

Federal State Budgetary Educational Institution of Higher Education  
"Privolzhsky Research Medical University"  
Ministry of Health of the Russian Federation



APPROVED

Vice-Rector for Academic Affairs

E.S. Bogomolova

31 August 2021

## WORKING PROGRAM

Name of the academic discipline: **CLINICAL PHARMACOLOGY**

Specialty: **31.05.01 GENERAL MEDICINE**

Qualification: **GENERAL PRACTITIONER**

Department: **GENERAL AND CLINICAL PHARMACOLOGY**

Mode of study: **FULL-TIME**

Labor intensity of the academic discipline: **108 academic hours**

Nizhny Novgorod  
2021

The working program has been developed in accordance with the Federal State Educational Standard for specialty 31.05.01 GENERAL MEDICINE approved by Order of the Ministry of Science and Higher Education of the Russian Federation No. 988 of August 12, 2020.

**Developers of the working program:**

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**Reviewers:**


1. Professor of the Department of Pharmacology and Clinical Pharmacology with a Course in Pharmaceutical Technology at the Ogarev National Research Mordovian State University of the Ministry of Science and Higher Education of the Russian Federation, Doctor of Medical Sciences, Professor  
A. V. Siprov.

2. Head of the Department of Propaedeutics of Internal Diseases of the Federal State Budgetary Educational Institution of Higher Education "PIMU" of the Ministry of Health of the Russian Federation, Doctor of Medical Sciences, Associate Professor E. V. Makarova.

The program was reviewed and approved at the meeting of the Department (Minutes No. 7 of 09.06.2021)

Head of the Department of General and Clinical Pharmacology,  
Doctor of Medical Sciences, Associate Professor  L. V. Lovtsova  
09.06.2021

AGREED

Deputy Head of EMA ph.d. of biology  Lovtsova L.V.

(signature)

09.06.2021

## **1. The purpose and objectives of mastering the academic discipline** \_\_\_\_\_ (hereinafter – the discipline):

1.1. The purpose of mastering the discipline: (*participation in forming the relevant competencies*).

1.2. Tasks of the discipline:

based on the knowledge of pharmacodynamics, pharmacokinetics, drug interactions, their undesirable effects, taking into account the identified nosological forms of diseases, concomitant conditions and anatomical and physiological characteristics of the body, to form clinical and pharmacological methods of effective and safe use, development of methods for effective and safe use of medicines.

1.3. Requirements to the deliverables of mastering the discipline

As a result of completing the discipline, the student should

### **Know:**

- methods of drug treatment; groups of drugs used to provide medical care in the treatment of the most common diseases; the mechanism of their action, medical indications and contraindications to the appointment; compatibility, possible complications, side effects, undesirable reactions, including serious and unforeseen ones;
- capabilities of reference information systems and professional databases;
- modern methods of using medicines for diseases and conditions of the patient in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) on the provision of medical care, taking into account the standards of medical care; the mechanism of action of medicines, indications and contraindications to their use; complications caused by their use.

### **Be able to:**

- gain new knowledge based on analysis, synthesis, etc.; collect data on complex scientific problems related to the professional field; search for information and solutions based on actions, experiments, and experience;
- develop a treatment plan for patients with the most common diseases in accordance with the procedures for providing medical care, clinical recommendations, taking into account the standards of medical care; prevent or eliminate complications, side effects, undesirable reactions, including unforeseen ones that have occurred as a result of diagnostic or therapeutic manipulations, the use of medicines;
- make a treatment plan for the disease and the patient's condition, taking into account the diagnosis, the patient's age, the clinical picture of the disease in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) for providing medical care, taking into account the standards of medical care;
- prescribe medications based on the diagnosis, age, and clinical picture of the disease in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) for providing medical care, taking into account the standards of medical care; evaluate the effectiveness and safety of drug use.

### **Possess:**

- development of a treatment plan for patients with the most common diseases in accordance with the current procedures for providing medical care, clinical recommendations, and taking into account the standards of medical care;
- selection and administration of medicines to patients with the most common diseases;
- evaluation of the effectiveness and safety of drug use in patients with the most common diseases;
- prevention and treatment of complications, side effects, and adverse reactions, including unforeseen ones, that have occurred as a result of the use of medications;
- the use of medicines in the provision of medical care in an emergency form.

**2. Position of the academic discipline in the structure of the General Educational Program of Higher Education (GEP HE) of the organization.**

**2.1.** The discipline clinical pharmacology refers to the core part (or *the part formed by the participants of educational relations*) of Block 1 (B1. O. 26) of GEP HE (Academic discipline index).

The discipline is taught in   12   semester/  6th   year of study.

**2.2. The following knowledge, skills and abilities formed by previous academic disciplines are required for mastering the discipline:**

- *Latin language, латинский язык,*
- *biochemistry,*
- *microbiology,*
- *virology,*
- *pharmacology,*
- *propaedeutics of internal diseases,*
- *faculty therapy.*

**2.3. Mastering the discipline is required for forming the following knowledge, skills and abilities for subsequent academic disciplines:**

- *polyclinic and emergency therapy,*
- *hospital therapy.*

**3. Deliverables of mastering the academic discipline and metrics of competence acquisition**

Mastering the discipline aims at acquiring the following universal (UC) or/and general professional (GPC) or/and professional (PC) competencies

№	Competence code	The content of the competence (or its part)	Code and name of the competence acquisition metric	As a result of mastering the discipline, the students should:		
				know	be able to	possess
1.	UC-1	Able to carry out a critical analysis of problem situations on the basis of a systematic approach to develop a strategy of action	IUC 1.2. Knows how to acquire new knowledge on the basis of analysis, synthesis, etc.; to collect data on complex scientific issues related to the professional field; to search for information and solutions on the basis of action, experimentation and experience IUC 1.3 Has practical experience in the study of problems of professional activities with the use of analysis, synthesis and other methods of intellectual activity;	<ul style="list-style-type: none"> <li>• General laws of the pharmacokinetics and pharmacodynamics of drugs (PK AND PD);</li> <li>• PK AND PD belonging to certain pharmacological group, pharmacodynamics and</li> </ul>	<ul style="list-style-type: none"> <li>• to define groups of drugs for the treatment of a certain disease;</li> <li>• to analyze the effect of drugs on the totality of their pharmacological properties and the ability to use drugs for</li> </ul>	<ul style="list-style-type: none"> <li>• skills prescription of a drug for the treatment of various diseases and pathological processes in the adult population</li> </ul>

			developing action strategies for solving professional problems	pharmacokinetics of drugs, indications, side effects, contraindications	therapeutic treatment of the adult population; to predict and evaluate adverse drug reaction	
2.	<b>GPC-7</b>	<p>IGPC 7.1. Knows methods of medical treatment, groups of drugs used for medical care in the treatment of most common diseases and their mechanism of action, medical indications and contraindications to the appointment; compatibility, possible complications, side effects, adverse reactions, including serious and unexpected; features provide medical care in case of emergency forms</p> <p>IGPC -7.2. Is able to: develop a treatment plan for patients with the most common diseases in accordance with the procedures for providing medical care, clinical recommendations, taking into account the standards of medical care;</p>	<ul style="list-style-type: none"> <li>• methods of medical treatment; groups of drugs used for medical care in the treatment of most common diseases and their mechanism of action, medical indications and contraindications to the appointment; compatibility, possible complications, side effects, adverse reactions, including serious and unexpected;</li> <li>• the possibility of reference and information systems and professional databases; modern methods of use of drugs in diseases and conditions of the patient in accordance with the applicable procedures of medical care, clinical recommendations (treatment protocols) on the provision of medical services standards of medical care; the mechanism of action of drugs, indications and contraindications for their use; complications caused by their use.</li> </ul>	<ul style="list-style-type: none"> <li>• gain new knowledge based on analysis, synthesis, etc.; collect data on complex scientific problems related to the professional field; search for information and solutions based on actions, experiments, and experience;</li> <li>• develop a treatment plan for patients with the most common diseases in accordance with the procedures for providing medical care, clinical recommendations, and taking into account the standards of medical care to prevent or</li> </ul>	<p>practical experience:</p> <ul style="list-style-type: none"> <li>• developing a treatment plan for patients with the most common diseases in accordance with the current medical care procedures, clinical recommendations, taking into account the standards of medical care;</li> <li>• selecting and prescribing medicines to patients with the most common diseases;</li> <li>• evaluating the effectiveness and safety of using medicines in patients with the most common diseases;</li> <li>• prevention and treatment of complications, side effects, and side effects.</li> </ul>	<ul style="list-style-type: none"> <li>• methods of medical treatment; groups of drugs used for medical care in the treatment of most common diseases and their mechanism of action, medical indications and contraindications to the appointment; compatibility, possible complications, side effects, adverse reactions, including serious and unexpected;</li> <li>• the possibility of reference and information systems and professional databases; modern methods of use of drugs in diseases and conditions of the patient in accordance with the</li> </ul>

	<p>prevent or eliminate complications, side effects, undesirable reactions, including unforeseen ones that have occurred as a result of diagnostic or therapeutic manipulations, the use of medicines.</p> <p><b>IGPC -7.3.</b> Has practical experience in the development of the treatment plan of patients with the most common diseases in accordance with the applicable procedures of medical care, clinical guidelines, the standards of medical care; medical care in emergency patients with the most common diseases, in accordance with the applicable procedures of medical care, clinical guidelines, the standards of medical care; selecting and prescribing to patients with the most common diseases in accordance with the applicable procedures of medical care, clinical guidelines, the standards of medical care; evaluation of the efficacy and safety of the use of drugs in patients with the most common diseases; prevention and</p>		<p>eliminate complications, side effects, undesirable reactions, including unforeseen ones, that have occurred as a result of diagnostic or therapeutic manipulations, the use of medications ;</p> <ul style="list-style-type: none"> <li>• to make a treatment plan for the disease and the patient's condition, taking into account the diagnosis, age of the patient, the clinical picture of the disease in accordance with the current medical care procedures, clinical recommendations (treatment protocols prescribe medications based on the diagnosis, age and clinical picture of the disease in accordance</li> </ul>	<p>adverse reactions, including unforeseen ones that have occurred as a result of the use of medicines;</p> <ul style="list-style-type: none"> <li>• the use of medicines in the provision of medical care in an emergency form.</li> </ul>	<p>applicable procedures of medical care, clinical recommendations (treatment protocols) on the provision of medical services standards of medical care; the mechanism of action of drugs, indications and contraindications for their use; complications caused by their use.</p>
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		<p>treatment of complications, side effects, adverse reactions, including emergency resulting from diagnostic or therapeutic procedures, the use of drugs; the provision of medical care to patients with sudden acute diseases, conditions, exacerbation of chronic diseases without obvious signs of threatening the life of the patient in the emergency form; the use of drugs in the provision of medical care in the emergency form</p>		<p>with the current procedures for providing medical care, clinical recommendations (treatment protocols) for providing medical care based on the standards of medical care; evaluate the effectiveness and safety of the use of medicines.</p>		
3.	PC-8	<p><u>Able to develop a plan of treatment for the disease or condition and to prescribe medications, medical products, health food and non-pharmacological treatment according to diagnosis, age and clinical presentation in accordance with the applicable procedures of medical care, clinical recommendations (treatment protocols) on the provision of</u></p>	<p>IPC-8.1. Knows: modern methods of using medicines for diseases and conditions in the patient in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) on the provision of medical care, taking into account the standards medical care; mechanism of action of medicinal products, medical indications and contraindications to their use; complications caused by their use</p> <p>IPC-8.2. Can: make a treatment plan for the disease and the patient's condition, taking into account the diagnosis, age of the patient, clinical picture of the disease in accordance with the current procedures for providing</p>	<ul style="list-style-type: none"> <li>• methods of drug treatment; groups of drugs used to provide medical care in the treatment of the most common diseases; the mechanism of their action, medical indications and contraindications to the appointment; compatibility, possible complications, side</li> </ul>	<ul style="list-style-type: none"> <li>• gain new knowledge based on analysis, synthesis, etc.; collect data on complex scientific problems related to the professional field; search for information and solutions based on actions, experiments, and experience;</li> <li>• develop a treatment plan for patients with the most common</li> </ul>	<ul style="list-style-type: none"> <li>• methods of drug treatment; groups of drugs used to provide medical care in the treatment of the most common diseases; the mechanism of their action, medical indications and contraindications to the appointment; compatibility, possible complications, side effects, undesirable</li> </ul>

		<p><u>medical assistance, taking into account standards to assess the effectiveness and safety of the use of medicines,</u> medical devices, therapeutic nutrition and other methods of treatment</p>	<p>medical care, clinical recommendations (treatment protocols) on medical care, taking into account the standards of medical care; prescribe medications, taking into account the diagnosis, age and clinical picture of the disease in accordance with current procedures for the provision of medical care, clinical recommendations (treatment protocols) on the provision of medical care, taking into account the standards of medical care; evaluate the effectiveness and safety of the use of medicines.</p>	<p>effects, undesirable reactions, including serious and unforeseen ones; •the capabilities of reference and information systems and professional databases; modern methods use of medicinal products for diseases and conditions of the patient in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) on the provision of medical care, taking into account the standards of medical care; the mechanism of action of medicinal products, indications and contraindications to their use; complications</p>	<p>diseases in accordance with the procedures for providing medical care, clinical recommendations, and taking into account the standards of medical care to prevent or eliminate complications, side effects, undesirable reactions, including unforeseen ones, that have occurred as a result of diagnostic or therapeutic manipulations, the use of medications; •to make a treatment plan for the disease and the patient's condition, taking into account the diagnosis, age of the patient, the clinical picture of the disease in accordance with the current medical care procedures, clinical recommendations (treatment protocols) prescribe medications based on the</p>	<p>reactions, including serious and unforeseen ones; •the capabilities of reference and information systems and professional databases; modern methods use of medicinal products for diseases and conditions of the patient in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) on the provision of medical care, taking into account the standards of medical care; the mechanism of action of medicinal products, indications and contraindications to their use; complications caused by their use.</p>
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				ns caused by their use.	diagnosis, age and clinical picture of the disease in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) for providing medical care based on the standards of medical care; evaluate the effectiveness and safety of the use of medicines.	
4.	<b>PC-10</b>	<u>able to organize personalized treatment of patients, including pregnant women, elderly and senile patients, and evaluate the effectiveness and safety</u>	<p><b>IPC-10.</b> Knows: modern methods of using medicines for diseases and conditions of the patient in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) on the provision of medical care, taking into account the standards of medical care; the mechanism of action of medicines, medical indications and contraindications to their use; complications caused by their use.</p> <p><b>IPC-10.2.</b> Is able to: prescribe medications based on the diagnosis, age and clinical picture of the disease in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) for providing medical care, taking into account the standards of medical care; evaluate the effectiveness and safety of the use of medicines.</p>	<ul style="list-style-type: none"> <li>• methods of drug treatment; groups of drugs used to provide medical care in the treatment of the most common diseases; the mechanism of their action, medical indications and contraindications to the appointment; compatibility, possible complications, side effects, undesirable reactions, including</li> </ul>	<ul style="list-style-type: none"> <li>• gain new knowledge based on analysis, synthesis, etc.; collect data on complex scientific problems related to the professional field; search for information and solutions based on actions, experiments, and experience;</li> <li>• develop a treatment plan for patients with the most common diseases in accordance with the procedures</li> </ul>	<ul style="list-style-type: none"> <li>• practical experience;</li> <li>• developing a treatment plan for patients with the most common diseases in accordance with the current medical care procedures, clinical recommendations, taking into account the standards of medical care;</li> <li>• selecting and prescribing medicines to patients with the most common diseases;</li> <li>• evaluating</li> </ul>

				<p>serious and unforeseen ones;</p> <ul style="list-style-type: none"> <li>• the capabilities of reference and information systems and professional databases; modern methods use of medicinal products for diseases and conditions of the patient in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) on the provision of medical care, taking into account the standards of medical care; the mechanism of action of medicinal products, indications and contraindications to their use; complications caused by their use.</li> </ul>	<p>for providing medical care, clinical recommendations, and taking into account the standards of medical care to prevent or eliminate complications, side effects, undesirable reactions, including unforeseen ones, that have occurred as a result of diagnostic or therapeutic manipulations, the use of medications;</p> <ul style="list-style-type: none"> <li>• to make a treatment plan for the disease and the patient's condition, taking into account the diagnosis, age of the patient, the clinical picture of the disease in accordance with the current medical care procedures, clinical recommendations (treatment protocols) on issues related to the provision of medical care, taking into account the standards of</li> </ul>	<p>the effectiveness and safety of using medicines in patients with the most common diseases;</p> <ul style="list-style-type: none"> <li>• prevention and treatment of complications, side effects, and side effects. actions, adverse reactions, including unforeseen ones that have occurred as a result of the use of medicines;</li> <li>• the use of medicines in the provision of medical care in an emergency form.</li> </ul>
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					<p>medical care; prescribe medications based on the diagnosis, age, and clinical picture of the disease in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) for providing medical care, taking into account the standards of medical care; evaluate the effectiveness and safety of drug use.</p>	
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**4. Sections of the academic discipline and competencies that are formed when mastering them**

№	Competence code	Section name of the discipline	The content of the section in teaching units
1	<p><b>UC-1</b> (IUC-1.2, IUC-1.3),  <b>GPC-7 (I GPC -7.1; I GPC -7.2; I GPC -7.3),</b>  <b>PC-8</b> (IPC-8.1; IPC-8.2),  <b>PC-10</b> (IPC-10.1, IPC-10.2)</p>	<p>General questions of clinical pharmacology</p>	<p>Purpose and objectives of the discipline Clinical Pharmacology. Basic concepts: pharmacodynamics( PD), pharmacokinetics (PK), pharmacotherapy (PT), etc.  Clinical pharmacokinetics. The role of drug transporters in pharmacokinetic processes. Drug absorption. Distribution of drugs in the body. Drug metabolism. Elimination of drugs from the body. Basic pharmacokinetic parameters.  Pharmacodynamics. Relationship between pharmacokinetics and pharmacodynamics. Clinical application of pharmacokinetic parameters. Therapeutic drug monitoring.  Adverse drug reactions (ADR). Terminology of drug side effects. Epidemiology of ADR. Classification of ADR. Toxic effects. ADR caused by the pharmacological properties of drugs. Allergic reactions. Pseudoallergic reactions. Idiosyncrasy. Drug addiction. ADR diagnostics. Prevention and treatment of ADR. Methods for monitoring side effects.  Interaction of the personal account. Types of drug interaction.</p>

			<p>Pharmacokinetic interaction of drugs. Pharmacodynamic interaction of drugs. Interaction of drugs with food, tobacco, herbal medicines, and ethanol. Risk factors for drug interaction. Features of CF in pregnant women, nursing mothers, newborns, and the elderly.</p> <p>Clinical and pharmacological technologies of personalized medicine. Pharmacogenetic testing.</p> <p>Pharmacoeconomics and pharmacoepidemiology.</p> <p>Clinical studies of drugs. Evidence-based medicine.</p> <p>Fundamentals of rational pharmacotherapy. Types, goals and objectives, and stages of. Pharmacological history. Choice of medication and dosage regimen.</p> <p>The concept of a pharmacological test. Titration of the drug dose. Monitoring the effectiveness and safety of pharmacotherapy. Patient's adherence to treatment. Features of pharmacotherapy of urgent conditions. Features of long-term pharmacotherapy. Errors in evaluating the effect of the drug. Drug withdrawal. Combined use of medicines.</p>
2	<p><b>UC-1</b> (IUC-1.2, IUC-1.3), <b>GPC-7 (I</b> <b>GPC -7.1;</b> <b>I GPC -</b> <b>7.2; I</b> <b>GPC -</b> <b>7.3),</b> <b>PC-8</b> (IPC-8.1; IPC-8.2), <b>PC-10</b> (IPC-10.1, IPC-10.2)</p>	<p>Clinical pharmacology of antimicrobial drugs</p>	<p>Features and principles of prescribing antimicrobial drugs. Classification of antimicrobial drugs. Mechanisms of action. Mechanisms of formation of resistance of microorganisms to antibiotics. Principles of differentiated prescribing of antimicrobial drugs. Spectrum and contraindications to use. ADR. Interaction with other drugs. Monitoring the effectiveness and safety of antimicrobial drug pharmacotherapy.</p> <p>beta-lactam antibiotics-indications for use, comparative characteristics of drugs:</p> <ul style="list-style-type: none"> <li>- penicillins;</li> <li>- cephalosporins;</li> <li>- carbapenems;</li> <li>- monobactams.</li> </ul> <p>Aminoglycosides - indications for use, comparative characteristics of drugs.</p> <p>Macrolides - indications for use, comparative characteristics of drugs.</p> <p>Lincosamides - indications for use, comparative characteristics of drugs.</p> <p>Tetracyclines - indications for use, comparative characteristics of drugs.</p> <p>Chloramphenicol group - indications for use, comparative characteristics of drugs.</p> <p>Group of polypeptides - indications for use, comparative characteristics of drugs.</p> <p>Rifamycin group - indications for use, comparative characteristics of drugs.</p> <p>Polymyxin group - indications for use, comparative characteristics of drugs.</p> <p>Group of phosphonic acid derivatives-indications for use, characteristics.</p> <p>Features and principles of prescribing synthetic antimicrobials. Classifications. Mechanisms of action. Pharmacokinetic characteristics. Spectrum and contraindications to use. ADR.</p>

			<p>Interaction with other drugs. Monitoring the effectiveness and safety of pharmacotherapy.</p> <p>Quinolones of 1-4 generations, indications for use, comparative characteristics of drugs.</p> <p>Nitrofurans - indications for use, comparative characteristics of drugs.</p> <p>Nitroimidazoles-indications for use, comparative characteristics of drugs.</p> <p>Quinolons - indications for use, comparative characteristics of drugs.</p> <p>Sulfonamide preparations.</p> <p>Features and principles of prescribing anti-tuberculosis drugs. Classifications. Mechanisms of action. Pharmacokinetic characteristics. Spectrum and contraindications to use. ADR. Interaction with other drugs. Monitoring the effectiveness and safety of pharmacotherapy.</p>
3	<p><b>UC-1</b> (IUC-1.2, IUC-1.3), <b>GPC-7 (I GPC -7.1; I GPC -7.2; I GPC -7.3),</b> <b>PC-8</b> (IPC-8.1; IPC-8.2), <b>PC-10</b> (IPC-10.1, IPC-10.2)</p>	<p>Clinical pharmacology of antiviral and antifungal drugs</p>	<p>Features and principles of prescribing antiviral drugs. Classifications. Mechanisms of action. Spectrum and contraindications to use. ADR. Interaction with other drugs. Monitoring the effectiveness and safety of pharmacotherapy.</p> <p>Antiherpetic drugs, indications for use, comparative characteristics of drugs.</p> <p>Anti-cytomegalovirus drugs, indications for use, comparative characteristics of drugs.</p> <p>Anti-influenza drugs, indications for use, comparative characteristics of drugs.</p> <p>Features and principles of prescribing antifungal drugs. Classifications. Mechanisms of action. Spectrum and contraindications to use. ADR. Interaction with other drugs. Monitoring the effectiveness and safety of pharmacotherapy.</p> <p>Polyenes, comparative characteristics of drugs, indications for use.</p> <p>Imidazoles, indications for use, comparative characteristics of drugs.</p> <p>Triazoles, indications for use, comparative characteristics.</p> <p>Allylamines, indications for use, comparative characteristics.</p> <p>Other antifungal drugs, indications for use, comparative characteristics of drugs.</p>
4	<p><b>UC-1</b> (IUC-1.2, IUC-1.3), <b>GPC-7 (I GPC -7.1; I GPC -7.2; I GPC -7.3),</b> <b>PC-8</b> (IPC-8.1; IPC-8.2), <b>PC-10</b> (IPC-10.1,</p>	<p>Clinical pharmacology of drugs used in diseases of the respiratory tract</p>	<p>system Management tactics of patients with impaired bronchial patency in accordance with the current national Clinical guidelines. Routes of delivery of drugs that affect the bronchial patency (aerosol inhaler, nebulizer, spacer, turbohaler, etc.). drugs that affect the bronchial patency. CF of individual groups of drugs (classification, PD and PK by groups, comparative characteristics of drugs; indications and contraindications for use; ADR; interaction with other drugs; dosage features for different pathological conditions; monitoring of effectiveness and safety in pharmacotherapy):</p> <p>beta-adrenostimulants, M-holinoblockers, phosphodiesterase inhibitors, Antileukotriene drugs.</p>

	IPC-10.2)		<p>Mast cell membrane stabilizers.</p> <p>Drugs that affect inflammation in the respiratory tract (comparative characteristics of drugs; indications and contraindications for use; ADR; interaction with other drugs; monitoring of efficacy and safety in pharmacotherapy):</p> <p>Inhaled glucocorticoids,  Monoclonal antibodies to IgE,  phosphodiesterase IV inhibitors.</p> <p>Expectorant and antitussive drugs.</p>
5	<p><b>UC-1</b>  (IUC-1.2, IUC-1.3),  <b>GPC-7 (I</b>  <b>GPC -7.1;</b>  <b>I GPC -</b>  7.2; <b>I</b>  <b>GPC -</b>  7.3),  <b>PC-8</b>  (IPC-8.1;  IPC-8.2),  <b>PC-10</b>  (IPC-10.1,  IPC-10.2)</p>	Clinical pharmacology of anti-inflammatory drugs	<p>CF of nonsteroidal anti-inflammatory drugs (NSAIDs) (scope of application, significance in modern practice, features of PD and PK, indications and contraindications for use, ADR, interactions with other drugs, monitoring the effectiveness and safety of pharmacotherapy).</p> <p>Classification of NSAIDs by chemical structure and mechanism of action. Mechanism of action of NSAIDs. The main pharmacological effects of NSAIDs. Indications for use of NSAIDs.</p> <p>Comparative characteristics of drugs. Features, including age-related, pharmacokinetics. Indications and contraindications for use. ADR, due to the peculiarities of pharmacodynamics and pharmacokinetics of NSAIDs (Reye and Vidal syndrome, etc.). Interaction with other drugs. Evaluation of efficacy and safety in pharmacotherapy.</p> <p>Basic, slow-acting anti-inflammatory drugs (meaning in modern practice, features of PD and PK, indications and contraindications for use, ADR, interactions with other drugs, monitoring the effectiveness and safety of pharmacotherapy). Classification. Comparative characteristics of corticosteroids: natural (cortisone, hydrocortisone), semi-synthetic (prednisone, methylprednisolone), synthetic (triamcinolone, dexamethasone, etc.). Types of corticosteroid therapy.</p>
6	<p><b>UC-1</b>  (IUC-1.2, IUC-1.3),  <b>GPC-7 (I</b>  <b>GPC -7.1;</b>  <b>I GPC -</b>  7.2; <b>I</b>  <b>GPC -</b>  7.3),  <b>PC-8</b>  (IPC-8.1;  IPC-8.2),  <b>PC-10</b>  (IPC-10.1,  IPC-10.2)</p>	Clinical pharmacology of drugs used in diseases of the digestive tract	<p>system CF of drugs used in diseases of the digestive system. Features of PD and PK, indications and contraindications for use, ADR, interactions with other drugs, monitoring the effectiveness and safety of pharmacotherapy:</p> <p>drugs that reduce the activity of acid-peptic factor,  Gastroprotectors,  Antiemetic drugs,  Enzyme preparations,  Choleretic, hepatoprotective, cholelitholytic drugs,  proteolysis inhibitors,  drugs used for diarrhea,  Laxatives Drugs,  Prokinetics,</p> <p>drugs used for intestinal dysbiosis.</p>
7	<p><b>UC-1</b>  (IUC-1.2, IUC-1.3),  <b>GPC-7 (I</b></p>	Clinical pharmacology of drugs used in diseases of the	<p>Clinical pharmacology of drugs that lower vascular tone. Features of PD and PK, indications and contraindications for use, ADR, interactions with other drugs, monitoring the effectiveness and safety of pharmacotherapy:</p>

	<p><b>GPC -7.1;</b>  <b>I GPC -</b>  <b>7.2; I</b>  <b>GPC -</b>  <b>7.3),</b>  <b>PC-8</b>  <b>(IPC-8.1;</b>  <b>IPC-8.2),</b>  <b>PC-10</b>  <b>(IPC-10.1,</b>  <b>IPC-10.2)</b></p>	<p>cardiovascular system</p>	<p>Agonists of central<math>\alpha_2</math>-adrenergic receptors and <math>I_{1-}</math>imidazoline receptors,  Sympatholytics,  Ganglion blockers,<math>\alpha</math>-adrenoblockers,  <math>\beta</math>-adrenoblockers,  Venous vasodilators,  slow calcium channel blockers,  mixed-action vasodilators (sodium nitroprusside),  Arterial vasodilators,  angiotensin-converting enzyme inhibitors,  angiotensin II receptorblockers,  Inhibitors of <math>I_f</math>-channels of the sinus node.</p> <p>Clinical pharmacology of medicines that increase vascular tone.  Clinical pharmacology of antiarrhythmic drugs. The main goals of antiarrhythmic treatment. General characteristics and classification of antiarrhythmic drugs. Mechanisms of action of antiarrhythmic drugs. ADR. Clinical pharmacology of individual antiarrhythmic drugs. Monitoring the effectiveness and safety of pharmacotherapy. Principles of choosing antiarrhythmic drugs and treating some of the most common arrhythmias.</p> <p>Clinical pharmacology of inotropic drugs. Features of PD and PK, indications and contraindications for use, ADR, interactions with other drugs, monitoring the effectiveness and safety of pharmacotherapy:</p> <p>Cardiac glycosides,  adrenergic receptor agonists,  phosphodiesterase inhibitors,  Drugs that increase the sensitivity of contractile proteins to calcium (calcium sensitizers).</p> <p>Clinical pharmacology of diuretics (diuretics). Features of PD, PK, indications and contraindications for use, ADR, interactions with other drugs:</p> <p>Carbonic anhydrase inhibitors,  Osmotic diuretics,  Loop diuretics,  Thiazide and thiazide-like diuretics,  Aldosterone antagonists, potassium-sparing diuretics.</p> <p>Choosing a diuretic. Monitoring of efficiency and safety. Principles of substitution therapy for hypokalemia.</p>
8	<p><b>UC-1</b>  <b>(IUC-1.2,</b>  <b>IUC-1.3),</b>  <b>GPC-7 (I</b>  <b>GPC -7.1;</b>  <b>I GPC -</b>  <b>7.2; I</b>  <b>GPC -</b>  <b>7.3),</b>  <b>PC-8</b>  <b>(IPC-8.1;</b></p>	<p>Clinical pharmacology of drugs that affect the hemostatic system</p>	<p>Clinical pharmacology of drugs that affect the hemostatic system. Classification, PD and PK, indications and contraindications for use, ADR, interactions with other drugs, monitoring the effectiveness and safety of pharmacotherapy:</p> <p>Direct  -acting anticoagulants, indirect  -acting anticoagulants, direct-acting procoagulants, indirect-acting procoagulants,  Fibrinolytics-plasminogen activators,  fibrinolysis inhibitors,  Antiplatelet agents,</p>

	IPC-8.2), <b>PC-10</b> (IPC-10.1, IPC-10.2)		thromboplastin formation activators, drugs used for hemophilia and lack of blood clotting factors.
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### 5. Volume of the academic discipline and types of academic work

Type of educational work	Labor intensity		Labor intensity (AH) in semesters
	volume in credit units (CU)	volume in academic hours (AH)	12 semester
Classroom work, including	<b>1,83</b>	<b>66</b>	<b>66</b>
Lectures (L)	0,39	14	14
Laboratory practicum (LP)*	Not provided		
Practicals (P)	1,44	52	52
Seminars (S)	Not provided		
Student's individual work (SIW)	<b>1,17</b>	<b>42</b>	<b>42</b>
Mid-term assessment			
credit	In the last class structure		
<b>TOTAL LABOR INTENSITY</b>	<b>3</b>	<b>108</b>	<b>108</b>

### 6. Content of the academic discipline

#### 6.1. Sections of the discipline and types of academic work

№	Name of the section of the academic discipline	Types of academic work* (in AH)					
		L	LP	P	S	SIW	total
1	General questions of clinical pharmacology	6	-	5	-	4	15
2	Clinical pharmacology of antimicrobial drugs	2	-	5	-	4	11
3	Clinical pharmacology of antiviral and antifungal drugs	-	-	5	-	3	8
4	Clinical pharmacology of drugs used in diseases of the respiratory tract	2	-	5	-	6	13
5	Clinical pharmacology of anti-inflammatory drugs	-	-	5	-	6	11
6	Clinical pharmacology of drugs used in diseases of the digestive tract	2	-	5	-	5	12
7	Clinical pharmacology of drugs used in diseases of the cardiovascular system	2	-	10	-	10	22
8	Clinical pharmacology of drugs that affect the hemostatic system			5	-	4	9
9	Project presentation. Credit			7	-	-	7
	<b>TOTAL</b>	<b>14</b>	<b>-</b>	<b>52</b>	<b>-</b>	<b>42</b>	<b>108</b>

\* - L – lectures; LP – laboratory practicum; P – practicals; S – seminars; SIW – student's individual work.



6.2. Thematic schedule of educational work types:

6.2.1 Thematic schedule of lectures

№	Name of lecture topics	Volume in AH 12 semester
1.	General questions of clinical pharmacology	2
2.	Adverse drug reactions	2
3.	Personalized pharmacotherapy. Pharmacogenetics	2
4.	Clinical pharmacology of antimicrobial drugs	2
5.	Clinical pharmacology of drugs used in diseases of the respiratory tract	2
6.	Clinical pharmacology of drugs used in diseases of the digestive tract	2
7.	Clinical pharmacology of drugs used in diseases of the cardiovascular system	2
	TOTAL (total – 14 AH)	14

6.2.2. The thematic plan of laboratory practicums- not provided

6.2.3. Thematic plan of practicals

№	Name of laboratory practicums	Volume in AH 12 semester
1.	General questions of clinical pharmacology	5
2.	Clinical pharmacology of antimicrobial drugs	5
3.	Clinical pharmacology of antiviral and antifungal drugs	5
4.	Clinical pharmacology of drugs used in diseases of the respiratory tract	5
5.	Clinical pharmacology of anti-inflammatory drugs	5
6.	Clinical pharmacology of drugs used in diseases of the digestive tract	5
7.	Clinical pharmacology of drugs used in diseases of the cardiovascular system	5
8.	Clinical pharmacology of drugs used in diseases of the cardiovascular system. Continued	5
9.	Clinical pharmacology of drugs that affect the hemostatic system	5
10.	Project presentation. Credit	7
	TOTAL (total - 52AH)	52

6.2.4. Thematic plan of seminars – not provided

6.2.5. Types and topics of student's individual work (SIW)

№	Name of laboratory practicums	Volume in AH 12 semester
1.	Working with literature sources; completing the Protocol for evaluating the effectiveness and safety of pharmacotherapy; working with electronic educational resources (SDS, EBS , etc.). <b>Presentation of a project</b> on the topic: "Monitoring the effectiveness and safety of pharmacotherapy".	4
2.	Working with literature sources; completing the Protocol for evaluating the effectiveness and safety of pharmacotherapy; working with electronic educational resources (SDS, EBS, etc.).	4

	<b>Presentation of a project</b> on the topic: "Clinical pharmacology of penicillins used in the treatment of respiratory diseases".	
3.	Work with literature sources; filling out the Protocol for evaluating the effectiveness and safety of pharmacotherapy; work with electronic educational resources (SDS, EBS, etc.). <b>Presentation of a project</b> on the topic: "Clinical pharmacology of drugs used in the treatment of dermatomycosis"	3
4.	system Work with literature sources; filling out the Protocol for evaluating the effectiveness and safety of pharmacotherapy; work with electronic educational resources (SDS, EBS, etc.). <b>Presentation of a project</b> on the topic: "Clinical pharmacology of drugs used in the treatment of COPD".	6
5.	Work with literature sources; filling out the Protocol for evaluating the effectiveness and safety of pharmacotherapy; work with electronic educational resources (SDS, EBS, etc.). <b>Presentation of a project</b> on the topic: "Clinical pharmacology of glucocorticosteroid preparations used in the treatment of emergency conditions".	6
6.	Work with literature sources; filling out the Protocol for evaluating the effectiveness and safety of pharmacotherapy; work with electronic educational resources (SDS, EBS, etc.).	5
7.	Working with literature sources; completing the Protocol for evaluating the effectiveness and safety of pharmacotherapy; working with electronic educational resources (SDS, EBS, etc.). <b>Presentation of a project</b> on the following topics: - "Clinical pharmacology of cardiotoxic agents", - "Clinical pharmacology of diuretics used in the treatment of hypertension".	10
8.	Work with literature sources; filling out the Protocol for evaluating the effectiveness and safety of pharmacotherapy; work with electronic educational resources (SDS, EBS, etc.). <b>Presentation of a project</b> on the topic: "Clinical pharmacology of fibrin- and antifibrinolytic agents".	4
9.	TOTAL (total - 42AH)	<b>42</b>

### 7. Types of assessment formats for ongoing monitoring and mid-term assessment

№ n /	№ a Semester	No. Control forms	Name of the discipline section	Eva	
				types	numb c
1.	12	<ul style="list-style-type: none"> <li>• DAC</li> <li>• KOT</li> <li>• Pr.A-credit at the end of the 12th semester</li> </ul>	General questions CF	Test tasks	
				Control questions	
				Project	
				Situational tasks	
2.	12	<ul style="list-style-type: none"> <li>• DAC</li> <li>• KOT</li> <li>• Pr.A-credit at the end of the 12th</li> </ul>	of the CF antimicrobial drugs	Test tasks	
				Control questions	
				Project	

		semester		Situational tasks	
3.	12	<ul style="list-style-type: none"> <li>• DAC</li> <li>• KOT</li> <li>• Pr.A-credit at the end of the 12th semester</li> </ul>	of the CF of antiviral and antifungal drugs	Test tasks	
				Control questions	
				Project	
				Situational tasks	
4.	12	<ul style="list-style-type: none"> <li>• DAC</li> <li>• KOT</li> <li>• Pr.A-credit at the end of the 12th semester</li> </ul>	of the CP of drugs used for respiratory diseases	Test tasks	
				Control questions	
				Project	
				Situational tasks	
5.	12	<ul style="list-style-type: none"> <li>• DAC</li> <li>• KOT</li> <li>• Pr.A-credit at the end of the 12th semester</li> </ul>	CF anti-inflammatory drugs	Test tasks	
				Control questions	
				Project	
				Situational tasks	
6.	12	<ul style="list-style-type: none"> <li>• DAC</li> <li>• KOT</li> <li>• Pr.A-credit at the end of the 12th semester</li> </ul>	of the CF of drugs used in diseases of the digestive	system Test tasks	
				Control questions	
				Situational tasks	
7.	12	<ul style="list-style-type: none"> <li>• DAC</li> <li>• KOT</li> <li>• Pr.A-credit at the end of the 12th semester</li> </ul>	of the CP of drugs used in diseases of the cardiovascular system	Test tasks	
				Control questions	
				Project	
				Situational tasks	
8.	12	<ul style="list-style-type: none"> <li>• DAC</li> <li>• KOT</li> <li>• Pr.A-credit at the end of the 12th semester</li> </ul>	of CF of drugs affecting the hemostasis system	Test tasks	
				Control questions	
				Project	
				Situational tasks	
9.	12	Intermediate assessment (Credit)	Project protection. Test	Project	
				Test tickets	

## 8. Educational, methodological and informational support for mastering the academic discipline (printed, electronic publications, the Internet and other network resources)

### 8.1. Key literature references

№	Name according to bibliographic requirements	Number of copies	
		at the department	in the library
1	Clinical pharmacology of antibacterial drugs : textbook for 6th year- students of the foreign students faculty / M. V. Stolbova, I. S. Mitrofanova, T. V. Chernysheva [и др.] ; Stolbova M. V., Mitrofanova I. S., Chernysheva T. V., Liskova Y. V., Tenchurina L. R. – Оренбург : ОпГМУ, 2020. – 108 с. – Текст : электронный. – URL: <a href="https://e.lanbook.com/book/257978">https://e.lanbook.com/book/257978</a> (дата обращения: 01.12.2022. – Режим доступа: по подписке.	Ссылка на библиографическое описание: <a href="http://nbk.pimunn.net/MegaPro/UserEntry?Action=Link_FindDoc&amp;id=230963&amp;idb=0">http://nbk.pimunn.net/MegaPro/UserEntry?Action=Link_FindDoc&amp;id=230963&amp;idb=0</a>	
2	Clinical implementation of drug interactions: tutorial. / edited by associate professor Sorokina Yu.A. PhD. – N. Novgorod: Publishing house «Medial», 2021. – 120 p.	100	

## 8.2. Further reading

№	Name according to bibliographic requirements	Number of copies	
		at the department	in the library
1	Bennett, P. N. Clinical pharmacology / P. N. Bennett, M. J. Brown, P. Sharma. – 11 th ed. – Edinburgh : Churchill Livingstone, 2012. – XI, 667 p. – ISBN 9780808924319.	Ссылка на библиографическое описание: <a href="http://nbk.pimunn.net/MegaPro/UserEntry?Action=Link_FindDoc&amp;id=163900&amp;idb=0">http://nbk.pimunn.net/MegaPro/UserEntry?Action=Link_FindDoc&amp;id=163900&amp;idb=0</a>	
2	Grahame-Smith, D. G. Oxford textbook of clinical pharmacology and drug therapy / D. G. Grahame-Smith, J. K. Aronson ; Grahame-Smith, D. G. ; Aronson, J. K. – 3rd ed. – Oxford University Press, 2002. – 641 с. : мяг. – ISBN 0-19-850944-8.	Ссылка на библиографическое описание: <a href="http://nbk.pimunn.net/MegaPro/UserEntry?Action=Link_FindDoc&amp;id=23432&amp;idb=0">http://nbk.pimunn.net/MegaPro/UserEntry?Action=Link_FindDoc&amp;id=23432&amp;idb=0</a>	

## 8.3. Electronic educational resources for teaching academic subjects

### 8.3.1. Internal Electronic Library System of the University (IELSU)

Name of the electronic resource	Brief description (content)	Access conditions	Number of users
<b>Internal Electronic Library System (EBS)</b> <a href="http://nbk.pimunn.net/MegaPro/Web">http://nbk.pimunn.net/MegaPro/Web</a>	Works of the university's teaching staff: textbooks, study guides, problem collections, methodological manuals, laboratory works, monographs, collections of scientific papers, scientific articles, dissertations, dissertation abstracts, patents	From any computer and mobile device using an individual login and password. Access mode: <a href="http://nbk.pimunn.net/MegaPro/Web">http://nbk.pimunn.net/MegaPro/Web</a>	Not restricted

### 8.3.2. Electronic educational resources acquired by the University

№	Name of the electronic resource	Brief description (content)	Access conditions	Number of users
	<b>EBS " Student's Consultant "</b> (Electronic database "Student's Consultant". Database " Medicine.	Educational literature, additional materials (audio, video, interactive materials, test tasks) for higher medical and	From any computer and mobile device using an individual	<i>unlimited</i>

	<p>Healthcare (VO) and " Medicine. Healthcare (SPE)")  <a href="http://www.studmedlib.ru">http://www.studmedlib.ru</a></p>	<p>pharmaceutical education</p>	<p>username and password.  Access mode:  <a href="http://nbk.pimunn.net/MegaPro/Web">http://nbk.pimunn.net/MegaPro/Web</a></p>	
	<p><b>Database " Doctor's Consultant. Electronic Medical Library"</b>  <a href="https://www.rosmedlib.ru">https://www.rosmedlib.ru</a></p>	<p>National guidelines, clinical guidelines, training manuals, monographs, atlases, pharmaceutical reference books, audio and video materials, ICD-10 and ATX</p>	<p>From any computer and mobile device using an individual login and password.  Access mode:  <a href="http://nbk.pimunn.net/MegaPro/Web">http://nbk.pimunn.net/MegaPro/Web</a></p>	<p><i>unlimited</i></p>
	<p><b>Electronic library system "Bookup"</b>  <a href="https://www.books-up.ru">https://www.books-up.ru</a></p>	<p>Educational and scientific medical literature of Russian publishing houses, including translations of foreign publications. Within the framework of the "Big Medical Library" project, publications of participating universities are available</p>	<p>from any computer and mobile device using an individual login and password; access is automatic from university computers. Publications from the "My books" section are available for reading.  Access mode:  <a href="http://nbk.pimunn.net/MegaPro/Web">http://nbk.pimunn.net/MegaPro/Web</a></p>	<p><i>unlimited</i></p>
	<p><b>URAIT Educational Platform</b>  <a href="https://urait.ru">https://urait.ru</a></p>	<p><a href="https://urait.ru">https://urait.ru</a> A collection of publications on psychology, ethics, and conflict</p>	<p>management from any computer or mobile device using an individual username and password.  Access mode:  <a href="http://nbk.pimunn.net/MegaPro/Web">http://nbk.pimunn.net/MegaPro/Web</a></p>	<p><i>unlimited</i></p>
	<p><b>Electronic periodicals in the database " Scientific Electronic Library eLibrary</b>  <a href="https://elibrary.ru">https://elibrary.ru</a></p>	<p>Electronic medical journals</p>	<p>From university computers.  Access mode:  <a href="https://elibrary.ru">https://elibrary.ru</a></p>	<p><i>unlimited</i></p>

	<b>Integrated Information and library system (IBS) of the scientific and educational medical cluster of the Volga Federal District – "Srednevolzhsky"</b> (contract on a free basis)	Electronic copies of scientific and educational publications from the collections of libraries participating in the scientific and educational medical cluster of the Volga Federal District "Srednevolzhsky"	Access using an individual username and password from any computer or mobile device. Access mode: websites of libraries participating in the project	<i>unlimited</i>
	<b>Electronic reference and legal system "Consultant Plus"</b> (contract on a free basis) <a href="http://www.consultant.ru">http://www.consultant.ru</a>	Regulatory documents regulating the activities of medical and pharmaceutical institutions	From the computers of the scientific library. Access mode: <a href="http://www.consultant.ru/He">http://www.consultant.ru/He</a>	<i>unlimited</i>
	<b>National Electronic Library (NEB)</b> (contract on a free basis) <a href="http://НЭБ.рф">http://НЭБ.рф</a>	Electronic copies of publications (including scientific and educational ones) on a wide range of knowledge	Scientific and educational works that have not been reprinted in the last 10 years are publicly available. Works restricted by copyright – from the computers of the scientific library. Access mode: <a href="http://НЭБ.рф">http://НЭБ.рф</a>	<i>unlimited</i>

### 8.3.3 Open access resources

№	Name of the electronic resource	Brief description (content)	Access conditions
	<b>PubMed</b> <a href="https://www.ncbi.nlm.nih.gov/pubmed">https://www.ncbi.nlm.nih.gov/pubmed</a>	Search engine of the National Library of Medicine of the USA for the databases "Medline", "PreMedline"	From any computer or mobile device. Access mode: <a href="https://www.ncbi.nlm.nih.gov/pubmed">https://www.ncbi.nlm.nih.gov/pubmed</a>
	<b>Directory of Open Access Journals</b> <a href="http://www.doaj.org">http://www.doaj.org</a>	Directory for open access to a full-text collection of periodicals	from any computer or mobile device. Access mode: <a href="http://www.doaj.org">http://www.doaj.org</a>
	<b>Directory of open access books (DOAB)</b> <a href="http://www.doabooks.org">http://www.doabooks.org</a>	A directory of open access to a full-text collection of scientific books	from any computer or mobile device. Access mode: <a href="http://www.doabooks.org">http://www.doabooks.org</a>

## 9. Material and technical support for mastering an academic discipline

9.1. List of premises for classroom activities for the discipline

For conducting lectures on the basis of the academic building No. 2 (BFK), there are:

- 2 lecture halls.

For conducting practical classes on the basis of the educational building No. 2 (BFK), there are:

- 6 study rooms with an area of 36,8, 26, 23,6, 21,2, 21,2, 21 m<sup>2</sup>.

9.2. List of equipment for classroom activities for the discipline

Name	quantity
<b>Based on academic building No. 2:</b>	
Multimedia projectors:	
- Epson EMP-S3	1
-Epson	1
-BEAQMS	1
Laptops:	
- Fujitsu Siemens	1
- Lenovo	1
- Lenovo Idea Pad	1
- Lenovo Think Book	2
LCD TV	4
Screens	3
Whiteboards	5
Marker boards	4
Stands:	
- on the organization of the educational process at the department	1
-pharmacodynamics and pharmacokinetics of medicines	16

### 9.3. A set of licensed and freely distributed software, including domestic production

Item no.	Software	number of licenses	Type of software	Manufacturer	Number in the unified register of Russian software	Contract No. and date
1	Wtware	100	Thin Client Operating System	Kovalev Andrey Alexandrovich	1960	2471/05-18 from 28.05.2018
2	MyOffice is Standard. A corporate user license for educational organizations, with no expiration date, with the right to receive updates for 1 year.	220	Office Application	LLC "NEW CLOUD TECHNOLOGIES"	283	without limitation, with the right to receive updates for 1 year.
3	LibreOffice		Office Application	The Document Foundation	Freely distributed software	

4	Windows 10 Education	700	Operating systems	Microsoft	Azure Dev Tools for Teaching Subscription	
5	Yandex. Browser		Browser	«Yandex»	3722	
6	Subscription to MS Office Pro for 170 PCs for FGBOU VO "PIMU" of the Ministry of Health of Russia	170	Office Application	Microsoft		23618/HN100 30 LLC "Softline Trade" from 04.12.2020

### 10. List of changes to the working program (to be filled out by the template)

Federal State Budgetary Educational Institution of Higher Education  
"Privolzhsky Research Medical University"  
Ministry of Health of the Russian Federation  
(FSBEI HE "PRMU" of the Ministry of Health of Russia)

Department of  
*Name of the department*

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### CHANGE REGISTRATION SHEET

working program for the academic discipline  
*NAME OF THE ACADEMIC DISCIPLINE*

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Field of study / specialty / scientific specialty: \_\_\_\_\_

*(code, name)*

Training profile: \_\_\_\_\_

*(name) - for master's degree programs*

Mode of study: \_\_\_\_\_

*full-time/mixed attendance mode/extramural*

Position	Number and name of the program section	Contents of the changes made	Effective date of the changes	Contributor's signature
1				

Approved at the department meeting  
Protocol No. \_\_\_\_\_ of \_\_\_\_\_ 20\_\_

Head of the Department

\_\_\_\_\_  
department name, academic title

\_\_\_\_\_  
signature

\_\_\_\_\_  
print name