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Annotations to
WORKING PROGRAMS OF PRACTICAL TRAINING COURSES

Specialty 33.05.01 "Pharmacy"
Direction (profile) – «Organization and Management of Pharmaceutical Activities»
Graduate qualification – Pharmacist
The year of beginning the training - 2022

ANNOTATION to the
working program of practice
training course (field practice in botany)

1. Purposes and objectives of training when passing the practical training

The purpose of the training practice (field practice in botany) is to consolidate theoretical knowledge obtained when studying professional disciplines; to acquire practical skills and competencies in the field of professional activity; to study the morphological and anatomical structure of higher plants of different life forms and ecological groups, and to consolidate students' systemic knowledge about a plant organism as a component of a living system, its variability, species diversity and role in biogeocenosis, and to form skills to perform description and definition of phytocenoses and plants of different systematic groups, as well as determination of the environmental impact on plants.

Practical training's objectives:

- students' getting to know the diversity of local flora and introduced medicinal cultured plants;
- introducing to the variety of morphological and anatomical structures of plant organs;
- formation of ideas about ecology, phytocenology and geography of plants;
- study of families including medicinal species studied in the course of pharmacognosy;
- introducing to the diagnostic signs of plants that are used in determining the raw materials;
- introducing to the main physiological processes occurring in a plant organism;
- introducing to rare and endangered plant species subject to protection and listed in the "Red Book";
- formation of skills to carry out anatomical and morphological description of plants and to determine plants by determinants;
- formation of students' practical skills in collecting and drying a herbarium;
- formation of students' skills and abilities to conduct geobotanical descriptions of phytocenoses;
- formation of skills to carry out the simplest observations of the growth, development, flowering, pollination and reproduction of plants, to reflect the observations made in drawings, diagrams, photographs and descriptions;
- formation of students' skills in studying scientific botanical literature;

studying occupational health and environmental issues at the enterprise (available materials, proposals, devices and implementations), as well as rules, instructions on occupational health and environmental protection at the practice facility.

2. Mode and type of practical training, method and forms of its implementation

Type of practical training - field practice in botany.

The practice is conducted in the form of practical training in accordance with the academic schedule and curriculum.

Method of practical training carrying out - stationary, field.

The form of conducting – discretely by types of practices – by allocating a continuous period of study time in the academic schedule for each type (set of types) of practice.

Practical training during the practice is organized by performing certain work types related to the students' future professional activities.

Students who combine training with labour activity have the right to pass practical training at the place of their labour activity in cases where the professional activity carried out by them meets the requirements of the educational program for practical training.

To guide the practice carried out in specialized university departments, the head of the practice is appointed from among the persons belonging to the teaching staff of the department responsible for implementing the educational program (hereinafter referred to as the EP). To

guide the practice conducted in a relevant organization, the head of the practice is appointed from among the persons belonging to the teaching staff of the department responsible for implementing the EP, and the head (heads) of the practice from among the employees of the relevant organization. The student's referral to practical training is issued in the form of a student-trainee's permit (Appendix 1).

Practical training for students with disabilities and physical conditions is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

3. Planned learning outcomes during passing the practical training, correlated with the results of uptaking the educational program.

Conducting field practice, taking into account the direction (profile), is aimed at forming in pharmacists in accordance with the goals of the main educational program and the tasks of future professional activity, the following professional competencies, as a result of mastering which the student must:

Competence code	Competence achievement indicator	Planned learning outcomes
UK-8 - He/she is able to create and maintain safe living conditions in everyday life and in professional activities to preserve sustainable development of society, including in the event of a threat and advent of emergencies and military conflicts	AC-8.1 Identifies and analyzes natural and man-made factors of harmful influence on the environment, social life and professional activity, and brings information to the responsible authorities.	**To know**: General principles of identifying and analysis of natural and man-caused factors affecting the physical and social environment in everyday life and professional activities to preserve the natural environment and sustainable development of the society. **To be able** to: able to organize interaction with responsible authorities in extraordinary natural and man-caused conditions, in case of threat of using weapons to preserve the natural environment and stability in the society. **To possess**: Has experience of social behavior and professional activity, taking into account possible factors of harmful influence of natural and man-caused character, terrorist and military threat.
	AC-8.2 He/she creates and maintains safe living conditions and professional activities, complies with safety rules, including in the event of a threat and advent of a military conflict.	**To know**: Knows the standards and requirements for maintaining safe conditions in daily life and professional activity to preserve nature and

		sustainable development of the society in peacetime, in conditions of threat and advent of a military conflict, a terrorist action. **Be able** to: Complies with safety rules in everyday life and professional activities. **To possess**: Creates safe conditions for life and professional activity for himself/herself and other people in peacetime and in emergency situations.
	AC-8.3 In case of emergency situations of an ecological, man-caused and social nature in peacetime and wartime, he/she acts in accordance with the available knowledge, experience, instructions and recommendations; he/she is able to provide first aid to victims.	**To know**: Knows the methodology for identifying potentially dangerous problems of an extraordinary nature for nature and society both in peacetime and in conditions of threat or outbreak of a military conflict, a terrorist act. **Be able** to: He/she is able to render first aid to victims of household and industrial injuries, the use of weapons before the arrival of the called rescue service. **To possess**: When emergency circumstances are identified, he/she acts taking into account the specific situation in accordance with the available instructions and recommendations to preserve nature, human life and the stable development of the society.
PC-4 He/she is able to participate in monitoring the quality, effectiveness and safety of pharmaceutical products and medicinal plant raw materials	PC-4.4 He/she conducts pharmacognostic analysis of medicinal plant raw materials and herbal medicinal products	To know: fundamentals of plant ecology, phytocenology, plant geography. To be able to: conduct a geobotanical description of phytocenoses; collect and herbalize plants. To possess: methods of describing phytocenoses and vegetation, collecting plants

		and their herbarization.

4. The place of practical training in the structure of the educational program of higher education

Field practice is included in Block 2 "Practical Training", "The part formed by the participants of educational relations". Practical training is an integral part of the botany course for successful consolidation of acquired theoretical knowledge with practical skills. When passing practical training, the knowledge, skills and abilities formed during mastering the academic disciplines of the EP "Botany" are used.

For successful completion of field practice, the student must:

Know:

- elements of plant morphology;
- fundamentals of systematics of prokaryotes, mushrooms, plants;
- fundamentals of plant ecology, phytocenology, plant geography.
- diagnostic signs used to determine raw materials.

Be able to:

- to carry out morphological analysis of vegetative and reproductive organs of plants;
- identify diagnostic signs of plants;
- conduct a geobotanical description of phytocenoses;
- collect and herbalize plants.
- carry out anatomical and morphological description and determination of plants by determinants;
- identify diagnostic signs of plant families;

Possess:

- methods of describing phytocenoses and vegetation;
- collection of plants and their herbarization.
- methods of plant examination in order to diagnose medicinal plants and their related substances.

The knowledge, skills and abilities acquired as a result of passing field practice are used to study the following academic disciplines and practices of this educational program of higher education: "Pharmacognosy", educational practice (practice in pharmacognosy).

5. Place and time frame of practical training

Organization of educational field practice in botany is carried out on the basis of contracts with organizations whose activities are in line with the professional competencies mastered within the framework of this educational program of higher education. The practical training is conducted on the basis of organizations and enterprises that have a botanical garden or a pharmacy garden. The practical training can also be carried out directly at the university. The practical training provides excursions to various plant communities.

Places of practical training can be:

- specialized research and educational organizations.

Practical training for students with disabilities and physical conditions is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

The practical training is held in the 2nd semester. The total duration of the practical training is 2 weeks.

The form of practical training attestation is a credit test with a mark (graded credit). According to the results of the credit test, the student can be rated as "excellent", "good", "satisfactory" and "failing".

6. **Structure and content of practical training.**

In accordance with the curriculum for mastering the practice program, the curriculum provides 3 credit points/ 108 academic hours.

7. Practice reporting form

The form of practical training attestation is a credit test with a mark (graded credit). According to the results of the credit test, the student can be rated as "excellent", "good", "satisfactory" and "failing".

ANNOTATION to the
working program of practice

Practical training (pharmaceutical propaedeutical practice)

1. Purposes and objectives of training when passing the practical training

Academic training (pharmaceutical propaedeutic practice) is conducted in order to obtain general ideas about future activities in the specialty 33.05.01 Pharmacy, the system of organizing pharmaceutical assistance to the population and medical and preventive treatment institutions (MPIs), to form in students the concepts of the need to carry out pharmaceutical activities, taking into account moral, legal and legislative norms, the requirements of regulatory documents in the field of healthcare and medicinal product (drugs) lifecycle, to study the fundamental pharmaceutical terminology, to orient students to conscientious study of specialized and non-core disciplines.

The objectives of pharmaceutical propaedeutic practical training is general acquaintance with:

- activities of pharmaceutical organizations operating in the market of pharmaceutical products – pharmacies, pharmaceutical warehouse, certification and quality control center for pharmaceutical products (control and analytical laboratory) – in the field of performing their social, industrial, commercial, financial, economic, medical and information functions;
- the organizational structure of pharmaceutical organizations, composition of premises, equipment and layout of workplaces, personnel;
- organization in the pharmacy of the process of receiving prescriptions and requirements of medical facilities, manufacture and dispensing pharmaceutical products;
- quality assurance system of pharmaceutical products: intrapharmacy and external control;
- organization of pharmacy work with stocks of pharmacy assortment goods;
- requirements of the sanitary regime for premises and equipment, personnel, manufacture of dosage forms;
- organization of the work of the pharmacy's administrative and managerial staff;
- internal labor regulations;
- organization of work on labor protection and safety regulations.

2. Mode and type of practical training, method and forms of its implementation

Type of practical training - pharmaceutical propaedeutical practice

The practice is conducted in the form of practical training in accordance with the academic schedule and curriculum.

Method of practical training: stationary.

The form of practice - discrete by type of practice - by allocating a continuous period of training time in the calendar training schedule for each type (set of types) of practice.

Practical training during the practice is organized by performing certain work types related to the students' future professional activities.

Students who combine training with labour activity have the right to pass practical training at the place of their labour activity in cases where the professional activity carried out by them meets the requirements of the educational program for practical training.

To guide the practice carried out in specialized university departments, the head of the practice is appointed from among the persons belonging to the teaching staff of the department responsible for implementing the educational program (hereinafter referred to as the EP). To guide the practice conducted in a relevant organization, the head of the practice is appointed from among the persons belonging to the teaching staff of the department responsible for implementing the EP, and the head (heads) of the practice from among the employees of the relevant organization. The student's referral to practical training is issued in the form of a student-trainee's permit (Appendix 1).

Practical training for students with disabilities and physical conditions is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

3. Planned learning outcomes during passing the practical training, correlated with the results of uptaking the educational program.

Conducting practical training, taking into account the direction (profile), is aimed at forming in specialists in accordance with the goals of the main educational program and the tasks of future professional activity, the following professional competencies:

As a result of the passing practical training, the student must:

Code and name of the competence	Code and name of the competence achievement indicator	Planned learning outcomes
AC-6 He/she is able to determine and implement priorities for his (her) own activities and ways to improve them based on self-assessment and lifelong education	AC-6.2 Chooses the ways and implements them to improve activities based on self-assessment, education, and social needs	**Know:** -opportunities of the socio-cultural environment of an educational organization; -methods of effective time planning; -potential strengths and weaknesses of a personality; -effective ways of self-learning; -criteria for evaluating the success of an individual. **Be able to:** - make long-term and short-term plans; -organize his (her) time; -plan his (her) professional trajectory; -plan his (her) life activities for the period of study in an educational organization; -identify obstacles that prevent him (her)from achieving success; -evaluate his (her) competitiveness. **Possess:** -methods of effective time planning; -self-learning methods; -self-assessment methods.
UK-8 - He/she is able to create and maintain safe living conditions in everyday life and in professional activities to preserve sustainable development of society, including in the event of a threat and advent of emergencies and military	AC-8.1 Identifies and analyzes natural and man-made factors of harmful influence on the environment, social life and professional activity, and brings information to the responsible authorities.	**To know**: General principles of identifying and analysis of natural and man-caused factors affecting the physical and social environment in everyday life and professional activities to preserve the natural environment and sustainable development of the society. **To be able** to: able to organize interaction with responsible authorities in extraordinary natural and man-caused conditions, in case of threat of using weapons to preserve the natural environment and stability in the society. **To possess**: Has experience of social behavior and professional activity, taking into account possible factors of harmful influence of natural and man-caused character, terrorist and military threat.
	AC-8.2 He/she creates and maintains safe living conditions and professional	**To know**: Knows the standards and requirements for maintaining safe conditions in daily life and professional activity to preserve nature and sustainable development of the society in peacetime, in conditions of threat and advent of a military conflict, a terrorist action.

conflicts	activities, complies with safety rules, including in the event of a threat and advent of a military conflict.	**Be able** to: Complies with safety rules in everyday life and professional activities. **To possess**: Creates safe conditions for life and professional activity for himself/herself and other people in peacetime and in emergency situations.
	AC-8.3 In case of emergency situations of an ecological, man-caused and social nature in peacetime and wartime, he/she acts in accordance with the available knowledge, experience, instructions and recommendations; he/she is able to provide first aid to victims.	**To know**: Knows the methodology for identifying potentially dangerous problems of an extraordinary nature for nature and society both in peacetime and in conditions of threat or outbreak of a military conflict, a terrorist act. **Be able to**: He/she is able to render first aid to victims of household and industrial injuries, the use of weapons before the arrival of the called rescue service. **To possess**: When emergency circumstances are identified, he/she acts taking into account the specific situation in accordance with the available instructions and recommendations to preserve nature, human life and the stable development of the society.
GPC-3 He/she is able to carry out professional activities taking into account specific economic, environmental, and social factors within the framework of regulatory environment in the sphere of medicinal products circulation	GPC-3.1 He/she complies with the rules and regulations established by the authorized state authorities when solving the tasks of professional activity in the field of medicinal products circulation	**Know:** -a modern assortment of medicinal drugs and pharmacy products in various pharmacological groups, their characteristics, medical indications and method of use, contraindications, side effects, synonyms and analogues, storage conditions. **Be able to:** -to monitor the knowledge of target groups on new medicinal drugs and other pharmacy products. **Possess:** - dispensing medicinal drugs and other pharmacy products.
PC-1 He/she is able to manufacture pharmaceutical products and take part in the manufacturing technology of finished products	PC-1.1 He/she carries out measures to prepare the workplace, technological equipment, medicinal substances and excipients for	**Know:** -requirements of labor protection, fire safety, operational procedures in emergency situations; -regulatory legal acts on the manufacture of dosage forms and intrapharmacy control; -physico-chemical and organoleptic properties of pharmaceutical products, their physical, chemical and pharmacological compatibility; -the nomenclature of modern medicinal substances and excipients, their properties, purpose;

	manufacturing medicinal drugs in accordance with prescriptions and (or) requirements	-rules for the use of personal protective equipment. **Be able to:** -interpret the provisions of regulatory legal acts regulating the circulation of pharmaceutical products and pharmacy assortment goods; -register data on manufactured medicinal drugs; -independently plan and organize his (her) production activities and effectively regulate his (her) time; -use laboratory and technological equipment; - use the personal protective equipment **Possess:** -methods of registering data on the manufacture of medicinal drugs; -methods of conducting strict record keeping and storage of certain groups of pharmaceutical products and other substances subject to such accounting. -skills of dosing by weight solid, liquid and viscous medicinal substances with the help of pharmacy scales, liquid preparations by volume.

4. The place of practical training in the structure of the educational program of higher education

Academic training (pharmaceutical propaedeutic practice) is included in Block 2. "Practical Training", "Mandatory part" and is based on the disciplines: "Psychology and Pedagogy", "Jurisprudence", "Sanitary and Hygienic Aspects of Pharmaceutical Science".

For successful completion of practical training, the student must:

Know: the basics of sanitary and hygienic requirements for pharmacies

Be able to: observe sanitary and hygienic standards when being in a pharmacy

Possess: personal hygiene skills

The knowledge, skills and abilities acquired as a result of practical training are used to study the following academic disciplines and practices of the higher education educational program: "Pharmacy Management and Economics", "Pharmaceutical Technology", "Practice in General Pharmaceutical Technology", "Practice in Management and Economics of Pharmaceutical Organizations", "Practice in Quality Control Pharmaceutical Products", "Practice in Pharmaceutical Consulting and Information", "Practice in Pharmaceutical Technology".

5. Place and time frame of practical training

Organization of academic training in botany is carried out on the basis of contracts with organizations whose activities are in line with the professional competencies mastered within the framework of this educational program of higher education. The practical training is conducted on the basis of organizations and enterprises engaged in pharmaceutical activities. The practical training can also be conducted directly at the university.

Practical training for students with disabilities and physical conditions is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

The academic training is provided by the educational program and the working curriculum in the 5th semester on completing the session. To master the practice program, the curriculum provides 3 credit points / 108 academic hours The duration of the practical training is 2 weeks.

The form of practical training attestation is a credit test with a mark (graded credit). According to the results of the credit test, the student can be rated as "excellent", "good", "satisfactory" and "failing".

6. Structure and content of practical training.

In accordance with the curriculum for mastering the practice program, the curriculum provides 3 credit points/ 108 academic hours.

7. Practice reporting form

The form of practical training attestation is a credit test with a mark (graded credit). According to the results of the credit test, the student can be rated as "excellent", "good", "satisfactory" and "failing".

ANNOTATION to the
working program of practice
Practical training
(practice of rendering first aid)

1. Purposes and objectives of training when passing the practical training

The academic training (practice in rendering first aid) is carried out in order to obtain general ideas about future activities in the specialty 33.05.01 Pharmacy, the system of organizing pharmaceutical assistance to the population and medical institutions (MPIs), consolidation, expansion and deepening the theoretical and practical knowledge of the skills and abilities acquired by students earlier when studying the disciplines of the curriculum; acquisition of primary professional skills by the students.

The tasks of the practical training in rendering first aid are:

- development of the ability to behave safely in emergency situations of a natural and man-caused nature.

- students' training to provide assistance to victims in emergency situations in the form of self-help and mutual assistance.

- introducing students with modern views on the principles of providing pre-medical care in emergency situations of war and peacetime.

- introducing students with the work of functional medical and diagnostic departments of a municipal multidisciplinary hospital.

2. Mode, type of practical training, method and forms of its implementation

Type of practical training - practice in rendering first aid

The practice is conducted in the form of practical training in accordance with the academic schedule and curriculum.

Method of practical training: stationary.

The form of practice - discrete by type of practice - by allocating a continuous period of training time in the calendar training schedule for each type (set of types) of practice.

Practical training during the practice is organized by performing certain work types related to the students' future professional activities.

Students who combine training with labour activity have the right to pass practical training at the place of their labour activity in cases where the professional activity carried out by them meets the requirements of the educational program for practical training.

To guide the practice carried out in specialized university departments, the head of the practice is appointed from among the persons belonging to the teaching staff of the department responsible for implementing the educational program (hereinafter referred to as the EP). To guide the practice conducted in a relevant organization, the head of the practice is appointed from among the persons belonging to the teaching staff of the department responsible for implementing the EP, and the head (heads) of the practice from among the employees of the relevant organization. The student's referral to practical training is issued in the form of a student-trainee's permit.

3. Planned learning outcomes during passing the practical training, correlated with the results of uptaking the educational program.

Conducting practical training, taking into account the direction (profile), is aimed at forming in specialists in accordance with the goals of the main educational program and the tasks of future professional activity, the following professional competencies:

As a result of the passing practical training, the student must:

Code and name of the competence	Code and name of the competence achievement indicator	Planned learning outcomes
UK-8 - He/she is	AC-8.1 Identifies and	**To know**: General principles of identifying

able to create and maintain safe living conditions in everyday life and in professional activities to preserve sustainable development of society, including in the event of a threat and advent of emergencies and military conflicts	analyzes natural and man-made factors of harmful influence on the environment, social life and professional activity, and brings information to the responsible authorities.	and analysis of natural and man-caused factors affecting the physical and social environment in everyday life and professional activities to preserve the natural environment and sustainable development of the society. **To be able** to: able to organize interaction with responsible authorities in extraordinary natural and man-caused conditions, in case of threat of using weapons to preserve the natural environment and stability in the society. **To possess**: Has experience of social behavior and professional activity, taking into account possible factors of harmful influence of natural and man-caused character, terrorist and military threat.
	AC-8.2 He/she creates and maintains safe living conditions and professional activities, complies with safety rules, including in the event of a threat and advent of a military conflict.	**To know**: Knows the standards and requirements for maintaining safe conditions in daily life and professional activity to preserve nature and sustainable development of the society in peacetime, in conditions of threat and advent of a military conflict, a terrorist action. **Be able** to: Complies with safety rules in everyday life and professional activities. **To possess**: Creates safe conditions for life and professional activity for himself/herself and other people in peacetime and in emergency situations.
	AC-8.3 In case of emergency situations of an ecological, man-caused and social nature in peacetime and wartime, he/she acts in accordance with the available knowledge, experience, instructions and recommendations; he/she is able to provide first aid to victims.	**To know**: Knows the methodology for identifying potentially dangerous problems of an extraordinary nature for nature and society both in peacetime and in conditions of threat or outbreak of a military conflict, a terrorist act. **Be able to**: He/she is able to render first aid to victims of household and industrial injuries, the use of weapons before the arrival of the called rescue service. **To possess**: When emergency circumstances are identified, he/she acts taking into account the specific situation in accordance with the available instructions and recommendations to preserve nature, human life and the stable development of the society.
GPC-5: He/she is able to provide first aid in the territory of a pharmaceutical	GPC-5.1: He/she establishes the onset of an emergency condition in a pharmacy visitor, which requires	Know: 1. medical forces and means designed to provide medical assistance to the affected population in emergency situations;

organization in case of emergency conditions in visitors before the arrival of an ambulance team	rendering first aid, including when exposed to chemical terrorism agents and hazardous chemicals	2. fundamentals of organizing medical evacuation measures in emergency situations; 3. ways and means of protecting the population, patients, medical personnel and property of pharmacy institutions in emergency situations; 4. fundamentals of providing various types of medical care to the affected population; 5. fundamentals of organizing and implementing the sanitary and anti-epidemic measures in emergency situations; 6. fundamentals of organizing medical supply of units and institutions designed to eliminate the consequences of an emergency; 7. fundamentals of organizing and conducting special treatment of the population and territory; 8. radiation damage as a result of external and internal irradiation; 10. the order of interaction of medical units and institutions in eliminating the consequences in affected areas; 11. goals and objectives of healthcare mobilization training; 12. regulatory and legal bases of healthcare mobilization training; 13. tasks and organizational structure of special healthcare units. Be able to: 1. temporarily stop bleeding 2. treat wounds, apply bandages, carry out transport immobilization, ensure the transportation of the injured and seriously ill patients 3. use medical protective equipment; 4. to carry out sanitary and hygienic and anti-epidemic measures in the affected areas; 5. use oxygen inhalers and artificial lung ventilation devices in emergency situations; 6. assess the chemical and radiation situation; 7. use medical and other types of property that are provided by units and institutions of the disaster medical service. Possess: 1. methods of providing medical assistance to the victims in the affected areas of an emergency;

		2. elements of general anesthesia used at the prehospital stage. 3. methods of assessing the medical and tactical characteristics of affected areas; 4. methods of radiation and chemical reconnaissance and control; 5. means for carrying out oxygen therapy and ALV in the field; 6. basic technical means of individual and medical protection. 7. methods of transport immobilization
	GPC-5.2: He/she conducts first aid activities for visitors in emergency situations before the arrival of the ambulance team	Know: 1. etiology, pathogenesis, the main clinical signs of life-threatening conditions, injuries, the most common diseases. 2. deontological principles of providing first aid 3. modern methods, means, methods of carrying out medical measures when providing first aid to patients / victims Be able to: 1. carry out resuscitation measures (artificial respiration, indirect heart massage; eliminate mechanical asphyxia, carry out oxygen inhalation) 2. temporarily stop bleeding 2. treat wounds, apply bandages, carry out transport immobilization, ensure the transportation of the injured and seriously ill patients Possess: 1. elements of general anesthesia used at the prehospital stage. 2. aspiration of fluid from the respiratory tract by oro- and nasotracheal methods; 3. artificial lung ventilation without apparatuses; 4. closed-chest cardiac massage; 7. gastric lavage; 8. methods of temporary stopping of bleeding; 9. transport immobilization; 10. applying bandages; 11. applying an occlusive dressing for chest injury. 12. the Heimlich technique when choking with foreign objects 13. methods of physical impact in high-temperature and low-temperature injuries.
	GPC-5.3: He/she uses medical means of protection, prevention, rendering	Know: 1. medical forces and means designed to provide medical assistance to the affected

	medical care and treatment of affections with toxic substances of various nature, radioactive substances and biological agents	population in emergency situations; 2. fundamentals of organizing medical evacuation measures in emergency situations; 3. ways and means of protecting the population, patients, medical personnel and property of pharmacy institutions in emergency situations; 4. fundamentals of providing various types of medical care to the affected population; 5. fundamentals of organizing and implementing the sanitary and anti-epidemic measures in emergency situations; 6. fundamentals of organizing medical supply of units and institutions designed to eliminate the consequences of an emergency; 7. fundamentals of organizing and conducting special treatment of the population and territory; 8. radiation damage as a result of external and internal irradiation; 10. the order of interaction of medical units and institutions in eliminating the consequences in affected areas; 11. goals and objectives of healthcare mobilization training; 12. regulatory and legal bases of healthcare mobilization training; 13. tasks and organizational structure of special healthcare units. 14. goals, objectives and basic concepts of toxicology and medical protection; 15. characteristics of chemical and radiation affected areas; 16. fundamentals of chemical and radiation situation assessment; 17. pathology, clinical presentation and treatment of damage caused by toxic chemical agents (TCAs) and ionizing radiation; 18. personal protective equipment against RSs, TCAs and their physiological and hygienic assessment; 19. medical means of prevention and providing medical care for the affected by ionizing radiation of TCAs. Be able to: 1. temporarily stop bleeding 2. treat wounds, apply bandages, carry out transport immobilization, ensure the

		transportation of the injured and seriously ill patients 3. use medical protective equipment; 4. to carry out sanitary and hygienic and anti-epidemic measures in the affected areas; 5. use oxygen inhalers and artificial lung ventilation devices in emergency situations; 6. assess the chemical and radiation situation; 7. use medical and other types of property that are provided by units and institutions of the disaster medical service. Possess: 1. methods of providing medical assistance to the victims in the affected areas of an emergency; 2. elements of general anesthesia used at the prehospital stage. 3. methods of assessing the medical and tactical characteristics of affected areas; 4. methods of radiation and chemical reconnaissance and control; 5. means for carrying out oxygen therapy and ALV in the field; 6. basic technical means of individual and medical protection. 7. methods of transport immobilization 8 . methods of assessing the chemical situation 9. methods of providing first aid in case of poisoning with TCAs

4. The place of practical training in the structure of the educational program of higher education

The academic training (practice in rendering first aid) is included in Block 2. "Practical training", "Mandatory part" and is based on the discipline "First Premedical Aid".

For successful completion of practical training, the student must:

Know:

methods of providing first aid to victims in emergency conditions before the arrival of the ambulance team.

theoretical foundations of medical knowledge; fundamentals of physiology and rational conditions of human activity;

anatomical and physiological consequences of human exposure to traumatic, harmful and damaging factors;

methods of studying the body's condition;

methods for predicting health effects;

organizing and maintaining a healthy lifestyle;

Be able to:

temporarily stop bleeding

treat wounds, apply bandages, carry out transport immobilization, ensure the transportation of the injured and seriously ill patients

use medical protective equipment;

to carry out sanitary and hygienic and anti-epidemic measures in the affected areas;

use oxygen inhalers and artificial lung ventilation devices in emergency situations;

assess the chemical and radiation situation;

use medical and other types of property that are provided by units and institutions of the disaster medical service.

Possess:

methods of providing medical assistance to the victims in the affected areas of an emergency;

elements of general anesthesia used at the prehospital stage.

methods of assessing the medical and tactical characteristics of affected areas;

methods of radiation and chemical reconnaissance and control;

means for carrying out oxygen therapy and ALV in the field;

basic technical means of individual and medical protection.

transport immobilization

The knowledge, skills and abilities acquired as a result of practical training are used to study the following academic disciplines and practices: "Emergency Medicine"

5. Place and time frame of practical training

Organization of academic training (practice in providing first aid) is carried out on the basis of contracts with organizations whose activities are in line with the professional competencies mastered within the framework of this educational program of higher education. The practical training is conducted on the basis of organizations and enterprises engaged in pharmaceutical activities. The practical training can also be conducted directly at the university.

Practical training for students with disabilities and physical conditions is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

The academic training is provided by the educational program and the working curriculum in the 4th semester at the end of the session. To master the practice program, the curriculum provides 3 credit points/ 108 academic hours including 2 hours are provided for contact (individual) work, 80 hours for practical training. The duration of the practical training is 2 weeks.

The form of practical training attestation is a credit test with a mark (graded credit). According to the results of the credit test, the student can be rated as "excellent", "good", "satisfactory" and "failing".

6. Structure and content of practical training.

In accordance with the curriculum for mastering the practical training program, the curriculum provides3 credit points/ 108 academic hours including 2 hours are provided for contact (individual) work, 80 hours for practical training.

7. Practice reporting form

The form of practical training attestation is a credit test with a mark (graded credit). According to the results of the credit test, the student can be rated as "excellent", "good", "satisfactory" and "failing".

ANNOTATION to the
working program of practice
Practical training
(practice in pharmacognosy)

1. Purpose and objectives of training when passing the practical training

The academic training (practice in pharmacognosy) is carried out in order to consolidate, deepen, expand and practically improve the theoretical knowledge gained in the process of studying "Pharmacognosy" in a natural environment, students' acquisition of primary professional skills in relation to the methodology for determining stocks of medicinal plant raw materials and its compounding.

Practical training's objectives:

- introducing to medicinal plants in a natural setting;
- mastering the methodology for assessing stocks of medicinal plant raw materials;
- acquisition of practical skills in harvesting medicinal plant raw materials, taking into account the rational use of plant resources;
- mastering the basic techniques of cultivating medicinal plants;
- development of skills in promoting knowledge about medicinal plants to strengthen the importance of values such as human health.

2. 2. Mode and type of practical training, method and forms of its implementation

Type of practical training - practice in pharmacognosy

The practice is conducted in the form of practical training in accordance with the academic schedule and curriculum.

Method of practical training - extra-mural, stationary.

The form of practice - discrete by type of practice - by allocating a continuous period of training time in the calendar training schedule for each type (set of types) of practice.

Practical training during the practice is organized by performing certain work types related to the students' future professional activities.

Students who combine training with labour activity have the right to pass practical training at the place of their labour activity in cases where the professional activity carried out by them meets the requirements of the educational program for practical training.

To guide the practice carried out in specialized university departments, the head of the practice is appointed from among the persons belonging to the teaching staff of the department responsible for implementing the educational program (hereinafter referred to as the EP). To guide the practice conducted in a relevant organization, the head of the practice is appointed from among the persons belonging to the teaching staff of the department responsible for implementing the EP, and the head (heads) of the practice from among the employees of the relevant organization. The student's referral to practical training is issued in the form of a student-trainee's permit.

Practical training for students with disabilities and physical conditions is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

3. Planned learning outcomes during passing the practical training, correlated with the results of uptaking the educational program.

Conducting academic training, taking into account the direction (profile), is aimed at forming in specialists in accordance with the goals of the main educational program and the tasks of future professional activity, the following professional competencies:

As a result of the passing practical training, the student must:

Code and name of the competence	Code and name of the competence achievement indicator	Planned learning outcomes
AC-8 He/she is able to create and maintain safe living	AC-8.1 Identifies and analyzes natural and man-	To know the basic provisions of technosphere safety about the

conditions, including in the event of emergencies	caused factors of harmful influence on the environment, social life and professional activity, and brings information to the responsible authorities	impact area of dangerous and harmful production factors. Be able to analyze natural and man-caused factors of harmful effects on the environment Master the techniques of identifying and measuring the levels and concentration of negative impact factors on the environment, social life and professional activity, brings information to the responsible authorities.
	AC-8.2 He/she creates and maintains safe conditions of living and professional activities, complies with safety rules	Know the basic requirements of industrial safety, environmental safety, labor protection. Be able to maintain safe conditions of living and professional activities, comply with safety rules Possess the techniques and methods for calculating the effectiveness of protection systems against negative impact factors.
	AC-8.3 In case of emergency situations, he (she) acts in accordance with the available knowledge, experience, instructions and recommendations; he (she) is able to provide first aid to victims	Know the basic provisions of industrial safety and protection of the population in emergency situations. Be able to provide first aid to the victim of negative impact factors. Master the basic methods of actions in case of emergency situations in accordance with the available knowledge, experience, instructions and recommendations.
GPC-1 He/she is able to use basic biological, physico-chemical, chemical, mathematical methods for the development, study and examination of pharmaceutical products, manufacturing medicinal drugs	GPC-1.1 He/she applies basic biological methods of analysis for the development, study and examination of pharmaceutical products and medicinal plant raw materials	**To know**: basic concepts of biology, botany, human anatomy and physiology, biological chemistry; basic methods of studying plants; characteristic features of botanical families including medicinal plants. **Be able to:** work with a microscope and binoculars, make temporary preparations of plant tissues and organs and orientate in anatomical structures; understand the morphological characteristics of plants. **Possess:** the skills of determining the species of plants by determinants, methods of plant study for the purpose of diagnosing medicinal plants and their

		impurities; methods of qualitative and quantitative analysis of chemicals.
GPC-1 He/she is able to use basic biological, physico-chemical, chemical, mathematical methods for the development, study and examination of pharmaceutical products, manufacturing medicinal drugs	GPC-1.2 He/she applies basic physical-chemical and chemical analysis methods for the development, study and examination of pharmaceutical products, medicinal plant raw materials and biological objects	**To know** the main groups of biologically active compounds of natural origin and their most important physical and chemical properties, the ways of biosynthesis of the main groups of biologically active substances **Be able** to carry out qualitative and microchemical reactions to the main biologically active substances contained in medicinal plants and raw materials (polysaccharides, fatty and essential oils, vitamins, cardiac glycosides, saponins, anthracene derivatives, coumarins, flavonoids, tannins, alkaloids, etc.) **Master** the technique of conducting qualitative and microchemical reactions to the main biologically active substances contained in medicinal plants and raw materials (polysaccharides, essential oils, vitamins, cardiac glycosides, saponins, anthracene derivatives, coumarins, flavonoids, tannins, alkaloids, etc.)
PC-4 He/she is able to participate in monitoring the quality, effectiveness and safety of pharmaceutical products and medicinal plant raw materials	PC-4.4 He/she performs pharmacognostic analysis of medicinal plant raw materials and medicinal plant preparations	**To know**: basic concepts of biology, botany, human anatomy and physiology, biological chemistry; basic methods of studying plants; characteristic features of botanical families including medicinal plants. **Be able to**: work with a microscope and binoculars, make temporary preparations of plant tissues and organs and orientate in anatomical structures; understand the morphological characteristics of plants. **Possess**: the skills of determining the species of plants by determinants, methods of plant study for the purpose of diagnosing medicinal plants and their impurities; methods of qualitative and quantitative analysis of chemicals.

4. The place of practical training in the structure of the educational program of higher education

The academic training (practice in pharmacognosy) is included in Block 2. "Practical Training", "Mandatory part" and is based on the disciplines of the educational program of higher education in the specialty 33.05.01 "Pharmacy" direction (profile) of the specialty program "Organization and Conduct of Pharmaceutical Activities", namely: "The Latin language", "Physical and Colloidal Chemistry", "Biology", "General and Inorganic Chemistry", "Microbiology", "Botany", "Analytical Chemistry and Physico-Chemical Methods of Analysis", "Organic Chemistry", "Bio-Organic Chemistry", "Biological Chemistry and Chemical Foundations of Life", "Pharmaceutical Chemistry", "Fundamentals of Medical Chemistry", "Pharmacognosy", "Academic Training (field practice in botany)".

For successful completion of practical training, the student must:

To know the nomenclature of medicinal plant raw materials and pharmaceutical products of plant and animal origin approved for use in medical practice, the main methods of qualitative and quantitative determination of biologically active substances in medicinal plant raw materials, biological standardization of medicinal plant raw materials, requirements for packaging, labeling, transportation and storage of medicinal plant raw materials in accordance with the regulatory documentation.

Be able to analyze medicinal plant raw materials for the content of fatty and essential oils, cardiac glycosides, saponins, alkaloids, anthracene derivatives, tannins, phenylpropanoids, flavonoids, coumarins, vitamins, etc. according to quantitative determination methods provided for by the relevant regulatory documentation.

Possess the skills of determining the species of plants by determinants, methods of plant study for the purpose of diagnosing medicinal plants and their impurities; methods of qualitative and quantitative analysis of chemicals.

The knowledge, skills and abilities acquired as a result of passing the practical training are used to study subsequent academic disciplines and practices of the educational program of higher education: "Biotechnology", "Biological Chemistry and Chemical Foundations of Life", "Pharmaceutical Chemistry", "Toxicological Chemistry".

5. Place and time frame of practical training

Organization of academic training (practice in pharmacognosy) is carried out on the basis of contracts with organizations whose activities are in line with the professional competencies mastered within the framework of this educational program of higher education. The practical training is conducted on the basis of organizations and enterprises engaged in pharmaceutical activities or specializing in cultivation / collection of medicinal plants. The practical training can also be conducted directly at the university.

Practical training for students with disabilities and physical conditions is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

The academic training is provided by the educational program and the working curriculum in the 6th semester on completing the session. To master the practical training program, the curriculum provides 3 credit points/ 108 academic hours including 2 hours are provided for contact (individual) work, 80 hours for practical training. The duration of the practical training is 2 weeks.

The form of practical training attestation is a credit test with a mark (graded credit). According to the results of the credit test, the student can be rated as "excellent", "good", "satisfactory" and "failing".

6. Structure and content of practical training.

In accordance with the curriculum for mastering the practical training program, the curriculum provides 3 credit points/ 108 academic hours including 2 hours are provided for contact (individual) work, 80 hours for practical training.

7. Practice reporting form

The form of practical training attestation is a credit test with a mark (graded credit). According to the results of the credit test, the student can be rated as "excellent", "good", "satisfactory" and "failing".

ANNOTATION to the
working program of practice

academic training (practice in general pharmaceutical technology)

1. Purposes and objectives of training when passing the practical training

The purpose of the academic training (practice in general pharmaceutical technology) is the development and consolidation of practical skills in manufacturing and evaluating the quality of medicinal drugs; adaptation of future specialists to the working conditions of pharmacies; education in students of labor discipline, deontological norms of behavior and professional responsibility; development of social work skills.

The objectives of the academic training (practice in general pharmaceutical technology) are to consolidate knowledge on:

- theoretical foundations for obtaining various pharmaceutical forms, including modern biopharmaceutical concept;
- the main trends in the development of pharmaceutical technologies, new directions in creating modern pharmaceutical forms and therapeutic systems;
- organization of the manufacturing process of finished pharmaceutical products in accordance with the approved regulatory documents;
- assessment of the quality of raw materials, semi-finished products and finished pharmaceutical products;
- the choice of optimal excipients, a rational method for obtaining a medicinal drug, technology and equipment;
- work with scientific literature, analysis of the information received.

2. Mode and type of practical training, method and forms of its implementation

Type of practical training - practice in general pharmaceutical technology

The practice is conducted in the form of practical training in accordance with the academic schedule and curriculum.

Method of practical training: stationary.

The form of practice - discrete by type of practice - by allocating a continuous period of training time in the calendar training schedule for each type (set of types) of practice.

Practical training during the practice is organized by performing certain work types related to the students' future professional activities.

Students who combine training with labour activity have the right to pass practical training at the place of their labour activity in cases where the professional activity carried out by them meets the requirements of the educational program for practical training.

To guide the practice carried out in specialized university departments, the head of the practice is appointed from among the persons belonging to the teaching staff of the department responsible for implementing the educational program (hereinafter referred to as the EP). To guide the practice conducted in a relevant organization, the head of the practice is appointed from among the persons belonging to the teaching staff of the department responsible for implementing the EP, and the head (heads) of the practice from among the employees of the relevant organization. The student's referral to practical training is issued in the form of a student-trainee's permit.

Practical training for students with disabilities and physical conditions is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

3. Planned learning outcomes during passing the practical training, correlated with the results of uptaking the educational program.

Conducting academic training, taking into account the direction (profile), is aimed at forming in specialists in accordance with the goals of the main educational program and the tasks of future professional activity, the following professional competencies:

Table 1

As a result of the passing practical training, the student must:

Code and name of the competence	Code and name of the competence achievement indicator	Planned learning outcomes
UK-8 - He/she is able to create and maintain safe living conditions in everyday life and in professional activities to preserve sustainable development of society, including in the event of a threat and advent of emergencies and military conflicts	AC-8.1 Identifies and analyzes natural and man-made factors of harmful influence on the environment, social life and professional activity, and brings information to the responsible authorities.	**To know**: General principles of identifying and analysis of natural and man-caused factors affecting the physical and social environment in everyday life and professional activities to preserve the natural environment and sustainable development of the society. **To be able** to: able to organize interaction with responsible authorities in extraordinary natural and man-caused conditions, in case of threat of using weapons to preserve the natural environment and stability in the society. **To possess**: Has experience of social behavior and professional activity, taking into account possible factors of harmful influence of natural and man-caused character, terrorist and military threat.
	AC-8.2 He/she creates and maintains safe living conditions and professional activities, complies with safety rules, including in the event of a threat and advent of a military conflict.	**To know**: Knows the standards and requirements for maintaining safe conditions in daily life and professional activity to preserve nature and sustainable development of the society in peacetime, in conditions of threat and advent of a military conflict, a terrorist action. **Be able** to: Complies with safety rules in everyday life and professional activities. **To possess**: Creates safe conditions for life and professional activity for himself/herself and other people in peacetime and in emergency situations.
	AC-8.3 In case of emergency situations of an ecological, man-caused and social nature in peacetime	**To know**: Knows the methodology for identifying potentially dangerous problems of an extraordinary nature for nature and

	and wartime, he/she acts in accordance with the available knowledge, experience, instructions and recommendations; he/she is able to provide first aid to victims.	society both in peacetime and in conditions of threat or outbreak of a military conflict, a terrorist act. **Be able to**: He/she is able to render first aid to victims of household and industrial injuries, the use of weapons before the arrival of the called rescue service. **To possess**: When emergency circumstances are identified, he/she acts taking into account the specific situation in accordance with the available instructions and recommendations to preserve nature, human life and the stable development of the society.
GPC-1 He/she is able to use basic biological, physico-chemical, chemical, mathematical methods for the development, study and examination of pharmaceutical products, manufacturing medicinal drugs	GPC-1.3 Applies basic methods of physical and chemical analysis in the manufacture of medicinal drugs	Know the basic methods of physical and chemical analysis in the manufacture of medicinal drugs. Be able to apply basic methods of physical and chemical analysis in the manufacture of medicinal drugs. Possess the basic methods of physical and chemical analysis in the manufacture of medicinal drugs.
GPC-3 He/she is able to carry out professional activities taking into account specific economic, environmental, and social factors within the framework of regulatory environment in the sphere of medicinal products circulation	GPC-3.3 He/she performs labor actions taking into account their impact on the environment, preventing the onset of environmental hazards	Know the main regulatory legal acts in the field of medicinal products circulation. Be able to carry out professional activities, taking into account specific economic, environmental, social factors. Master the methods of carrying out professional activities taking into account specific economic, environmental, and social factors within the framework of regulatory environment in the sphere of medicinal products circulation
GPC-3 He/she is able to carry out professional activities taking into account specific economic, environmental, and social factors within the framework of regulatory environment in the sphere of medicinal products circulation	GPC-3.4 He/she defines and interprets the main environmental indicators of the production environment condition in manufacturing pharmaceutical products	Know - ecological principles of using natural resources, environmental protection, the basics of ecological economics in the production of pharmaceutical products Be able to - make fundamental decisions to counteract negative processes in ecosystems; - work with all types of

		documentation on the environment and its characteristics Possess: - methods for determining the main indicators of the quality of the environment and the production environment in the manufacture of pharmaceutical products
PC-1 He/she is able to manufacture pharmaceutical products and take part in the manufacturing technology of finished products	PC-1.1 He/she carries out measures to prepare the workplace, technological equipment, medicinal substances and excipients for manufacturing medicinal drugs in accordance with prescriptions and (or) requirements	**Know** the regulatory legal acts on manufacturing pharmaceutical forms and intrapharmacy control; the rules for the manufacture of solid, liquid, soft, sterile and aseptic pharmaceutical forms. **Be able to** independently plan and organize his (her) production activities and effectively regulate his (her) time; **Possess** The skills for preparing for the manufacture of medicinal drugs according to prescriptions and requirements: performing necessary calculations, preparing the workplace, equipment and pharmaceutical products, selecting and preparing excipients, rational packaging.
PC-1 He/she is able to manufacture pharmaceutical products and take part in the manufacturing technology of finished products	PC-1.2 He/she manufactures pharmaceutical products, including when carrying out intrapharmacy procurement and serial production, in accordance with the established rules and taking into account compatibility of medicinal and auxiliary substances, controlling the quality at all stages of the technological process	**Know** the nomenclature of modern medicinal substances and excipients, their properties, administration; Physico-chemical and organoleptic properties of pharmaceutical products, their physical, chemical and pharmacological compatibility; **Be able to** Prepare all kinds of pharmaceutical forms. **Possess** The skills in the manufacture of medicinal drugs in accordance with the rules of manufacture and taking into account all stages of the technological process, quality control at the stages of the technological process.
PC-1 He/she is able to manufacture pharmaceutical products and take part in the manufacturing technology of finished products	PC-1.3 Packs, labels and (or) issues manufactured pharmaceutical products for dispensing	**Know** The requirements for the quality of pharmaceutical products, for labeling the pharmaceutical products and for documents confirming the quality of pharmaceutical products and other pharmacy products. **Be able to** Pack and draw up

		labeling of manufactured medicinal drugs. **Possess** The skills of packaging and labeling/registration of manufactured medicinal drugs.
PC-1 He/she is able to manufacture pharmaceutical products and take part in the manufacturing technology of finished products	PC-1.4 He/she registers data on the manufacture of medicinal drugs in accordance with the established procedure, including strict record keeping and storage of groups of pharmaceutical products and other substances subject to such accounting	**Know** The requirements for maintaining strict record keeping and storage of pharmaceutical products. **Be able to** Carry out strict record keeping and storage of pharmaceutical products and other substances in accordance with the legislation of the Russian Federation. Register data on manufactured medicinal drugs; **Possess** The skills for maintaining registration of data on the manufacture of medicinal drugs (filling out a written control passport, in case of using in its manufacture medicinal products that are subject to strict record keeping and storage, registration of the reverse side of the prescription). Conducting strict record keeping and storage of certain groups of pharmaceutical products and other substances subject to such record keeping.
PC-1 He/she is able to manufacture pharmaceutical products and take part in the manufacturing technology of finished products	PC-1.5 He/she manufactures medicinal drugs, including serial production, in the field conditions when providing assistance to the population in emergency situations	**Know** The sanitary and epidemiological requirements. Rules for the use of personal protective equipment. Requirements of labor protection, fire safety, operational procedures in emergency situations; **Be able to** Follow the rules of labor protection and safety, use personal protective equipment. **Possess** Skills in labor protection, fire safety.
PC-1 He/she is able to manufacture pharmaceutical products and take part in the manufacturing technology of finished products	PC-1.6 He/she performs selection of excipients for pharmaceutical forms taking into account the influence of biopharmaceutical factors	**Know** The nomenclature of modern excipients, their properties, administration. **Be able to** Select excipients in the development of pharmaceutical forms, taking into account the influence of biopharmaceutical factors, identify and prevent pharmaceutical incompatibilities **Possess** The skills of choosing the

		optimal technological process and preparing necessary technological equipment for the manufacture of medicinal drugs
PC-1 He/she is able to manufacture pharmaceutical products and take part in the manufacturing technology of finished products	PC-1.7 He/she calculates the amount of medicinal substances and adjuvants for the production of all types of modern pharmaceutical forms.	**Know** The calculation of the amount of medicinal substances and adjuvants for the production of all types of modern dosage forms. **Be able to** Calculate the total mass or volume of medicinal drugs, the amount of medicinal substances and excipients, therapeutic doses, draw up written control passports (WCP). **Possess** The skills of dosing by weight and by volume of solid, viscous and liquid medicinal substances and excipients.

4. The place of practical training in the structure of the educational program of higher education

The academic training (practice in pharmaceutical engineering) is included in Block 2. "Practical Training", "Mandatory part" The basic knowledge necessary for studying the discipline is formed when studying the disciplines: "Sanitary and Hygienic Aspects of Pharmacy", "Pharmaceutical Technology"; academic training (pharmaceutical propaedeutic practice).

For successful completion of practical training, the student must:

Know: the basic requirements for organizing the production activities of pharmaceutical organizations for the manufacture of pharmaceutical products;

sanitary requirements for the manufacture of pharmaceutical products in the conditions of pharmaceutical organizations.

Be able to: apply in practice the basic requirements for the manufacture of pharmaceutical products;

draw up documentation of the established sample for the manufacture, storage, registration and dispensing of medicines from the pharmacy.

Possess: legal documentation regulating the operation of a pharmacy for the manufacture of pharmaceutical products;

the procedure for conducting a pharmaceutical examination of prescriptions and requirements-waybills, dispensing pharmaceutical products to outpatients and inpatients.

The knowledge, skills and abilities acquired as a result of passing the practical training are used to study the following academic disciplines and practices: "Biotechnology"; industry-focused practical training (practical training in pharmaceutical technology).

5. Place and time frame of practical training

Organization of implementing the academic training (practice in pharmacognosy) is carried out on the basis of contracts with organizations whose activities are in line with the professional competencies mastered within the framework of this educational program of higher education. The practical training is conducted on the basis of organizations and enterprises engaged in medical and / or pharmaceutical activities in the field of manufacturing medicinal drugs. The practical training can also be conducted directly at the university.

Practical training for students with disabilities and physical conditions is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

The academic training is provided by the educational program and the working curriculum in the 8th semester on completing the session. To master the practice program, the curriculum provides 6 credit points / 216 academic hours The duration of the practical training is 4 weeks.

The form of practical training attestation is a credit test with a mark (graded credit). According to the results of the credit test, the student can be rated as "excellent", "good", "satisfactory" and "failing".

6. Structure and content of practical training.

In accordance with the curriculum for mastering the practice program, the curriculum provides 6 credit points/ 216 academic hours.

7. Practice reporting form

The form of practical training attestation is a credit test with a mark (graded credit). According to the results of the credit test, the student can be rated as "excellent", "good", "satisfactory" and "failing".

ANNOTATION to the
working program of practice
Industry-focused practical training
(practice in management and economics of pharmaceutical organizations)

1. Purpose and objectives of training when passing the practical training

Industry-focused practical training (practice in the management and economics of pharmaceutical organizations) is carried out with the aim of consolidating, deepening, expanding and practical use of theoretical knowledge gained in the process of studying various pharmaceutical disciplines, primarily "Management and Economics of Pharmacy", and acquiring skills and abilities in the field of industrial , commercial, entrepreneurial, economic, legal and informational activities in pharmacy enterprises with various organizational and legal forms.

Objectives of practical training: consolidation, deepening and expansion of theoretical knowledge, skills and abilities acquired by the students in the process of theoretical training; mastering professional and practical skills, production skills and modern technologies; introducing to and assimilation of the methodology and technology for solving professional problems; introducing to innovative, marketing and managerial activities of pharmacy enterprises (institutions); the study of social, legal, hygienic, psychological, psychophysical, technical, technological, economic and other aspects of professional activity.

2. 2. Mode and type of practical training, method and forms of its implementation

Type of industry-focused practical training - practice in management and economics of pharmaceutical organizations.

The practice is conducted in the form of practical training in accordance with the academic schedule and curriculum.

Method of practical training - extra-mural, stationary.

The form of practice - discrete by type of practice - by allocating a continuous period of training time in the calendar training schedule for each type (set of types) of practice.

Practical training during the practice is organized by performing certain work types related to the students' future professional activities.

Students who combine training with labour activity have the right to pass practical training at the place of their labour activity in cases where the professional activity carried out by them meets the requirements of the educational program for practical training.

To guide the practical training carried out in specialized university departments, the head of the practice is appointed from among the persons belonging to the teaching staff of the department responsible for implementing the educational program (hereinafter referred to as the EP). To guide the practical training conducted in a relevant organization, the head of the practice is appointed from among the persons belonging to the teaching staff of the department responsible for implementing the EP, and the head (heads) of the practical training from among the employees of the relevant organization. The student's referral to practical training is issued in the form of a student-trainee's permit (Appendix 1).

Practical training for students with disabilities and physical conditions is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

3. Planned learning outcomes during passing the practical training, correlated with the results of uptaking the educational program.

Conducting industry-focused practical training, taking into account the direction (profile), is aimed at forming in a specialist in accordance with the purposes of the main educational program and the tasks of future professional activity, the following professional competencies, as a result of mastering which the student must:

Competence code	Competence achievement indicator	Planned learning outcomes
AC-8 - He/she is able to create and maintain safe living conditions in everyday life and in professional activities to preserve sustainable development of society, including in the event of a threat and advent of emergencies and military conflicts	AC-8.1 Identifies and analyzes natural and man-caused factors of harmful influence on the environment, social life and professional activity, and brings information to the responsible authorities.	**Know**: General principles of identifying and analysis of natural and man-caused factors affecting the physical and social environment in everyday life and professional activities to preserve the natural environment and sustainable development of the society. **Be able to**: Able to organize interaction with responsible authorities in extraordinary natural and man-caused conditions, in case of threat of using weapons to preserve the natural environment and stability in the society. **Possess**: Has experience of social behavior and professional activity, taking into account possible factors of harmful influence of natural and man-caused character, terrorist and military threat.
	AC-8.2 He/she creates and maintains safe living conditions and professional activities, complies with safety rules, including in the event of a threat and advent of a military conflict.	**Know**: Knows the standards and requirements for maintaining safe conditions in daily life and professional activity to preserve nature and sustainable development of the society in peacetime, in conditions of threat and advent of a military conflict, a terrorist action. **Be able to**: Complies with safety rules in everyday life and professional activities. **Possess**: Creates safe conditions for life and professional activity for himself/herself and other people in peacetime and in emergency situations.
	AC-8.3 In case of emergency situations of an ecological, man-caused and social nature in peacetime and wartime, he/she acts in accordance with the available knowledge, experience, instructions and recommendations; he/she is able to provide first aid to victims.	**Know**: Knows the methodology for identifying potentially dangerous problems of an extraordinary character for nature and society both in peacetime and in conditions of threat or outbreak of a military conflict, a terrorist act. **Be able to**: He/she is able to render first aid to victims of household and industrial injuries, the use of weapons before the arrival of the called rescue service. **Possess**: When emergency

		circumstances are identified, he/she acts taking into account the specific situation in accordance with the available instructions and recommendations to preserve nature, human life and the stable development of the society.
AC-9. He/she is able to make reasonable economic decisions in various areas of life.	AC-9.1 Possesses the basics of economic culture, including financial literacy.	**Know:** Possesses the basics of economic culture, including financial literacy. **Be able to:** Correlates economic theory with specific life situations. **Possess:** Has a systematic understanding of the economic sphere of the society and the laws of economic development.
	AC-9.2. Examines current and prospective economic situations, makes scientifically sound economic decisions.	**Know:** Knows the leading modern economic models of behavior of participants in economic relations. **Be able to**: He/she is able to critically comprehend current and prospective economic situation; evaluates options for making economic decisions. **Possess:** Makes scientifically reasonable economic decisions in life and professional activities.
	AC-9.3 Builds a methodology for making decisions in a changing economic situation in various areas of life.	**Know**: Knows the content of the concepts "method" and "methodology"; understands the specifics of constructing methodological decision-making schemes, their concrete-subject nature. **Be able to**: He/she is able to choose a group of methods in relation to a specific decision-making situation, develop a plan for their application. **Possess**: Makes reasonable economic decisions in a changing economic environment in various areas of life.
AC-19 Able to form an intolerant attitude towards corrupt behavior	AC-10.1 Possesses knowledge about corruption and corrupt behavior	**Know**: Knows the content of the concepts of "corruption" and "corrupt behavior"; understands the legal consequences of corrupt behaviour. **Be able to**: Recognizes the signs of corrupt behavior **Possess**: Able to relate various types of corrupt behavior to legal regulations and sanctions.
	AC-10.2 He / she is intolerant of corruption and corrupt behaviour.	**Know**: Understands the detrimental effects of corrupt behavior on the morale of an individual and the

		society. **Be able to:** He / she is critical of corruption and corrupt behaviour. **Possess**: Consciously and confidently refuses to consider the prospects of his / her personal development and professional growth in connection with the corruption component.
	Ac-10.3 Forms an intolerant attitude towards corrupt behavior among colleagues and subordinates.	**Know**: He / she is aware of the methods of persuading colleagues of the futility of a corrupt society in general and the workforce in particular. **Be able to**: He / she is able to give necessary arguments in support of the anti-corruption behavior of colleagues and subordinates. **Possess**: Systematically and purposefully he / she is engaged in anti-corruption propaganda and agitation; develops a system of measures to prevent corrupt behavior.
GPC-3 He/she is able to carry out professional activities taking into account specific economic, environmental, and social factors within the framework of regulatory environment in the sphere of medicinal products circulation	GPC-3.1 He/she complies with the rules and regulations established by the authorized state authorities when solving the tasks of professional activity in the field of medicinal products circulation	**Know**: current regulatory framework governing the sphere of medicinal products circulation and other pharmacy products, in particular in the field of organization and conduct of pharmaceutical activities. **Be able to:** select legal acts regulating the medicinal products circulation, taking into account specific economic, environmental, social factors **Possess**: the skills of applying regulatory legal acts in regulating the sphere of medicinal products circulation, taking into account specific economic, environmental, social factors, as well as the rules and regulations established by authorized state authorities, when solving problems of professional activity in the sphere of medicinal products circulation.
GPC-3 He/she is able to carry out professional activities taking into account specific economic, environmental, and social factors within the framework of regulatory environment in the	GPC-3.2 When making management decisions, he / she takes into account economic and social factors that affect the financial and economic activities of pharmaceutical organizations	**Know**: fundamentals of economic theory, economic and social relations and economic systems; main microeconomic indicators; methods of financial analysis of the main performance indicators of pharmaceutical organizations **Be able to**: analyze economic problems and social processes, use the

sphere of medicinal products circulation		methodology for calculating economic efficiency indicators; propose measures to improve the efficiency of the enterprise; predict economic, social performance indicators of pharmaceutical organizations **Possess**: the skills of using economic knowledge and social factors in making managerial decisions in a pharmaceutical organization; skills in applying methods of economic analysis; skills in analyzing the main performance indicators of pharmaceutical organizations
GPC-6 He/she is able to understand the operational principles of modern information technologies and use them to solve problems of professional activity	GPC-6.1 Applies modern information technologies in interaction with subjects of medicinal products circulation, taking into account the requirements of information security	**Know**: characteristics, features and opportunities of automated information storage and retrieval systems used in pharmacy; legislative and regulatory legal acts regulating information technologies, information protection and information security; subjects of medicinal products circulation; a set of internal processes in a pharmaceutical and medical organization. **Be able to**: apply modern information technologies when interacting with the subjects of medicinal products circulation; take into account information security requirements when interacting with subjects of medicinal products circulation. **Possess**: skills of independent work on searching for information in legal reference systems and professional pharmaceutical databases in compliance with information security requirements; skills in implementing internal processes of a pharmaceutical or medical organization and the skills of interaction with suppliers and customers of the organization using automated information retrieval systems
GPC-6 He/she is able to understand the operational principles of modern information technologies and use them to solve problems of professional activity	GPC-6.4 He/she uses automated information systems in the internal processes of pharmaceutical and / or medical organizations, as well as for interaction with customers and suppliers	**Know**: Uses automated information systems in the internal processes of pharmaceutical and / or medical organizations, as well as for interaction with customers and suppliers **Be able to**: Work with automated information systems in the internal

		processes of pharmaceutical and / or medical organizations, as well as for interaction with customers and suppliers **Possess**: Analysis of the issued information when working with automated information systems in the internal processes of a pharmaceutical and (or) medical organization, as well as for interactions with customers and suppliers.
PC-2 He/she is able to solve the problems of professional activity when dispensing and selling medicinal drugs and other products of the pharmacy range through pharmaceutical and medical organizations	PC-2.1 He/she conducts pharmaceutical expertise of prescriptions and invoice requirements, as well as their registration and taxing in accordance with the established procedure	**Know**: requirements for checking prescriptions, reviewing prescriptions, methods of use and safety of the medicinal drug in relation to the pharmaceutical form, dosage, interaction with other drugs indicated in the prescription **Be able to**: conduct a pharmaceutical examination of all forms of prescriptions / requirements / for compliance with current requirements of regulatory legal acts **Possess**: the skills of pharmaceutical examination of prescriptions/requirements, checking the prescription, methods of use and safety of the medicinal drug in relation to the pharmaceutical form, dosage, interaction with other drugs indicated in the prescription. Taxation skills for recipes and requirements. Skills of registering prescriptions and requirements according to established order
PC-2 He/she is able to solve the problems of professional activity when dispensing and selling medicinal drugs and other products of the pharmacy range through pharmaceutical and medical organizations	PC-2.2 He/she sells and distributes medicinal drugs for human use and other products of the pharmacy range to individuals, as well as dispenses them to subdivisions of medical organizations, monitoring compliance with the procedure for dispensing medicinal products for human use and other products of the pharmacy range	**Know**: - the basics of organizing pharmaceutical care (outpatient and inpatient) for various groups of the population; - the basics of organizing drug supply for outpatients and inpatients with pharmaceutical products at full cost, as well as for citizens entitled to social assistance; - the procedure for dispensing pharmaceutical products from a pharmacy organization to the population and medical organizations. **Be able to**: - sell medicinal drugs for human use and other pharmacy products, to carry

		out their pre-sale preparation, taking into account the characteristics of consumer properties; -organize free dispensing of medicinal drugs within the framework of state guarantees; -organize the manufacture of pharmaceutical products in the form of intra-pharmacy procurement and according to the requirements of medical organizations in pharmacy enterprises; - use forms of cash and non-cash payments for medicinal drugs for human use and other pharmacy products. **Possess**: - skills in dispensing medicinal drugs for human use and other pharmacy products to individuals, as well as to departments of medical organizations, skills to control compliance with the procedure for dispensing medicinal drugs and other pharmacy products and control documentary accounting of outpatient and inpatient prescriptions, accounting for the sale of pharmaceutical products to the population and medical organizations for cash and non-cash payments.
PC-2 He/she is able to solve the problems of professional activity when dispensing and selling medicinal drugs and other products of the pharmacy range through pharmaceutical and medical organizations	PC-2.3 He/she performs office work on maintaining cash, organizational and administrative, accounting documents for retail sales	**Know**: requirements for record keeping in retail pharmaceutical organizations, professional office work **Be able to**: maintain cash, organizational and administrative, reporting documents and apply regulations in the field of retail pharmaceutical activities **Possess**: skills of performing office work on maintaining cash, organizational and administrative, accounting documents for retail sales
PC-2 He/she is able to solve the problems of professional activity when dispensing and selling medicinal drugs and other products of the pharmacy range through pharmaceutical and medical organizations	PC-2.4 He/she performs paperwork on the management, organizational and administrative, payment and reporting documents for wholesale sales	**To know:** rules of managing and registering organizational and administrative, payment accounting documents for wholesale sales **Be able to:** draw up organizational and administrative, payment accounting documents for wholesale sales **Possess**: skills of organizing

		paperwork on management, organizational and administrative, payment and reporting documents for wholesale sales
PC-2 He/she is able to solve the problems of professional activity when dispensing and selling medicinal drugs and other products of the pharmacy range through pharmaceutical and medical organizations	PC-2.5 He/she carries out pre-sale preparation, organizes and carries out display of medicinal drugs and pharmacy products in the sales hall and (or) storefronts of the pharmacy organization departments	**Know**: requirements for the pre-sale preparation of medicinal drugs and pharmacy products, rules of merchandising in pharmacy organizations **Be able** to: perform pre-sale preparation of medicinal drugs, pharmaceutical products and medical equipment products, taking into account the peculiarities of their consumer properties; evaluate pharmaceutical products, check the shelf life of pharmaceutical products, rationally place equipment and goods in the sales halls and (or) storefronts of pharmacy departments; analyze the actual state of placement of pharmaceutical products in sales halls and advise customers in pharmacies with an open display of goods; **Possess**: the skills of organizing merchandising in a pharmacy organization, the skills of analyzing and evaluating the results of laying out medicinal drugs and pharmacy assortment products in the sales hall and (or) department showcases with the results of changes in revenue from the events held.
PC-6 He/she is able to take part in planning and organizing the resource support of a pharmaceutical organization	PC-6.1 He/she determines the economic indices of commodity stocks of medicinal drugs and other pharmaceutical assortment products. He/she chooses the optimal suppliers and organizes procurement processes based on the results of market research of suppliers of drugs for human use and other pharmacy assortment products	**To know** the methodology for calculating the economic indicators of medicinal drugs stock, the current range of medicinal drugs and other pharmacy products in various pharmacological groups, their characteristics, active substances (international nonproprietary name). Pharmaceutical marketing, pharmaceutical logistics. **Be able** to calculate the inventory of medicinal drugs etc. predict and assess risks in organizing resource provision, analyze the markets of suppliers of pharmaceutical products for human use and other pharmacy products **Possess** the skills of analyzing the current resource provision and needs

		of a pharmaceutical organization, choosing the best supplier of pharmaceutical products for human use and other pharmacy products, organizing the procurement process.
PC-6 He/she is able to take part in planning and organizing the resource support of a pharmaceutical organization	PC-6.2 Selects the best suppliers and organizes procurement processes based on the results of market research on suppliers of pharmaceutical products for human use and other pharmacy products	**Know**: the composition and requirements of tender documentation; the provisions of the civil and tax legislation of the Russian Federation in the field of contractual relations with counterparties **Be able to:** analyze and evaluate information from suppliers of pharmaceutical products and other pharmacy products, other materials and equipment, works and services **Possess:** skills of determining optimal suppliers, organizing the procurement process; skills of market research of suppliers, goods, works and services.
PC-6 He/she is able to take part in planning and organizing the resource support of a pharmaceutical organization	PC-6.3 He/she controls the execution of contracts for the supply of pharmaceutical products for human use and other pharmacy products	**Know**: the procedure for the purchase, storage, movement of pharmaceutical products, the procedure for drawing up contracts for the supply of pharmaceutical products for human use and other pharmacy products. **Be able** to: organize and ensure document flow in a pharmaceutical organization, including any types of reporting in accordance with legislative and regulatory legal acts. **Possess**: skills of concluding and monitoring the execution of contracts for the supply of goods, works and services
PC-6 He/she is able to take part in planning and organizing the resource support of a pharmaceutical organization	PC-6.4 He/she conducts acceptance control of incoming pharmaceutical products and other products of the pharmacy assortment, checking and issuing accompanying documents in accordance with the established procedure	**Know**: the procedure for receiving goods from suppliers, their accounting and inventory, established in the organization, including registration of accounting documentation. The requirements for the quality of pharmaceutical products, for labeling and for documents confirming the quality of pharmaceutical products and other pharmacy products. **Be able** to: evaluate pharmaceutical products by external view, packaging, labeling, check the expiration date of pharmaceutical products and other pharmacy assortment products. Check the accompanying documentation.

		Identify and take appropriate measures to eliminate substandard, falsified and counterfeit pharmaceutical products. **Possess**: the skill of organizing the process of conducting acceptance control of incoming medicines and other pharmacy products, checking accompanying documents in accordance with the procedure established by regulatory documents
PC-6 He/she is able to take part in planning and organizing the resource support of a pharmaceutical organization	PC-6.5 He/she carries out withdrawal from circulation of pharmaceutical products and pharmacy products that have fallen into disrepair, expired as well as falsified, counterfeit and substandard products	**Know**: the procedure for the withdrawal from circulation of pharmaceutical products and pharmacy assortment goods that have become unusable, expired, falsified, counterfeit and substandard products; the procedure for the destruction of pharmaceutical products; **Be able** to: identify failed, expired, falsified, counterfeit and substandard products, draw up organizational documentation for withdrawal of pharmaceutical products to be destroyed **Possess**: the skills of documenting the expiration dates of pharmaceutical products and identifying substandard, falsified and counterfeit medicines
PC-6 He/she is able to take part in planning and organizing the resource support of a pharmaceutical organization	PC-6.6 He/she carries out strict record keeping and storage of pharmaceutical products in accordance with the established procedure	**Know**: the regulatory documentation regulating strict record keeping and storage; the list of pharmaceutical products subject to strict record keeping and storage; the rules and specifics of paperwork for pharmaceutical products subject to the strict record keeping and storage. **Be able to**: conduct strict record keeping and storage of medicines in a pharmacy, fill out accounting logs; **Possess**: the skill of organizing, maintaining and controlling the strict record keeping and storage of medicines in the prescribed manner.
PC-6 He/she is able to take part in planning and organizing the resource support of a pharmaceutical organization	PC-6.7 He/she organizes control over the availability and storage conditions of pharmaceutical products for human use and other pharmacy products	**Know**: the rules of storage and accounting of medicinal drugs, including narcotic drugs, psychotropic substances and their precursors, the rules for the destruction of falsified and counterfeit pharmaceutical products, the procedure for calculating natural loss during pharmaceutical

		products storage. The order of transportation and storage of immunobiological drugs along the "cold chain" and the means used to control compliance with temperature. **Be able** to: sort incoming pharmaceutical products, pharmacy assortment goods, taking into account their physico-chemical properties, requirements for the conditions and storage regime of special groups of pharmaceutical and other products; check compliance of storage conditions of pharmaceutical products and pharmacy assortment goods with regulatory requirements. **Possess**: skills in interpreting the storage conditions specified in the labeling of pharmaceutical products into the appropriate storage modes (temperature, storage location), skills in predicting the risk of quality loss in case of deviations in the storage and transportation modes of pharmaceutical products.

4. The place of practical training in the structure of the educational program of higher education

Industry-focused practical training (practical training in management and economics of pharmaceutical organizations) makes part of Block 2. "Practical Training", "Mandatory part" During the practical training, the knowledge, skills and abilities formed during mastering academic disciplines and practices of the educational program of higher education are used: "Jurisprudence", "Economics", "Computer Science", "Pharmacy Management and Economics", "Medical and Pharmaceutical Commodity Science", "Academic Practical Training (pharmaceutical propaedeutic practice)".

For successful completion of practical training, the student must:

Know:

- norms and rules established by competent public authorities in solving the tasks of professional activity in the field of medicinal products circulation, types of pharmaceutical organizations of wholesale and retail trade in medicines and pharmaceutical goods, the main tasks and functions;

- stages of establishing a pharmaceutical organization, the procedure for state registration and licensing of pharmaceutical activities and activities related to the turnover of narcotic drugs, psychotropic substances and precursors of narcotic drugs and psychotropic substances;

-types of control over pharmaceutical and economic and financial activities.

Be able to:

- to carry out the procedure of state registration of a pharmaceutical organization and licensing its pharmaceutical activities, to carry out the types of control over pharmaceutical and economic and financial activities.

Possess:

-legislative and regulatory requirements for organizing pharmaceutical activities of pharmaceutical organizations of wholesale and retail trade in medicinal drugs and pharmaceutical goods;

-legislative and regulatory requirements for the control over the activities of pharmaceutical organizations

The knowledge, skills and abilities acquired as a result of practical training are used to achieve the planned learning outcomes.

5. Place and time frame of practical training

Organization of practical training is carried out on the basis of contracts with organizations whose activities are in line with the professional competencies mastered within the framework of this educational program of higher education. The practical training is conducted on the basis of organizations and enterprises engaged in medical and / or pharmaceutical activities in the field of medicinal products circulation. The practical training can also be conducted directly at the university.

Practical training for students with disabilities and physical conditions is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

The industry-focused practical training is provided by the educational program and the working curriculum in the A semester on completing the session. For mastering the practical training program, the curriculum provides 12 credit points/ 432 academic hours. The duration of the practical training is 8 weeks.

The form of practical training attestation is a credit test with a mark (graded credit). According to the results of the credit test, the student can be rated as "excellent", "good", "satisfactory" and "failing".

6. Structure and content of practical training.

In accordance with the curriculum for mastering the practical training program, the curriculum provides 3 credit points/ 108 academic hours.

7. Practice reporting form

The form of practical training attestation is a credit test with a mark (graded credit). According to the results of the credit test, the student can be rated as "excellent", "good", "satisfactory" and "failing".

ANNOTATION to the
working program of practice
Industry-focused practical training
(practice in quality control of pharmaceutical products)

1. Purposes and objectives of training when passing the practical training

Industry-focused practical training (practice in quality control of pharmaceutical products) is carried out with the purpose of:

- studying the organization of the control and analytical service functioning in the conditions of pharmaceutical enterprises and organizations;
- studying the organization and implementation of measures to prevent the possibility of dispensing or manufacture of substandard pharmaceutical products;
- performing the work on preparation of titrated, test and reference solutions;
- performing all types of work related to the pharmaceutical analysis of all types of medicinal drugs, including medicinal plant materials and excipients, in accordance with state quality standards;
- performing independent analytical, research work;
- carrying out activities for declaring the quality of pharmaceutical products;
- participating in solving individual research and scientific-applied tasks for the development of new methods of analysis in the field of pharmacy.

The objectives of industry-focused practical training are:

- introduction to the orders and instructions that regulate the work of a pharmacist for drug quality control (pharmacist-analyst);
- introduction to organization of work of the control and analytical table: its equipment; communication with pharmacy departments; documentation maintained by a pharmacist-analyst;
- getting to know the storage conditions in the pharmacy of pharmaceutical products and medicinal raw materials, instructions and recommendations for their storage;
- carrying out the analysis of pharmaceutical products coming from the storage room to the assistant room; purified water (water for injection), concentrates; documentation of analysis results;
- writing a report on the work done and a diary of industry-focused practical training;
- passing a graded test.

2. Mode, type of practical training, method and forms of its implementation

Type of industry-focused practical training - practice in quality control of pharmaceutical products.

The practice is conducted in the form of practical training in accordance with the academic schedule and curriculum.

Method of practical training - extra-mural, stationary.

The form of practice - discrete by type of practice - by allocating a continuous period of training time in the calendar training schedule for each type (set of types) of practice.

Practical training during the practice is organized by performing certain work types related to the students' future professional activities.

Students who combine training with labour activity have the right to pass practical training at the place of their labour activity in cases where the professional activity carried out by them meets the requirements of the educational program for practical training.

To guide the practice carried out in specialized university departments, the head of the practice is appointed from among the persons belonging to the teaching staff of the department responsible for implementing the educational program (hereinafter referred to as the EP). To guide the practice conducted in a relevant organization, the head of the practice is appointed from among the persons belonging to the teaching staff of the department responsible for implementing the EP, and the head (heads) of the practice from among the employees of the

relevant organization. The student's referral to practical training is issued in the form of a student-trainee's permit (Appendix 1).

Practical training for students with disabilities and physical conditions is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

3. Planned learning outcomes when passing the practical training, correlated with the results of uptaking the educational program.

Conducting industry-focused practical training, taking into account the direction (profile), is aimed at forming in a specialist in accordance with the purposes of the main educational program and the tasks of future professional activity, the following professional competencies:

As a result of the passing practical training, the student must:

Code and name of the competence	Code and name of the competence achievement	Descriptors for the indicator of competence achievement (learning
UK-8 - He/she is able to create and maintain safe living conditions in everyday life and in professional activities to preserve sustainable development of society, including in the event of a threat and advent of emergencies and military conflicts	AC-8.1 Identifies and analyzes natural and man-made factors of harmful influence on the environment, social life and professional activity, and brings information to the responsible authorities.	Know: General principles of identifying and analysis of natural and man-caused factors affecting the physical and social environment in everyday life and professional activities to preserve the natural environment and sustainable development of the society. Be able to: He/she is able to organize interaction with responsible authorities in extraordinary natural and man-caused conditions, in case of threat of using weapons to preserve the natural environment and stability in the society. Possess: He/she has experience of social behavior and professional activity, taking into account possible factors of harmful influence of natural and man-caused character, terrorist and military threat.
	AC-8.2 He/she creates and maintains safe living conditions and professional activities, complies with safety rules, including in the event of a threat and advent of a military conflict.	Know: He/she knows the standards and requirements for maintaining safe conditions in daily life and professional activity to preserve nature and sustainable development of the society in peacetime, in conditions of threat and advent of a military conflict, a terrorist action. Be able to: He/she complies with safety rules in everyday life and professional activities. Possess: He/she creates safe conditions for life and professional activity for himself/herself and other people in peacetime and in emergency situations.
	AC-8.3 In case of emergency situations of an ecological, man-caused and social nature in peacetime and wartime, he/she acts in accordance with the available knowledge,	Know: He/she knows the methodology for identifying potentially dangerous problems of an extraordinary character for nature and society both in peacetime and in conditions of threat or outbreak of a military conflict, a terrorist act. Be able to: He/she is able to render first

	experience, instructions and recommendations; he/she is able to provide first aid to victims.	aid to victims of household and industrial injuries, the use of weapons before the arrival of the called rescue service. Possess: When emergency circumstances are identified, he/she acts taking into account the specific situation in accordance with the available instructions and recommendations to preserve nature, human life and the stable development of the society.
GPC-1 He/she is able to use basic biological, physico-chemical, chemical, mathematical methods for the development, study and examination of pharmaceutical products, manufacturing medicinal drugs	GPC-1.4 He/she applies mathematical methods and performs mathematical processing of data obtained during the development of pharmaceutical products, as well as research and expertise of pharmaceutical products, medicinal plant raw materials and biological objects	**Know**: theoretical fundamentals of mathematical methods for statistical processing of data obtained during the development of medicines, as well as research and expertise of pharmaceutical products, medicinal plant raw materials and biological objects **Be able to**: apply mathematical methods and perform mathematical processing of data obtained during the development of medicines, as well as research and expertise of medicines, medicinal plant raw materials and biological objects **Possess**: computer technologies of mathematical processing of data obtained during the development of pharmaceutical products, as well as research and expertise of pharmaceutical products, medicinal plant raw materials and biological objects
GPC-3 He/she is able to carry out professional activities taking into account specific economic, environmental, and social factors within the framework of regulatory environment in the sphere of medicinal products circulation	GPC-3.1 He/she complies with the rules and regulations established by the authorized state authorities when solving the tasks of professional activity in the field of medicinal products circulation	**Know:** Normative legal acts of the Russian Federation on the manufacture of pharmaceutical forms and types of quality control; The nomenclature of duly registered medicinal substances and excipients, their properties, purpose, storage rules; Rules for the use of personal protective equipment. **Be able to:** Interpret the provisions of normative legal acts of the Russian Federation on the manufacture of pharmaceutical forms and types of quality control; Carry out the search for necessary legal and reference literature. **Possess:** Search methods for legal, reference literature on the Internet, databases, organization's library fund.
PC-4 He/she is able to	PC-4.1 He/she conducts	**Know:**

participate in monitoring the quality, effectiveness and safety of pharmaceutical products and medicinal plant raw materials	pharmaceutical analysis of pharmaceutical substances, excipients and pharmaceutical products for human use of factory production in accordance with quality standards	Normative legal acts of the Russian Federation on the manufacture of pharmaceutical forms and types of quality control; Auxiliary materials, tools, devices used in the manufacture of medicinal drugs; Required reagents used in quality control of medicinal drugs; The nomenclature of duly registered medicinal substances and excipients, their properties, purpose, storage rules; Rules for the use of personal protective equipment; Technology for the manufacture of medicinal drugs; Requirements of labor protection, fire safety, operational procedures in emergency situations; Physico-chemical and organoleptic properties of pharmaceutical products; Methods of analysis used in quality control of pharmaceutical products. **Be able to:** Formalize the test results of pharmaceutical substances, purified water/for injection, concentrates, semi-finished products, medicinal drugs, in accordance with the established requirements; Interpret the results of quality control of pharmaceutical substances, purified water / for injection, concentrates, semi-finished products, medicinal products in accordance with the established requirements; Use laboratory and technological equipment; Use control and measuring devices; Draw up documentation of a standard form for the control of manufactured medicinal drugs. **Possess:** Methods of analysis used in quality control of pharmaceutical products. Pharmaceutical analysis procedure; Technology and procedure for registering the documentation of a standard form.
PC-4. He/she is able to participate in monitoring the quality, effectiveness and safety of pharmaceutical	PC-4.2 He/she carries out control over preparation of reagents and titrated solutions	**Know:** Required reagents used in quality control of medicinal drugs and their usage rate; The nomenclature of titrated solutions and the rules for their manufacture.

products and medicinal plant raw materials		**Be able to:** Form and execute applications for the purchase / issuance of reagents; Register manufactured reagents; Keep usage records for reagents and titrated solutions. **Possess:** Methods for drawing up applications for the purchase / issuance of reagents; Methods for keeping usage records for reagents and titrated solutions.
PC-4 He/she is able to participate in monitoring the quality, effectiveness and safety of pharmaceutical products and medicinal plant raw materials	PC-4.3 He/she standardizes prepared titrated solutions	**Know:** Expiration dates, storage rules for reagents depending on their physical and chemical properties; The nomenclature of the used titrated solutions, Methods for standardization of titrated solutions. **Be able to:** Prepare solutions of a given concentration; Carry out calculations to correct the prepared titrated solutions; Determine the concentration of a prepared solution; Bring the solutions to the desired concentration. **Possess:** Methods for the manufacture of titrated solutions; Solution standardization methods; Calculation methods for correcting prepared solutions; Methods for determining the concentration of solutions.
PC-4 He/she is able to participate in monitoring the quality, effectiveness and safety of pharmaceutical products and medicinal plant raw materials	PC-4.5 He/she informs in the manner prescribed by law, about non-compliance of a pharmaceutical products for human use to the requirements or inconsistency of performance data and the medicine's safety data to the data on the medicinal product contained in the instructions for its use	**Know:** Procedure for state regulation of pharmaceutical products' quality control; Chemical methods underlying the qualitative and quantitative analysis of pharmaceutical substances and medicinal drugs; The opportunities of using analysis methods depending on the method of obtaining a pharmaceutical product, raw materials, the structure of a medicinal substance (MS), physico-chemical processes that can develop during storage and circulation of drugs; Rules for quality control of pharmaceutical products at manufacturing

		site. The procedure for registering the results of a medicinal drug quality analysis. **Be able to:** Carry out registration and processing of test results of a pharmaceutical product and raw materials. **Possess:** Methods of organizing and ensuring quality control of pharmaceutical products in the conditions of pharmacy organizations and pharmaceutical enterprises; Methods for interpreting and evaluating the results of pharmaceutical products analysis. The procedure for formalizing and registering the results of quality analysis of a medicinal drug.
PC-4 He/she is able to participate in monitoring the quality, effectiveness and safety of pharmaceutical products and medicinal plant raw materials	PC-4.6 He/she performs registration, processing and interpreting the test results of medicines, raw materials and packaging materials	**Know:** Normative legal acts of the Russian Federation on the manufacture of pharmaceutical forms and types of quality control; Methods of statistical processing and interpreting the data of analysis results; Methods of analysis used in quality control of pharmaceutical products. **Be able to:** Formalize the results of testing of pharmaceutical substances, medicinal drugs, in accordance with the established requirements; Interpret the results of quality control of pharmaceutical substances, medicinal drugs in accordance with the established requirements; Draw up documentation of a standard form for the control of manufactured medicinal drugs. **Possess:** Methods of statistical processing and interpreting the data of analysis results; Technology and procedure for registering the documentation of a standard form.
PC-5 He/she is able to perform clinical laboratory tests of the third complexity category, including on the basis of introduction of new research	PC-5.1 He/she carries out the analysis of toxic substances using a complex of modern high-tech physical-chemical, biological and chemical methods of analysis	**Know** modern physico-chemical, biological and chemical methods of analysis analysis **Be able** to analyze substances using modern physico-chemical, biological and chemical methods of analysis **Possess** the skills of analysis using

methods and techniques		modern physico-chemical, biological and chemical methods
	PC-5.2 He/she interprets the results of forensic chemical and chemical toxicological examination, taking into account the processes of toxic substances biotransformation and the opportunities of analytical research methods in accordance with current regulatory documentation	**Know** the features of taking into account the processes of substances biotransformation and the opportunities of analytical research methods in accordance with current regulatory documentation **Be able** to interpret the results of various examinations, taking into account biotransformation processes of toxic substances and the opportunities of analytical research methods in accordance with current regulatory documentation **Possess** the skill of interpreting the results of various examinations, taking into account biotransformation processes of toxic substances and the opportunities of analytical research methods in accordance with current regulatory documentation
	PC-5.3 He/she evaluates the quality of clinical laboratory studies of the third complexity category and interprets the evaluation results	**Know** the ways to assess the quality and reliability of laboratory clinical studies. **Be able** to assess the quality of clinical laboratory studies and interpret the results of the assessment **Possess** the skill in assessing the quality of clinical laboratory studies and interpreting the results of the assessment
	PC-5.4 He/she compiles reports on conducted clinical laboratory studies	**Know** the structure of reports on the conducted clinical laboratory studies in accordance with current regulatory documents. **Be able to** compile reports on conducted clinical laboratory studies **Possess** basic skills in reporting on clinical laboratory studies

4. The place of practical training in the structure ..... of the educational program of higher education

Industry-focused practical training (practice for quality control of pharmaceutical products) is included in Block 2. “Practical Training”, “Mandatory part” and is based on the disciplines of the educational program of higher education in the specialty 33.05.01 “Pharmacy” direction (profile) “Organization and Conduct of Pharmaceutical Activities”, namely: “Jurisprudence”, “Pharmaceutical Chemistry”, “Chemistry of Heterocyclic Medicinal Substances”, “Instrumental Methods in Pharmaceutical Analysis”, “Management and Economics of Pharmacy”; academic practical training (pharmaceutical propaedeutic practice).

For successful completion of industry-focused practical training, the student must:

Know

- theoretical foundations for the quality, efficacy and safety of pharmaceutical products, requirements to the quality of pharmaceutical products;

- main methods of carrying out a pharmaceutical analysis of pharmaceutical substances, excipients and pharmaceutical products for human use of factory production in accordance with quality standards

Be able to

- conduct pharmaceutical analysis of pharmaceutical substances, excipients and pharmaceutical products for human use of factory production in accordance with quality standards

Possess:

- physicochemical and chemical methods of pharmaceutical analysis.

The knowledge, skills and abilities gained as a result of passing the practical training are used to study the following practices of this educational program of higher education.

5. Place and time frame of practical training

Organization of industry-focused practical training (practice in quality control of pharmaceutical products) is carried out on the basis of contracts with organizations whose activities are in line with the professional competencies mastered within the framework of this educational program of higher education. The practical training is conducted on the basis of organizations and enterprises engaged in pharmaceutical activities.

Practical training for students with disabilities and physical conditions is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

To master the practice program, the curriculum provides 6 credit points / 216 academic hours

The duration of the practical training is 4 weeks.

The form of practical training attestation is a credit test with a mark (graded credit). According to the results of the credit test, the student can be rated as "excellent", "good", "satisfactory" and "failing".

6. Structure and content of practical training.

In accordance with the curriculum for mastering the practice program, the curriculum provides 6 credit points/ 216 academic hours.

7. Practice reporting form

The form of practical training attestation is a credit test with a mark (graded credit). According to the results of the credit test, the student can be rated as "excellent", "good", "satisfactory" and "failing".

ANNOTATION to the
working program of practice
Industry-focused practical training
(practice in pharmaceutical consulting and information)

1. The purpose and objectives of training during the practical training

Industry-focused practical training (practical training in pharmaceutical consulting and informing) is carried out with the aim of consolidating, deepening, expanding and practical use of theoretical knowledge gained in the process of studying "Pharmaceutical Consulting and Informing", using the methods for obtaining and passing the pharmaceutical information; educating students in objectivity and professionalism in the perception and evaluation of information, as well as providing it to various categories of consumers, developing the skills in providing effective pharmaceutical assistance in terms of informing and consulting, developing personal sales skills, forming a model of information service for visitors, preparing students as highly qualified specialists for performing the functions of a coordinator, consultant, partner when providing pharmaceutical assistance to the population.

Practical training's objectives:

- mastering the elements of providing pharmaceutical information and consulting services;
- acquiring personal selling skills;
- forming an individual model of information service for visitors of various categories;
- obtaining by future pharmacists deep practical skills in providing pharmaceutical assistance in terms of informing and consulting.

2. Mode, type of practical training, method and forms of its implementation

Type of industry-focused practical training - practice in pharmaceutical consulting and information

The practice is conducted in the form of practical training in accordance with the academic schedule and curriculum.

Method of practical training - extra-mural, stationary.

The form of practice - discrete by type of practice - by allocating a continuous period of training time in the calendar training schedule for each type (set of types) of practice.

Practical training during the practice is organized by performing certain work types related to the students' future professional activities.

Students who combine training with labour activity have the right to pass practical training at the place of their labour activity in cases where the professional activity carried out by them meets the requirements of the educational program for practical training.

To guide the practice carried out in specialized university departments, the head of the practice is appointed from among the persons belonging to the teaching staff of the department responsible for implementing the educational program (hereinafter referred to as the EP). To guide the practice conducted in a relevant organization, the head of the practice is appointed from among the persons belonging to the teaching staff of the department responsible for implementing the EP, and the head (heads) of the practice from among the employees of the relevant organization. The student's referral to practical training is issued in the form of a student-trainee's permit (Appendix 1).

Practical training for students with disabilities and physical conditions is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

3. Planned learning outcomes when passing the practical training correlated with the results of mastering the educational program

Conducting industry-focused practical training, taking into account the direction (profile), is aimed at forming in a student in accordance with the purposes of the main

educational program and the tasks of future professional activity, the following professional competencies, as a result of mastering which the student must:

Competence code	Competence achievement indicator	Planned learning outcomes
AC-8 - He/she is able to create and maintain safe living conditions in everyday life and in professional activities to preserve sustainable development of society, including in the event of a threat and advent of emergencies and military conflicts	AC-8.1 Identifies and analyzes natural and man-caused factors of harmful influence on the environment, social life and professional activity, and brings information to the responsible authorities.	**Know**: General principles of identifying and analysis of natural and man-caused factors affecting the physical and social environment in everyday life and professional activities to preserve the natural environment and sustainable development of the society. **Be able to**: Able to organize interaction with responsible authorities in extraordinary natural and man-caused conditions, in case of threat of using weapons to preserve the natural environment and stability in the society. **Possess**: Has experience of social behavior and professional activity, taking into account possible factors of harmful influence of natural and man-caused character, terrorist and military threat.
	AC-8.2 He/she creates and maintains safe living conditions and professional activities, complies with safety rules, including in the event of a threat and advent of a military conflict.	**Know**: Knows the standards and requirements for maintaining safe conditions in daily life and professional activity to preserve nature and sustainable development of the society in peacetime, in conditions of threat and advent of a military conflict, a terrorist action. **Be able to**: Complies with safety rules in everyday life and professional activities. **Possess**: Creates safe conditions for life and professional activity for himself/herself and other people in peacetime and in emergency situations.
	AC-8.3 In case of emergency situations of an ecological, man-caused and social nature in peacetime and wartime, he/she acts in accordance with the available knowledge, experience, instructions and recommendations; he/she is able to provide first aid to victims.	**Know**: Knows the methodology for identifying potentially dangerous problems of an extraordinary character for nature and society both in peacetime and in conditions of threat or outbreak of a military conflict, a terrorist act. **Be able to**: He/she is able to render first aid to victims of household and industrial injuries, the use of weapons before the arrival of the called rescue service. **Possess**: When emergency circumstances are identified, he/she acts taking into account the specific situation in accordance with the available instructions and recommendations to preserve nature, human life and the stable development of the society.

Competence code	Competence achievement indicator	Planned learning outcomes
GPC-2 He/she is able to apply knowledge about morphological and functional characteristics, physiological conditions and pathological processes in the human body to solve professional tasks	GPC-2.1 He/she analyzes the pharmacokinetics and pharmacodynamics of a pharmaceutical product based on the knowledge about morphofunctional features, physiological conditions, and pathological processes in the human body	**Know**: the rules for prescribing the main pharmaceutical forms; the main drug groups and pharmacotherapeutic actions of drugs by groups. **Be able** to: prescribe pharmaceutical forms in the form of a prescription using reference literature; find information about medicinal drugs in available databases, electronic library systems, use search engines. **Possess**: skills of working with traditional and electronic sources of pharmacological information; conceptual apparatus of pharmacology.
	GPC-2.2 He/she explains the main and side effects of medicinal drugs, the effects of their combined use and interaction with food, taking into account morphofunctional features, physiological conditions and pathological processes in the human body	**Know:** the morphofunctional features, physiological conditions and pathological processes in the human body for solving professional tasks, in particular when providing information and consulting assistance to visitors of a pharmacy organization when choosing medicines and other pharmacy assortment products, as well as on their rational use, taking into account the biopharmaceutical features of pharmaceutical forms **Be able to:** Recognize conditions, complaints that require medical advice **Possess:** The principles for providing information and consulting assistance to visitors of the pharmacy organization when choosing medicinal drugs and other pharmacy products, as well as on their rational use, taking into account the biopharmaceutical features of pharmaceutical forms
	GPC-2.3 He/she takes into account morphofunctional features, physiological conditions and pathological processes in the human body when choosing over-the-counter medicinal drugs and other pharmacy products	**Know.** Pharmacodynamics of the main groups of medicinal drugs (MDs). The main pharmacokinetic parameters of MDs, their changes in pathology, as well as in various age periods of life, during pregnancy and lactation. MDs, requiring monitoring of blood plasma concentrations. Features of the MDs dosage depending on the age, disease and functional state of the patient's body. The main types of drug interaction. Side effects of MDs, methods of their prevention and correction. **Be able to:** Determine the optimal dosage regimen of MDs. Justify the combined appointment of MDs. Interpret the results of a bacteriological study for the rational

Competence code	Competence achievement indicator	Planned learning outcomes
		choice of antibiotic therapy. Evaluate the effectiveness and safety of pharmacotherapy. Work with reference literature, Internet resources, electronic databases on clinical pharmacology. **Possess:** Skills of argumentative presentation of his/her own point of view, conducting a discussion. Methods of evaluating the effectiveness and safety of MDs. Methods of monitoring undesirable drug reactions.
GPC-3 He/she is able to carry out professional activities taking into account specific economic, environmental, and social factors within the framework of regulatory environment in the sphere of medicinal products circulation	GPC-3.1 He/she complies with the rules and regulations established by the authorized state authorities when solving the tasks of professional activity in the field of medicinal products circulation	**To know:** current regulatory framework regulating the sphere of circulation of medicines and other pharmacy products, in particular in the field of dispensing medicines, pharmaceutical prescription examination and informing pharmacy visitors. **Be able to:** select legal acts regulating the medicinal products circulation, taking into account specific economic, environmental, social factors **Possess**: the skills of applying regulatory legal acts in regulating the sphere of medicinal products circulation, taking into account specific economic, environmental, social factors, as well as the rules and regulations established by authorized state authorities, when solving problems of professional activity in the sphere of medicinal products circulation.
GPC-4. He/she is able to carry out professional activities in accordance with ethical standards and moral principles of pharmaceutical ethics and deontology	GPC-4.1 He/she performs interaction in the system "pharmaceutical employee - visitor of a pharmacy organization" in accordance with the norms of pharmaceutical ethics and deontology	**Know** the relationship of bioethics, professional ethics, deontology and law in the part of interaction in the system "pharmaceutical worker-visitor of a pharmacy organization"; **Be able** to develop his/her own moral position when interacting in the system "pharmaceutical worker-visitor pharmacy organization"; **Possess** skills when interacting in the system "pharmaceutical worker-visitor of a pharmacy organization", taking into account the principles of bioethics, medical ethics and deontology;
	GPC-4.2 He/she performs interaction in the system "pharmaceutical employee - visitor of a	**Know** the relationship of bioethics, professional ethics, deontology and the law in the part of interaction in the system "pharmaceutical worker-visitor of a pharmacy organization";

Competence code	Competence achievement indicator	Planned learning outcomes
	pharmacy organization" in accordance with the norms of pharmaceutical ethics and deontology	**Be able to** develop his/her own moral position when interacting in the system "pharmaceutical worker-visitor pharmacy organization"; **Possess** the skills when interacting in the system "pharmaceutical worker-visitor of a pharmacy organization", taking into account the principles of bioethics, medical ethics and deontology;
GPC-6 He/she is able to understand the operational principles of modern information technologies and use them to solve problems of professional activity	GPC-6.2 He/she performs an effective search for information necessary for solving professional tasks, using legal reference systems and professional pharmaceutical databases	**Know:** search engines to obtain information necessary to solve the problems of professional activity, using legal reference systems and professional pharmaceutical databases **Be able to:** search for information necessary to solve the tasks of professional activity using legal reference systems and professional pharmaceutical databases, in particular on pharmacokinetics, pharmacodynamics, drug interactions. **Possess:** Analysis of the information provided by legal reference systems, as well as professional pharmaceutical databases.
	GPC-6.3 He/she uses specialized software for mathematical processing of observational and experimental data in solving professional tasks	**Know:** the principles of working with specialized software for mathematical processing of observational and experimental data in solving professional tasks **Be able to:** work with software for mathematical processing of observational and experimental data in solving professional tasks **Possess:** the skills of working with the functionality of the software, fully using its functional opportunities to solve the tasks of professional activity.
	GPC-6.4 He/she uses automated information systems in the internal processes of pharmaceutical and / or medical organizations, as well as for interaction with customers and suppliers	**Know:** automated information systems in the internal processes of pharmaceutical and / or medical organizations, as well as for interaction with customers and suppliers **Be able to**: Work with automated information systems in the internal processes of pharmaceutical and / or medical organizations, as well as for interaction with customers and suppliers **Possess**: Analysis of the issued information when working with automated information systems in the internal processes of a pharmaceutical and (or) medical organization, as well as for interactions with

Competence code	Competence achievement indicator	Planned learning outcomes
		customers and suppliers.
PC-2 He/she is able to solve the problems of professional activity when dispensing and selling medicinal drugs and other products of the pharmacy range through pharmaceutical and medical organizations	PC-2.2 He/she sells and distributes medicinal drugs for human use and other products of the pharmacy range to individuals, as well as dispenses them to subdivisions of medical organizations, monitoring compliance with the procedure for dispensing medicinal products for human use and other products of the pharmacy range	**Know**: - the basics of organizing pharmaceutical care (outpatient and inpatient) for various groups of the population; - the basics of organizing drug supply for outpatients and inpatients with pharmaceutical products at full cost, as well as for citizens entitled to social assistance; - the procedure for dispensing pharmaceutical products from a pharmacy organization to the population and medical organizations. **Be able to**: - sell medicinal drugs for human use and other pharmacy products, to carry out their pre-sale preparation, taking into account the characteristics of consumer properties; -organize free dispensing of medicinal drugs within the framework of state guarantees; -organize the manufacture of pharmaceutical products in the form of intra-pharmacy procurement and according to the requirements of medical organizations in pharmacy enterprises; - use forms of cash and non-cash payments for medicinal drugs for human use and other pharmacy products. **Possess**: - skills in dispensing medicinal drugs for human use and other pharmacy products to individuals, as well as to departments of medical organizations, skills to control compliance with the procedure for dispensing medicinal drugs and other pharmacy products and control documentary accounting of outpatient and inpatient prescriptions, accounting for the sale of pharmaceutical products to the population and medical organizations for cash and non-cash payments.
PC-3 He/she is able to provide pharmaceutical informing and counseling when dispensing and selling medicinal drugs for human use and other products of the	PC-3.1 He/she provides information and consulting assistance to visitors of the pharmacy organization when choosing medicines and other pharmacy products, as well as on	**Know:** Morphofunctional features, physiological conditions and pathological processes in the human body; Principles of pharmacotherapy taking into account the pharmacokinetics and pharmacodynamics of pharmaceutical products; Principles of operation and use of medical

Competence code	Competence achievement indicator	Planned learning outcomes
pharmacy range	their rational use, taking into account the biopharmaceutical features of pharmaceutical forms	devices. Rules for the dispensing medicinal drugs to the public and medical organizations **Be able to:** Recognize conditions, complaints that require medical advice Provide information and consulting assistance to visitors of the pharmacy organization when choosing medicinal drugs and other pharmacy products as well as on their rational use, taking into account the biopharmaceutical features of pharmaceutical forms Provide counselling assistance on the rules for home-based use of medical devices Carry out information and educational work to promote a healthy lifestyle, the rational use of medicinal drugs **Possess:** The principles of providing counselling assistance on the rules for taking and dosing regimen of medicinal drugs, their storage at home The principles of providing counselling assistance on the rules for home-based use of medical devices The principles of providing information and consulting assistance when choosing over-the-counter medicinal drugs and other pharmacy products The principles for providing consulting assistance on the use and compatibility of medicinal drugs, their interaction with food
	PC-3.2 He/she informs medical professionals about medicines, their synonyms and analogues, possible side effects and interactions, taking into account the biopharmaceutical features of pharmaceutical forms	**Know:** The modern range of pharmaceutical products by various pharmacological groups, their characteristics, medical indications and methods of use, contraindications, side effects, synonyms and analogues and a range of pharmacy products. Fundamentals of responsible self-treatment **Be able to:** Study the information needs of doctors. Communicate effectively in oral and written forms with colleagues, other health care professionals and patients in solving professional problems **Possess:** methods of communication technologies when informing doctors about new modern drugs, synonyms and analogues, about possible side effects of medicinal drugs, their interaction
	PC-3.3 He/she makes a	**Know:** Fundamentals of clinical

Competence code	Competence achievement indicator	Planned learning outcomes
	decision to replace the prescribed medicinal product with synonymous or similar drugs in accordance with the established procedure, based on information about groups of medicinal products and synonyms within the same international nonproprietary name and prices for them, taking into account the biopharmaceutical features of pharmaceutical forms	pharmacology Rules for the rational use and dispensing of medicinal drugs Fundamentals of responsible self-treatment Principles of pharmacotherapy taking into account the pharmacokinetics and pharmacodynamics of pharmaceutical products; **Be able to:** Provide information and advisory assistance to replace a prescribed medicinal drug with synonymous or similar drugs in accordance with the established procedure, based on information about groups of medicinal drugs and synonyms within the same international nonproprietary name and prices for them, taking into account the biopharmaceutical features of pharmaceutical forms **Possess:** the principles of information and advisory assistance to patients when choosing synonymous and analog drugs based on information about groups of drugs and synonyms within the same international nonproprietary name prices for them, taking into account the biopharmaceutical features of dosage forms. The principles of providing counselling assistance on the rules for taking and dosing regimen of medicinal drugs, their storage at home The principles of providing information and consulting assistance when choosing over-the-counter medicinal drugs and other pharmacy products Methods of communication technologies when informing doctors about new modern drugs, synonyms and analogues, about possible side effects of medicinal drugs, their interaction

4. The place of practical training in the structure of the educational program of higher education

The industry-focused practical training (practice in pharmaceutical counseling and informing) is included in Block 2. "Practical Training", "Mandatory part" When passing the practical training, the knowledge, skills and abilities formed when mastering academic disciplines and practices of the educational program are used: "Pharmacology", Clinical Pharmacology with the Basics of Pharmacotherapy, "Pathology", "Biological Chemistry and Chemical Foundations of Life", "Jurisprudence", "Computer Science", "Validation of methods and Statistical Processing of Experimental Results", "Fundamentals of Medical Chemistry", "Economics", academic practical training (pharmaceutical propaedeutic practice).

For successful completion of practical training, the student must:

Know - Morphofunctional features, physiological conditions and pathological processes in the human body;

- Principles of pharmacotherapy taking into account the pharmacokinetics and pharmacodynamics of pharmaceutical products;
- Principles of functioning and use of medical devices;
- Rules for the dispensing medicinal drugs to the public and medical organizations.

Be able to - Recognize conditions, complaints that require medical advice

- Provide information and consulting assistance to visitors of the pharmacy organization when choosing medicinal drugs and other pharmacy products as well as on their rational use, taking into account the biopharmaceutical features of pharmaceutical forms;
- Provide counselling assistance on the rules for home-based use of medical devices;
- Carry out information and educational work to promote a healthy lifestyle, the rational use of medicinal drugs.

Possess - Providing counselling assistance on the rules for taking and dosing regimen of medicinal drugs, their storage at home;

- Providing counselling assistance on the rules for home-based use of medical devices;
- Providing information and consulting assistance when choosing over-the-counter medicinal drugs and other pharmacy products;
- Providing consulting assistance on the use and compatibility of medicinal drugs, their interaction with food.

The knowledge, skills and abilities acquired as a result of passing the practical training are used to study the following academic disciplines and practices: industry-focused practical training (practical training in management and economics of pharmaceutical organizations).

5. Place and time frame of practical training

Organization of practical training is carried out on the basis of contracts with organizations whose activities are in line with the professional competencies mastered within the framework of this educational program of higher education. The practical training is conducted on the basis of organizations and enterprises engaged in pharmaceutical activities. The practical training can also be conducted directly at the university.

Practical training for students with disabilities and physical conditions is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

The knowledge and skills acquired during the practical training are necessary for future specialists to solve specific problems of practical activities of a sales pharmacist in pharmacies, wholesale pharmaceutical organizations and pharmaceutical companies

Practical training for students with disabilities and physical conditions is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

To master the practice program, the curriculum provides 3 credit points / 108 academic hours The duration of the practical training is 2 weeks.

The form of practical training attestation is a credit test with a mark (graded credit). According to the results of the credit test, the student can be rated as "excellent", "good", "satisfactory" and "failing".

6. Structure and content of practical training.

In accordance with the curriculum for mastering the practice program, the curriculum provides 3 credit points/ 108 academic hours.

7. Practice reporting form

The form of practical training attestation is a credit test with a mark (graded credit). According to the results of the credit test, the student can be rated as "excellent", "good", "satisfactory" and "failing".

ANNOTATION to the
working program of practice
Industry-focused practical training
(practical training in pharmaceutical technology)

1. The purpose and objectives of training during the practical training

The purpose of industry-focused practical training (practice in pharmaceutical technology) is the students' general introducing to the work of pharmaceutical enterprises, pharmacy institutions, scientific organization of labor, the work of central factory laboratories, technical control departments, auxiliary workshops and services, expansion and consolidation of theoretical knowledge gained at the university, acquisition of practical skills in the manufacture of pharmaceutical products in the conditions of mass production, morale building, education in deontological norms of behavior.

The objectives of Industry-focused practical training (practice in pharmaceutical technology): obtaining deep practical skills and abilities in the specialty:

in the field of production activity:

- organizing the process of manufacturing pharmaceutical products in pharmacies in accordance with approved regulatory documents while ensuring a high level of quality, including sanitary and microbiological requirements and necessary packaging that ensures ease of use and necessary stability;

in the field of organizational and managerial activities:

- compliance with the requirements of regulatory documents on the rules for accepting prescriptions and dispensing manufactured drugs;

in the field of control and permission activities:

- organizing and implementing the measures to prevent the possibility of manufacturing low-quality drugs;

in the field of research and information and educational activities;

- independent analytical and research work;
- collection, processing, analysis and systematization of scientific and technical information on the research topic;
- organization of information work among doctors on new drugs and their characteristics;
- providing counselling assistance to specialists of medical organizations, pharmaceutical enterprises and organizations and the population on the use of pharmaceutical products;
- training junior and middle pharmaceutical personnel;
- conducting sanitary and educational work;
- forming patients' motivation to maintain health;
- rendering first aid.

2. Mode and type of practical training, method and forms of its implementation

Type of Industry-focused practical training - practice in general pharmaceutical technology.

The practice is conducted in the form of practical training in accordance with the academic schedule and curriculum.

Method of practical training - extra-mural, stationary.

The form of practice - discrete by type of practice - by allocating a continuous period of training time in the calendar training schedule for each type (set of types) of practice.

Practical training during the practice is organized by performing certain work types related to the students' future professional activities.

Students who combine training with labour activity have the right to pass practical training at the place of their labour activity in cases where the professional activity carried out by them meets the requirements of the educational program for practical training.

To guide the practical training carried out in specialized university departments, the head of the practical training is appointed from among the persons belonging to the teaching staff of

the department responsible for implementing the educational program (hereinafter referred to as the EP). To guide the practical training conducted in a relevant organization, the head of the practice is appointed from among the persons belonging to the teaching staff of the department responsible for implementing the EP, and the head (heads) of the practical training from among the employees of the relevant organization. The student's referral to practical training is issued in the form of a student-trainee's permit.

Practical training for students with disabilities and physical conditions is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

3. Planned learning outcomes during passing the practical training, correlated with the results of uptaking the educational program.

Conducting industry-focused practical training, taking into account the direction (profile), is aimed at forming in a specialist in accordance with the purposes of the main educational program and the tasks of future professional activity, the following professional competencies:

As a result of the passing practical training, the student must:

Code and name of the competence	Code and name of the competence achievement indicator	Descriptors for the indicator of competence achievement (learning outcomes)
UK-8 - He/she is able to create and maintain safe living conditions in everyday life and in professional activities to preserve sustainable development of society, including in the event of a threat and advent of emergencies and military conflicts	AC-8.1 Identifies and analyzes natural and man-made factors of harmful influence on the environment, social life and professional activity, and brings information to the responsible authorities.	**To know**: General principles of identifying and analysis of natural and man-caused factors affecting the physical and social environment in everyday life and professional activities to preserve the natural environment and sustainable development of the society. **To be able** to: able to organize interaction with responsible authorities in extraordinary natural and man-caused conditions, in case of threat of using weapons to preserve the natural environment and stability in the society. **To possess**: Has experience of social behavior and professional activity, taking into account possible factors of harmful influence of natural and man-caused character, terrorist and military threat.
	AC-8.2 He/she creates and maintains safe living conditions and professional activities, complies with safety rules, including in the event of a threat and advent of a military conflict.	**To know**: Knows the standards and requirements for maintaining safe conditions in daily life and professional activity to preserve nature and sustainable development of the society in peacetime, in conditions of threat and advent of a military conflict, a terrorist action. **Be able** to: Complies with safety rules in everyday life and professional activities.

		To possess: Creates safe conditions for life and professional activity for himself/herself and other people in peacetime and in emergency situations.
	AC-8.3 In case of emergency situations of an ecological, man-caused and social nature in peacetime and wartime, he/she acts in accordance with the available knowledge, experience, instructions and recommendations; he/she is able to provide first aid to victims.	**To know**: Knows the methodology for identifying potentially dangerous problems of an extraordinary nature for nature and society both in peacetime and in conditions of threat or outbreak of a military conflict, a terrorist act. **Be able to**: He/she is able to render first aid to victims of household and industrial injuries, the use of weapons before the arrival of the called rescue service. **To possess**: When emergency circumstances are identified, he/she acts taking into account the specific situation in accordance with the available instructions and recommendations to preserve nature, human life and the stable development of the society.
GPC-1 He/she is able to use basic biological, physico-chemical, chemical, mathematical methods for the development, study and examination of pharmaceutical products, manufacturing medicinal drugs	GPC-1.1 He/she applies basic biological methods of analysis for the development, study and examination of pharmaceutical products and medicinal plant raw materials	Know the basic concepts, categories and tools of biotechnology theory; methods for constructing models of biological objects, phenomena and processes Be able to build standard models of biotechnology and phenomena based on collected data Possess the main methods, ways and means of obtaining biological objects, processing raw materials; skills in processing and sterilization of biological objects using modern methods
GPC-3 He/she is able to carry out professional activities taking into account specific economic, environmental, and social factors within the framework of regulatory environment in the sphere of medicinal products circulation	GPC-3.3 He/she performs labor actions taking into account their impact on the environment, preventing the onset of environmental hazards	**Know** - Basic terms and concepts of general and applied ecology; - Environmental factors, their impact on the environment. **Be able to** perform labor actions taking into account their impact on the environment, preventing the onset of environmental hazards **Possess:** skills of labor actions taking into

		account their impact on the environment, preventing the onset of environmental hazards
GPC-3 He/she is able to carry out professional activities taking into account specific economic, environmental, and social factors within the framework of regulatory environment in the sphere of medicinal products circulation	GPC-3.4 He/she defines and interprets the main environmental indicators of the production environment condition in manufacturing pharmaceutical products	**Know** Main types of environmental monitoring; main environmental pollutants, as well as their hazard classes, information on LOC, the main environmental indicators of the production environment condition when manufacturing pharmaceutical products **Be able to** Define and interpret the main environmental indicators of the production environment in manufacturing pharmaceutical products **Possess:** Skills to define and interpret the main environmental indicators of the production environment in manufacturing pharmaceutical products
PC-1 He/she is able to manufacture pharmaceutical products and take part in the manufacturing technology of finished products	PC-1.1 He/she carries out measures to prepare the workplace, technological equipment, medicinal substances and excipients for manufacturing medicinal drugs in accordance with prescriptions and (or) requirements	**Know** the regulatory legal acts on manufacturing pharmaceutical forms and intrapharmacy control; the rules for the manufacture of solid, liquid, soft, sterile and aseptic pharmaceutical forms. **Be able to** independently plan and organize his (her) production activities and effectively regulate his (her) time; **Possess** The skills for preparing for the manufacture of medicinal drugs according to prescriptions and requirements: performing necessary calculations, preparing the workplace, equipment and pharmaceutical products, selecting and preparing excipients, rational packaging.
PC-1 He/she is able to manufacture pharmaceutical products and take part in the manufacturing technology of finished products	PC-1.2 He/she manufactures pharmaceutical products, including when carrying out intrapharmacy procurement and serial production, in accordance with the established rules and taking into account compatibility of medicinal and auxiliary substances, controlling the	**Know** the nomenclature of modern medicinal substances and excipients, their properties, administration; Physico-chemical and organoleptic properties of pharmaceutical products, their physical, chemical and pharmacological compatibility; **Be able to** Prepare all kinds of pharmaceutical forms. **Possess** The skills in manufacturing

	quality at all stages of the technological process	medicinal drugs in accordance with the rules of manufacture and taking into account all stages of the technological process, quality control at the stages of the technological process.
PC-1 He/she is able to manufacture pharmaceutical products and take part in the manufacturing technology of finished products	PC-1.4 He/she registers data on the manufacture of medicinal drugs in accordance with the established procedure, including strict record keeping and storage of groups of pharmaceutical products and other substances subject to such accounting	**Know** The requirements for maintaining strict record keeping and storage of pharmaceutical products. **Be able to** Carry out strict record keeping and storage of pharmaceutical products and other substances in accordance with the legislation of the Russian Federation. Register data on manufactured medicinal drugs; **Possess** The skills for maintaining registration of data on the manufacture of medicinal drugs (filling out a written control passport, in case of using in its manufacture medicinal products that are subject to strict record keeping and storage, registration of the reverse side of the prescription). Conducting strict record keeping and storage of certain groups of pharmaceutical products and other substances subject to such record keeping.
PC-1 He/she is able to manufacture pharmaceutical products and take part in the manufacturing technology of finished products	PC-1.8 Performs the stages of the technological process for medicinal drugs' industrial production	**Know** the technological schemes for manufacturing various medicinal drugs. **Be able** to correct the technological parameters of the technological process in case of its improper course. **Possess** the skills to ensure safety when implementing the technological process.
PC-7 He/she is able to take part in selecting, justifying the optimal technological process and its implementation in the production of pharmaceutical products for human use	PC-7.1 He/she develops technological documentation for the industrial production of pharmaceutical products	**Know:** Organization of technological and engineering preparation of production, auxiliary engineering systems. Stages of design, qualification and operational use of buildings, premises and engineering systems of pharmaceutical production and requirements for them Statistical quality management methods, statistical methods used in the evaluation of process test results and validation. Principles of development and launching into manufacture of new pharmaceutical

		products (pharmacological, pharmaceutical aspects and technological aspects) **Be able to:** Develop and evaluate production and reporting documentation related to technological processes Interpret the readings of automatic sensors for the equipment condition, the production environment, the results of tests performed in analytical worksheets Select the production equipment and production lines taking into account production capacity, machine work load and established requirements **Possess**: Skills and techniques for working with technological documentation**.**
PC-7 He/she is able to take part in selecting, justifying the optimal technological process and its implementation in the production of pharmaceutical products for human use	PC-7.2 He/she carries out maintenance of the technological process in the industrial production of pharmaceutical products	**Know:** Pharmaceutical technology in terms of ongoing technological processes Characteristics of technological equipment and auxiliary systems used in the ongoing technological process Rules for operating the technological equipment and auxiliary systems used in the ongoing technological process Characteristics of production facilities used in the ongoing technological process **Be able to:** Determine the probabilities and causes of deviations from the technological process, possibilities of their detection Monitor the performance of technological equipment and facilities used in the technological process Interpret the readings of automatic sensors for the equipment condition, the production environment, the results of tests performed in analytical worksheets Evaluate the significance of detected deviations and inconsistencies in the technological process **Possess:** the basics of organizational qualities in implementing the technological process
PC-7 He/she is able to take part in selecting, justifying the optimal	PC-7.2 He/she carries out maintenance of the technological process in the	**Know:** Pharmaceutical technology in terms of ongoing technological processes. Production documentation

technological process and its implementation in the production of pharmaceutical products for human use	industrial production of pharmaceutical products	for performed operations and processes. Characteristics of technological equipment and auxiliary systems used in the ongoing technological process. The rules for the operational use of of technological equipment and auxiliary systems used in the ongoing technological process. The requirements for the quality of raw materials used in the technological process **Be able to**: Control the work of a subordinate structural subdivision, maintenance of premises, the operational use and maintenance of equipment. Develop and evaluate regulatory and registration documentation related to technological processes. Evaluate and certify the personnel of production subdivisions of pharmaceutical production **Possess:** Techniques for working with diagnostic equipment, instruments and devices.

4. The place of practical training in the structure of the educational program of higher education

The industry-focused practical training (practice in pharmaceutical engineering) is included in Block 2. "Practical Training", "Mandatory part" The basic knowledge necessary for passing the practical training is formed in the cycles of disciplines of the educational program of higher education: "Sanitary and Hygienic Aspects of Pharmacy", "Pharmaceutical Technology", "Chemistry of Heterocyclic Medicinal Substances", "Fundamentals of Organic Chemistry of Synthetic Medicinal Substances / Chemistry of Organoelement Compounds", "Chemistry of Natural Compounds / Chemistry of Biologically Active Dietary Supplements", academic practical training (pharmaceutical propaedeutic practice), academic practical training (practice in general pharmaceutical technology).

For successful completion of practical training, the student must:

Know: the stages of the technological process for the production of medicinal drugs by industrial methods.

Organization of technological and engineering preparation of production, auxiliary engineering systems. Stages of design, qualification and operational use of buildings, premises and engineering systems of pharmaceutical production and requirements for them

Statistical quality management methods, statistical methods used in the evaluation of process test results and validation. Principles of development and launching into manufacture of new pharmaceutical products (pharmacological, pharmaceutical aspects and technological aspects)

Be able to: implement the stages of the technological process for the production of medicinal drugs by industrial methods.

Develop and evaluate production and reporting documentation related to technological processes

Interpret the readings of automatic sensors for the equipment condition, the production environment, the results of tests performed in analytical worksheets

Select the production equipment and production lines taking into account production capacity, machine work load and established requirements

Possess: the skills of implementing the technological process for the production of medicinal drugs by industrial

skills and techniques for working with technological documentation

The knowledge, skills and abilities acquired as a result of passing the practical training are used to achieve the planned learning outcomes.

5. Place and time frame of practical training

Organization of implementing the industry-focused practical training (practice in pharmaceutical technology) is carried out on the basis of contracts with organizations whose activities are in line with the professional competencies mastered within the framework of this educational program of higher education. The practical training is conducted on the basis of organizations and enterprises engaged in medical activities and/or pharmaceutical activities and/or production activities in the field of production of medicinal drugs, biologically active dietary supplements or medical goods. The practical training can also be conducted directly at the university.

Practical training for students with disabilities and physical conditions is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

The industry-focused practical training is provided by the educational program and the working curriculum in the A semester on completing the session. To master the practice program, the curriculum provides 3 credit points / 108 academic hours The duration of the practical training is 2 weeks.

The form of practical training attestation is a credit test with a mark (graded credit). According to the results of the credit test, the student can be rated as "excellent", "good", "satisfactory" and "failing".

6. Structure and content of practical training.

In accordance with the curriculum for mastering the practice program, the curriculum provides 3 credit points/ 108 academic hours.

7. Practice reporting form

The form of practical training attestation is a credit test with a mark (graded credit). According to the results of the credit test, the student can be rated as "excellent", "good", "satisfactory" and "failing".