

**MINISTRY OF HEALTH OF UKRAINE
NATIONAL UNIVERSITY OF PHARMACY**

EDUCATIONAL AND PROFESSIONAL PROGRAM

PHARMACY

**second (Master's) level of higher education
in specialty 226 Pharmacy, Industrial Pharmacy
specialization 226.01. Pharmacy
field of knowledge 22 Healthcare
Educational qualification: Master of Pharmacy
Professional qualification: pharmacist**

APPROVED BY THE ACADEMIC COUNCIL OF NUPh



Head of the Academic Council

/ prof. Kotvitska A.A./

(record № 5 from 31.05.2023)

Educational and professional program is introduced from 01.09.2023

Acting Rector



/ prof. Kotvitska A.A./

(order № 124 from 31.05.2023)

Kharkiv 2023

PREFACE

Educational and professional program "Pharmacy" of the second (Master's) level of higher education in the specialty 226 Pharmacy, Industrial Pharmacy of specialization 226.01 Pharmacy in the field of knowledge 22 Healthcare is developed that based on the standard of higher education in specialty 226 Pharmacy, industrial pharmacy for the second (Master's) level of higher education (approved by Order of the Ministry of Education and Science of Ukraine dated November 4, 2022 No. 981) by the working (project) team of the National University of Pharmacy consisting of:

1. **Georgiyants Victoriya Akopivna**, Doctor of Pharmaceutical Sciences, Professor, Honored Worker of Science and Technology of Ukraine, Head of the Subcommittee 226 Pharmacy, Industrial Pharmacy of the Scientific and Methodological Commission for Health and Social Security of the Higher Education Sector of the Scientific and Methodological Council of the Ministry of Education and Science of Ukraine, Head of the Department of Pharmaceutical Chemistry of the National University of Pharmacy – a project team leader, guarantor of the educational program.
2. **Kotvitska Alla Anatoliivna**, Doctor of Pharmaceutical Sciences, Professor, Honored Worker of Science and Technology of Ukraine, Acting Rector of the National University of Pharmacy - a member of the project team.
3. **Vladymyrova Inna Mykolayivna**, Doctor of Pharmaceutical Sciences, Professor, Vice-Rector for Research and Teaching Work of the National University of Pharmacy - a member of the project team.
4. **Kuznetsova Viktoriya Yuriivna**, Doctor of Pharmaceutical Sciences, Professor, Vice-Rector for Research and Teaching Work of the National University of Pharmacy - a member of the project team.
5. **Polovko Natalia Petrivna**, Doctor of Pharmaceutical Sciences, Professor, Professor of higher education of Drug Technology Department of the National University of Pharmacy – a member of the project team.
6. **Martyniuk Tetiana Vitaliivna**, Candidate of Pharmaceutical Sciences, Associate Professor, Associate Professor of higher education of Cosmetology and Aromology Department of the National University of Pharmacy - a member of the project team.
7. **Volkova Alina Viktorivna** - Candidate of Pharmaceutical Sciences, Associate Professor, Head of the Department of Social Pharmacy of the National University of Pharmacy - a member of the project group.
8. **Ruban Olena Anatoliivna** - Doctor of Pharmaceutical Sciences, Professor, Head of the Department of Industrial Technology of Drug of the National University of Pharmacy - a member of the project team.
9. **Sakharova Tetiana Semenivna** - Doctor of Pharmaceutical Sciences, Professor, Professor of higher education of Clinical Pharmacology and Clinical Pharmacy Department of the National University of Pharmacy - a member of the project team.
10. **Malyi Volodymyr Valentynovych** - Doctor of Pharmaceutical Sciences, Professor, Honored Worker of Pharmacy of Ukraine, Head of the Department of Pharmaceutical Management and Marketing of the National University of Pharmacy - a member of the project team.
11. **Pasichnyk Mykhaylo Frantsovych** - Candidate of Pharmaceutical Sciences, General Director of PJSC SIC "Borshchahivskiy CPP"; President of the Public Union "Pharmaceutical League of Ukraine" - a member of the project group.
12. **Krasulia Oksana Ivanivna** - Candidate of Pharmaceutical Sciences, Head of the Pharmacy № 1 of the Clinical Hospital "Feofania" of the State Administration of Kyiv - a member of the project team.
13. **AvadAmiraAlaaDzh. A.** – applicant of higher education of specialty 226 Pharmacy, Industrial Pharmacy of the educational program Pharmacy of the National University of Pharmacy - a member of the project group.

Reviews of external stakeholders:

1. **Sevryukov Oleksandr Viktorovych** – Candidate of Pharmaceutical Science, Leader of the Employers' Council of the NUPh
2. **Polova Zhanna Mykolayivna** – Doctor of Pharmaceutical Science, Professor, Head of the Department of Pharmacy and Industrial Drug Technology of the National Medical University named after O.O. Bogomolets
3. **Melnyk Halyna Mykolayivna** – Doctor of Pharmaceutical Science, Director of PE Harmoniya, Chernivtsi.

1. Profile of the educational program in the specialty 226 "Pharmacy, Industrial Pharmacy"

1 – General information	
Full name of the higher education institution and structural unit	the National University of Pharmacy
Degree of higher education and title of qualification in the original language	Master Master of Pharmacy, Industrial Pharmacy Pharmacist
The official name of the educational program	Pharmacy
The type of diploma and the scope of the educational program	Master's degree, single, 300 ECTS credits, term of study 4 years 10 months. On the basis of the educational and professional degree of a professional junior bachelor, educational degree of a junior bachelor, educational and qualification level of a junior specialist in the specialty 226 Pharmacy, industrial pharmacy, master of specialties in the field of knowledge 22 Health care, the higher education institution has the right to recognize and re-enroll no more than 60 ECTS credits obtained within the previous educational program
Availability of accreditation	Ministry of Education and Science of Ukraine, Certificate of accreditation of the specialty series HД № 2186690, valid until 01.07.2024
Cycle / level	HPK Ukraine – 7 level, FQ-EHEA – second cycle, EQF-LLL – 7 level
Preconditions	Complete secondary education. Forms of obtaining education - full-time (full-time). Correspondence (only on the basis of the obtained educational degree of professional junior bachelor, junior bachelor of the educational program Pharmacy and master of specialties of the field of knowledge 22 Health care)
Language (s) of instruction	Ukrainian, English
Term of the educational program	until July 1 st , 2028.
Internet address for permanent posting of the description of the educational program	https://nuph.edu.ua/osvitni-programi/
2 – Objectives of the educational program	
Objectives of education: Formation of a person's ability to solve complex tasks and problems in the field of professional activity or in the learning process, which involves conducting research and/or implementing innovations and is characterized by the uncertainty of conditions and requirements. Provision of academic education for graduates in fundamental and applied sciences and professional training through the acquisition of general and special competences for the implementation of professional activities in the relevant position, including the implementation of pharmaceutical assistance, guaranteeing the safe and rational use of medicinal products, monitoring the effectiveness of pharmacotherapy and/or side effects, readiness bear (or share) responsibility for the results of pharmacotherapy, the stages of drug production, their storage, quality control, delivery, distribution, promotion, regulation, provision of drugs and other products of the pharmacy assortment, taking into account modern international trends, providing pharmaceutical care based on the principles of	

pharmaceutical ethics and deontology	
3 - Characteristics of the educational program	
Subject area (field of knowledge, specialty, specialization (if available))	Field of knowledge - 22 Healthcare Specialty 226 Pharmacy, Industrial Pharmacy Specialization 226.01 Pharmacy
Orientation of the educational program	Educational and professional
The main focus of the educational program and specialization	Special education in the field of Healthcare with a focus on Pharmacy. Key words: medicines, development, manufacture, circulation, promotion, quality control, storage, pharmaceutical care, pharmaceutical ethics and deontology
Features of the program	The program focuses on developing professional competencies in the pharmaceutical field. A high level of professional training is ensured by a rigorous scientific and academic school with pharmacy and rich evidence, developed by an international specialist in the scientific and educational spheres, obviously specialists realized laboratories. A high level of practical preparation will be ensured by the knowledge and scientific process of leading pharmaceutical companies and investors in the pharmaceutical sector of the healthcare industry. Faculty members, who have received professional and scientific training, have undergone internships at leading European universities, have international evidence of educational and scientific activity.
4 – Suitability of graduates for employment and further education	
Suitability for employment	<p>Types of economic activity according to NACE DK 009:2010</p> <p>21.10 Manufacture of basic pharmaceutical products 21.20 Manufacture of pharmaceutical preparations and materials 46.46 Wholesale of pharmaceutical goods 47.73 Retail sale of pharmaceutical goods in specialized stores; 47.74 Retail sale of medical and orthopedic goods in specialized stores; 71.20 Technical tests and studies; 72.10 Research and experimental developments in the field of other natural and technical sciences; 73.20 Market research and identification of public opinion; 74.90 Other professional, scientific and technical activities; 86.10 Activities of hospital institutions 86.90 Other Healthcare activities.</p> <p>Professional titles of occupation according to DK 003: 2010</p> <p>After training in the internship, the specialist is able to perform specified in DK 003: 2010 professional activity and may hold a relevant position: 2224.2 pharmacist; 2224.2 pharmacist-analyst; 2224.2 pharmacist-toxicologist; 2224.1 junior researcher (Pharmacy); 2224.1 researcher (Pharmacy); 2224.1 researcher-consultant (Pharmacy); As well as relevant management positions of pharmaceutical (pharmacy) healthcare institutions and their structural divisions, in particular 1210.1 head of a pharmacy (Pharmacy Institution); 1210.1 head of the pharmacy base; In addition, the Master can work in the chemical and pharmaceutical industry, in forensic chemical and toxicological laboratories, research institutes, clinical Healthcare institutions, higher education institutions</p>

	and branch institutions of various departments, performing professional functions in accordance with official duties.
Further education	Internship according to the specialty. Obtaining the degree of Doctor of Philosophy (PhD) at the third (educational and scientific) level of higher education according to the programs of the 8th level of the NRC of Ukraine, the third cycle of FQ-EHEA.
5 – Teaching and evaluation	
Teaching and learning	Student-centered learning, self-study, problem-oriented learning, independent work with elements of distance learning, training technologies, learning through practical training, qualification paperwork.
Evaluation	Examinations; tests; surveys; discussions; presentations; self-control and self-assessment; protection of practice reports, certification is carried out in the form of a single state qualification exam, passing a comprehensive practice-oriented qualification exam in Pharmacy, defense of qualification work. The Unified State Qualification Exam is carried out in accordance with the Resolutions of the Cabinet of Ministers of Ukraine from 28.03.2018 № 334 "On approval of the Procedure for the Unified State Qualification Exam for applicants for a Master's degree in the field of knowledge "Healthcare" and from 19.05.2021 № 497 "About the attestation of holders of professional preliminary higher education degrees and higher education degrees at the first (bachelor's) and second (Master's) levels in the form of a unified state qualification exam."
6 – Program competencies	
Integral competence	The ability to solve problems of a research and/or innovative nature in the field of pharmacy
General Competencies (GC)	GC 01. Ability to abstract thinking, analysis and synthesis. GC 02. Knowledge and understanding of the subject area; understanding of professional activity. GC 03. Ability to communicate in the national language both orally and in writing. GC 04. Ability to communicate in a foreign language. GC 05. Ability to evaluate and ensure the quality of performed works. GC 06. Ability to work in a team. GC 07. The ability to realize one's rights and responsibilities as a member of society; awareness of the value of a civil (free democratic) society and the need for its sustainable development, the rule of law, the rights and freedoms of a person and a citizen in Ukraine. GC 08. The ability to preserve and multiply moral, cultural, scientific values and achievements of society based on understanding the history and patterns of development of pharmacy, its place in the general system of knowledge about nature and society and in the development of society, equipment and technologies, to use various types and forms of motor activities for active recreation and leading a healthy lifestyle. GC 09. Ability to use information and communication technologies GC 10. The ability to act socially responsibly and civically. GC 11. Ability to apply knowledge in practical situations, make informed decisions. GC 12. Ability to conduct research at the appropriate level.
Professional competencies of the specialty (PC)	PC 1. Ability to integrate knowledge and solve complex pharmacy problems in broad or multidisciplinary contexts. PC 2. Ability to collect, interpret and apply data necessary for professional activity, research and implementation of innovative projects in the field of pharmacy.

PC 3. Ability to solve pharmacy problems in new or unfamiliar environments in the presence of incomplete or limited information, taking into account aspects of social and ethical responsibility.

PC 4. The ability to clearly and unambiguously convey one's own knowledge, conclusions and arguments in the field of pharmacy to specialists and non-specialists, in particular to people who are studying.

PC 5. The ability to carry out sanitary and educational work among the population for the purpose of prevention of common diseases, prevention of dangerous infectious, viral and parasitic diseases, as well as for the purpose of promoting timely detection and support of adherence to the treatment of these diseases according to their medical and biological characteristics and microbiological features .

PC 6. The ability to consult on prescription and non-prescription drugs and other products of the pharmacy assortment; pharmaceutical care during the selection and sale of an over-the-counter medicinal product by evaluating the risk/benefit ratio, compatibility, indications and contraindications guided by data on the health status of a specific patient, taking into account the biopharmaceutical, pharmacokinetic, pharmacodynamic and physicochemical features of the medicinal product and other products of the pharmacy assortment .

PC 7. The ability to provide pre-medical assistance to the sick and injured in extreme situations and emergencies.

PC 8. The ability to monitor the effectiveness and safety of the use of medicinal products by the population according to the data on their clinical and pharmaceutical characteristics, as well as taking into account subjective signs and objective clinical, laboratory and instrumental criteria for the examination of the patient.

PC 9. The ability to identify medicinal products, xenobiotics, toxins and their metabolites in biological fluids and body tissues, to conduct chemical and toxicological studies for the purpose of diagnosing acute poisoning, drug and alcohol intoxication.

PC 10. Ability to ensure proper storage of medicines and other products of the pharmacy assortment in accordance with their physico-chemical properties and the rules of Good Storage Practice (GSP) in healthcare facilities.

PC 11. The ability to organize the activities of pharmacy institutions to provide the population, health care institutions with medicines and other products of the pharmacy assortment, and to implement appropriate reporting and accounting systems in them, and to carry out product analysis, administrative records taking into account the requirements of pharmaceutical legislation.

PC 12. The ability to analyze and forecast the main economic indicators of the activity of pharmacies, to calculate the main taxes and fees, to form prices for medicines and medical products in accordance with the current legislation of Ukraine.

PC 13. The ability to conduct an analysis of socio-economic processes in pharmacy, forms, methods and functions of the system of pharmaceutical provision of the population and its components in global practice, indicators of the need, effectiveness and availability of pharmaceutical care in terms of medical insurance and reimbursement of the cost of medicines.

PC 14. Ability to use knowledge of regulatory and legislative acts of Ukraine and recommendations of proper pharmaceutical practices in professional activity.

PC 15. The ability to apply communication skills in practical activities, to

	<p>adhere to the fundamental principles of pharmaceutical ethics and deontology, which are based on moral obligations, values, ethical norms of professional behavior and responsibility in accordance with the Code of Ethics of pharmaceutical workers of Ukraine and the guidelines of international organizations.</p> <p>PC 16. The ability to organize and carry out the production activities of pharmacies for the manufacture of drugs in various dosage forms according to the prescriptions of doctors and orders of medical institutions, including the justification of technology and the selection of auxiliary materials in accordance with the rules of Good Pharmacy Practice (GPP).</p> <p>PC 17. Ability to carry out pharmaceutical development and participate in the production of medicinal products of natural and synthetic origin in the conditions of pharmaceutical enterprises in accordance with the requirements of Good Manufacturing Practice (GMP).</p> <p>PC 18. The ability to organize and carry out general and marketing management of assortment, product and innovation, price, sales and communication policies of pharmaceutical market subjects based on the results of marketing research and taking into account market processes on national and international markets, manage risks in the pharmaceutical supply system .</p> <p>PC 19. Ability to organize and carry out quality control of medicinal products of natural and synthetic origin in accordance with the requirements of the current edition of the State Pharmacopoeia of Ukraine, quality control methods (QC), technological instructions, etc.; to prevent the distribution of low-quality, falsified and unregistered medicinal products</p> <p>PC 20. Ability to develop and evaluate methods of quality control of medicinal products of natural and synthetic origin, including active pharmaceutical ingredients, medicinal plant raw materials and auxiliary substances using physical, chemical, physico-chemical, biological, microbiological and pharmaco-technological methods; carry out standardization of medicinal products in accordance with current requirements.</p>
7 – Program learning outcomes	
Program learning outcomes (PLO)	<p>PLO 1. To have and apply specialized conceptual knowledge in the field of pharmacy and related fields, taking into account modern scientific achievements.</p> <p>PLO 2. Critically consider scientific and applied problems in the field of pharmacy.</p> <p>PLO 3. To have specialized knowledge and skills/skills for solving professional problems and tasks, including for the purpose of further development of knowledge and procedures in the field of pharmacy.</p> <p>PLO 4. Communicate freely in the state and English languages orally and in writing to discuss professional problems and results of activities, presentation of scientific research and innovative projects.</p> <p>PLO 5. To evaluate and ensure the quality and efficiency of activities in the field of pharmacy.</p> <p>PLO 6. Develop and make effective decisions to solve complex/complex problems of pharmacy personally and based on the results of joint discussion; formulate the goals of one's own activity and the activity of the collective, taking into account public and industrial interests, the general strategy and existing limitations, determine the optimal ways to achieve goals.</p> <p>PLO 7. Collect the necessary information on the development and</p>

production of medicinal products, using professional literature, patents, databases and other sources; systematize, analyze and evaluate it, in particular, using statistical analysis.

PLO 8. Formulate, argue, clearly and concretely convey to specialists and non-specialists information based on one's own knowledge and professional experience, the main trends in the development of world pharmacy and related industries.

PLO 9. To carry out professional activities using information technologies, "Information databases", navigation systems, Internet resources, software and other information and communication technologies.

PLO 10. To carry out professional activities in social interaction based on humanistic and ethical principles; to identify future professional activity as socially significant for human health.

PLO 11. To carry out sanitary and educational work in professional activities in the event of outbreaks of infectious, viral and parasitic diseases.

PLO 12. Determine the advantages and disadvantages of medicinal products of natural and synthetic origin of various pharmacological groups, taking into account their chemical, physicochemical, biopharmaceutical, pharmacokinetic and pharmacodynamic features and the type of dosage form. Recommend to consumers medicinal products and other products of the pharmacy assortment with the provision of advisory assistance and pharmaceutical care.

PLO 13. Provide pre-medical assistance to patients in emergency situations and victims in extreme situations.

PLO 14. Record cases of side effects when using medicinal products of natural and synthetic origin; evaluate factors that can affect the processes of absorption, distribution, deposition, metabolism and excretion of drugs and are determined by the condition and characteristics of the human body and the pharmaceutical characteristics of drugs.

PLO 15. To use the data of clinical, laboratory and instrumental studies to monitor the effectiveness and safety of the use of medicinal products.

PLO 16. Conduct a chemical-toxicological study and give an expert assessment of its results.

PLO 17. Predict and determine the impact of environmental factors on the quality and consumer characteristics of medicinal products of natural and synthetic origin and other products of the pharmacy assortment, organize their storage in accordance with their physical and chemical properties and the rules of Good Storage Practices (GSP).

PLO 18. Implement appropriate organizational and management measures to provide the population and health care institutions with medicines and other products of the pharmacy assortment; carry out all types of reporting and accounting in pharmacy institutions, administrative record-keeping and commodity analysis.

PLO 19. Calculate the main economic indicators of pharmacy establishments, as well as taxes and fees. Form all types of prices (wholesale, purchase and retail) for medicinal products and other products of the pharmacy assortment.

PLO 20. To use the data of the analysis of socio-economic processes in society for the pharmaceutical supply of the population, to determine the effectiveness and availability of pharmaceutical assistance in terms of medical insurance and reimbursement of the cost of medicines.

PLO 21. Plan and implement professional activities on the basis of normative legal acts of Ukraine and recommendations of proper

	<p>pharmaceutical practices</p> <p>PLO 22. To develop technological documentation for the manufacture of medicinal products, to choose a rational technology, to manufacture medicinal products in various medicinal forms according to the prescriptions of doctors and the requirements (orders) of medical and preventive institutions, to process them before discharge.</p> <p>PLO 23. Carry out pharmaceutical development of medicinal products of natural and synthetic origin in the conditions of industrial production.</p> <p>PLO 24. To ensure competitive positions and effective development of pharmaceutical organizations, including, taking into account the results of marketing research and market processes at the national and international levels.</p> <p>PLO 25. Choose, implement and apply management methods and functions in the professional activity of pharmacies, wholesalers, manufacturing enterprises and other pharmaceutical organizations, argue the principles of personnel management and self-management, demonstrate leadership skills.</p> <p>PLO 26. Provide and implement quality control of medicinal products of natural and synthetic origin and document its results; issue quality certificates and analysis certificates taking into account the requirements of the current edition of the State Pharmacopoeia of Ukraine, quality control methods (QC), technological instructions, etc.; take measures to prevent the distribution of low-quality, falsified and unregistered medicinal products.</p> <p>PLO 27. Determine the main chemical and pharmaceutical characteristics of medicinal products of natural and synthetic origin; choose and/or develop quality control methods for the purpose of their standardization using physical, chemical, physico-chemical, biological, microbiological and pharmaco-technological methods in accordance with current requirements.</p>
8 – Resource support for program implementation	
Personnel Provision	<p>Personnel provision of the educational process corresponds to the Licensing Conditions for the educational activities of educational institutions in the field of higher education. Lectures, practical classes, laboratory classes, seminars are conducted by doctors / candidates of sciences by specialty, professors / associate professors, academicians of the NAS of Ukraine, full members of branch Academies of Sciences, laureates of the State Prize of Ukraine in science and technology, etc.</p> <p>Foreign experts are involved in the Erasmus + program.</p>
Material and technical support	<p>Material and technical support of the educational process corresponds to the Licensing Conditions for the educational activities of educational institutions in the field of higher education. Availability of educational facilities and training classes for lectures, practical classes, seminars (specialized rooms, laboratories), laboratory equipment, facilities, computer workstations, multimedia equipment, social infrastructure.</p>
Informational and educational and methodological support	<p>The informational and teaching-methodical support of the educational process corresponds to the Licensing conditions for conducting educational activities of the educational institution in the field of higher education. Availability of educational and methodological complex for each educational component (with educational content); practical training programs, methodical materials for certification of higher education applicants. Use of the electronic resource of the Scientific Library and the site of distance learning technologies of the university, including free access to international databases. Free access to the Internet in all premises of the university.</p>

9 – Academic mobility	
National credit mobility	Based on bilateral agreements between the National University of Pharmacy and higher education institutions of Ukraine, scientific institutions of NASU and NAMSU.
International credit mobility	Based on bilateral agreements between the National University of Pharmacy and higher education institutions of foreign partner countries.
Training of foreign applicants for higher education	Existing conditions for training the foreigners and stateless people: the availability of the certificates of proficiency in English at the B2 level according to the European recommendations on language education or qualification documents (diploma of higher education, scientific degree) and the possibility of teaching it; the University has a Center for International Career Guidance and External Relations, a faculty for training foreign citizens. Education of foreigners and stateless people according to the educational program is carried out in Ukrainian, Russian, English.

2. The list of components of the educational and professional program and their logical sequence

2.1. List of EP components

Code n / a	Components of the educational program (academic disciplines, practices, qualification work)	Number of credits	Form of final test
1	2	3	4
Compulsory components of the EP			
CC 1	General and Inorganic Chemistry	5	Sem. credit-test-mark
CC 2	Ukrainian as a Foreign Language	4	Sem. credit-test
CC 3	Latin	4	Sem. credit-test-mark
CC 4	Introduction to Pharmacy	3	Sem. credit-test
CC 5	Biophysics, Physical Methods of Analysis	4	Sem. credit-test-mark
CC 6	Human Physiology and Anatomy	5	Sem. credit-test-mark
CC 7	Professional Ukrainian	3	Sem. credit-test
CC 8	History of World and Ukrainian Culture	3	Sem. credit-test
CC 9	Organic Chemistry	8	Sem. credit-test-exam
CC 10	Pharmaceutical Botany	6	Sem. credit-test-exam
CC 11	Analytical Chemistry	8	Sem. credit-test-exam
CC 12	Physical and Colloidal Chemistry	6	Sem. credit-test-exam
CC 13	Philosophy, Ethics and Aesthetics	4	Sem. credit-test-mark
CC 14	Professional English	3	Sem. credit-test-mark
CC 15	First Aid with Introductory Medical Practice	4	Sem. credit-test
CC 16	Biological Chemistry	7	Sem. credit-test-exam

1	2	3	4
CC 17	Microbiology with Fundamentals of Epidemiology	7	Sem. credit-test-exam
CC 18	Pathological Physiology	7	Sem. credit-test-exam
CC 19	Extremal medicine	3	Sem. credit-test
CC 20	Pharmacology	10	Sem. credit-test-exam
CC 21	Pharmacognosy	9	Sem. credit-test-exam
CC 22	Pharmaceutical technology of Drugs	9	Sem. credit-test-exam
CC 23	Pharmacy-sold cosmetic products	3	Sem. credit-test-mark
CC 24	Pharmaceutical Law and Legislation	3	Sem. credit-test-mark
CC 25	Pharmaceutical Chemistry	12	Sem. credit-test-mark, Sem. credit-test-exam
CC 26	Pharmacotherapy with pharmacokinetics	3	Sem. credit-test-mark
CC 27	Organization and Economics of Pharmacy	8	Sem. credit-test-exam
CC 28	Industrial Technology of Drugs	7	Sem. credit-test-exam
CC 29	Medical and analytical toxicology	3	Sem. credit-test-mark
CC 30	Medical and pharmaceutical commodity research	3	Sem. credit-test
CC 31	Ethics and Deontology in Pharmacy	3	Sem. credit-test
CC 32	Clinical Pharmacy and Pharmaceutical Care	8	Sem. credit-test-exam
CC 33	Pharmaceutical Management and Marketing	8	Sem. credit-test-exam
CC 34	Social Pharmacy	3	Sem. credit-test
CC 35	Standardization of Drugs	3	Sem. credit-test
CC 36	Pharmacoeconomics	3	Sem. credit-test
The total amount of compulsory components:		192	
Elective components of EP			
SC 1- SC 20 (from the catalog of optional educational components)			
The total amount of selective components:		75	Sem. credit-test
Practical training			
	Pharmaceutical Manufacturing practice in:	30	
PT 1	Pharmaceutical technology of Drugs	4.5	Sem. credit-test-mark
PT 2	Industrial Technology of Drugs	3	Sem. credit-test-mark
PT 3	Organizations and Economics of Pharmacy	6	Sem. credit-test-mark
PT 4	Pharmaceutical Management and Marketing	4.5	Sem. credit-test-mark
PT 5	Pharmaceutical Chemistry	4.5	Sem. credit-test-mark

1	2	3	4
PT 6	Pharmacognosy	3	Sem. credit-test-mark
PT 7	Clinical Pharmacy and Pharmaceutical Care	4.5	Sem. credit-test-mark
QW	Preparation of graduation thesis	3	
Certification of applicants for higher education			
	Defence of graduation thesis		
	Unified state qualification exam Stage I - KROK 1. Pharmacy Integrated Test-Based Exam -Foreign English Proficiency Test		
	Unified state qualifying exam Stage II - KROK 2. Pharmacy Integrated Test-Based Exam		
	Complex practical-oriented exam in pharmacy		
TOTAL VOLUME OF THE EDUCATIONAL PROGRAM		300	

2.2. Structural and logical scheme of EP

Place in the logical sequence of learning (year of study)	Components of the educational program (academic disciplines, practices, qualification work)	Number of credits	Code n / a
1	2	3	4
1	General and Inorganic Chemistry	5	CC 1
1	Ukrainian as a foreign language	4	CC 2
1	Latin	4	CC 3
1	Introduction to Pharmacy	3	CC 4
1	Biophysics, Physical Methods of Analysis	4	CC 5
1	Human physiology and anatomy	5	CC 6
1	Professional Ukrainian	3	CC 7
1	History of World and Ukrainian Culture	3	CC 8
1-2	Organic Chemistry	8	CC 9
1-2	Pharmaceutical Botany	6	CC 10
2	Analytical Chemistry	8	CC 11
2	Physical and Colloidal Chemistry	6	CC 12
2	Philosophy, Ethics and Aesthetics	4	CC 13
2	Professional English	3	CC 14
2	First Aid with Introductory Medical Practice	4	CC 15
2-3	Biological Chemistry	7	CC 16
2-3	Microbiology with Fundamentals of Epidemiology	7	CC 17
2-3	Pathological Physiology	7	CC 18
3	Extremal medicine	3	CC 19
3	Pharmacology	10	CC 20
3	Pharmacognosy	9	CC 21
3	Pharmaceutical technology of Drugs	9	CC 22
3	Pharmacy-sold cosmetic products	3	CC 23
3	Pharmaceutical Law and Legislation	3	CC 24
3-4	Pharmaceutical Chemistry	12	CC 25
4	Pharmacotherapy with pharmacokinetics	3	CC 26
4	Organization and Economics of Pharmacy	8	CC 27

1	2	3	4
4	Industrial Technology of Drugs	7	CC 28
4	Medical and analytical toxicology	3	CC 29
4	Medical and pharmaceutical commodity research	3	CC 30
4	Ethics and Deontology in Pharmacy	3	CC 31
4-5	Clinical Pharmacy and Pharmaceutical Care	8	CC 32
4-5	Pharmaceutical Management and Marketing	8	CC 33
5	Social Pharmacy	3	CC 34
5	Standardization of Drugs	3	CC 35
5	Pharmacoeconomics	3	CC 36
Practical training			
	Pharmaceutical Manufacturing practice in:	30	
5	Pharmaceutical technology of Drugs різні назви	4.5	PT 1
5	Industrial Technology of Drugs	3	PT 2
5	Organizations and Economics of Pharmacy	6	PT 3
5	Pharmaceutical Management and Marketing	4.5	PT 4
5	Pharmaceutical Chemistry	4.5	PT 5
5	Pharmacognosy	3	PT 6
5	Clinical Pharmacy and Pharmaceutical Care	4.5	PT 7
	Preparation of graduation thesis	3	

3. The certification form of applicants for higher education

Certification of applicants for higher education in the specialty 226 Pharmacy, Industrial Pharmacy is conducted in the form of a single state qualification exam, defense of qualification work and to pass a comprehensive practice-oriented qualification exam in Pharmacy.

The Unified State Qualification Exam is carried out in accordance with the Resolutions of the Cabinet of Ministers of Ukraine dated from March 28, 2018 № 334 "On approval of the Procedure for conducting a single state qualification exam for applicants for the Master's degree in the field of knowledge "Healthcare" and from 19.05.2021 № 497" About the attestation of holders of professional preliminary higher education degrees and higher education degrees at the first (bachelor's) and second (Master's) levels in the form of a unified state qualification exam".

The qualifying work must demonstrate the ability of the holder of the master's degree to solve problems of a research and/or innovative nature in the field of pharmacy. The qualifying work must not contain academic plagiarism, signs of fabrication and falsification. The qualification work is placed in the repository of the National University of Pharmacy.

Certification is carried out openly and publicly.

Subject to the completion of the educational program and successful attestation, the student of higher education is awarded a master's degree with the assignment of the educational qualification of master of pharmacy and the professional qualification of pharmacist, and a diploma of higher education of the established model is issued.

4. Matrix of compliance of program competencies with the mandatory components of the educational program

	CC 1	CC 2	CC 3	CC 4	CC 5	CC 6	CC 7	CC 8	CC 9	CC 10	CC 11	CC 12	CC 13	CC 14	CC 15	CC 16	CC 17	CC 18	CC 19	CC 20	CC 21	CC 22	CC 23	CC 24	CC 25	CC 26	CC 27	CC 28	CC 29	CC 30	CC 31	CC 32	CC 33	CC 34	CC 35	CC 36		
GC 1	•				•								•			•	•							•	•	•	•	•	•	•	•	•	•	•	•	•		
GC 2			•	•											•	•	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
GC 3		•																		•																		
GC 4							•							•																								
GC 5																					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
GC 6																						•				•		•	•	•	•	•	•	•	•	•	•	
GC 7				•				•					•						•						•						•			•				
GC 8				•				•					•																		•			•				
GC 9		•					•							•							•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
GC 10													•		•				•					•							•			•				
GC 11															•						•	•	•	•	•	•	•	•	•	•				•	•	•		
GC 12					•				•	•	•	•				•					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
PC 1																					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
PC 2		•			•		•		•	•	•	•		•		•					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
PC 3													•								•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
PC 4		•											•								•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
PC 5																			•	•						•						•						
PC 6	•		•			•			•		•								•		•	•	•	•		•	•			•		•						
PC 7					•										•				•		•																	
PC 8																												•					•					•
PC 9																													•					•				
PC 10	•								•	•												•	•	•		•			•									
PC 11										•	•													•				•										
PC 12																								•				•								•		
PC 13																											•								•		•	
PC 14																							•		•		•							•	•		•	
PC 15																								•	•							•		•				
PC 16																						•				•										•		
PC 17	•										•	•											•			•			•							•		
PC 18																											•							•	•			
PC 19	•					•			•		•										•					•		•								•		
PC 20	•					•			•		•											•	•			•			•							•		

5. Matrix of correspondence of program competences to components of the educational program

	PT 1	PT 2	PT 3	PT 4	PT 5	PT 6	PT 7	QW*
GC 1								•
GC 2	•	•	•	•	•	•	•	•
GC 3	•	•	•	•	•	•	•	•
GC 4								•
GC 5	•	•	•	•	•	•	•	•
GC 6	•	•	•	•	•	•	•	•
GC 7								•
GC 8								•
GC 9	•	•	•	•	•	•	•	•
GC 10								•
GC 11	•	•	•	•	•	•	•	•
GC 12								•
PC 1	•	•	•	•	•	•	•	•
PC 2	•	•	•	•	•	•	•	•
PC 3	•	•	•	•	•	•	•	•
PC 4	•	•	•	•	•	•	•	•
PC 5							•	•
PC 6	•				•	•	•	•
PC 7								•
PC 8							•	•
PC 9								•
PC 10	•		•		•	•		•
PC 11			•					•
PC 12			•					•
PC 13			•					•
PC 14		•	•		•		•	•
PC 15				•				•
PC 16			•		•			•
PC 17	•	•			•	•		•
PC 18			•	•				•
PC 19	•				•	•		•
PC 20					•			•

6. The matrix of providing program learning outcomes (PLO) with the relevant components of the educational program

[illegible]

7. The matrix of providing program learning outcomes (PLO) with the relevant components of the educational program

	PT 1	PT 2	PT 3	PT 4	PT 5	PT 6	PT 7	QW*
PLO 1	•	•	•	•	•	•	•	•
PLO 2	•	•	•	•	•	•	•	•
PLO 3	•	•	•	•	•	•	•	•
PLO 4	•	•	•	•	•	•	•	•
PLO 5	•	•	•	•	•	•	•	•
PLO 6			•	•				•
PLO 7	•	•			•	•	•	•
PLO 8	•	•	•	•	•	•	•	•
PLO 9	•	•	•	•	•	•	•	•
PLO 10			•	•				•
PLO 11							•	
PLO 12	•				•	•	•	•
PLO 13								
PLO 14							•	•
PLO 15							•	
PLO 16								•
PLO 17	•		•		•	•		•
PLO 18			•	•				•
PLO 19			•					•
PLO 20			•					•
PLO 21			•	•				•
PLO 22	•							•
PLO 23		•						•
PLO 24				•				•
PLO 25				•				•
PLO 26			•		•			•
PLO 27					•			•

Note (for Table 4-7)

GC - general competencies; **PC** - professional competencies; **CC** - compulsory educational components of the program; **SC** - selective educational components of the program; **PLO** - program learning outcomes; **PT** - practical training; **QW** - qualifying work

* - depending on the chosen topic of the qualifying work

**Guarantor of educational and professional program,
Doctor of Pharmaceutical Sciences, Professor
Head of the Department of Pharmaceutical Chemistry of NUPh**



Victoria HEORHIIANTS