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Educational and Methodological
Association of Osh State University,
Associate Professor
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10 April 2025

APPROVED
Rector of the Osh State University
Professor K.E. Kozhobekov
_____ 2025

OSH STATE UNIVERSITY

EDUCATIONAL STANDARD OF HIGHER PROFESSIONAL EDUCATION

SPECIALTY : PHARMACY 560005

Qualification: Pharmacist

Osh – 2025

The standard of higher professional education in the specialty **of Pharmacy 560005** considered in the industry Committee for Medical Educational Areas of the Educational and Methodological Association of Osh State University, protocol No 6 dated "1" April 2025.

The Coordinating Council of the Educational and Methodological Association of Osh State University approved the protocol of No 3 from 8 April 2025.

The protocol No 6 of "9" April 2025 was recommended for approval by the Academic Council of Osh State University.

Approved by the Order of the Rector of the No 1817 of "10" April 2025

Foreign experts on educational standards:

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ОшМУ медицина ОМПК

CHAPTER 1. GENERAL PROVISIONS

The educational standard for the training of specialists in the specialty **of Pharmacy 560005** approved by the order of the rector of Osh State University. The educational standard of the educational program in the specialty **of Pharmacy 560005** developed and approved at Osh State University, taking into account the requirements of higher professional education.

The independently developed educational standard at Osh State University (hereinafter referred to as the educational standard) is equated to state educational standards, has a unified structure of requirements for higher professional education and allows them to perform their functions in terms of ensuring the unity and quality of education, the objectivity of control, and also establishes specific requirements for the development of the educational program being implemented. The requirements for the conditions and results of the development of basic educational programs established by this educational standard are not lower than the requirements of state educational standards.

The educational standard was developed with the participation of the working group:

- teachers of the Department of Pharmaceutical Chemistry and Technology of Medicines and the Department of Organization of Pharmaceutical Business and Pharmacognosy of Osh State University;
- employers (DarmekPharm LLC, Department of Medicines and Medical Devices, NemanPharm LLC) and graduates of the Faculty of Medicine of Osh State University;
- teachers of the Faculty of Pharmacy of the Kyrgyz State Medical Academy;
- teachers of the Department of Industrial and Pharmacy Technology of the Tashkent Pharmaceutical Institute.

This educational standard was developed on the basis of the Decree of the President of the Kyrgyz Republic No 243 "On measures to increase the potential and competitiveness of educational institutions of higher professional education in the Kyrgyz Republic" dated July 18, 2022, Resolutions of the Cabinet of Ministers of the Kyrgyz Republic No 654 "On Amendments to Certain Decisions of the Government of the Kyrgyz Republic on Giving a Special Status to State Higher Education Institutions" dated November 21, 2022, "On Amendments to Certain Resolutions of the Government of the Kyrgyz Republic, the Cabinet of Ministers of the Kyrgyz Republic on Giving a Special Status to State Higher Education Institutions" dated February 5, 2024 No45, the Law of the Kyrgyz Republic "On Education" dated August 11, 2023, On Approval of the Model of the State Educational Standard for Primary, Secondary and Higher Vocational Education of the Kyrgyz Republic dated 8 July 2024 No 371, the National Qualifications Framework, the National Qualifications Framework, the European Qualifications Framework, the Sectoral Qualifications Framework, the Professional Standards in the Kyrgyz Republic, the Charter of Osh State University and local regulatory documents in force at the time of approval of the educational standard.

The procedure for the development, approval and amendment of this standard is regulated by the "Regulation on the Development, Approval and Amendment of Educational Standards at Osh State University".

CHAPTER 2. REDUCE

ECTS – European Credit Transfer and Accumulation System.
HPE – higher professional education;
RLA – regulatory legal acts;
GPC – general professional competencies;
EO – educational organization;
BEP – Basic Educational Program;
EP – Educational Program
GC- general competencies
SES – State Educational Standard;
PC – professional competencies;
SVO – Secondary vocational education

CHAPTER 3. TERMS

The following terms and definitions are used in this educational standard of higher professional education:

- *Basic curriculum* is a catalog of full-time disciplines that prepare a student for a profession in a direction or specialty (hereinafter referred to as the curriculum). The curriculum includes a mandatory component, determines the number of credits allocated for training in compulsory disciplines and disciplines of students' choice, establishes the terms and types of practice;

- *double qualification* - qualification obtained in the process of implementing an educational program at the junction of educational standards of two areas (profiles) / specialties;

- ***current regulatory internal regulations*** – regulatory internal regulations that are in force during the development of this Regulation;

- *elective disciplines* – academic disciplines that reflect the individual preparedness of the student, included in the elective component within the framework of credits established by educational organizations, taking into account the peculiarities of socio-economic development and the needs of a particular region;

- competence is a predetermined social requirement (norm) for the educational training of a student, necessary for his effective, productive activity in a certain field;

- ***credit*** is a conditional measure of the labor intensity of the main professional educational program;

- *credit technology of training* - training on the basis of independent choice and planning the sequence of studying the student's disciplines by accumulating credits;

- *STEM skills* – mathematics, modern technology, technology, engineering, data use and management.

- ***direction of training*** – a set of educational programs for training personnel with higher professional education (bachelors, masters, specialists) of various profiles, integrated on the basis of the commonality of fundamental training;

- ***online form of education* -** distance education using information technologies in real time;

- ***basic educational program*** is a set of educational and methodological documentation that regulates the goals, expected results, content, organization and implementation of the educational process in the relevant area of training;

- ***profile –*** the focus of the main educational program on a specific type and (or) object of professional activity;

- ***learning outcome*** - competencies acquired as a result of training in the main educational program/module;

- ***independently developed competencies*** **-** competencies introduced by the developers of the standard;

- ***semester curriculum*** – a curriculum that serves to organize the educational process in a certain academic period (calculation of the labor intensity of the educational activity of teachers for the semester);

- *the form of sectoral education* is the implementation of an educational program by several educational organizations;

- *ECTS* **(**European Credit Transfer and Accumulation System).

- *soft skills* – emotional and creative intelligence, business communication and self-discipline, creative and critical approach in non-standard situations.

CHAPTER 4. APPLICATION DOMAIN

4.1. In this educational standard, developed at Osh State University, (hereinafter referred to as the educational standard - ES) is a set of norms, rules and requirements for the development and implementation of BEP in the direction of training of higher professional education at the level of specialist **560005 Pharmacy.**

4.2. This CB establishes the requirements for the training of a specialist in EP HPE in the specialty **560005 Pharmacy**, based on the results of which the qualification of "specialist" is awarded.

4.3. This HPE Standard is the basis for the development of basic curricula, work programs of academic disciplines, practices and programs of state final certification, which make up the structure of the PLO.

4.4. The main users of the SES are:

- EP in the specialty **560005 Pharmacy** is the basis for the development of BEP and organizational and methodological documents for the training of specialists. It is also used by the staff of the teaching staff of the EO in order to assess the quality of the development of the HPE program, supplement and update it, taking into account the achievements of science, technology and the social environment, as well as systematic monitoring of the achieved learning outcomes;
- are used by students for the purpose of effective implementation of educational work in the development of the main EP;
- uses the management of the EO responsible for the quality of training of graduates, the organization of the educational process within its competence, the sectoral committees of the Educational and Methodological Association EO, deans of faculties, directors of institutes and colleges, heads of departments, heads of departments,

heads of subject-cycle commissions and others;

- use examination and state attestation commissions that assess the educational achievements and quality of education of graduates;
- are used by employers in the relevant field of professional activity

to determine the orientation/specialty of graduates in employment;

- organizations financing higher professional education;
- authorized organizations that accredit EO in the field of education;
- representatives of state executive bodies ensuring compliance and control of legality in the education system, carry out quality control in the field of higher vocational education;
- are used by applicants when choosing educational specialties.

CHAPTER 5. STANDARD PERIOD OF DEVELOPMENT AND LABOR INTENSITY OF THE EDUCATIONAL PROGRAM 560005 PHARMACY

5.1. **Requirements for the level of education of applicants.** When applying for a specialist's program, an applicant must have one of the following documents:
- certificate of secondary general education;
- Diploma of initial vocational education (if there is a document on secondary general education);
- Diploma of secondary vocational education.

5.2. When implementing the EP in accordance with this educational standard within this field of study, higher education at the specialist level can be mastered in the following form:
- full-time;
- Accelerated.

5.3. The total labor intensity of the EP in the specialty **560005 Pharmacy for** training a specialist is 300 credit units, regardless of the form of education, the educational technologies used, the student's individual curriculum, including accelerated training.

5.4. The standard period of full-time training is 5 years for a specialist, including vacations provided after passing the state final certification.

5.5. The norms of the duration of education according to the individual curriculum of the student are determined on the basis of the internal regulations of the EO on academic policy and organization of the educational process.

5.6. When organizing the educational process using the credit technology of education, the volume of each academic discipline is an integer number of academic credits. The labor intensity of all types of educational work in the curriculum is indicated in ECTS credits. One ECTS credit is equal to 30 academic hours (including classroom, independent work and all types of certification). The duration of an academic hour is 45 minutes.

5.7. The labor intensity of the full-time educational program for the academic year is at least 60 credits and one academic semester is at least 30 credits.

5.8. The period of training in the implementation of accelerated programs of EO is determined by the results of re-certification (re-crediting) in full or in part of the results of training in certain disciplines (modules) and/or certain types of on-the-job training mastered (passed) by the student when receiving of the previous secondary vocational education.

5.9. The standard period of study implemented in the accelerated form of education, regardless of the educational technologies used, is at least 3 years. When enrolling in an accelerated form of education, the EO creates a commission, with the involvement of teachers of the graduating departments**, in the direction of Pharmacy**, which determines the correspondence of the student's previous education.

5.10. For persons who have secondary vocational education in the relevant profile, the educational organization grants the right to study EP under accelerated programs, taking into account the recognition of the results of previous education and training.

5.11. When using online learning, it is not allowed to organize all types of practices and final state certification online.

CHAPTER 6. REQUIREMENTS FOR THE DEVELOPMENT AND IMPLEMENTATION OF THE BASIC EDUCATIONAL PROGRAM

6.1. EO independently develop the BEP HPE taking into account the needs of the labor market. The BEP is developed on the basis of the CB for the specialty, the NQF, the sectoral qualifications framework and professional standards (Decree of the Government of the Kyrgyz Republic dated September 18, 2020 No 491 On the approval of the National Qualifications Framework).

6.2. **The purpose of the** BEP in the specialty **of Pharmacy 560005**:

Training of highly qualified modern specialists with universal human values, capable of satisfying the needs of the population and the pharmaceutical market, having high motivation for professional activity in pharmacy, capable of making their contribution to the establishment of economically sustainable development of the state.6.2. An educational organization updates the BEP taking into account the development of science, culture, economy, engineering, technology and the social sphere, in accordance with the recommendations of stakeholders, at least once every 5 (five) years. The EP update includes:

- development of a strategy to ensure the quality of graduate training;
- periodic monitoring of HHPs;
- development of objective procedures for assessing the level of knowledge and skills, skills of students, competencies of graduates based on the requirements for the competence of graduates agreed with the employer;
- ensuring the quality and competence of the teaching staff;
- provision of sufficient resources implemented by the PLO, control of the effectiveness of their use;
- regular self-assessment according to the minimum accreditation requirements established by the Cabinet of Ministers of the Kyrgyz Republic;
- informing the public about the results of their activities, plans, innovations.

6.3. The EO implementing the IDP is obliged to:

- to form a socio-cultural environment;
- to create the conditions necessary for the comprehensive development and socialization of the individual, to preserve the health of students;
- to promote the development of educational/extracurricular components of the educational process, including the development of self-government, the participation of students in the work of public organizations, sports and creative clubs, scientific student societies.

6.4. The set of disciplines (modules) and their workload are determined by the corresponding structures (faculties, institutes) of the educational organization in the volume established for the cycle.

6.5. The EP HPE must contain compulsory (basic) disciplines and, at the student's choice, the variable part of each cycle of disciplines. Elective disciplines are offered for the professional cycle. The catalog of elective disciplines is determined by the educational organization.

6.6. The division of subjects into groups according to the degree of obligation and sequence of their development is carried out in accordance with the regulations on the organization of the educational process in the EO of the Kyrgyz Republic and the internal acts of the educational organization.

6.7. The EO is obliged to familiarize students with their rights and obligations in the formation of the EP, to explain that the disciplines chosen by students become mandatory for them, and their total labor intensity should not be less than provided for by the curriculum.

6.8. The distribution of disciplines into groups “A”, “B” and “C” according to the degree of obligatory nature, the sequence of their mastering and labor intensity is carried out in accordance with the provisions on the organization of the educational process of the EO and the appendices of this Model.

6.9. When developing and implementing the OP, the EO is obliged to take into account the policy of gender equality, ensure social inclusion, as well as the development of digitalization.

6.10. General requirements for the rights and obligations of a student in the implementation of the EP:

- within the framework of the EP HPE, students have the right to choose specific disciplines within the amount of study time allotted for the development of academic disciplines of the student's choice.
- when forming his/her individual educational trajectory, the student has the right to receive advice from the EO on the choice of disciplines and their impact on the future profession/specialty.
- in order to achieve results in the development of competencies, students have the right to participate in the development of student self-government, the work of public organizations, sports and creative clubs, and scientific student societies.
- students are required to complete all the tasks provided for by the EP EO within the established time frame.
- The volume of the student's teaching load is set at least 38 hours per week, including all types of his classroom and extracurricular (independent) educational work. The maximum amount of the student's teaching load per week is set by the educational organization;
- the volume of classroom classes per week for full-time training of a specialist is not less than 35% of the total volume allocated for the study of each academic discipline;
- The total amount of vacation time in the academic year should be 7-10 weeks, including at least two weeks in winter, depending on the period of study.

CHAPTER 7. CHARACTERISTICS OF THE PROFESSIONAL ACTIVITIES OF GRADUATES OF THE EDUCATIONAL PROGRAM 560005 PHARMACY

7.1. **Directions** in the professional activity of a graduate of the educational program in the specialty **560005 Pharmacy** include:

- healthcare (in the field of circulation of medicines, medical devices and other pharmacy products);
- education and science (in the field of scientific research).

Graduates can carry out professional activities in other fields and (or) areas of professional activity, provided that the level of their education and the acquired competencies meet the requirements for the qualification of an employee.

The field of professional activity of graduates in the specialty **560005 "Pharmacy"**: practical pharmacy and pharmaceutical science, engaged in the purposeful development and application of technologies, means and methods of human activity aimed at preserving and improving the entire system of circulation of medicines and other pharmaceutical products.

7.2. The objects of professional activity of graduates of the EP in the specialty **560005 Pharmacy** are:

- medicines, other pharmacy products, medicinal plant raw materials, biologically active substances, biological fluids and tissues,
- a set of means and technologies aimed at creating conditions for the development,

production, quality control, circulation of medicines and control in the field of circulation of medicines in accordance with the established requirements and standards in the field of healthcare;
- legal entities and (or) individuals;
-population.

7.3. **Types of** professional activities of specialists in the specialty **560005 Pharmacy*:***

- pharmaceutical activities;
- organizational and managerial;
- control and permitting;
- Medical;
- research;
- Production.

7.4. A specialist who has been awarded the qualification of "Pharmacist" in the specialty **560005 Pharmacy** in accordance with paragraph 6.3. is ready to solve the following **professional tasks:**

Pharmaceutical activities:

- Provision of the population and medical organizations with medicines and other pharmacy products.
- Production of medicines according to doctors' prescriptions and the requirements of medical organizations.
- Quality control of medicines supplied to the pharmacy and manufactured in it.
- Advising visitors on the use of medicines, medical devices and other pharmacy products.
- Marketing and management in pharmacy, including participation in market research, development of marketing programs and inventory management.
- Information support in pharmacy, including the provision of information about medicines to medical workers and the public.

Organizational and managerial activities:

- Organization of the work of a pharmacy or other pharmaceutical enterprise.
- Personnel management of a pharmaceutical enterprise.
- Planning and budgeting of the activities of a pharmaceutical enterprise.
- Ensuring compliance with the requirements of legislation in the field of circulation of medicines.

Control and permitting activities:

- Control over compliance with licensing requirements and conditions for pharmaceutical activities.
- Participation in inspections of pharmaceutical enterprises.
- Issuance of permits for the use of new medicines.

Medical activities:

- Participation in the treatment of patients by providing advice on the use of medicines;
- First aid.

Research activities:

- Participation in research on the development of new medicines, including the study of their chemical properties, mechanisms of action, efficacy and safety.
- Conducting research to improve existing dosage forms and methods of their production.
- Study of problems related to the provision of medicines to the population, and development of proposals for their solution.
- Participation in clinical trials of new drugs.

Production activities:

- Organization and control of the production of medicines at pharmaceutical enterprises.

- Ensuring compliance with GMP (Good Manufacturing Practice) requirements at pharmaceutical enterprises. Development and implementation of new technologies for the production of medicines.

CHAPTER 8. REQUIREMENTS FOR THE RESULTS OF MASTERING THE EDUCATIONAL PROGRAM 560005 PHARMACY

8.1. As a result of mastering the educational program, the graduate should form the following **general competencies (GC)**

Direction	Competence	Learning Outcomes (LR)
Language and communication skills	**GC-1**: Makes a public speech: chooses the style and type of his/her speech and presents it; correctly and clearly expresses and proves his/her opinion in writing and orally, presents the results of research in a professional environment in Kyrgyz, Russian and foreign languages.	**LO-1:** Carries out speech activities in the professional field in Kyrgyz, Russian and one of the foreign languages at the level of at least B1.
National and universal values	**GC-2:** In his professional activity, he critically analyzes and evaluates personal and civil relations, is able to initiate and ensure the implementation of ideas aimed at improving the philosophy of statehood, civic identity, patriotism, universal and national values on the basis of legal culture.	**RO-2:** Respects universal human and national values, with the preservation of personal, national identity, observes the rule of law and can take care of its development, dissemination, guided by it, shows personal, civic, legal responsibility in relation to the interests of the state and the social sphere.
Soft skills	**GC-3:** Generates new ideas and can adapt to external innovations and unexpected situations, possessing creative thinking, analytical thinking and can act critically when organizing projects and running a business.	**RO-3**: Capable generate ideas and think critically, integrate and analyze other points of view, think reasonably and constructively in a professional environment, show self-control, psychological stability and research skills in non-standard business situations.
STEM skills	**GC-4:** Can use digital media texts, infographics, basic mathematical, engineering, scientific principles, adapt to new trends in various business areas of the digital and creative economy.	**RO-4:** Uses modern information and telecommunication technologies and mathematical methods, has a flexible approach to the trends of the technical,

		digital and creative economy.

8.2. A graduate of **the specialty 560005 Pharmacy** must have the following **general professional competencies (GPC):**

General professional competencies	
GPC -1	Is able to use fundamental knowledge to solve professional problems and use the results of research in professional activities.
GPC -2	Understands the importance of observing bioethical and deontological principles based on human and national values, and implementing them in their professional activities.
GPC -3	It is able to classify medicinal plants by morphological and anatomical features, to conduct microscopic analysis of plant objects to identify them.
GPC -4	She is able to work in a team, with other medical workers and with patients, to implement communication and leadership skills in various situations.
GPC -5	Able to use the basics of economic and legal knowledge in professional activities.
GPC -6	Ability to evaluate biophysical drug interactions in the body, understand chemicals, and apply this knowledge to the development of effective dosage forms.

8.3. A graduate with the qualification **of "Pharmacist"** of the degree of specialist must have the following **professional competencies (PC)** corresponding to the type of professional activity:

Professional Competencies in Pharmaceutical Activities

Professional competencies in organizational and managerial activities

Professional competencies	
PC-1	Is able to apply knowledge about morphofunctional features, physiological states, pathophysiological processes in the human body to solve professional problems.
PC -2	He is able to use the main chemical, biochemical, physicochemical, methods of analysis of substances to ensure quality control of medicines.
PC-3	Is able to participate in the implementation of the basic principles of state policy in the field of drug and medical devices circulation aimed at protecting the health of citizens of the Kyrgyz Republic;
PC -4	Capable of implementing good pharmacy and distribution practices in accordance with national and international regulations.
PC -5	He is able to carry out standardization of medicinal products, phytochemical studies, quality analysis in accordance with regulatory documents, and substantiate the use of medicinal plants in medicine.
PC-6	He is able to provide pharmaceutical information and advice when dispensing medicines, when selling other pharmacy products.
PC -7	Able to participate in the organization of the activities of pharmaceutical organizations, the regulatory authority in the field of drug circulation, compliance and environmental safety.

PC -8	Able to apply the basic principles of management of pharmaceutical organizations in the field of drug circulation and medical healthcare institutions.
PC-9	Able to participate in the organization of appropriate laboratory, clinical practices in accordance with national and international requirements.

Professional competencies in control and permitting activities

Professional competencies	
PC-10	Able to participate in the work of the regulatory body, in the field of drug circulation, taking part in licensing procedures, inspection of pharmaceutical and medical institutions, registration, quality control of medicines.
PC-11	Capable of quality control of medicines in the conditions of a pharmaceutical organization and detection of falsified, counterfeit and substandard medicines, withdrawal of them from circulation for further destruction in accordance with regulatory documents.
PC-12	It is capable of analyzing the quality of drugs of intrapharmacy production in pharmacy conditions.
PC-13	Is able to participate in chemical and toxicological analysis to detect acute poisoning with drugs, poisons, etc., narcotic and alcoholic intoxication.

Professional Competencies in Medical Activities

Professional competencies	
PC -14	Able to take part in the provision of first aid to the population, including in emergency situations at the stages of evacuation first aid.
PC-15	Is able to interact with healthcare professionals in the rational choice of the most effective and safe pharmacotherapy, taking into account the pharmacological group, pharmacokinetics, pharmacodynamics, drug interaction, concomitant diseases and the functional state of the body.

Professional competencies in research activities

Professional competencies	
PC-16	He is able to take part in planning, conducting scientific research in the field of drug circulation, medical devices and in the field of medicine.
PC-17	He is able to analyze scientific information and publicly present the results of scientific research in the field of drug circulation, medical devices and in the field of medicine.

Professional competencies in production activities

Professional competencies	
PC-18	Able and ready to manufacture medicines and take part in the implementation of

	technological processes in the production of finished medicines in compliance with the requirements of national and international standards.
PC-19	Able and ready to organize the harvesting of medicinal plants, taking into account the rational use of medicinal plant resources, to take part in the cultivation of medicinal plants.
PC-20	Is able to apply modern technological equipment, methods of mathematical modeling and computer technologies, taking into account biopharmaceutical aspects and dosage form requirements to optimize the technological processes of drug production.

CHAPTER 9. REQUIREMENTS FOR THE CONDITIONS FOR THE IMPLEMENTATION OF EDUCATIONAL SOFTWARE 560005 PHARMACY

9.1. Requirements for personnel for the implementation of the educational program

9.1.1. General requirements for staffing of the educational process:

The implementation of the educational programme for training specialists must be ensured by teaching staff who have a basic education corresponding to the profile of the discipline taught and who are systematically engaged in scientific and/or scientific and methodological activities.

The quality indicator of teaching staff with academic degrees and/or academic titles for each cycle of the educational programme must comply with the requirements of the state educational standard.

The proportion of full-time teachers among the total number of teachers in the educational programme must be at least 70%.

9.1.2. Requirements for staffing the educational process in accordance with the specific features of the field of education:

Teaching staff for the subjects in the educational programme are provided by specialists in the relevant fields who have basic education and an academic degree of 'specialist'. Teachers of specialised subjects (pharmacy management and economics, pharmaceutical chemistry, pharmacognosy, pharmaceutical technology, pharmacology, clinical pharmacy) must have an academic degree (PhD, candidate/doctor of science) or be a senior lecturer in the department. International certificate (e.g., in GDP, GMP, GPP, clinical pharmacy).

The proportion of teachers with a candidate or doctorate degree (or equivalent specialists) in the total number of teachers providing education under this educational programme must be at least 40%.

Up to 10% of the total number of teachers implementing the educational programme must be from the manufacturing sector and/or related business sectors, with more than 10 years of practical work experience in this field in managerial and/or leading specialist positions (regardless of the type of ownership).

At least 2% of teachers implementing the educational programme must be recruited from foreign universities with advanced experience, using online or offline forms of training.

The teaching staff implementing the educational programme must improve their professional qualifications in the relevant field every three years and their teaching qualifications every five years. At least 5% of teachers must have experience working/studying at foreign universities or international pharmaceutical organisations. Teachers must publish at least one article every two years in peer-reviewed journals (including Scopus/WoS).

The teacher-to-student ratio must not exceed 1/12.

9.2. Requirements for educational, methodological and information support of the educational process

9.2.1. Requirements for the literature fund:

The EP HPE for the training of a specialist must be provided with textbooks, educational and methodological documentation, materials for all training courses, disciplines of the basic educational program. The EO must ensure the availability of regulatory legal acts, local acts of the educational organization, periodicals of a professional orientation related to the specialty of education.

The provision of students with educational literature and/or electronic literature necessary for the implementation of the educational program must comply with licensing requirements.

Textbooks on mathematical and natural sciences must have been published within the last 10 years, and on the disciplines of the humanities, social and economic cycle - within the last 5 years.

The list of mandatory textbooks and teaching aids for each discipline is determined by the educational organization in accordance with licensing requirements (in the amount of at least 0.5 copies per 1 student).

The provision of methodological means for laboratory and practical work should be 1:1.

The number of copies of additional textbooks, reference bibliographic and specialized periodicals should correspond to 5 copies per 100 students.

9.2.2. Requirements for electronic textbooks:

There should be a wide range of e-books, e-journals, scholarly articles, and other academic materials necessary for teaching and research in all disciplines. The RO is obliged to provide students with access to the electronic library system, modern professional databases, information retrieval systems when working with the electronic library platform.

9.2.3. Requirements for the placement of electronic educational and methodological materials (complexes) on the relevant digital platforms:

Educational and methodological complexes should be placed on the digital platforms of the EO before the start of the educational process and be available to each student.

9.3. Requirements for the material and technical support of the educational process

9.3.1. An educational organization that implements EP must have a material and technical base that provides all types of laboratory, disciplinary and interdisciplinary training, practical and research work of students provided for by the curriculum of the EP, which complies with sanitary and fire safety rules and standards.

- laboratories (including virtual ones) for chemistry, biological chemistry, biology, normal physiology, microbiology and virology, pharmacology, pathophysiology, chemical and toxicological research, quality control of medicines, pharmacognostic analysis, technology of medicines, biopharmaceutical evaluation of medicines;
- modular pharmacy for practicing practical skills in specialized disciplines;
- anatomical museum, models;
- specially equipped classrooms and auditoriums for the study of humanities and socio-economic, natural sciences and professional disciplines;
- Simulation center for practicing patient management skills;

When using electronic publications, the EO must have at least 7 computers with Internet access per 100 students.

The EO must have clinical bases for the implementation of the program on the right of ownership or other legal basis.

9.3.2. Conditions of training at the production base (on-the-job training) are carried out in accordance with the internal local documents of Osh State University:

The EO must provide on-the-job training on the basis of:

-Reserves;
- in-hospital pharmacies;
-Clinic;
- pharmacies both within the Kyrgyz Republic and abroad;

- Department of Medicines and Medical Devices.

The EO must develop and approve programs containing training in production, conducted in an enterprise or organization in the relevant professional disciplines of the EP HPE.

9.4. Requirements for the assessment of the quality of knowledge

9.4.1. Types of control:

Assessment of students' knowledge in the process of current certification should be carried out in accordance with the internal regulatory documents of the NGO, approved by the Academic Council, during the academic semester.

Assessment of the quality of training of students and graduates should include current, intermediate certification and final state certification.

Interim certification of students is carried out during the semester, and the number of intermediate inspections is determined by the internal regulatory documents of the educational organization.

9.4.2. Fund of assessment tools and assessment criteria:

The base of assessment tools and criteria for compliance with the personal achievements of students include laboratory tasks, unit tests and the level of competencies corresponding to the stage or final requirements of the EP for intermediate and final certification.

For each discipline, in accordance with the types of control, assessment tools and evaluation criteria are developed before the beginning of the educational process and are available to students.

9.5. Requirements for the organization of the internship

9.5.1. General Provisions on Practice

Practices conducted for students during EP training are considered as a form of the educational process that forms professional competencies in the training of a specialist. Each student is obliged to undergo (perform) the types of practice provided for by the GO.

The EO must ensure the passage of practical training in production institutions and organizations depending on the direction and specialty of vocational education.

9.5.2. In preparation for the educational program of higher professional education, the following types of practice are carried out:

1. Educational (introductory) practice should include:
- Field practice in botany;
- Introductory practice on drug technology.

2. Practical training should be:
- practical training in pharmacognosy;
- Practical training in the sanitary regime of pharmacies;
- practical training in first aid.

3. The prequalification practice must be:
- standardization and quality control of medicines;
- by drug technology;
- on the management and organization of the pharmaceutical business.

9.5.3. Requirements for Types of Practice

1. In the educational (introductory) practice, students must master the basic skills of working with medicines and plants, regulatory documentation.

- Field practice in botany should be carried out in the first courses of training on the basis of reserves of the Kyrgyz Republic. Students should familiarize themselves with the anatomical and morphological structure of medicinal plants.

- Educational (introductory) practice in drug technology should be carried out in the first years of study, on the basis of pharmacy organizations, pharmaceutical manufacturers or educational laboratories, students should familiarize themselves with the work of pharmacy

organizations, pharmaceutical industries, laboratories, as well as with regulatory documentation and rules for the organization of pharmaceutical activities.

2. Practical training should be carried out in senior courses of study, at pharmaceutical enterprises, in pharmacies, quality control laboratories or other organizations, health care facilities, on the basis of reserves of the Kyrgyz Republic related to pharmacy.

Students should take part in production processes, work with medicines, master the skills of manufacturing, quality control and storage of medicines, interaction with patients and medical workers.

Students must gain professional experience, develop skills in working with medicines, master technological processes and rules for organizing pharmaceutical activities.

3. Prequalification practice shall be carried out at the final stage of training.

Students must perform the duties of a pharmacist under the guidance of a mentor, participate in the organization of the work of a pharmacy or pharmaceutical enterprise, solve professional problems, and prepare for the qualification exam.

Students must be ready to work independently as a pharmacist, be able to solve professional problems and apply the knowledge and skills gained in practice.

9.6. Final certification

The final state certification of students should be carried out after the completion of the full course of study. The types of state certification tests and the procedure for their conduct are determined by the educational organization in accordance with the regulatory legal acts of the Kyrgyz Republic and the EO governing the conduct of the final state certification.

A graduate who has no academic debts and who has completed the full course of study provided for by the curriculum is allowed to the final state certification.

9.6.1. Requirements for the comprehensive final state exam and justification for the distribution of labor intensity (number of credits):

The final state certification of graduates should be carried out in the form of state interdisciplinary examination in the specialty, which provides for the assessment of theoretical and practical professional training on the basis of state requirements for the minimum content and level of training of a graduate in this specialty. The final state certification should consist of two stages:

- the first stage – testing (carried out in the computer classes of the faculty with video recording);
- the second stage is the solution of situational problems using all the acquired skills, an exam (held in the laboratories of the medical faculty of the graduating departments in the direction of Pharmacy with video recording).

The comprehensive final state exam should assess the student's knowledge, theoretical and practical skills, and work experience in pharmacies.

At least 6 credits of the teaching load must be allocated for the comprehensive final state certification to prepare for tests, practical skills and situational tasks.

The final grade should be given according to the average value of 2 stages of the final state certification.

Chapter 10.
SAMPLE OF THE BASIC CURRICULUM OF THE EDUCATIONAL PROGRAM

Block	Cycle	Directions	Disciplines	Credit allocation to groups			Distribution of hours			1 academic year		2 academic year		3 academic year		4 academic year	
				"A"	"B"	"C"	Total	Auditorium	SIW	1 semester	2 semester	3 semester	4 semester	5 semester	6 semester	7 semester	8 semester
1 block	1 cycle. General Education	General education Language and communication skills															
		National and common human values															
		Soft skills															
		STEM skills															
		Physical training															
	2 cycle. General Professional Education	General Professional Education															
	3 cycle. Vocational education. Vocational disciplines	Professional disciplines															
2 block	2 block Practical training																
3 block	3 block Final State attestation																

Appendix 1.

Distribution by cycles and labor intensity of compulsory disciplines in basic curricula medical education **(5-years)**

Block	Cycle	Directions of the cycle	Discipline	Gradation of disciplines according to the degree of obligation and sequence of mastering, taking into account their logical relationships (number of academic hours in ECTS credits and/or number of hours)																	
				Distribution of credits to Group			Clock Distribution			1 academic year		2nd academic year		3rd academic year		4th academic year		5th academic year		Final control
				And	In	With	Total	Auditorium	SIW	1 semester	Semester 2	Semester 3	Semester 4	Semester 5	Semester 6	Semester 7	Semester 8	Semester 9	10semester	
lock	1-cycle of the OOC (24 credits)	Language and communication skills	Kyrgyz language		4															Exam
			Russian		4															Exam
			Catalog of disciplines No1			4														Exam
		National and universal values	Catalogue of Disciplines No2			4														Exam
		Soft skills навыки	Catalogue of Disciplines No3			4														Exam
		STEM skills	Catalogue of Disciplines No4			4														Exam
	2-cycle OPOC (28 credits)	General professional skills	Fundamentals of Scientific Research *(in line with the Sustainable Development Goals development)*		4															Exam
			ABC Enterprise *(in line with the Sustainable Development Goals)*		4															Exam Exam

			Botany	4																	Exam
			Medical Biophysics	4																	Exam
			Latin	4																	Exam
			General chemistry		4																Exam
			Pharmaceutical Bioethics		4																Exam
			Medical Law																		Exam
	3-cycle POC (270-286 loans)	**Professional skills**	Professional Disciplines																		**Exam, differential test**
	Additional Disciplines		Physical education	360hrs																	**Differential Test**
			Military Medical preparation	240hrs																	**Differential Test**
Block 2	**Practice**		20-30 credits																		**Differential Test**
3-block	**Final state certification**		6-8 credits																		**YOKE**
Total labor intensity of the educational program			At least 300 credits																		

Note: OOC – general education cycleOPOC – general professional educational cycle POC – professional educational cycle
"A" – compulsory disciplines (modules of disciplines), the order of which is preserved, in the semester specified in the basic curriculum.
"B" – disciplines, the order of which does not have to be kept in the sequence of semesters, but are mandatory for study. Students can plan the study of disciplines in this group according to an individual trajectory and create an individual curriculum.
"C" – disciplines of the student's choice, recommended in the semester curriculum from the catalog of elective disciplines.

All academic disciplines are divided into the following three groups of disciplines for all cycles according to the degree of obligation and sequence of assimilation, taking into account their logical interconnection:

"A" - the sequence of disciplines studied compulsorily and strictly in the specified semesters of the curriculum is observed;

"B" is a group of disciplines studied mandatory, but not necessarily in the sequence of semesters. The student independently plans the study of the disciplines of this group in the semesters of the specified academic years.

"C" –disciplines of the student's choice, from each group (discipline) of which the student must study only one (at his choice) in the semester recommended in the semester curriculum. Each group (discipline) offers a catalog of disciplines, A student can choose only one discipline from each catalog. Disciplines in the same catalog must be related.

"C" - disciplines of this group allow the student to deepen the disciplines of group "A". They provide an opportunity to acquire additional competencies in order to ensure the competitiveness of the graduate and taking into account scientific and technical achievements, the requirements of the labor market.

"C" - disciplines of this group Can to be updated in each academic year, taking into account scientific and technical achievements and the requirements of the labor market.

Note: the *basic curriculum is developed according to this model using Annexes 1-3.*

Appendix 2

Distribution of the total labor intensity of the basic curriculum (5-year specialist)

Structure of the educational program			Labor intensity (credits) of the blocks of the educational program		
			"A"	**"B"**	**"C"**
1 block	**Discipline**		260 – 274 credits		
	Cycles	General education cycle	-	24 credits	-
		Professional cycle	236 – 250 credits		
		Cycle of general professional education	8 credits*	20 credits** (15-20%)	-
		Cycle of vocational education	50%-70%	15%-25%	15%-25%
Block 2	**Practice**		20 – 30 credits		
Block 3	**Final state certification**		6 – 10 credits		
Total labor intensity of the educational program			**At least 300 credits**		

Note:

** - 8 credits in group "A" include the disciplines "Medical Biology" and "Latin Language";*

*** - out of 20 credits in group "B" should be divided into the disciplines "Fundamentals of Scientific Research" - 4 credits and "Fundamentals of Entrepreneurship" - 4 credits. These disciplines are taught in accordance with the Sustainable Development Goals.*

The labor intensity in group "B" of the cycle of general professional disciplines, including 20 approved credits, is 15 - 20%.

Appendix 3

Catalogue of disciplines of the general education cycle of the basic curriculum

Note: ***students*** *choose disciplines from the "catalog of disciplines" of the general education cycle at their own discretion. Each catalog of disciplines offers no more than four disciplines.*

Catalogue Number	**Directory direction**	**Name of the catalogue disciplines**	**Loan volume**
Catalog of disciplines No1	Language and Communication skills	English language	4
		German	
		Chinese	
		Korean	
Catalogue of Disciplines No2	National and universal Values	History of the Fatherland, National Values and Culture	4
		Philosophy, national and universal aspects	
		Ecological Geography and Cultural Heritage Kyrgyzstan	
		Manas Studies	
Catalogue of Disciplines No3	Soft skills навыки	Critical and Design Thinking	4
		Project Workshop	
		Fundamentals of Medical Psychology and Introduction to Profession	
		Time Management & Business Documentation	
Catalogue of Disciplines No4	STEM skills	Digital technologies in professional Activities	4
		Industry Mathematics	
		Genomics and Molecular Biology	
		Biomedical Engineering	

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Состав рабочей группы по разработке образовательного стандарта медицинского факультета по специальности 560005 Фармация

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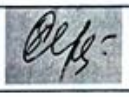
3.	Сандыбаева З.Х.	-	Старший преподаватель кафедры «Фармацевтической химии и технологии ЛС»	

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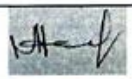
1.	Абдирахманов К.Т.	-	Специалист по качеству ОсОО Дармек-Фарм	
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