical conclusions on a situational task, while demonstrating a deep understanding of the necessary educational material.
	Good corresponds to points 85-89 80-84 75-79 70-74	- solved cases within a certain time; - gave complete answers to all questions; - made minor mistakes when solving cases Possesses the necessary knowledge to solve this situational task. Allows for minor inaccuracies when discussing this case. Is able to draw correct conclusions on the proposed situational task.
	Satisfactory corresponds to points 65-69 60-64 50-54	- solved cases within a certain time; - gave incomplete answers to questions; - made fundamental mistakes when solving cases Allows minor inaccuracies when discussing a given task, has difficulty interpreting analyses proposed in a situational task. Draws conclusions with difficulty
	Unsatisfactory corresponds to points 25-49	- solved cases incorrectly or did not solve them at all; - made gross mistakes when solving cases Allows fundamental errors in discussing a situational task. Passive, unable to draw appropriate conclusions.
	Unsatisfactory corresponds to points 0-24	
Interpretation of clinical laboratory test results	Excellent corresponds to points 95-100 90-94	- correctly, without any errors, interpreted the results of clinical laboratory tests; - made a reasoned conclusion
	Good corresponds to points 85-89 80-84 75-79 70-74	- correctly interpreted the results of clinical laboratory tests, making minor errors; - made a reasoned conclusion
	Satisfactory corresponds to points 65-69 60-64 50-54	- correctly interpreted the results of clinical laboratory studies, having made fundamental mistakes; - made an unfounded conclusion
	Unsatisfactory corresponds to points 25-49	- incorrectly interpreted the results of clinical laboratory tests, making gross errors; - did not draw a conclusion
	Unsatisfactory corresponds to points	

	0-24	
Description of the macropreparation	Excellent corresponds to points 95-100 90-94	- named the organ correctly and indicated its dimensions, - described the surface: the condition of the capsule or serous membrane, dullness, shine, overlap; - gave a description of the pathological focus: indicated the location, size, shape (if it is an ulcer - the condition of the bottom), color, consistency; -made the correct pathological conclusion/diagnosis
	Good corresponds to points 85-89 80-84 75-79 70-74	- correctly named the organ, indicated the dimensions, described the surface: condition of the capsule or serous membrane, dullness, shine, overlap; - gave a description of the pathological focus: indicated the location, size, shape (if it is an ulcer – the condition of the bottom), color, consistency; -made the correct pathological conclusion/diagnosis, but during the answer made minor mistakes and inaccuracies
	Satisfactory corresponds to points 65-69 60-64 50-54	- correctly named the organ, did not indicate the dimensions, did not fully describe the surface: did not describe the condition of the capsule or serous membrane, dullness, shine, overlap; - gave an incomplete description of the pathological focus: did not indicate indicated location, size, shape (if it is an ulcer - condition of the bottom), color, consistency; - made the correct pathological conclusion/diagnosis, but during the answer made fundamental mistakes and inaccuracies
	Unsatisfactory corresponds to points 25-49	- correctly named the organ, did not indicate the size, did not describe the surface: did not describe the condition of the capsule or serous membrane, dullness, shine, overlap; - gave an incorrect description of the pathological focus: did not indicate indicated location, size, shape (if it is an ulcer - condition of the bottom), color, consistency; - made the correct pathological conclusion/diagnosis, but during the answer made fundamental mistakes and inaccuracies
	Unsatisfactory corresponds to points 0-24	- incorrectly named the organ, did not indicate the size, did not describe the surface: did not describe the condition of the capsule or serous membrane, dullness, shine, overlap; - gave an incorrect description of the pathological focus: did not indicate indicated location, size, shape (if it is an ulcer - condition of the bottom), color, consistency; - made an incorrect pathological conclusion/diagnosis, made gross errors during the answer, some questions left unanswered
Description of	Excellent corresponds to points	-correctly named the organ or tissue, correctly characterized

the microslide	95-100 90-94	pathological changes: localization, made a description, named the color; -made the correct pathological conclusion/diagnosis
	Good corresponds to points 85-89 80-84 75-79 70-74	-correctly named the organ or tissue, correctly characterized pathological changes: localization, made a description, named the color; -made the correct pathological conclusion/diagnosis, but during the answer made minor mistakes and inaccuracies
	Satisfactory corresponds to points 65-69 60-64 50-54	- correctly named an organ or tissue, incorrectly characterized pathological changes: localization, made a description, incorrectly named the color; - made the correct pathological conclusion/diagnosis, but during the answer made fundamental mistakes and inaccuracies
	Unsatisfactory corresponds to points 25-49	- correctly named an organ or tissue, incorrectly characterized pathological changes: localization, made a description, incorrectly named the color; -made the correct pathological conclusion/diagnosis, made gross errors during the answer
	Unsatisfactory corresponds to points 0-24	- incorrectly named an organ or tissue, incorrectly characterized pathological changes: localization, made a description, incorrectly named the color; - made an incorrect pathological conclusion/diagnosis, made gross mistakes during the answer, left some questions unanswered
Prescription writing	**Excellent** Corresponds to ratings: A (4.0; 95-100%); A- (3.67; 90-94%)	Writes out a prescription for medicines in the most appropriate dosage form depending on age, gender, and functional characteristics. Writes out a prescription for the selected medicine without errors. Calculates doses using various methods and determines the frequency and duration of use of the medicine.
	Good Corresponds to ratings: B+ (3.33; 85-89%) B (3.0; 80-84%) B- (2.67; 75-79%) C+ (2.33; 70-74%)	Writes out a prescription for the selected medication without errors. Calculates the dose of the medicine. Limited to general indications "Internal", "External".
	Satisfactory Corresponds to ratings: C (2.0; 65-69%) C- (1.67; 60-64%) D+ (1.33; 55-59%) D- (1.0; 50-54%)	Writes out a prescription using reference literature/sources. Allows corrections to the prescription.
	Unsatisfactory FX (0.5; 25-49%) F (0; 0-24%)	Writes out a prescription with errors.
Checklist for SIWT/SIW		

Analysis of a scientific article	Excellent corresponds to points 95-100 90-94	- independently substantiated and argued the relevance of the problem; - explained the purpose of the work, the materials and methods used in the work; - freely presented the semantic content of the scientific article; -argued and substantiated conclusions; - had the skill of using literature and justifying the selected list of references in this article
	Good corresponds to points 85-89 80-84 75-79 70-74	- substantiated and argued the relevance of the problem; - explained the purpose of the work, the materials and methods used in the work; - outlined the semantic content of the scientific article; -argued and substantiated conclusions; - had the skill of using literature and justifying the selected list of references in this article; - when answering, he made minor mistakes and inaccuracies
	Satisfactory corresponds to points 65-69 60-64 50-54	- found it difficult to justify and argue the relevance of the problem; - explained the purpose of the work, the materials and methods used in the work; - had difficulty expressing the semantic content of a scientific article; - had difficulty arguing and substantiating conclusions; - had the skill of using literature and justifying the selected list of references in this article; - when answering, he made fundamental mistakes and inaccuracies
	Unsatisfactory corresponds to points 25-49	- found it difficult to justify and argue the relevance of the problem; - explained the purpose of the work, the materials and methods used in the work; - had difficulty expressing the semantic content of a scientific article; - had difficulty arguing and substantiating conclusions; - failed to demonstrate the skill of using literature and justifying the selected list of literature in this article; - made gross mistakes when answering
	Unsatisfactory corresponds to points 0-24	- found it difficult to justify and argue the relevance of the problem; - could not explain the purpose of the work, the materials and methods used in the work; - was unable to convey the semantic content of a scientific article; - was unable to argue and justify the conclusions; - failed to demonstrate the skill of using literature and justifying the selected list of literature in this article; - made gross mistakes when answering

Discussion of the topic	Excellent corresponds to points 95-100 90-94	- did not make any mistakes during the discussion; - was oriented in the theories, concepts and directions of the discipline and gave them a critical assessment; - used scientific achievements of other disciplines
	Good corresponds to points 85-89 80-84 75-79 70-74	- during the discussion he did not make any gross mistakes, but he did make inaccuracies and minor errors, which he corrected himself; - managed to systematize the program material with the help of the teacher
	Satisfactory corresponds to points 65-69 60-64 50-54	- made fundamental mistakes during the discussion; - limited himself to only the educational literature specified by the teacher; - experienced great difficulty in systematizing the material
	Unsatisfactory corresponds to points 25-49	- made gross mistakes during the discussion; - did not study the basic literature on the topic of the class; - failed to use the scientific terminology of the discipline
	Unsatisfactory corresponds to points 0-24	

Checklist for midterm examination assessment

Testing - testing is assessed using a multi-point knowledge assessment system.

Checklist for assessing practical skills "Propaedeutics of internal diseases"

Form of control	Grade	Evaluation criteria

Performing practical skills	Excellent corresponds to points A (4.0; 95-100%); A- (3.67; 90-94%)	- The student is well-versed in questioning and examining patients. Correctly and accurately selects questions when collecting anamnesis, accurately analyzes primary and secondary complaints, and is well-versed in the collected anamnesis of life and disease. - Conduct physical examination accurately: - general examination (examination of the skin and subcutaneous fat, visible mucous membrane, measurement of respiratory rate, heart rate, blood pressure); - palpation (determination of resistance, pain, vocal fremitus, localization, amplitude, area, strength, pulsation, consistency, mobility, diameters, peristalsis, zones of pain, rigidity), - Percussion (determination of comparative, topographic boundaries of the lungs, area, excursion; determination of absolute and relative boundaries of the heart, configuration, diameter and vascular bundle; determination of the boundaries of the liver, spleen and stomach, tingling symptom); - auscultation (listening to vesicular and bronchial breathing, wheezing, crepitations, pleural friction noise in the lungs; listening to normal and pathological heart tones and murmurs, diastolic and systolic murmur). - Substantiates and makes a tentative syndromic diagnosis. - Used additional literature when preparing for the class. Systematizes the material on the given topic. Communicates effectively in medical practice, objectively conveys relevant information, knows and uses the norms of ethics and deontology when performing the skill;	

	Good corresponds to points B+ (3.33; 85-89%) B (3.0; 80-84%) B- (2.67; 75-79%) C+ (2.33; 70-74%)	- The student is well oriented when questioning and examining patients. Correctly selects questions when collecting anamnesis, accurately analyzes the main and secondary complaints, is well oriented in the collected anamnesis of life and disease. -It is good to conduct a physical examination: - general examination (examination of the skin and subcutaneous fat, visible mucous membrane, measurement of respiratory rate, heart rate, blood pressure); - palpation (determination of resistance, pain, vocal fremitus, localization, amplitude, area, strength, pulsation, consistency, mobility, diameters, peristalsis, zones of pain, rigidity), - Percussion (determination of comparative, topographic boundaries of the lungs, area, excursion; determination of absolute and relative boundaries of the heart, configuration, diameter and vascular bundle; determination of the boundaries of the liver, spleen and stomach, tingling symptom); - auscultation (listening to vesicular and bronchial breathing, wheezing, crepitations, pleural friction noise in the lungs; listening to normal and pathological heart tones and murmurs, diastolic and systolic murmur). - Makes a presumptive syndrome-based diagnosis without substantiating the data.	

	Satisfactory corresponds to points C (2.0; 65-69%) C- (1.67; 60-64%) D+ (1.33; 55-59%) D- (1.0; 50-54%)	- The student is able to navigate when questioning and examining patients, analyzes primary and secondary complaints with errors, and has poor understanding of the collected anamnesis of life and illness. - There are errors in the physical examination: - general examination (examination of the skin and subcutaneous fat, visible mucous membrane, measurement of respiratory rate, heart rate, blood pressure); - palpation (determination of resistance, pain, vocal fremitus, localization, amplitude, area, strength, pulsation, consistency, mobility, diameters, peristalsis, zones of pain, rigidity), - Percussion (determination of comparative, topographic boundaries of the lungs, area, excursion; determination of absolute and relative boundaries of the heart, configuration, diameter and vascular bundle; determination of the boundaries of the liver, spleen and stomach, tingling symptom); - auscultation (listening to vesicular and bronchial breathing, wheezing, crepitations, pleural friction noise in the lungs; listening to normal and pathological heart tones and murmurs, diastolic and systolic murmur). - Is unable to compare the relationship between the main symptoms and syndromes. Makes a presumptive syndrome-based diagnosis without substantiating the data - Low level of communication in medical practice; subjectively conveys appropriate information;	

	Unsatisfactory corresponds to points FX (0.5; 25-49%)	- The student has no idea about the main and secondary complaints, and is not oriented in the collected anamnesis of life and illness. - Is unable to carry out practical skills to interpret their results. Does not see the connection between objective physical examination data: - general examination (examination of the skin and subcutaneous fat, visible mucous membrane, measurement of respiratory rate, heart rate, blood pressure); - palpation (determination of resistance, pain, vocal fremitus, localization, amplitude, area, strength, pulsation, consistency, mobility, diameters, peristalsis, zones of pain, rigidity), - Percussion (determination of comparative, topographic boundaries of the lungs, area, excursion; determination of absolute and relative boundaries of the heart, configuration, diameter and vascular bundle; determination of the boundaries of the liver, spleen and stomach, tingling symptom); - auscultation (listening to vesicular and bronchial breathing, wheezing, crepitations, pleural friction noise in the lungs; listening to normal and pathological heart tones and murmurs, diastolic and systolic murmur). .. Does not find and is unable to compare the relationship between the main symptoms and syndromes. Makes a presumptive syndrome-based diagnosis without substantiating the data - Did not participate in the group work. Is not able to communicate in medical practice; does not convey proper information, does not know and is not able to use the norms of ethics and deontology when performing the skill. When answering the teacher's questions, gross errors, not using specific terminology in answers.
	Unsatisfactory corresponds to points F (0; 0-24%)	

Checklist for practical class

No.	Evaluation criteria	Level			
		Excellent	Good	Satisfactory	Unsatisfactory
Practical classes:					
1	Written response to the questions of this assignment	30	21	15	0
2	Oral answer to the questions of this task	30	21	15	0
3	Completing test tasks	12	8	6	0
4	Solving situational problems	28	20	14	0
	Total:	100	70	50	0

SIW and SIWT checklist

No.	Evaluation criteria	Level			
		Great	Fine	Satisfactorily	Unsatisfactory
SRO and SROP:					

1	Presentation Defense	50	35	25	0
2	Performing practical skills	50	35	25	0
	General:	100	70	50	0

Checklist for assessing answers to descriptions of macropreparations

No.	Evaluation Criteria/Evaluation	Excellent	Good	Satisfactory	Unsatisfactory
1	Name of the organ	4	3	2	0
2	Organ size	10	7	5	0
3	Surface: condition of the capsule or serous membrane, dullness, shine, overlap	1	1	1	0
4	Characteristics of the pathological focus: Localization, size, shape (if an ulcer – condition of the bottom), color, consistency	5	4	2	0
5	Pathological diagnosis/conclusion				
6	Total	20	15	10	0

Checklist for assessing answers to descriptions of microscopic specimens

No.	Evaluation Criteria/Evaluation	Excellent	Good	Satisfactory	Unsatisfactory
1	Name of an organ or tissue	4	3	2	0
2	Characteristics of pathological changes: localization, description	10	7	5	0
3	Staining	1	1	1	0
4	Pathological diagnosis/conclusion	5	4	2	0
5	Total	20	15	10	0

Checklist for assessing the analysis of scientific articles

Score in points by % / Evaluation criteria	Unsatisfactory (0-49%)	Satisfactory (50-69%)	Good (70-89%)	Excellent (90-100%)
Structure of the article	1. Does not name the structural components of a scientific article	1. Does not follow the order of the structure of the scientific article when listing, skips components	1. Lists the structural components of a scientific article, but violates the order of the structure	1. Observes the order of the structure of a scientific article when listing: - Name - Authors - Publishing house

				- Summary - General part (introduction, purpose, materials and methods, results and discussion) - Conclusions - Bibliography
Analysis of the content of a scientific article	1. Does not understand the relevance of the problem, is not capable of discussing the content of the article	1. Understands the relevance of the problem 2. Lists the purpose of the work, the materials and methods used in the work 3. Understands the content of a scientific article 4. Lists the conclusions and bibliography in this article	1. Assumes the relevance of the problem 2. Explains the purpose of the work, the materials used in the work and methods presents the content of a scientific article 3. Justifies the conclusions 4. Justifies the selected list of references in this article	1. Independently substantiates and argues the relevance of the problem 2. Explains the purpose of the work, the materials and methods used in the work 3. Freely expresses the semantic content of a scientific article 4. Argues and justifies conclusions 5. Has the skill of using literature and justifies the selected list of literature in this article
Answer to additional questions (on the topic of the article for the discipline)	1. Does not answer additional questions on the topic	1. Does not understand the problem at hand when answering additional questions	1. Apply the knowledge gained during the practical class on the topic when answering additional questions	1. Applies the knowledge gained during the practical class on the topic when answering additional questions, provides a deep and comprehensive argumentation

	Multi-point knowledge assessment system		
Letter Grading	Digital equivalent of points	Percentage content	Traditional system assessment
A	4.0	95-100	Excellent
A -	3.67	90-94	
B +	3.33	85-89	Good
IN	3.0	80-84	
IN -	2.67	75-79	
C +	2.33	70-74	
B	2.0	65-69	Satisfactory
B -	1.67	60-64	
D+	1.33	55-59	
D-	1.0	50-54	
FX	0.5	25-49	Unsatisfactory
F	0	0-24	

11.	**Educational resources**
Electronic resources	1. Electronic library of YUKMA - https://e-lib.skma.edu.kz/genres

	2. Republican Interuniversity Electronic Library (RIEL) – http :// rmebrk . kz / 3. Digital library " Aknurpress " - https://www.aknurpress.kz/ 4. Electronic library "Epigraph" - http://www.elib.kz/ 5. Epigraph - portal of multimedia textbooks https://mbook.kz/ru/index/ 6. EBS IPR SMART https://www.iprbookshop.ru/auth 7. information and legal system " Zan" - https://zan.kz/ru 8. Cochrane Library - https://www.cochranelibrary.com/
Electronic textbooks	Ivashkin, VT Internal diseases propedeutics [Electronic resource]: textbook / VT Ivashkin, AV Okhiobystin. - Electronic text data (142 MB). - M.: GEOTAR - Media, 2017. - electronic optical disc (CD-ROM). Internal diseases. T. 2 [Electronic resource]: textbook / ed. V. S. Moiseeva. - 3rd ed., rev. and additional - Electron. text data (45.1MB). - M.: GEOTAR - Media, 2015. - 895 p. Internal diseases. V. 1 [Electronic resource]: textbook / edited by V. S. Moiseev. - 3rd ed., corrected and supplemented. - Electronic text data (66.5 Mb). - M.: GEOTAR - Media, 2015. - 960 p. Ishki aurular./Bimurzaev G.N., Zaripova G.K., 2020/ https://aknurpress.kz/reader/web/2594 Ishki aurular pəninen klinikalyk tapsyrmalar zhinagy. Erzhanova G.A., Mukhanova A.K., 2016/https://aknurpress.kz/reader/web/2370 Shki aurular propedeuticsynan zhaғdayattyk tapsyrmalar Orazova B.O., Marchenko T.V., 2016 / https://aknurpress.kz/reader/web/2348 Propaedeutics of Internal Diseases: Textbook. / T.S. Ryabova, E.S. Ryss, V.Ya. Plotkin, and others. - St. Petersburg: SpetsLit, 2015. - 414 p. http://rmebrk.kz/ Internal diseases in the work of a general practitioner: Study guide. / K.Zh. Sadykova, Sh.U. Skenderova, S.K. Sattiev. - Turkestan: Turan, 2017. - 96 p. http://rmebrk.kz/ Zhamankulov, Kydyrkozha Abdolkarimuly.Ishki aurular [Matin]: okulyk / Қ. A. Zhamankulov; Batys Kazakhstan meme. medicine academician.. - Aktobe: [b. zh.], 2013. - 669 b. https://elib.kaznu.kz/book/1767 Propaedeutics of Internal Diseases: Textbook. - 6th ed., Volume I revised and supplemented. (Textbook. Literature for students of medical universities). - Almaty: Evero, 2020. - 400 p. https://elib.kz /ru/search/read_book/676/ Propaedeutics of Internal Diseases: Textbook. - 6th ed., II - volume revised and supplemented. (Textbook. Literature for students of medical universities). - Almaty: Evero, 2020. - 212 p. https://elib.kz/ru/search/read_book/682/ Propaedeutics of Internal Diseases: Textbook. - 6th ed., III - volume revised and supplemented. (Textbook. Literature for students of medical universities). - Almaty: Evero, 2020. - 208 p. https://elib.kz/ru/search/read_book/684/ Nursultanova S.D., Bakirova R.E., Mamashalieva S.B., Bekov E.K., Madieva L.S. Oku-әdistemelik kural.- Almaty, “Evero” baspasy. -2020. https://elib.kz/ru/search/read_book/705/

	Akhmetov Kayyrgali Zhaleluly. Ishki aurular propaedeutics for clinics. Almaty: "Evero", 2020. – 262 bet https://elib.kz/ru/search/read_book/22/ Ishki arza aurularyn propaedeutics. Okulyk Aitmbet B.11- Almaty "Evero" 2018, -568 bet. https://elib.kz/ru/search/read_book/3086/
Literature	**Basic Literature (BL)** Vasilenko, V. H. Propaedeutics of Internal Diseases. T. 1.: Textbook / V. H. Vasilenko, V. V. Vasilenko;. - Almaty: Newbook, 2021. - 400. p. Vasilenko, V. H. Propaedeutics of Internal Diseases. T. 2.: Textbook / V. H. Vasilenko, V. V. Vasilenko;. - Almaty: Newbook, 2021. - 212. p. Vasilenko, V. H. Propaedeutics of Internal Diseases. T. 3.: Textbook / V. H. Vasilenko, V. V. Vasilenko;. - Almaty: Newbook, 2021. - 208. p. Mukhin, N.A.Ishki aurular propedeutics: okulyk. - M.: GEOTAR - Media, 2015. - 672 bets Vasilenko, V. Kh. Ishki aurular propedeutics. T. 1. [Matin]: okulyk / V. Kh. Vasilenko, V. V. Vasilenko; meme. tilge aud. K. Askambay. - Almaty: Evero, 2015. - 336 b. With Vasilenko, V. Kh. Ishki aurular propedeutics. T. 2 [Matin]: okulyk / V. Kh. Vasilenko, V. V. Vasilenko; meme. tilge aud. K. Askambay. - Almaty: Evero, 2015. - 176 b. With Vasilenko, V. Kh. Ishki aurular propedeutics. T. 3 [Matin]: okulyk / V. Kh. Vasilenko, V. V. Vasilenko; meme. tilge aud. K. Askambay. - Almaty: Evero, 2015. - 192 b. With Aitbembet, B.N.Ishkiarza aurularynyn propedeutics: okulyk Almaty: Evero, 2014. - 568 bet.- Makolkin, V. I. Ishki aurular: okulyk. - M.: GEOTAR - Media, 2014. - 976 bet Grebenev, A. L. Propaedeutics of Internal Diseases [Text]: textbook / A. L. Grebenev. - 5th ed., revised and enlarged. - Almaty: Evero, 2014. - 520 p. "Tynysaluzhuyesi" modules: integrationlanganokulyk = Module "Respiratory system": integrated textbook / S.K. Zhaugasheva [f. b.] ; zhauapt ed. S. B. Zhutikova, S. D. Nursultanova. - M.: "Litterra", 2014. - 272 bet. With. "Zhurek-kan tamyrlar zhuyesi" modules: integrationlangan okulyk = Module "Cardiovascular system": integrated textbook / S. B. Zhaugasheva [zh. b.] ; zhauapt ed. S. B. Zhutikova, S. D. Nursultanova. - M.: "Litterra", 2014. - 344 bet. With. : ill. "As korytuzhuyesi" modules: integrationlanganokulyk = Module "Digestive system": integrated textbook / S.K. Zhaugasheva [zh. b.] ; zhauapt ed. S. B. Zhutikova, S. D. Nursultanova. - M.: "Litterra", 2014. - 376 bet. With. : ill. "Zərshyraruzyyesi" modules: integrationlanganokulyk = Module "Urinary system": integrated textbook / S.K. Zhaugasheva [zh. b.] ; zhauapt ed. S. B. Zhutikova, S. D. Nursultanova. - M.: Litterra, 2014. - 256 bet. With. : ill. "Kan tuzushi zhuyesi" modules: integrationlangan okulyk = Module "Hematopoietic system": integration textbook / S. K. Zhaugasheva [zh. b.] ; zhauapt ed. S. B. Zhutikova, S. D. Nursultanova. - M.: "Litterra", 2014. - 288 bet. With. "Endocrine system" module: integrationlangan okulyk = Module "Endocrine system": integration textbook / S. K. Zhaugasheva [zh. b.] ; zhauapt ed. S. B. Zhutikova, S. D. Nursultanova. - M.: "Litterra", 2014. - 328 bet. With. "Tirek-kimylzhuyesi" module: integrationlanganokulyk = Module "Musculoskeletal system": integrated textbook / S. K. Zhaugasheva [zh. b.] ;

zhauapt ed. S. B. Zhutikova, S. D. Nursultanova. - M.: Litterra, 2014. - 240 bet. With. : ill.
"Zhuykezhuyesi" modules: integrationlanganokulyk = Module "Nervous system": integrated textbook / S.K. Zhaugasheva [zh. b.] ; zhauapt ed. S. B. Zhutikova, S. D. Nursultanova. - M.: "Litterra", 2014. - 264 bet. With. : ill.
Vasilenko, VK Propaedeutics of internal diseases. 1-volume: textbook / - Almaty: "Evero", 2017. - 364 p.
Vasilenko, VK Propaedeutics of internal diseases. 2-volum: textbook/. - Almaty: "Evero", 2017. - 364 p.
Vasilenko, VK Propaedeutics of internal diseases. 3-volume: textbook/. - Almaty: "Evero", 2017. - 188 p
1. Biochemistry, ed. Corresponding member RAS, prof. E.S. Severina.- M., 2011
2. Tapbergenov S.O. "Medical and clinical biochemistry". - Evero, 2017. Volume;
3. Tapbergenov S.O. "Medical and clinical biochemistry". - Evero

Further reading (FBL).

Omarov, T. R. Emergency conditions in the clinic of internal diseases [Text]: a tutorial / T. R. Omarov, V. A. Omarova. - Karaganda: AKNUR, 2019. - 518 p.
Diagnosis of diseases of internal organs. Formulation, classification [Text]: study guide / edited by V. A. Akhmedov. - M.: GEOTAR - Media, 2016. - 256
Mukhin, N. A. Selected lectures on internal diseases [Text]: lecture / N. A. Mukhin. - 2nd ed. - M.: GEOTAR - Media, 2017. - 328 p.
Ishki aurular boyynsha objectivetendirilgen құramdastyrylgan klinikalyk emtihan: oku-adistemelik kural = Objective structured clinical examination in internal diseases: educational methodological manual / M. Ospanov atyndagy BKMMU; Kuras. K. Zh. Akhmetov [reinforced concrete]. - M.: "Litterra", 2016. - 368 b.
Syrkatnama: oku-adistemelik kural / G. M. Yesenzhanova [Zh. b.] ; To the lady of the Minister of League. - 2-bass tolyk. zhene өnd. - Karaganda: Residential complex "Aknur", 2015. - 80 s
Akhmetov K.Ishki aurular propaedeutics
Campbell M.K., Biochemistry, 1-part, Almaty-2013;
2. Biochemistry: textbook / edited by E. S. Severin. - 5th ed., corrected and enlarged. - M.: GEOTAR - Media, 2011.
3. Guide to practical classes in biological chemistry: a teaching and methodological manual for students of medical universities / edited by S. O. Tapbergenov. - Almaty: Evero, 2012. - 150 p.
4. Biological Chemistry with Exercises and Problems: Textbook / edited by S. Severin. - M.: GEOTAR-Media, 2011. - 624 p. + electronic optical disc (CD-ROM)

12. Discipline Policy

Requirements for students (attendance, behavior, grading policy, penalties, incentives, etc.)

- observe medical ethics and deontology;
- no smoking in the academy;
- maintain cleanliness in the department;
- do not damage furniture in classrooms;

● treat textbooks with care;
● maintain the appearance of a medical university student;
● observe safety regulations;
● during quarantine, wear medical masks and comply with sanitary and epidemiological regulations;
● do not miss classes without a good reason;
● classes missed for a valid reason must be made up in a timely manner, but only with permission from the dean's office and at a time determined by the teacher;
● don't be late for classes;
● have the necessary documentation in class: syllabus, methodological instructions for classes, lectures, notebook and textbook;
● prepare for classes conscientiously;
● be active during classes;
● do not engage in other activities during classes: do not talk, do not smoke, do not chew gum, do not eat food, do not use the phone, do not listen to music, do not read newspapers and magazines, do not prepare for classes in another subject;
● maintain silence and order during breaks;
● implement SIW in a timely manner.

Penalties for failure to complete sections of the work:

● If you miss lectures without a valid reason, your midterm assessment grade will be reduced
– 1 point for each missed lecture;
● If you miss a SIW without a valid reason, your midterm assessment score will be reduced by 2 points for each missed class;
● In case of a single violation of the discipline policy, the student is given a warning;
● In case of systematic violation of the discipline policy, information about the student's behavior is transferred to the faculty dean's office.

Criteria for non-admission to final control:

A student who has received an unsatisfactory grade for one of the types of tests (RC 1, RC 2, average grade of the current test) is not admitted to the final test for the discipline.

13.	**Academic policy based on the moral and ethical values of the academy**
	Regulations and Rules of SKMA. Academic policy.
	P.4. Code of honor of the student
	P.10. Organization of the educational process
	P.12. Grading Policy The final grade is calculated automatically based on the average grade of the current control, the average grade of the midterm control and the grade of the final control. **Final score** (100%) = **AR** (60%) + **FC** (40%) **AR** (60%) = **MEav** (20%) + **CCav** (40%) **MEav** = (ME1 + ME2): 2 **Final score** (100%) = **MEav** x 0.2 + **CCav** x 0.4 + **FC** x 0.4 **AR** – Admission Rating **FC** – final control assessment **MEav** – average grade of the midterm control taking into account penalty points **CCav** – average assessment of current control taking into account SIW **ME1** – midterm examination 1 **ME2** – midterm examination 2

Date of agreement with the library and information center	Protocol No. 9 14.06.24	Head of the LIC Darbicheva R.I.	Signature
Date of approval for AC EP	Protocol No. 11 14.06.2024	Full name of the Chairman of the AC EP	Signature
Date of approval at the department	Protocol No. 11 28.06.2024	Full name of the head	Signature
Date of revision at the department	Protocol No. ___	Full name of the head	Signature
Date of revision on AC EP	Protocol No. ___	Full name of the Chairman of the AC EP	Signature