

№ ЛД-21ИИ

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 MOH Russia

«17» 04 2024 г.

**EDUCATIONAL TRAINING PROGRAM OF DISCIPLINE**  
**“Clinical immunology”**

the main professional educational program of higher education - specialty program in the specialty 31.05.01  
General Medicine, partially implemented in English, approved in April, 17, 2024

Form of education \_\_\_\_\_ Full-time \_\_\_\_\_

The period of development \_\_\_\_\_ 6 \_\_\_\_\_

Department of Internal Medicine № 3

Vladikavkaz, 2024

When developing the work program, the disciplines are based on:

1. Federal State Educational Standard of Higher Education for the specialty 31.05.01 Medical Care, approved by the Ministry of Education and Science of the Russian Federation on August,12, 2020 №. 988

2. The curriculum of the MPEP HE in the specialty 31.05.01 Medical care

ЛД-21-01-21ИИ

ЛД-21-02-22ИИ

ЛД-21-03-23ИИ

ЛД-21-04-24ИИ

approved by the Academic Council of the Federal State Budgetary Educational Institution of the Ministry of Higher Education NOSMA of the Ministry of Health of the Russian Federation on April 17, 2024, Protocol №.6

The working program of the discipline was approved at the meeting of the Department of Internal Diseases №. 3 of March 29, 2024, Protocol N 8

The working program of the discipline was approved at the meeting of the central coordinating Educational and Methodological Council of April 2, 2024, Protocol N 4.

The working program of the discipline was approved by the Academic Council Federal State Educational Institution of Higher Education NOSMA of the Ministry of Health of the Russian Federation of April 17, 2024, Protocol № 6.

**Developers:**

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## **Content of Work Programme.**

1. Name of the academic discipline.
2. List of anticipated results after completing the training course (within the framework of a Specialist's degree studies).
3. Defining where the academic discipline belongs in the structure of a Specialist's degree studies.
4. Amount of credit units, academic or astronomic hours for face-to-face teaching classes and for students' independent work.
5. Content of the course structured into modules with the amount of academic or astronomic hours and types of classes scheduled for each module.
6. List of learning materials necessary for students' independent work.
7. evaluation materials for the interim certification of students in the discipline
8. Reading list of published sources required to complete the course.
9. List of online resources required to complete the course.
10. Methodology guidelines for students.
11. Modern learning techniques used in the training process including the list of software programs and electronic databases (if necessary).
12. List of equipment used in the training process.
13. Conducting educational activities using e-learning and distance learning technologies.

**2. The list of the planned results of training in the discipline and the results of the development of the educational program.**

№ i/o	Number/ index of competence	Content of the competence (or part of it)	Topic of the lesson (section)	Indicators of competence achievement	The learning outcomes of the		
					To know	To be able to	To own
1	2	3	4	5	6	7	8
1.	GPC-4	Able to conduct a patient examination to establish a diagnosis	Immune status. Principles of immune status assessment.	AI-1 GPC-4 Can make a plan for laboratory and instrumental diagnostics	the main stages of the development of the immune response, methods of immunodiagnos- s	Make a plan of clinical and immunological examination to assess the immune status.	master the algorithm of clinical and immunological examination to assess the immune status of the tests of the first level
1.	GPC-4	Able to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems	Immune status. Principles of immune status assessment	AI-1GPC-5 Master the algorithm of clinical and laboratory diagnostics of patients with primary and secondary immunodeficiency  AI-2 GPC-5 Be able to evaluate the results of clinical and laboratory work in patients with primary immunodeficiency	methods of immunodiagnos- s  principles of assessing the immune status of the first level tests	to justify the need for clinical and immunological examination of the patient.  interpret the results of the assessment of the immune status by level 1 tests	Possess the algorithm of clinical and laboratory diagnostics for assessing the immune status  possess an algorithm for assessing the immune status according to the first-level tests, followed by a referral to an allergist-immunologist
	GPC-4	Able to use medical devices provided for in the procedure for providing medical care, as	Immunodeficiency of genetic origin (primary), classification, main forms. Principles of diagnosis and	AI-1GPC-4 Can make a plan for laboratory and instrumental diagnostics	Know the methods of laboratory diagnostics for	Be able to make a plan of laboratory diagnostics to	Master the algorithm of laboratory diagnostics for

		well as to conduct examinations of the patient in order to establish a diagnosis	treatment. Secondary (acquired) immunodeficiency, definition, diagnosis, clinical manifestations, treatment approaches.		assessing the immune status on the first level tests of patients with primary and secondary immunodeficiency	assess the immune status of the first level tests of patients with primary and secondary immunodeficiency	assessing the immune status of patients with primary and secondary immunodeficiency tests on the first level
2	GPC-5	Able to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems	Immunodeficiency of genetic origin (primary), classification, main forms. Principles of diagnosis and treatment. Secondary (acquired) immunodeficiency, definition, diagnosis, clinical manifestations, treatment approaches.	AI-1GPC-5 Master of the algorithm of clinical, laboratory and functional diagnostics in solving professional problems  AI-2 GPC-5 Evaluates the results of clinical, laboratory and functional diagnostics in solving professional tasks	clinical and laboratory diagnostics of primary and secondary immunodeficiency  principles of assessment of the immune status by first-level tests of patients with primary and secondary immunodeficiency	To collect an immunological history in a patient with primary and secondary immunodeficiency,  interpret the results of the immunogram on level 1 tests of patients with primary and secondary immunodeficiency	the algorithm of clinical and laboratory assessment of the immune status according to the indicators of the first-level immunogram in patients with primary and secondary immunodeficiency  the skills of analyzing the results of the examination with subsequent referral to an allergist-immunologist.
3	GPC-5	Able to assess morphofunctional, physiological states and pathological processes in the human body to solve	Autoimmune disorders Systemic lupus erythematosus (SLE), immunopathogenesis, immunodiagnostics.	AI-1 GPC-5 Master of the algorithm of clinical, laboratory and functional diagnostics in solving professional problems	To know the mechanisms of the immune response, immunological disorders in	Collect complaints, immunological history in a patient with SLE,	Skills in collecting complaints, immunological history, and

		professional problems	Rheumatoid arthritis( RA), immunopathology, immunodiagnosics.	AI-2 GPC-5 Evaluates the results of clinical, laboratory and functional diagnostics in solving professional tasks	patients with autoimmune pathology( SLE, RA); the method of collecting an immunological history, the principles of assessing the immune status of patients with SLE, RA	RA, interpret the results of the immunogram on level 1 tests	interpretation of immunogram results in patients with SLE and RA.
4	GPC-5	Able to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems	Immunopathogenesis of autoimmune diseases with damage to the nervous system (malignant myasthenia gravis), endocrine organs (autoimmune thyroiditis).	AI-1 GPC-5 Master of the algorithm of clinical, laboratory and functional diagnostics in solving professional problems  AI-2 GPC-5 Evaluates the results of clinical, laboratory and functional diagnostics in solving professional tasks	To know the diagnosis of immunological disorders in patients with autoimmune pathology (myasthenia gravis, autoimmune thyroiditis);  principles of assessing the immune status of patients with autoimmune diseases(myasthenia gravis,	Collect complaints, immunological history of a patient with myasthenia gravis, autoimmune thyroiditis, and interpret the results of a laboratory immunological study.	the algorithm of clinical and laboratory immunological diagnosis of autoimmune thyroiditis and myasthenia gravis  skills to evaluate the results of an immunogram in patients with autoimmune thyroiditis, myasthenia gravis, followed by referral to a specialist doctor

					autoimmune thyroiditis);.		
5	GPC-5	Able to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems	Infections of the immune system Human immunodeficiency virus (HIV). Epstein-Barr viruses, herpes simplex, cytomegalovirus, and other pathogens.	AI-1 GPC-5 Master of the algorithm of clinical, laboratory and functional diagnostics in solving professional problems  AI-2 GPC-5 Evaluates the results of clinical, laboratory and functional diagnostics in solving professional tasks	Diagnostics, the main forms of the immune response in infections of the immune system (Epstein-Barr viruses, herpes simplex, cytomegalovirus, principles of interpretation, evaluation of the immune status in infections of the immune system (Epstein-Barr viruses, herpes simplex, cytomegalovirus	Collect complaints, immunological history of the patient with infections of the immune system (Epstein-Barr viruses, herpes simplex, cytomegalovirus, interpret the results of a clinical and laboratory immunological study.	the algorithm of clinical and laboratory immunological examination of a patient with herpesvirus infection followed by referral to a specialist doctor  skills to evaluate the results of the immunogram of patients with an infection of the immune system (Epstein-Barr viruses, herpes simplex, cytomegalovirus), followed by referral to a specialist doctor
6	GPC-4	Able to conduct a patient examination to establish a diagnosis	Allergies. Types of allergens. Pathogenetic classifications of allergic reactions according to Jell and Coombs.	AI-1 GPC-5 Can make a plan for laboratory and instrumental diagnostics	To know the methods of laboratory and instrumental	Be able to make a plan for laboratory diagnostics of allergic diseases,	Master the algorithm of laboratory and instrumental diagnostics of

			Allergodiagnosics Principles of diagnosis of allergic diseases. Principles of treatment of allergy patients. Rehabilitation of patients with allergies.		diagnostics of allergic diseases	to put skin scarification and prick tests with atopic allergens	allergies
7	GPC-5	Able to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems	Allergies. Types of allergens. Pathogenetic classifications of allergic reactions according to Jell and Coombs. Allergodiagnosics Principles of diagnosis of allergic diseases. Principles of treatment of allergy patients. Rehabilitation of patients with allergies.	AI-1 GPC-5 Has an algorithm for clinical, laboratory and functional diagnostics in solving professional problems  AI-2 GPC-5 Evaluates the results of clinical, laboratory and functional diagnostics when solving professional tasks	immunological disorders in the development of allergic pathology; types of allergens; types of allergic reactions,  principles of interpretation of skin tests.	justify the need for an allergological examination of the patient,  Be able to interpret the results of skin testing with atopic allergens	algorithm of clinical and laboratory examination of a patient with allergic diseases  Master the algorithm for evaluating the clinical, laboratory examination of a patient with allergic diseases
8	GPC-5	Able to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems	Bronchial asthma, classification, etiology and pathogenesis of atopic bronchial asthma	AI-1 GPC-5 Master of the algorithm of clinical, laboratory and functional diagnostics in solving professional problems  AI-2 GPC-5 Evaluates the results of clinical, laboratory and functional diagnostics when solving professional tasks	mechanisms of development of the immune response in atopic BA, factors provoking the development of BA, principles of diagnosis.	Collect an allergological history  interpret the results of clinical and laboratory diagnostics	Master the algorithm of allergological examination of patients with bronchial asthma An algorithm for evaluating the allergological examination of patients with



							bronchial asthma
9	GPC-6	Able to provide primary health care, to ensure the organization of work	Bronchial asthma, classification, etiology and pathogenesis of atopic bronchial asthma	AI-1 To master the algorithm of primary medical and social care in the relief of an attack of bronchial asthma without obvious signs of a threat to the patient's life  AI-2 Be able to provide emergency medical care to patients with an attack of bronchial asthma without obvious signs of a threat to the patient's life	provoking factors, the clinical picture of an attack of atopic bronchial asthma	Identify clinical signs of conditions that require emergency medical care at the pre-hospital stage	Skills in providing emergency care for an attack of bronchial asthma
10	GPC-5	It is able to conduct examinations of the patient in order to establish the diagnosis	Allergic rhinitis, clinical forms, diagnosis.	AI-1 GPC-4 Is able to make a plan for laboratory and instrumental diagnostics  AI-2 GPC-4. Owns the algorithm of clinical examination of the patient.	Methods of laboratory and instrumental diagnostics of allergic rhinitis Algorithm of clinical examination of a patient with allergic rhinitis	Perform skin scarification and prick tests  Determine the clinical signs of allergic rhinitis	interpretation of the results of the allergological examination Algorithm of clinical examination of a patient with allergic rhinitis
11	GPC-5	Able to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems	Allergic rhinitis, clinical forms, diagnosis.	AI-1 GPC-5 Possess the algorithm of clinical and laboratory diagnostics of allergic rhinitis And	Diagnosis of the main forms of allergic rhinitis in accordance with the International Statistical Classification	justify the need for clinical and immunological examination	Master the algorithm of clinical and laboratory diagnostics of allergic rhinitis

				AI-2 GPC-5 Be able to evaluate the results of clinical and laboratory diagnostics of a patient with allergic rhinitis	criteria for evaluating the results of an allergological examination	interpret the results of a specific allergological examination;	Evaluation of the results of the allergological examination and, if necessary, referral to an additional examination and to an allergist
12	GPC-4	Able to conduct examinations of the patient in order to establish a diagnosis	Atopic dermatitis, clinic-laboratory diagnostics	AI-1 GPC-4 Is able to make a plan for laboratory and instrumental diagnostics  AI-2 GPC-4. Owns the algorithm of clinical examination of the patient.	Methods of laboratory and instrumental diagnostics of atopic dermatitis Algorithm of clinical examination of a patient with atopic dermatitis	Perform skin scarification and prick tests  Determine the clinical signs of atopic dermatitis	interpretation of the results of the allergological examination  Algorithm of clinical examination of a patient with atopic dermatitis

13	GPC-5	Able to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems	Atopic dermatitis, clinical forms, diagnosis.	AI-1 GPC-5 has an algorithm for clinical, laboratory and functional diagnostics in solving professional problems. AI-2 GPC-5 Evaluates the results of clinical, laboratory and functional diagnostics when solving professional tasks.	methods of diagnosis of atopic dermatitis	To justify the need for clinical and immunological examination of the patient, to conduct immunological diagnostics, to interpret the results of the main diagnostic allergological tests	the ability to determine the patient's main pathological conditions, symptoms of atopic dermatitis and, if necessary, referral to an additional examination and to an allergist
14	GPC-4	Able to conduct examinations of the patient in order to establish a diagnosis	Food allergy Clinical forms of food allergy. Diagnostics.	AI-1 GPC-4 Is able to make a plan for laboratory and instrumental diagnostics  AI-2 GPC-4. Owns the algorithm of clinical examination of the patient.	Methods of laboratory and instrumental diagnostics of atopic dermatitis Algorithm of clinical examination of a patient with atopic dermatitis	Perform skin scarification and prick tests  Determine the clinical signs of atopic dermatitis	interpretation of the results of the allergological examination  Algorithm of clinical examination of a patient with food allergy
15	GPC-5	Able to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems	Food allergy Clinical forms of food allergy. Diagnostics.	AI-1 GPC-5 has an algorithm for clinical, laboratory and functional diagnostics in solving professional problems. AI-2 GPC-5 Evaluates	methods for diagnosing food allergies	To justify the need for clinical and immunological examination of the patient, to	the ability to determine the patient's main pathological conditions, symptoms of

				the results of clinical, laboratory and functional diagnostics when solving professional tasks.		conduct immunological diagnostics, to interpret the results of the main diagnostic allergological tests	atopic dermatitis and, if necessary, referral to an additional examination and to an allergist
16	GPC-4	Able to conduct examinations of the patient in order to establish a diagnosis	Urticaria and Quincke's edema. Classification, allergens. Clinical picture	AI-1 GPC-4 Is able to make a plan for laboratory and instrumental diagnostics  AI-2 GPC-4. Owns the algorithm of clinical examination of the patient.	Methods of laboratory and instrumental diagnostics of Urticaria and edema Algorithm of clinical examination of a patient with Urticaria and edema	Perform skin scarification and prick tests  Determine the clinical signs of atopic dermatitis	interpretation of the results of the allergological examination  Algorithm of clinical examination of a patient with Urticaria
17	GPC-5	Able to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems	Urticaria and Quincke's edema. Classification, allergens. Clinical picture.	AI-1 GPC-5 has an algorithm for clinical, laboratory and functional diagnostics in solving professional problems. AI-2 GPC-5 Evaluates the results of clinical, laboratory and functional diagnostics when solving professional tasks.	the main forms of immunopathology: hives and angioedema	to justify the nature of the immunopathological process, clinical manifestations, principles of pathogenetic therapy; to justify the need for clinical and immunological examination;	The skills of making a preliminary diagnosis based on the results of a laboratory examination of patients and, if necessary, referral to an additional examination and to an allergist;
18	GPC-4	Able to conduct	Drug allergy. Anaphylactic	AI-1 GPC-4 Is able to	Methods of	Perform skin	interpretation of

		examinations of the patient in order to establish a diagnosis	shock. Etiology, pathogenesis. Clinical picture. Diagnosis. Treatment and prevention. Emergency measures for systemic anaphylaxis. Serum sickness. Etiology, pathogenesis. Clinical manifestations. Treatment, warning. Other forms of allergic diseases (Lyell syndrome, Stevens-johnson syndrome).	make a plan for laboratory and instrumental diagnostics  AI-2 GPC-4. Owns the algorithm of clinical examination of the patient.	laboratory and instrumental diagnostics of drug allergy  Algorithm of clinical examination of a patient with drug allergy	scarification and prick tests  Determine the clinical signs of drug allergy	the results of the allergological examination The algorithm of clinical examination of a patient with a drug allergy
19	GPC-5	Able to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems	Drug allergy. Anaphylactic shock. Etiology, pathogenesis. Clinical picture. Diagnosis. Treatment and prevention. Emergency measures for systemic anaphylaxis. Serum sickness. Etiology, pathogenesis. Clinical manifestations. Treatment, warning. Other forms of allergic diseases (Lyell syndrome, Stevens-johnson syndrome).	AI-1 GPC-5 has an algorithm for clinical, laboratory and functional diagnostics in solving professional problems. AI-2 GPC-5 Evaluates the results of clinical, laboratory and functional diagnostics when solving professional tasks.	the main forms of immunoprophylaxis: hives and angioedema	to justify the nature of the immunopathological process, clinical manifestations, principles of pathogenetic therapy; to justify the need for clinical and immunological examination	The skills of making a preliminary diagnosis based on the results of a laboratory examination of patients and, if necessary, referral to an additional examination and to an allergist;
20	GPC-6	It is able to provide primary health care, provide professional decision-making in emergency situations at the pre-hospital stage	Drug allergy. Anaphylactic shock. Etiology, pathogenesis. Clinical picture. Diagnosis. Treatment and prevention. Emergency measures for systemic anaphylaxis. Serum sickness. Etiology,	AI-2 GPC-6 Be able to provide medical care in an emergency form to patients with drug allergies without obvious signs of a threat to the patient's life	signs of conditions requiring emergency medical care at the pre-hospital stage	Identify clinical signs of conditions that require emergency medical care at the pre-hospital stage	Possess an algorithm for providing primary medical and social care to a patient with a drug allergy in

			pathogenesis. Clinical manifestations. Treatment, warning. Other forms of allergic diseases (Lyell syndrome, Stevens-johnson syndrome).				emergency conditions without obvious signs of a threat to the patient's life
21	GPC-6	It is able to provide primary health care, provide professional decision-making in emergency situations at the pre-hospital stage	Principles of treatment of allergy patients Immunotherapy. The main types of immunotherapy, indications and contraindications Immunocorrection. Definition. Types of immunocorrection	AI-2 GPC-6 Be able to provide medical care in an emergency form to patients with drug allergies without obvious signs of a threat to the patient's life	Types and indications for the use of immunotropic therapy	To justify the need for the use of immunocorrective therapy	Master the algorithm for providing primary medical and social care for emergency conditions at the pre-hospital stage to patients with immunopathology

### 3. Defining where the academic discipline belongs in the structure of a Specialist's degree studies.

The academic discipline Immunology – clinical immunology is a part of the professional cycle of sciences outlined to the base of block 1 in the Federal State Education Standard Higher Education , specialty General Medicine.

### 4. Amount of credit units, academic or astronomic hours for face-to-face teaching classes and for students' independent work.

No.	Type of work		Total credits	Total hours	Semester
					6
					hours
1	2	3	4	5	
<b>1</b>	<b>Face-to-face work with a tutor (total), including</b>			<b>46</b>	<b>46</b>
2	Lectures (L)			14	14
3	Clinical work (CW)			32	32
4	Seminars (S)			-	-
5	Laboratory work (LW)			-	-
<b>6</b>	<b>Independent work (IW)</b>			<b>26</b>	<b>26</b>
7	Type of preliminary performance assessment	Credit (C)	-	+	+
		Grade (G)			-
8	Total	hours		72	72
		credits	2		2

### 5. Content of the course

1	Semester	Topic	Type of work (hours)					Type of current performance assessment
			L	LW	PE	IWS	Total	
1	2	3	4	5	6	7	8	9
1	6	Definition of clinical immunology, objectives. Immune status. Methods of diagnosing in clinical immunology	2		2	2	6	I, TT
2	6	Immunodeficiencies of genetic origin (primary), classification, main types. Principles of diagnostic procedures and treatment	2		2		4	I, TT, TT

3	6	Secondary (acquired) immunodeficiencies, definition, diagnosing, clinical symptoms, approaches to treatment.			2	2	2	I, TT, TT
4	6	Autoimmune diseases. General terms. Systemic lupus erythematosus (SLE), immunopathogenesis, immunodiagnosis, immunocorrection.			2	2	4	I, TT, TT
5	6	Rheumatoid arthritis, immunopathology, immunodiagnosis, immunocorrection			2		2	I, TT, TT
6	6	Immunopathogenesis of autoimmune diseases of the nervous system (multiple sclerosis, myasthenia gravis and others), of endocrine organs (autoimmune thyroiditis and others)				2	4	I, TT, TT
7	6	Infections of the immune system. Human immunodeficiency virus (HIV). The Epstein–Barr virus, herpes simplex virus, cytomegalovirus and other pathogens			2	2	4	I, TT, TT
8	6	Allergy. The Ado and Gell-Coombs classification of hypersensitivity reactions of the immune system.			2	2	4	I, TT, TT
9	6	Allergy diagnosis. Principles of diagnosing allergy	2		2		4	I, TT, TT
10	6	Asthma, types, etiology and pathogenesis (immunopathogenesis) of the main types of asthma. Diagnosing			2	2	4	I, TT, TT, ST
11	6	Pollinosis. Allergic rhinitis. Diagnostics.	2		2		4	I, TT, TT, ST
12	6	Atopic dermatitis, clinical stages, differential diagnosing. Diagnosing.			2	2	4	I, TT, TT, ST
13	6	Hives and angioedema. Types, allergens. Typical disease patterns. Differential diagnosing with hereditary angioedema	2		2	2	6	I, TT, TT, ST
14	6	Drug allergy. Anaphylaxis. Etiology, pathogenesis. Typical patterns. Diagnosing. Prevention and treatment. First aid for a severe allergic reaction	2		2		6	I, TT, TT, ST



15	6	Serum sickness. Etiology, pathogenesis. Typical patterns. Prevention and treatment. Other allergies (toxic epidermal necrolysis, allergic alveolitis and others).				2	2	I, TT, TT, ST
16	6	Therapeutic strategies for allergic diseases. Recovery. Prevention of pathologies of allergic diseases.			2	2	4	I, TT, TT, ST
17	6	Immunotherapy . Main types of immunotherapy, indications and contraindications.	2		2	2	6	I, TT, TT
18	6	Immunocorrection. Definition. Types of immunocorrection Immunomodulators, definition. Main types of immunomodulators (endogene, bacterial, synthetic and others), modes of action. Indication for use.			2	2	4	I, TT, TT
<b>TOTAL:</b>			<b>14</b>	<b>-</b>	<b>32</b>	<b>26</b>	<b>72</b>	
Note: I – Interviews, T – Tests, ST – Situational Tasks, SP – Standard Problems								

#### 6. List of learning materials necessary for students' independent work.

No.	Semester	Name of publication (textbook)
1	6	«Первичные иммунодефициты.» Учебно - методическая разработка для самостоятельной подготовки студентов к практическому занятию. Владикавказ, 2015. – ЦМК терапевтических дисциплин.
2		«Принципы диагностики и лечения аллергических заболеваний». Учебно-методическая разработка для самостоятельной подготовки студентов к практическому занятию. Владикавказ, 2014. – ЦМК терапевтических дисциплин.
3		«Крапивница и отек Квинке» Учебно - методическая разработка для самостоятельной подготовки студентов к практическому занятию. Владикавказ, 2018. – ЦМК терапевтических дисциплин.
4		«Лекарственная аллергия» Учебно- методическая разработка для самостоятельной подготовки студентов к практическому занятию. Владикавказ, 2019. – ЦМК терапевтических дисциплин.
5		«Бронхиальная астма». Учебно - методическая разработка для самостоятельной подготовки студентов к практическому занятию. Владикавказ, 2018. – ЦМК терапевтических дисциплин.
6		«Пищевая аллергия Атопический дерматит». Учебно - методическая разработка для самостоятельной подготовки студентов к практическому занятию. Владикавказ, 2010. – ЦМК терапевтических дисциплин.
7		«Неотложные состояния в аллергологии». Учебно - методическая разработка для самостоятельной подготовки студентов к практическому занятию. Владикавказ, 2010. – ЦМК терапевтических дисциплин.
8		Tests
9		Summaries of lectures on clinical immunology and allergology

### 7. Evaluation materials for the interim certification of students in the discipline

No.	Code of Competency	Semester	Assessment index	Assessment criteria	Assessment scale	Name of evaluation materials
1	2	3	4	5	6	7
1	GPC-4 GPC-5 GPC-6	6	See The Standard for Training Quality Assessment approved by the Order of State-Funded Educational Institution of <a href="#">Higher Professional Education</a> “NOSMA” of the Ministry of Health of the Russian Federation No. 264/o on 10.07.2018	See The Standard for Training Quality Assessment approved by the Order of State-Funded Educational Institution of <a href="#">Higher Professional Education</a> “NOSMA” of the Ministry of Health of the Russian Federation No. 264/o on 10.07.2018	See The Standard for Training Quality Assessment approved by the Order of State-Funded Educational Institution of <a href="#">Higher Professional Education</a> “NOSMA” of the Ministry of Health of the Russian Federation No. 264/o on 10.07.2018	Tests, the survey, situational tasks, business games

### 8. Reading list of published sources required to complete the course

No.	Name	Authors	Year, place of publication	Number of issues	
				In the library	On campus
п/№	Наименование	Автор (ы)	Год, место издания	Кол-во экземпляров	
				в библиотеке	на кафедре
1	2	3	4	5	6
<b>Main Published Sources</b>					
1.	Иммунология: учебник	Хайтов Р. М.	М. : ГЭОТАР-Медиа, 2021	102 31	«Консультант студента» <a href="http://www.studmedlib.ru/book/ISBN9785970433454.html">http://www.studmedlib.ru/book/ISBN9785970433454.html</a>
<b>Other Published Sources</b>					
2.	Медицинская микробиология,	ред. В.В. Зверев	М.: ГЭОТАР-	T.1 – 240 T.2 – 236	

	вирусология и иммунология: учебник		Медиа, 2011, 2016	«Консультант студента» <a href="http://www.studmedlib.ru/book/ISBN9785970436417.html">http://www.studmedlib.ru/book/ISBN9785970436417.html</a>	
				«Консультант студента» <a href="http://www.studmedlib.ru/book/ISBN9785970436424.html">http://www.studmedlib.ru/book/ISBN9785970436424.html</a>	
3.	Медицинская микробиология, вирусология, иммунология: учебник	ред. А.А. Воробьев	М.: МИА, 2004, 2006, 2008	15 1 5	
4.	Аллергология и иммунология: национальное руководство	ред. Р.М. Хаитов	М.: ГЭОТАР-Медиа, 2009	10	
5.	Медицинская микробиология, вирусология и иммунология: учебник	ред. В.В. Зверев	М.: ГЭОТАР-Медиа, 2016	Т.1 – 240 Т.2 – 236	
				«Консультант студента» <a href="http://www.studmedlib.ru/book/ISBN9785970436417.html">http://www.studmedlib.ru/book/ISBN9785970436417.html</a>	
6.				«Консультант студента» <a href="http://www.studmedlib.ru/book/ISBN9785970436424.html">http://www.studmedlib.ru/book/ISBN9785970436424.html</a>	
7.	Иммунология : учебник	Ярилин А. А.	М.: ГЭОТАР-Медиа, 2010	1	
				«Консультант студента» <a href="http://www.studmedlib.ru/book/ISBN9785970413197.html">http://www.studmedlib.ru/book/ISBN9785970413197.html</a>	
8.	Клиническая иммунология и аллергология	ред Г. Лолор	М.: Практика, 2000	4	
9.	Клиническая иммунология и аллергология с основами общей иммунологии: учебник	Ковальчук Л.В., Ганковская Л.В., Мешкова Р.Я.	М.: ГЭОТАР - Медиа, 2011, 2012	20	
				«Консультант студента» <a href="http://www.studmedlib.ru/book/ISBN9785970422410.html">http://www.studmedlib.ru/book/ISBN9785970422410.html</a>	
10.	Аллергология: клинические рекомендации	ред. Р.М. Хаитов	М.: ГЭОТАР - Медиа,	10	

			2006		
11.	Иммунология. Атлас: учеб.пособие	Хаитов Р.М., Ярилин А.А., Пинегин Б.В.	М.: ГЭОТАР - Медиа, 2011	«Консультант студента» <a href="http://www.studmedlib.ru/book/ISBN9785970418581.html">http://www.studmedlib.ru/book/ISBN9785970418581.html</a>	
12.	Наглядная иммунология	Плейфэр Д.	М.: ГЭОТАР- Медиа, 2000	49	
13.	Медицинская микробиология, вирусология, иммунология : учебник	Борисов Л. Б.	М. : МИА, 2005	3	
14.	Клиническая иммунология : учебник	Земсков А. М., Земсков В. М., Караулов А. В.	М. : ГЭОТАР- Медиа, 2006, 2008	40 «Консультант студента» <a href="http://www.studmedlib.ru/book/ISBN9785970407752.html">http://www.studmedlib.ru/book/ISBN9785970407752.html</a>	
15.	Иммунология. Норма и патология: учебник	Хаитов Р.М., Игнатъева Г.А., Сидорович И.Г.	М.: Медицина, 2010	1	
16.	Медицинская микробиология, иммунология и вирусология: учебник	Коротяев А. И., Бабичев С. А.	СПб. : СпецЛит, 2008.	1	
17.	Основы клинической иммунологии: учеб.пособие	Е. Чепель и др.	М. : ГЭОТАР- Медиа, 2008	7	
18.	Практикум лабораторных работ с иллюстрированными ситуационными заданиями по микробиологии, иммунологии и вирусологии : учеб.пособие	ред. А. А. Воробьев	М. : МИА, 2008	1	
19.	Руководство по клинической иммунологии. Диагностика заболеваний иммунной системы: руководство для врачей	Хаитов Р. М., Пинегин Б. В., Ярилин А. А.	М. : ГЭОТАР- Медиа, 2009	1 «Консультант студента» <a href="http://www.studmedlib.ru/book/ISBN9785970409176.html">http://www.studmedlib.ru/book/ISBN9785970409176.html</a>	
20.	Иммунология:	ред. Л.В.	М. :	1	

	практикум : учеб.пособие	Ковальчук	ГЭОТАР- Медиа, 2010, 2015	«Консультант студента» <a href="http://www.studmedlib.ru/book/ISBN9785970435069.html">http://www.studmedlib.ru/book/ISBN9785970435069.html</a>	
21.	Микробиология, вирусология и иммунология : руководство к лабораторным занятиям: учеб.пособие	ред. В. Б. Сбойчаков	М. : ГЭОТАР- Медиа, 2012, 2015	56	«Консультант студента» <a href="http://www.studmedlib.ru/book/ISBN9785970435755.html">http://www.studmedlib.ru/book/ISBN9785970435755.html</a>



**9. The list of resources of the information and telecommunications network "Internet", necessary for the development of the discipline**

1. <http://immunology.org/>
2. <http://pathmicro.med.sc.edu/book/immunol-sta.htm>
3. <http://humbio.ru/humbio/immunology>
4. [www.pulmonology.ru](http://www.pulmonology.ru)
5. [www.allergology.ru](http://www.allergology.ru)
6. [www.raaci.ru](http://www.raaci.ru)

**10. Methodology guidelines for students.**

Training process consists of face-to-face work with tutors (lectures, clinical work) – 46 hours, independent work – 26 hours, total – 72 hours, which amounts to 2 credits.

The work involves using modern information technologies and technical tools.

Practical clinical work is carried performed in study rooms on campus and in the hospitals. Patients with relevant issues may be examined in the presence of students.

Groups consist of 9-11 students each. Teaching in classes is conducted using print materials, sample medical papers, tests and situation tasks. Each topic of the course is accompanied by an established information pool.

The students gain professional skills and knowledge and also work at the personal qualities necessary in the profession.

According to the requirements of the Federal State Education Standard Higher Education the training process involves active and interactive learning (conversations, case studies, role play). Interactive learning amounts to no less than 15 per cent of total time in class.

Students' independent work implies out of class studying of a number of clinical immunology issues, preparing for performance assessment, accomplishing individual tasks.

Reading of professional publications is one of the forms of studying and should be performed according to the recommendations. Each student is provided with access to the library and department's methodology materials. There are methodology recommendations on each topic covered in the course for students and teachers.

Independent work with published sources helps form the ability to analyze medical and social issues, to use theoretical data and clinical evidence in various fields of professional and social activity.

*Students' initial level is assessed by tests.*

*The current control* (control of the study of the modular unit) is carried out in the form of a set of the following measures:

- oral interview on current material
- solving situational problems
- test control
- evaluation of additional research data
- assessment of the solution of deontological tasks related to the collection of information about a particular patient and the assessment of the revealed subjective and objective data about his health.

*The control of the module lesson* is carried out in several stages:

- test control
- solving a situational problem
- yet oral answer to the teacher's questions

Independent work of students is carried out by performing independent tasks on the studied topics, solving situational problems.

At the end of the cycle, a test class is provided in the form of a test control and an oral survey

## **11. List of information technologies used in the implementation of the educational process in the discipline**

The educational technologies used in the study of this discipline make up about 15% of interactive classes from the volume of classroom classes. Types of educational technologies:

- Simulation:
  - A) non-game simulation technologies: contextual learning
  - B) game simulation technologies: role-playing business games
- Non-simulation technologies: problem lecture, lecture-talk disciplines, especially during the IWS under the control of the teacher-knowledge, skills, and skills are given not as a subject for memorization, but as a means of solving professional problems.

## **12. List of equipment used in the training process.**

The clinical bases of the Department of Internal Medicine No. 3 are:

State Healthcare Institution "Medical clinic No. 1" – laboratory and 3 study rooms

<b>No.</b>	<b>Item of Equipment</b>	<b>Amount</b>	<b>Technical condition</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Special Equipment</b>			
1.	Toshiba Multimedia Projector	1	Satisfactory
2.	Computer	6	Satisfactory
3.	Laptop	1	Satisfactory
4.	Copier	3	Satisfactory
5.	Overhead	1	Satisfactory
<b>Phantoms</b>			
6.	-	-	-
<b>Models</b>			

7.	-	-	-
8.	-	-	-

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

In conditions of 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 conducting training sessions in person, it is possible to study this discipline or part of it using e-learning and distance education 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, current monitoring of academic performance, as well as intermediate certification of students, the Academy's electronic information and educational environment platforms and/or other e-learning systems recommended for use in the Academy, such as Moodle, Zoom, Webinar, etc. can be used.

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

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