

ЛД-16 ИН

**Federal State Budgetary Educational Institution of Higher Education  
«North-Ossetia State Medical Academy»  
of the Ministry of Healthcare of the Russian Federation**



**APPROVED**

Rector of FSBEI HE NOSMA

MOHE Russia

O.V. Remizov

May 24, 2023

**EDUCATIONAL TRAINING PROGRAM OF DISCIPLINE**

**"Hematology"**

the main professional educational program of higher education - specialty program in the specialty 31.05.01 General Medicine, approved in May 24, 2023

Form of education Full-time

The period of development 6

Department of Internal diseases №4

Vladikavkaz, 2023

ЛД-16 ИИ

When developing an educational training program, the discipline is based on:

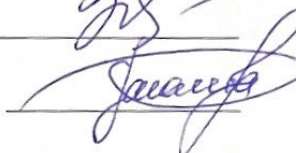
1. Federal State Educational Standard of Higher Education on specialty 31.05.01 General Medicine, approved by the Ministry of Education and Science of the Russian Federation on February 9, 2016 №95
2. Academic plan on specialty 31.05.01 General Medicine,  
ЛД-16-02-17 ИИ  
ЛД-16-03-18 ИИ  
ЛД-16-04-19 ИИ  
ЛД-16-05-20 ИИ approved by the Scientific Council of the Federal State Budgetary Educational Institution of Higher Education «North-Ossetia State Medical Academy» of the Ministry of Healthcare of the Russian Federation May 24, 2023, Protocol № 8.
3. The educational training program of the discipline was approved at a meeting of the department of Internal diseases №4 from May 17, 2023, Protocol №. 17
4. The educational training program of the discipline was approved at a meeting of the central coordinating training and methodological council from May 23, 2023, Protocol №.5
5. The educational training program of the discipline was approved by the Scientific Council of the State Medical University of the Federal State Budgetary Educational Institution of Higher Education «North-Ossetia State Medical Academy» of the Ministry of Healthcare of the Russian Federation from May 24, 2023, Protocol № 8.

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## **Content of the work program**

1. the name of the discipline;
2. a list of planned learning outcomes in the discipline, correlated with the planned results of mastering the educational program;
3. an indication of the place of discipline in the structure of the educational program;
4. the scope of the discipline in credit units, indicating the number of academic or astronomical hours allocated for contact work of students with a teacher (by type of training) and for independent work of students;
5. the content of the discipline, structured by topics (sections) with an indication of the number of academic or astronomical hours and types of training allocated for them;
6. a list of educational and methodological support for independent work of students in the discipline;
7. fund of evaluation means for the intermediate certification of students in the discipline;
8. a list of basic and additional educational literature necessary for mastering the discipline;
9. a list of resources of the information and telecommunication network "Internet" (hereinafter referred to as the "Internet" network) required for mastering the discipline;
10. guidelines for students on the development of the discipline;
11. a list of information technologies used in the implementation of the educational process in the discipline, including a list of software and information reference systems (if necessary);
12. description of the material and technical base necessary for the implementation of the educational process in the discipline.
13. conducting educational activities using e-learning and distance learning technologies

## 2. The list of planned learning outcomes in the discipline and the results of mastering the educational program

№	N	Content of the discipline (or its sections)	Know	Be able to	Own
1	2	3	4	5	6
1.	GPC-9	Blood functions. General blood analysis; Modern classification of hematological diseases. Clinical, laboratory, instrumental research methods in hematology; Differential diagnosis of anemia. Hemorrhagic diathesis. ICE; Acute leukemia; Chronic leukemia. Lymphomas. Hodgkin's disease. Non-Hodgkin's lymphomas.	General patterns of general pathological processes, basic physical, chemical, biological and physiological patterns, processes and phenomena in health and disease, the specifics of health formation	Obtain subjective and objective information about the disease, identify risk factors for the development of pathology, leading syndrome, general and specific symptoms of the disease, outline ways of secondary prevention of disease progression	Skills of staining and counting the leukocyte formula and myelogram
2.	PC-5	Blood functions. General blood analysis; Modern classification of hematological diseases. Clinical, laboratory, instrumental research methods in hematology; Differential diagnosis of anemia; Hemorrhagic diathesis. ICE; Acute leukemia; Chronic leukemia; Lymphomas. Hodgkin's disease. Non-Hodgkin's lymphomas.	Basic issues of pathological anatomy, normal and pathological physiology, clinical laboratory diagnostics	Carry out differential diagnostics, make a clinical diagnosis and determine the algorithm of the necessary treatment	Skills of special examination of hematological patients
3.	GPC-6	Blood functions. General blood analysis; Modern classification of hematological diseases. Clinical, laboratory, instrumental research methods in hematology; Differential diagnosis of	The doctrine of the disease, etiology, pathogenesis of diseases of the blood system, organopathological, syndromic and nosological principles in the	Assess the data of special methods - myelogram, trepanobiopsy, molecular, cytogenetic, genetic analyzes, immunophenotyping, hemostasiogram	Skills of special examination of hematological patients

		<p>anemia;</p> <p>Hemorrhagic diathesis. ICE;</p> <p>Acute leukemia; Chronic leukemia;</p> <p>Lymphomas. Hodgkin's disease. Non-Hodgkin lymphomas</p>	<p>study of diseases, pathomorphosis of diseases.</p>		
4.	GPC-8	<p>Differential diagnosis of anemia;</p> <p>Hemorrhagic diathesis. DIC syndrome;</p> <p>Acute leukemia;</p> <p>Chronic leukemia;</p> <p>Lymphomas. Hodgkin's disease. Non-Hodgkin lymphomas</p>	<p>The main pharmacotherapy from the standpoint of evidence-based medicine, possible complications during drug therapy and methods of their correction</p>	<p>Determine the severity of the patient's condition, the volume and sequence of necessary therapeutic measures</p>	<p>Various methods of drug administration</p>
5.	PC-8	<p>Differential diagnosis of anemia;</p> <p>Hemorrhagic diathesis. ICE;</p> <p>Acute leukemia</p> <p>Chronic leukemia;</p> <p>Lymphomas. Hodgkin's disease. Non-Hodgkin lymphomas</p>	<p>Clinical pharmacology in aspects of hematology and related disciplines; the main characteristics of drugs and forms, their classification, pharmacodynamics and pharmacokinetics, indications and contraindications for prescription and use, for prevention and treatment.</p>	<p>To be able to independently recognize normal and abnormal cells of peripheral blood and bone marrow during microscopic examination in various diseases of the blood system</p>	<p>Methods of special examination - the technique of performing sternal puncture, trepanobiopsy</p>
6.	PC-9	<p>Differential diagnosis of anemia;</p> <p>Hemorrhagic diathesis. ICE;</p> <p>Acute leukemia;</p> <p>Chronic leukemia;</p> <p>Lymphomas. Hodgkin's disease. Non-Hodgkin lymphomas</p>	<p>Fundamentals of dispensary observation of hematological patients, a system of rational provision of patients with expensive vital drugs</p>	<p>Conduct dispensary observation, assess the quality of life of patients</p>	<p>Approach to the diagnosis and treatment of possible complications of hematological patients</p>
7.	PC-10	<p>Differential diagnosis of anemia;</p>	<p>Clinical syndromology, algorithms and innovative</p>	<p>Determine the scope of additional examination methods and</p>	<p>Clinical thinking skills for different</p>

		Hemorrhagic diathesis. ICE; Acute leukemia; Chronic leukemia; Lymphomas. Hodgkin's disease. Non-Hodgkin's lymphomas.	technologies for modern diagnostics and treatment of blood diseases, prevention of blood system diseases, as well as borderline conditions in hematological practice	treatment tactics	al diagnosis and clinical diagnosis
8.	PC-11	Differential diagnosis of anemia; Hemorrhagic diathesis. ICE; Acute leukemia; Chronic leukemia; Lymphomas. Hodgkin's disease. Non-Hodgkin lymphomas	Organization of intensive care and resuscitation services for blood diseases	Necessary urgent care in case of emergency conditions, including blood diseases	Methods of providing emergency care and modern hematological resuscitation

### 3. Place of discipline in the structure of the educational program

The discipline "Hematology" refers to the variable part of block 1 of the Federal State Educational Standard of Higher Education in the specialty "General Medicine".

The types of professional activities that underlie the teaching of this discipline:

1. medical;
2. organizational and managerial;
3. research.

### 4. Scope of the discipline

№	Type of work	Total credits	Total hours	Semes ters
				X
				hours
1	2	3	4	5
1	Contact work of students with teacher (total), including:	1,3	48	48

2	Lectures (L)	-	8	8
3	Clinical Practical Exercises (PE)	-	40	40
4	Seminars (S)	-	-	-
5	Laboratory work (LW)	-	-	-
6	<b>Student independent work (IWS)</b>	0,7	24	24
7	<b>Type of intermediate appraisals</b>	credit (C)		
		exam (E)		
8	<b>TOTAL: General</b>	hours	72	72
	<b>labor intensity</b>	credits	2	2

### 5. Content of the discipline

№	№ semester	Name of the section of the discipline (module)	Types of educational activities, including independent work of students (in hours)					Forms of current monitoring of progress (by week of the semester)
			L	LW	PE	ISW	total	
1	2	3	4	5	6	7	8	9
1.	X	hematology	8	-	40	24	72	Oral questioning, transcription of analyzes, written and computer testing, individual homework
		<b>TOTAL:</b>	8	-	40	24	72	

### 6. The list of educational and methodological support for independent work of students in the discipline

№	№ semester	Name of educational and methodological development
1	X	Z.T. Astakhova, Z.Z. Dzukaeva, Z.A. Toguzova, Zh.A. Kulova, M.M. Besaeva D.S. Zagalova, F.U. Kanukov, V.A.Aidarova.  Hemophilia. Guidelines. Vladikavkaz, 2017. - CEMC (central educational methodological commission) of therapeutic disciplines.
2	X	Z.T. Astakhova, Z.Z. Dzukaeva, Z.A. Toguzova, Zh.A. Kulova, M.M. Besaeva

		D.S. Zagalova, F.U. Kanukov, V.A.Aidarova.  Thrombocytopenic purpura. Methodical recommendations for internal medicine. Vladikavkaz, 2017 CEMC (central educational methodological commission) of therapeutic disciplines.
3	X	Z.T. Astakhova, Z.Z. Dzukaeva, Z.A. Toguzova, Zh.A. Kulova, M.M. Besaeva D.S. Zagalova, F.U. Kanukov, V.A.Aidarova.  General blood analysis. Methodical recommendations for internal medicine Vladikavkaz, 2017CEMC (central educational methodological commission) of therapeutic disciplines.
4	X	Z.T. Astakhova, Z.Z. Dzukaeva, Z.A. Toguzova, Zh.A. Kulova, M.M. Besaeva D.S. Zagalova, F.U. Kanukov, V.A.Aidarova.  Hemorrhagic diathesis. Methodical recommendations for internal medicine Vladikavkaz, 2017CEMC (central educational methodological commission) of therapeutic disciplines.
5	X	Z.T. Astakhova, L.M. Mosin, Z.Z. Dzukaeva, A.V. Soplevenko, I.B. Tuueva, I.I. Tomaeva, A.V. Rappoport Zh.A. Kulova, Zh.V. .Gabueva  Anemia. Methodical manual. Vladikavkaz, 2017. EMA (educational methodical association)

### 7. Fund of assessment tools for intermediate certification of students in the discipline

№/п	Перечень компетенций	№ семестра	Показатель(и) оценивания	Критерий(и) оценивания	Шкала оценивания	Наименование ФОС
1	2	3	4	5	6	7
1.	GPC-8 GPC-9 PC-5 PC-6 PC-8 PC-9 PC-10 PC-11	X	See the Standard for assessing the quality of education, approved. By order of the Federal state budgetary educational institution of higher education NOSMA of the	See the Standard for assessing the quality of education, approved. By order of the Federal state budgetary educational institution of higher education NOSMA of the	See the Standard for assessing the quality of education, approved. By order of the Federal state budgetary educational institution of higher education NOSMA of the	Exam tickets for credit, test tasks, analyzes



			Ministry of Health of the Russian Federation 10.07.2018, No. 264/0	Ministry of Health of the Russian Federation 10.07.2018, No. 264/0	Ministry of Health of the Russian Federation 10.07.2018, No. 264/0	
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## 8. The list of basic and additional educational literature necessary for mastering the discipline

### Main literature

№	Name	Authors	Year, place of publication	Number of copies	
				in library	at the department
1	2	3	4	7	8
1.	Internal medicine: textbook: in 2 volumes.	Ed. V.S. Moiseeva	M., GEOTAR-Media, 2012, 2013.	T.1-52 T.2-52	2
				"Student advisor" <a href="http://www.studmedlib.ru/book/ISBN9785970425794.html">http://www.studmedlib.ru/book/ISBN9785970425794.html</a> <a href="http://www.studmedlib.ru/book/ISBN9785970425800.html">http://www.studmedlib.ru/book/ISBN9785970425800.html</a>	
2.	Internal medicine: textbook.	Makolkin V.I., Ovcharenko S.I.	M., GEOTAR-Media, 2011, 2013	99 20	2 1
				"Student advisor" <a href="http://www.studmedlib.ru/ru/book/ISBN9785970425763.html">http://www.studmedlib.ru/ru/book/ISBN9785970425763.html</a>	
3.	Hospital therapy: a tutorial.	Ed. V.A. Lyusova	M., GEOTAR-Media, 2010.	1	2
				"Student advisor" <a href="http://www.studmedlib.ru/ru/book/ISBN9785970413098.html">http://www.studmedlib.ru/ru/book/ISBN9785970413098.html</a>	
4.	Internal illnesses. 333 test problems and comments to them: a tutorial.	Ed. L.I. Butler	M., GEOTAR-Media, 2010	1	1
				"Student advisor" <a href="http://www.studmedlib.ru/ru/book/ISBN9785970414828.html">http://www.studmedlib.ru/ru/book/ISBN9785970414828.html</a>	

5.	Cardiology: a national guide	Yu.N. Belenkov	M., GEOTAR-Media, 2007, 2015	10 1	1
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**additional literature**

№	Name	Authors	Year, place of publication	Number of copies	
				in library	at the department
1	2	3	4	7	8
1.	Internal Medicine Diagnostic and Treatment Standards	Shulutko B.I., Makarenko S.V.	SPb.: Elbi-SPb, 2007	1	10
2.	Russian therapeutic guide (with an attachment on a CD)	Ed. A.G. Chuchalina	M.: GEOTAR - Media, 2005	5	1
3.	Clinical laboratory diagnostics: textbook. allowance	A. A. Kishkun	M.: GEOTAR - Media, 2013	10	2
				"Student advisor" <a href="http://www.studmedlib.ru/book/ISBN9785970415504.html">http://www.studmedlib.ru/book/ISBN9785970415504.html</a>	
4.	Internal Medicine Questions and Answers: A Study Guide	Ed. Yu.R. Kovalev.	SPb.: Foliant, 2004	30	2
5.	Internal illnesses. Laboratory and instrumental diagnostics: textbook. allowance	Roitberg G.E.	M.: MED-press-inform, 2011	2	-
6.	Anemia: A Quick Guide	Kozlovskaya (Lysenko) L.V., Milovanov Yu.S.	M.: GEOTAR - Media, 2016	1	-
7.	Hematology: a national guide	Ed. O. A. Rukavitsyn	M.: GEOTAR - Media, 2015	3	-
8.	Practical hemostasiology	A. N. Mamaev	M.: Practical Medicine, 2014	1	-

9.	Hemophilia in the practice of doctors of various specialties	Rumyantsev A.G., Rumyantsev S.A., Chernov V.M.	M.: GEOTAR - Media, 2013	2	-
				"Student advisor" <a href="http://www.studmedlib.ru/book/ISBN9785970423479.html">http://www.studmedlib.ru/book/ISBN9785970423479.html</a>	
10.	Anemias	Dementyeva I.I., Charnaya M.A., Morozov Yu.A.	M.: GEOTAR - Media, 2013	1	-
				"Student advisor" <a href="http://www.studmedlib.ru/book/ISBN9785970423608.htm">http://www.studmedlib.ru/book/ISBN9785970423608.htm</a>	
11.	Hematology: manual	Ed. N.N. Mamaev	SPb.: SpetsLit, 2011	7	-
12.	Blood diseases in outpatient practice	Ed. I. L. Davydkin	M.: GEOTAR - Media, 2011, 2014	6	-
13.	DIC syndrome	Alekseeva L.A., Ragimov A.A.	M.: GEOTAR - Media, 2010	1	-
				"Student advisor" <a href="http://www.studmedlib.ru/book/ISBN9785970413418.html">http://www.studmedlib.ru/book/ISBN9785970413418.html</a>	
14.	Cardiology. Hematology (Internal Medicine according to Davidson)	Ed. V. I. Makolkina	M.: Reed Elsevier, 2009	2	-
15.	Visual hematology	Ed. V. I. Ershova	M.: GEOTAR - Media, 2008	7	-
16.	Blood and Bone Marrow Cells: Color Atlas	ed. G. I. Kozinets	M.: MIA, 2004	18	

## 9. The list of resources of the information and telecommunication network "Internet" required for mastering the discipline

### 1. "Student advisor"

<http://www.studmedlib.ru/ru/book/ISBN9785970425763.html>

<http://www.studmedlib.ru/ru/book/ISBN9785970425794.html>

<http://www.studmedlib.ru/ru/book/ISBN9785970425800.html>

<http://www.studmedlib.ru/ru/book/ISBN9785423500764.html>

<http://www.studmedlib.ru/ru/book/ISBN9785970430743.html>

<http://www.studmedlib.ru/ru/book/ISBN9785970425763.html>

<http://www.studmedlib.ru/ru/book/ISBN9785970425794.html>

<http://www.studmedlib.ru/ru/book/ISBN9785970425800.html>

<http://www.studmedlib.ru/ru/book/ISBN9785423500764.html>

<http://www.studmedlib.ru/ru/book/ISBN9785970430743.html>

<http://www.uzi.su/index.php>

Medical standards: <http://www.rspor.ru/index.php?mod1=standarts3&mod2=db1>

-The first medical channel -<http://1med.tv>

- Interregional Society of Evidence-Based Medicine Specialists.

<http://www.osdm.org/index.php>

-Russian Society of Cardiology - - <http://www.scardio.ru/>

-National Hematological Society - <http://npngo.ru>

Electronic versions of magazines:

«Consilium medicum» - <http://www.consilium-medicum.com/media/consilium>

«Vestnik dokazatel'noy meditsiny»<http://www.evidence-update.ru/>

«Vrach» -<http://www.rusvrach.ru/journals/vrach>

## **10. Methodical instructions for students on mastering the discipline**

Training consists of classroom lessons (48 hours), including a lecture course and practical exercises, and independent work (24 hours). The main study time is allocated for practical work on the provision of qualified medical care to patients and on the provision of emergency medical care in case of urgent conditions.

When studying the discipline, knowledge of etiology, pathogenesis, clinical picture of diseases and pathological conditions, modern classification of diseases, possible complications of the most common diseases, modern methods of clinical, laboratory, instrumental examination of patients are used and practical skills are mastered to formulate a clinical diagnosis, develop a plan of therapeutic action, formulate indications for the chosen method of treatment, taking into account etiotropic and pathogenetic agents, to justify pharmacotherapy in a particular patient with basic pathological syndromes and emergency conditions.

Practical classes are carried out in the form of a clinical analysis of patients being treated at the clinic, the participation of students in the rounds of the head department, demonstration of practical skills in the provision of medical care using visual aids, solving situational problems, answering test tasks, analyzing clinical patients.

The main method of teaching 6-year students is independent work of a student at the patient's bedside under the guidance of a teacher. Along with this, the development of diagnostic research methods in the main sections of internal medicine in functional diagnostics rooms, X-ray rooms, clinical and biochemical laboratories is actively used; participation in clinical and pathological conferences; participation in professorial rounds; registration of medical documentation; participation in thematic rounds and clinical analyzes of patients; conducting seminars in cycles: cardiology, nephrology, gastroenterology,

pulmonology, hematology, functional diagnostics, physiotherapy exercises and medical supervision with the basics of manual therapy; conducting credits and general certification in practical skills; participation of students in scientific work.

Clinical analysis of the patient in lectures and practical classes is accompanied by a demonstration and detailed analysis of the results of additional research methods, while participation in the analysis of students is mandatory, with an independent interpretation of complaints, anamnesis, objective status data, functional and laboratory research methods, the formulation of a clinical diagnosis, the formation of a differentiated treatment and a rehabilitation plan. The purpose of the analysis is a detailed study of the disease in its individual version.

In accordance with the requirements of the Federal State Educational Standard of Higher Education, active and interactive forms of conducting classes are widely used in the educational process. The proportion of classes conducted in interactive forms is at least 10% of classroom lessons.

Each student is provided with access to the library funds of the University and the department.

The initial level of students' knowledge is determined by testing, the current control of mastering the subject is determined by oral questioning during classes, during clinical analyzes, when solving typical situational tasks and answering test tasks.

At the end of the study of the discipline, intermediate control of knowledge is carried out using test control, testing of practical skills and solving situational problems.

Discipline questions are included in the state final certification of graduates.

**11. The list of information technologies used in the implementation of the educational process in the discipline**

Semester	Type of occupation L, PE, ISW	Educational technologies used (active, interactive)	Number of hours	% of classes in an interactive form	List of software
X	L	A set of slides, videos for a traditional lecture, a visualization lecture - in FOS + guidelines for teachers.	8	20	Microsoft Office PowerPoint; Internet Explorer
X	PE	A set of questions and tasks for a practical task, a shell of tests for test control, a set of situational tasks for an AP, a set of topics for scientific research work, a set of case histories for the analysis of clinical cases, a set of material for business and role-playing games.	40	20	Microsoft Office PowerPoint; Internet Explorer All-Russian Educational Internet Program - "Internist"
X	ISW	Questions and tasks for business and role-playing educational games, a set of thematic plans for students' research work.	24	20	Microsoft Office PowerPoint; Internet Explorer All-Russian Educational Internet Program - "Internist"

## **12. Description of the material and technical base required for the implementation of the educational process in the discipline**

The Department of Internal Medicine No. 4 is located on the basis of the cardiological, gastroenterological and nephrological departments of the Republican Clinical Hospital.

The department has 176 beds: 120 - cardiological, 40 nephrological - 40 - gastroenterological. In addition, classes in hematology are held on the basis of the hematology department of the Republican Oncological Dispensary, in pulmonology - on the basis of the pulmonology department of the RCH. The Republican Clinical Hospital is currently equipped with a sufficient arsenal of modern diagnostic equipment, which makes it possible to ensure the educational process at a sufficiently high level.

The total educational area occupied by the department is 338.39 sq. M. The department has its own conference hall (34.2 sq.m.) and a lecture hall for 100 seats (98.82 sq.m.). At the disposal of the department there is: the office of the head of the department, the office of the professor of the department (28.67 and 19.38 sq. M., Respectively), study rooms (2 –№2 - 15.66 sq. m., No. 4 - 9.37 sq.m., No. 5 - 21.09 sq.m. on the territory of the cardiological building, as well as one training room each in the departments of gastroenterology and nephrology), laboratory of functional diagnostics (33, 06 sq.m.), laboratory for daily monitoring of blood pressure and ECG (13.3 sq.m.), computer class - study room No. 1 (19.38 sq.m.), practical skills class (21.09 sq.m.) .), assistant (8.7 sq.m.). In specialized departments (cardiology, nephrology, gastroenterology, functional diagnostics, pulmonology), there are study rooms equipped with appropriate teaching aids (stands, tables, modular components), which make it possible to fully ensure the development of the material.

In addition to educational and methodological information, on visual media are presented: the history of the development of the department, the scientific work of the team (monographs, abstracts), medical activities, the results of the work of the SNK. There is a stand for the organization of the educational process with plans for a lecture course, practical classes, a schedule of classes, the distribution of classrooms, a list of topics for independent study by students, a list of questions for the GIA, a schedule of teachers and assistants on duty, a schedule of consultations and practice sessions. The stands reflect the current activities of the department and are regularly updated.

The computer class, created on the basis of the department, makes it possible to provide in full both the educational process and the current and final control of the quality of students' knowledge. Classes in the computer class are conducted according to the schedule available at the department

№	equipment identification	number	Technical condition
<b>Специальное оборудование</b>			
1	Bicycle ergometer	1	satisfactory
2	Cadascope	2	satisfactory
3	electrocardiograph	1	satisfactory
4	Laser apparatus "Pattern"	1	unsatisfactory
5	Computer diagnostic system "Valenta"	1	satisfactory
6	Complex "Diamant"	1	satisfactory
7	Blood pressure monitor (holter)	1	satisfactory
8	ECG monitor (holter)	1	satisfactory
9	Duodenal and gastric probes	2	satisfactory
<b>Dummies</b>			
1	UZFO surgical dummy phantom	1	satisfactory
2	Pulmonary trainer for mechanical ventilation and chest compressions	1	satisfactory
3	Universal head trainer	1	satisfactory
4	Proctological simulator	1	satisfactory
	Tables	28	satisfactory

### **13. Conducting educational activities using e-learning and distance learning technologies**

In the context of the introduction of restrictive measures (quarantine) associated with an unfavorable epidemiological situation, the threat of the spread of a new coronavirus infection and other force majeure events that do not allow full-time training, it is possible to study this discipline or part of it using e-learning and distance educational technologies.

Teaching the discipline in the above situations will be carried out through the development of an electronic course with access to video lectures and interactive course materials: presentations, articles, additional materials, tests and various tasks. When conducting training sessions, monitoring progress, as well as



intermediate certification of students, platforms of the electronic information and educational environment of the academy and / or other e-learning systems recommended for use in the academy, such as Moodle, Zoom, Webinar, etc.

Lectures can be presented in the form of audio, video, "live lectures", etc.

Conducting seminars and practical classes is possible in on-line mode both in synchronous and asynchronous modes. Seminars can be conducted in the form of web conferences.