

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
NATIONAL PIROGOV MEMORIAL MEDICAL UNIVERSITY, VINNYTSYA

MINISTRY OF HEALTH OF UKRAINE

EDUCATIONAL – PROFESSIONAL PROGRAM

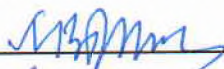
«PHARMACY, INDUSTRIAL PHARMACY»

Second level of higher education

**Specialty 226 Pharmacy, Industrial Pharmacy
branch of knowledge 22 Health Care
qualification Master of Pharmacy, Industrial Pharmacy**

APPROVED BY ACADEMIC COUNCIL

Head of Academic Council

_____  V.M. Moroz
Record № 1 dated 30.08.2018.

Educational Program is enacted on 01.09.2019

Rector _____ V.M. Moroz
Order № 1 dated 30.08.2018

Vinnitsya – 2018

LETTER OF APPROVAL

OF THE EDUCATIONAL PROFESSIONAL PROGRAM

"Pharmacy, industrial pharmacy"

Second level of higher education

in specialty 226 Pharmacy, Industrial Pharmacy

areas of knowledge 22 Health Care

Qualification: Master of Pharmacy, Industrial Pharmacy

Rector

V.M. Moroz

Vice-rector for research and teaching
(educational) work

Yu.I. Huminski

Dean of the Faculty of Pharmacy

V.P. Bobruk

PREFACE

Developed by a working group consisting of:

1. Yuriy Yosypovych Huminsky - Dr. Med. Sciences, Professor, Vice-Rector for Scientific and Pedagogical Work of National Pirogov Memorial Medical University, Vinnytsya.
2. Yakovleva Olga Oleksandrivna - Dr. Med. Sciences, Professor, Head of the Department of Clinical Pharmacy and Clinical Pharmacology, National Pirogov Memorial Medical University, Vinnytsya.
3. Bobruk Vladimir Petrovich – Candidate of Med. Sciences, Associate Professor, Dean of the Faculty of Pharmacy, National Pirogov Memorial Medical University, Vinnytsya.
4. Germanyuk Tamara Andreevna - Dr. Med. Sciences, Professor of the Department of Pharmacy of National Pirogov Memorial Medical University, Vinnytsya.
5. Davydenko Oleksandra Oleksandrivna – Candidate of Pharm. Sciences, Associate Professor of the Department of Pharmaceutical Chemistry of National Pirogov Memorial Medical University, Vinnytsya.

Reviews:

1. Kraidashenko Oleg Viktorovich - Dr. Med. Sciences, Professor, Head of the Department of Clinical Pharmacology, Pharmacy and Pharmacotherapy and Cosmetology of Zaporizhia State Medical University, Head of the Zaporizhia Regional Branch of the State Expert Center of the Ministry of Health of Ukraine.
2. Hrytsyk Andriy Romanovych - Dr. Pharm. Sciences, Professor, Head of the Department of Pharmacy, Ivano-Frankivsk National Medical University.

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

General Information	
Full name of the higher educational institution and structural subdivision	"National Pirogov Memorial Medical University, Vinnytsia" of the Ministry of Health of Ukraine, Faculty of Pharmacy.
Higher education degree and title of qualification in the original language	Second (master's) level - Master of Pharmacy, Industrial Pharmacy Другий (магістерський) рівень Магістр фармації, промислової фармації
The official name of the educational program	Pharmacy, Industrial Pharmacy
Type of diploma and scope of educational program	Master's degree, single, 300 ECTS credits, term of study 5 years. The scope of the master's educational program: <ul style="list-style-type: none"> • On the basis of complete general secondary education - 300 ECTS credits • Based on the diploma of junior specialist, junior bachelor, bachelor - 240 ECTS credits • At least 75% of the educational program should be aimed at providing general and special (professional) competencies in the specialty, defined by the relevant Standard of Higher Education
Availability of accreditation	- Ministry of Education and Science of Ukraine - National Agency for Quality Assurance in Higher Education - Ukraine - Not accredited
Cycle / level	FQ-EHEA – second cycle, EQF-LLL – 7 th level, NFQ of Ukraine – 7 th level
Prerequisites	Availability of a certificate of complete general secondary education (based on certificates of external independent assessment and / or entrance exams), as well as on the basis of a diploma of junior specialist, junior bachelor, bachelor of pharmacy or medicine, specialist diplomas, master's degrees. Terms of admission are determined by the Rules of admission to the university "National Pirogov Memorial Medical University, Vinnytsia" of the Ministry of Health of Ukraine
Languages	Ukrainian, English
Term of the educational program	September 1, 2019 – June 30, 2024
Internet address of permanent placement	https://dent-dep.vnmU.edu.ua/Informaciini

2 - The purpose of the educational program

Provide academic education for graduates of basic and applied sciences and professional training by acquiring general and special competencies for professional activities in the relevant position, including pharmaceutical care, ensuring safe and rational use of drugs, monitoring the effectiveness of pharmacotherapy and / or side effects, readiness to carry (or share) responsibility for the results of pharmacotherapy, stages of manufacture of drugs, their storage, quality control, delivery, distribution, promotion, regulation, supply of drugs and other pharmaceutical products, taking into account current international trends, pharmaceutical care based on pharmaceutical ethics and deontology.

3- Characteristic of the educational program

Subject area (field of knowledge, specialty)

Field of knowledge 22 Healthcare, specialty 226 Pharmacy, industrial pharmacy.

The objects of study are: drugs at all stages of the life cycle, pharmaceutical care. Objectives of training: training of competitive specialists in the labor market for the needs of the pharmaceutical industry, who have critical thinking and an appropriate set of competencies necessary to ensure the proper quality of medicines at all stages of their life cycle (from creation and production to final implementation).

Theoretical content of the subject area: includes consultative-communicative, organizational, technological, control-analytical, administrative-economic (managerial), research functions, determining the safety, effectiveness and cost-effectiveness of pharmacotherapy, the need for drugs and other pharmaceutical products, their organization supply; providing modern technology for the development and manufacture of drugs according to prescriptions and requirements of health care institutions; acceptance, storage and sale of medicines, control over the quality of medicines; implementation of pharmaceutical care; conducting advertising and information work, adherence to the principles of pharmaceutical ethics and deontology, continuous improvement of the professional level.

Methods, techniques and technologies: organoleptic, physical, chemical, physicochemical, biopharmaceutical, pharmacotechnological, microbiological, biochemical and pharmacological, clinical, calculation-economic, pharmaco-economic; marketing research, modeling, forecasting, etc.

Tools and equipment: tools and equipment are used for basic and applied research, that are modern, widely used in practice and safe from the

	point of view of labor protection.
Orientation of the educational program	<p>Educational and professional, applied. The structure of the program provides for the acquisition of knowledge about the sources of drug substances, their physical and chemical properties. Ability to use the necessary methods of analysis on the basis of primary information on the peculiarities of the chemical structure of substances to confirm the quality of compounds, which must be economically justified, express, etc. Ability to produce various extemporaneous dosage forms based on theoretical knowledge of relevant disciplines, including the use of vegetable raw materials.</p> <p>Ability to analyze and summarize information on the proper promotion, logistics, distribution and storage of medicines. Ability to monitor the effectiveness of pharmacotherapy and side effects of certain groups of drugs, willingness to share responsibility for the results of pharmacotherapy. Ability to standardize drugs using the latest advances in pharmaceutical science on modern equipment in pharmacies and industrial production. Ability to provide pharmaceutical care on the basis of pharmaceutical ethics and deontology. Ability to form innovative strategies aimed at improving the relevant components of the pharmaceutical industry.</p>
The main focus of the educational program and specialization	<p>The educational program is aimed at training highly qualified specialists in the pharmaceutical industry who have modern knowledge and the necessary practical skills. Meets the requirements of employers in the field of production, wholesale and retail sale of medicines, as it forms an innovative style of thinking, which is based on international documents governing all components of the circulation of medicines and relevant protocols.</p>
Features of the program	<p>The program is based on modern scientific achievements in the field of pharmacy and the principles of evidence-based medicine. Provides the acquisition of a high level of knowledge and practical skills in obtaining substances of medicinal substances, their purification, methods of manufacturing drugs and their control. Allows you to gain a thorough knowledge of the use of drugs in medical practice, as well as initial organizational (managerial) experience. Focused on further development, within which both professional and</p>

	<p>scientific components (theoretical and applied) are possible.</p> <p>Provides for the possibility of internships and internships in educational institutions and pharmaceutical institutions abroad. Focuses on the use of special information technologies (virtual screening, use of expert systems and databases) in order to optimize and increase the efficiency of research in the field of pharmacy. Forms specialists with a new style of thinking, able to generate innovative proposals and conduct systematic research in relevant areas.</p>
4 - Suitability of graduates for employment and further education	
Suitability for employment	<p>After graduating from the educational program "Pharmacy, Industrial Pharmacy" specialization "Pharmacy" specialty 226 Pharmacy, Industrial Pharmacy specialist must enter the educational program of postgraduate education, which is carried out in accordance with applicable regulations depending on the field of activity. In addition, he can perform professional work under DK 003: 2010:</p> <p>23157 laboratory assistant (pharmacy) (code KP - 3228);</p> <p>24427 pharmacist-intern (code KP - 3228).</p> <p>After training in the internship, the specialist is able to perform the professional work specified in DK 003: 2010 and can hold the appropriate primary position:</p> <p>2224.2 pharmacist;</p> <p>2224.2 pharmacist-analyst;</p> <p>2224.2 pharmacist-toxicologist;</p> <p>2224.2 pharmacist-homeopath.</p>
Further education	<p>After graduating from the educational program "Pharmacy, Industrial Pharmacy" specialization "Pharmacy" specialty 226 Pharmacy, Industrial Pharmacy a specialist can enter the educational program to obtain the third (educational and scientific) level - the degree of Doctor of Philosophy according to current legislation.</p>
5 - Teaching and estimation	
Teaching and learning	<p>Student-centered learning, problem-oriented learning with a scientific component, lectures, seminars and practical classes, internships, individual and autonomous learning, consultations with teachers</p>

<p>Estimation</p>	<p>Assessment of student achievement is carried out on a 5-point scale. (5 - "excellent", 4 - "good", 3 - "satisfactory", 2 - "unsatisfactory") and verbal ("passed", "not passed") systems with the subsequent recalculation of traditional estimations in rating points, a scale of educational institution (from 0 to 200 points), the national scale ECTS (A, B, C, D, E, F, G). Types of control: current, intermediate, final, self-control.</p> <p>Forms of control: tests, differentiated tests, oral and written exams, a single state qualifying exam, including the implementation and defense of a master's thesis; current and intermediate oral and written interviews, testing using computer technology; evaluation of performance and protection of individual works (abstracts, presentations, etc.), protection of the results of internships.</p>
<p>6 - Program competencies</p>	
<p>Integral competence</p>	<p>Ability to solve typical and complex specialized problems and critically comprehend and solve practical problems in professional pharmaceutical and / or research and innovation activities using the provisions, theories and methods of basic, chemical, technological, biomedical and socio-economic sciences; integrate knowledge and solve complex issues, formulate judgments on insufficient or limited information; clearly and unambiguously convey their own knowledge, conclusions and their validity to professional and non-professional audience.</p>
<p>General competencies (GC)</p>	<p>GC 1. Ability to act socially responsible and civic conscious.</p> <p>GC 2. Ability to apply knowledge in practical situations.</p> <p>GC 3. The desire to preserve the environment.</p> <p>GC 4. Ability to abstract thinking, analysis and synthesis, to learn and be modernly trained.</p> <p>GC 5. Ability to show initiative and entrepreneurship.</p> <p>GC 6. Knowledge and understanding of the subject area and understanding of professional activity.</p> <p>GC 7. Ability to adapt and act in a new situation.</p> <p>GC 8. Ability to communicate in the state language both orally and in writing, the ability to communicate in a foreign language (mainly</p>

	<p>English) at a level that ensures effective professional activity.</p> <p>GC 9. Skills in the use of information and communication technologies.</p> <p>GC 10. Ability to choose communication strategy, ability to work in a team and with experts from other fields of knowledge / types of economic activity.</p> <p>GC 11. Ability to assess and ensure the quality of work performed.</p> <p>GC 12. Ability to conduct research at the appropriate level.</p> <p>GC 13. Ability to exercise their rights and responsibilities as a member of society, to realize the values of civil (free democratic) society and the need for its sustainable development, the rule of law, human and civil rights and freedoms in Ukraine.</p> <p>GC 14. Ability to preserve and multiply moral, cultural, scientific values and achievements of society based on understanding of history and patterns based on understanding of history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in society, technology, use different types and forms of physical activity for active recreation and a healthy lifestyle.</p>
<p>Professional competencies (PC)</p>	<p>PC 1. Ability to conduct health education among the population in order to prevent common diseases, prevent dangerous infectious, viral and parasitic diseases, as well as to facilitate the timely detection and maintenance of adherence to treatment of these diseases in accordance with their medical and biological characteristics and microbiological characteristics .</p> <p>PC 2. Ability to provide advice on prescription and over-the-counter drugs and other products of the pharmacy range; pharmaceutical care in the selection and implementation of over-the-counter drugs by assessing the risk / benefit, compatibility, indications and contraindications based on data on the health of a particular patient, taking into account biopharmaceutical, pharmacokinetic, pharmacodynamic and physicochemical characteristics of the drug and other pharmaceutical products .</p>

PC 3. Ability to provide home care to patients and victims in extreme situations and emergencies.

PC 4. Ability to ensure the rational use of prescription and over-the-counter drugs and other pharmaceutical products in accordance with the physicochemical, pharmacological characteristics, biochemical, pathophysiological features of a particular disease and pharmacotherapeutic regimens for its treatment.

PC 5. Ability to monitor the effectiveness and safety of the population of drugs 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 examination of the patient.

PC 6. Ability to identify drugs, xenobiotics, toxins and their metabolites in body fluids and tissues, to conduct chemical and toxicological studies to diagnose acute poisoning, drug and alcohol intoxication.

PC 7. Ability to ensure proper storage of medicines and other products of the pharmacy range in accordance with their physico-chemical properties and the rules of Good Storage Practice (C8P) in health care facilities.

PC 8. Ability to organize the activities of pharmacies to provide the population, health care facilities with medicines and other products of the pharmacy range and implement appropriate reporting and accounting systems (management, statistical, accounting and financial) in accordance with the requirements of the National Medical Policy, Appropriate Pharmacy practice (GPP) and carry out commodity analysis, administrative records, taking into account the organizational and legal norms of pharmaceutical legislation.

PC 9. Ability to analyze and forecast the main economic indicators of pharmacies, to calculate basic taxes and fees, to form prices for medicines and medical devices in accordance with current legislation of Ukraine.

PC 10. Ability to develop, implement and apply management approaches in the professional activities of pharmacies, wholesalers, manufacturing companies and other pharmaceutical

organizations, to argue the principles of HR-management and self-management, to demonstrate leadership skills.

PC 11. Ability to analyze socio-economic processes in pharmacy, forms, methods and functions of the pharmaceutical supply system and its components in world practice, indicators of need, efficiency and availability of pharmaceutical care in terms of health insurance and reimbursement of the cost of drugs.

PC 12. Ability to use in professional activities the knowledge of legal, legislative acts of Ukraine and recommendations of good pharmaceutical practices.

PC 13. Ability to demonstrate and apply in practice communication skills, fundamental principles pharmaceutical ethics and deontology, based on moral obligations and values, ethical standards of professional conduct and responsibility in accordance with the Code of Ethics for Pharmaceutical Workers of Ukraine and WHO guidelines.

PC 14. Ability to organize and carry out the production activities of pharmacies for the manufacture of prescriptions and orders of medical institutions, including justification of technology and selection of auxiliary materials in accordance with the rules of Good Pharmacy Practice (SRP).

PC 15. Ability to organize and participate in the production of medicines in the context of pharmaceutical companies, including the selection and justification of the technological process, equipment in accordance with the requirements of Good Manufacturing Practice (GMP) with the appropriate development and design of necessary documentation. Determine the stability of drugs.

PC 16. Ability to organize and carry out procurement of medicinal plant raw materials in accordance with the rules of Good Practice of cultivation and collection of raw materials of plant origin (VASP), as a guarantee of quality of medicinal plant raw materials and medicines based on it. Ability to predict and calculate ways to solve the problem of conservation and protection of thickets of wild medicinal plants, in accordance with current legislation.

	<p>PC 17. Ability to organize and carry out general and marketing management of assortment, commodity-innovative, price, sales and communication policies of subjects</p> <p>pharmaceutical market based on the results of marketing research and taking into account market processes in national and international markets, manage risks in the pharmaceutical supply system.</p> <p>PC 18. Ability to develop and implement a quality management system for pharmaceutical companies in accordance with the requirements of current Standards, perform quality audits and risk management for the quality of pharmaceutical products.</p> <p>PC 19. Ability to organize and control the quality of medicines in accordance with the requirements of the current State Pharmacopoeia of Ukraine and good practices in pharmacy, determine methods of sampling for control of medicines and standardize them in accordance with current requirements, prevent the spread of counterfeit medicines.</p> <p>PC 20. Ability to develop methods for quality control of medicines, including active pharmaceutical ingredients, medicinal plant raw materials and excipients using physical, chemical, physicochemical, biological, microbiological, pharmacotechnological and pharmacoorganoleptic control methods.</p>
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7 - Program learning outcomes

	<p>PLO 1. Carry out professional activities in social interaction based on humanistic and ethical principles; identify future professional activities as socially significant for human health. PRN 2. Apply knowledge of general and professional disciplines in professional activities.</p> <p>PLO 3. Adhere to the norms of sanitary and hygienic regime and safety requirements in carrying out professional activities.</p> <p>PLO 4. Demonstrate the ability to independently search, analyze and synthesize information from various sources and use these results to solve typical and complex specialized tasks of professional activity.</p> <p>PRN 5. Position your professional activities and personal qualities in the pharmaceutical labor market; to formulate the purposes of own activity</p>
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taking into account public and industrial interests.

PLO 6. Argue information for decision-making, be responsible for them in standard and non-standard professional situations; adhere to the principles of deontology and ethics in professional activities.

PLO 7. Perform professional activities using creative methods and approaches.

PLO 8. Carry out professional communication in the state language, use the skills of oral communication in a foreign language, analyzing texts of professional orientation and translate foreign language information sources.

PLO 9. Carry out professional activities using information technology, "Information databases", navigation systems, ISGeppei-resources, software and other information and communication technologies.

PLO 10. Adhere to the norms of communication in professional interaction with colleagues, management, consumers, work effectively in a team.

PLO 11. Use methods for assessing performance indicators; identify reserves to increase labor efficiency.

PLO 12. Analyze the information obtained as a result of scientific research, summarize, systematize and use it in professional activities.

PLO 13. Carry out sanitary-educational work in professional activity in case of outbreaks of infectious, viral and parasitic diseases.

PLO 14. To determine the advantages and disadvantages of drugs of different pharmacological groups, taking into account their chemical, physicochemical, biopharmaceutical, pharmacokinetic and pharmacodynamic features. To recommend to consumers over-the-counter medicines and other products of the pharmacy range with the provision of counseling and pharmaceutical care.

PLO 15. Provide home care to patients in emergencies and victims in extreme situations.

PLO 16. To determine the influence of factors influencing the processes of absorption, distribution, deposition, metabolism and excretion of the drug and due to the condition, features of the human body and physico-chemical properties of

drugs.

PLO 17. Use data from clinical, laboratory and instrumental studies to monitor the effectiveness and safety of drugs.

PLO 18. Select biological objects of analysis, determine xenobiotics and their metabolites in biological media and evaluate the results based on their distribution in the body.

PLO 19. Predict and determine the impact of environmental factors on the quality of medicines and consumer characteristics of other products of the pharmacy range during their storage.

PLO 20. Carry out a set of organizational and managerial measures to provide the population and health care facilities with medicines and other products of the pharmacy range. Carry out all types of accounting in pharmacies, administrative records, processes of commodity analysis.

PLO 21. Calculate the main economic indicators of pharmacies, as well as taxes and fees. Form all types of prices (wholesale, purchase and retail) for medicines and other products of the pharmacy range.

PLO 22. Manage pharmaceutical organizations and determine its effectiveness using management functions. Make management decisions based on the established leadership and communication skills of pharmaceutical personnel for strategic planning of enterprises.

PLO 23. Take into account data on socio-economic processes in society for the pharmaceutical supply of the population, determine the effectiveness and availability of pharmaceutical care in terms of health insurance and reimbursement of the cost of drugs.

PLO 24. Plan and implement professional activities on the basis of regulations of Ukraine and recommendations of good pharmaceutical practices.

PLO 25. Promote health, including disease prevention, rational use and use of medicines. Perform your professional duties in good faith, comply with the law on the promotion and advertising of medicines. Possess psychological communication skills to achieve trust and mutual understanding with colleagues, doctors, patients, consumers.

	<p>PLO 26. To choose rational technology, to make medicines in various medicinal forms according to prescriptions of doctors and orders of medical institutions, to issue them before release. Perform technological operations: weigh, measure, dose a variety of drugs by weight, volume, etc. Develop and draw up technological documentation for the manufacture of medicines in pharmacies.</p> <p>PLO 27. To substantiate the technology and organize the production of medicines at pharmaceutical enterprises and draw up technological documentation for the production of medicines at pharmaceutical enterprises. PRN 28. Organize and conduct rational procurement of medicinal plant raw materials. Develop and implement measures for the protection, reproduction and rational use of wild species of medicinal plants.</p> <p>PLO 29. To ensure competitive positions and effective development of pharmaceutical organizations on the basis of research work on all elements of the marketing complex.</p> <p>PLO 30. Ensure quality control of medicines and document its results. Manage quality risks at all stages of the life cycle of medicines.</p> <p>PLO 31. Carry out all types of quality control of medicines; draw up quality certificates for the batch of the medicinal product and the certificate of analysis taking into account the requirements of current regulations, the State Pharmacopoeia of Ukraine and the results of quality control. Develop specifications and methods of quality control in accordance with the requirements of the current State Pharmacopoeia of Ukraine.</p> <p>PLO 32. To determine the main organoleptic, physical, chemical, physicochemical and pharmacotechnological indicators of medicines, to substantiate and choose methods of their standardization, to carry out statistical processing of results according to requirements of the current State Pharmacopoeia of Ukraine.</p>
8 - Resource support for program implementation	
Staffing	Teaching disciplines under the educational-professional program "PHARMACY, INDUSTRIAL PHARMACY" is provided by 20 departments, including 5 clinical and 15 theoretical.

	<p>There are 423 teachers at the departments, 270 (64%) of them have a scientific degree, including 37 (8%) doctors of sciences, 31 (7%) professors, 233 (56%) candidates of sciences, 162 (38%) associate professors.</p> <p>All research and teaching staff involved in the implementation of the educational component of the educational program are full-time employees of the University "National Pirogov Memorial Medical University, Vinnytsya", have a confirmed level of scientific and professional activity, most have practical experience.</p>
<p>Material and technical provision</p>	<p>Availability of educational and lecture halls, equipped with computer workstations, multimedia equipment, technical means of education; bases for conducting internships of higher education seekers or current agreements for conducting internships in medical institutions and pharmacy networks; availability of necessary reagents, equipment, facilities. For the proper acquisition of practical skills on the basis of the university there is a Center for Simulation Training.</p>
<p>Informative and academic provision</p>	<p>Appropriate educational and methodical support (complexes) of academic disciplines, which contain methodical developments for seminars, practical classes, methodical instructions for independent work of students, individual tasks of practical orientation; methodical materials for passing of practices, tasks for control of knowledge (examination tickets, test tasks, final, complex control works); modern information sources and computer equipment; own pages of departments responsible for training masters of pharmacy, industrial pharmacy; internet connection; library with modern educational literature, scientific, reference and professional periodicals.</p> <p>The official website http://www.vnmu.edu.ua contains information about educational programs, educational, scientific and educational activities, structural units, admission rules, contacts, etc.</p> <p>The fund of the scientific library of VNMU contains 405172 copies of literature. The reading room has 30 computers and wireless internet access. All library resources are available through the university website.</p>

9- Academic Mobility	
National credit mobility	Recognition of learning outcomes in other educational institutions in the framework of academic mobility in accordance with the agreements concluded by the university
International credit mobility	International mobility within Erasmus+ ta Erasmus Mundus Medea
Teaching of foreign higher education applicants	Education of foreign students is carried out in accordance with the requirements of current legislation

2. List of components of the educational program and their logical sequence

2.1. List of educational program components

Code	Components of the educational program (academic disciplines, course projects (works), practices, qualification work)	Amount of credits	Form of final control
1	2	3	4
Mandatory OP components			
Cycle of general disciplines			
EdC 1.	Ukrainian language (professional)	3.00	Diff. credit
EdC 2.	Philosophy	3.00	Diff. credit
EdC 3.	Foreign language (professional)	3.00	Diff. credit
EdC 4.	Latin Language	3.00	Exam
EdC 5.	Biological Chemistry	6.00	Exam
EdC 6.	Physical and colloid chemistry	4.00	Diff. credit
EdC 7.	Pathological Physiology	5.00	Exam
EdC 8.	Pharmaceutical Botany	5.00	Exam
EdC 9.	Organic Chemistry	8.00	Exam
EdC 10.	Analytical Chemistry	8.00	Exam
EdC 11.	First aid with introductory medical practice	3.00	Diff. credit
EdC 12.	Computer simulation in pharmacy	3.00	Diff. credit
EdC 13.	Microbiology with the basics of immunology	5.00	Exam
EdC 14.	General and Inorganic Chemistry	6.00	Exam
EdC 15.	Human Anatomy and Physiology	5.00	Diff. credit
EdC 16.	Higher Mathematics and Statistics	3.50	Diff. credit
EdC 17.	Biological physics with physical methods of analysis	4.50	Diff. credit
Cycle of professional preparation			
EdC 18.	Drug Technology	12.00	Exam
EdC 19.	Hygiene in pharmacy and ecology	3.00	Credit
EdC 20.	Pharmaceutical Chemistry	13.00	Exam
EdC 21.	Pharmacognosy	9.00	Exam
EdC 22.	Pharmacology	9.00	Exam
EdC 23.	Pharmaceutical Law and Legislation	3.00	Credit
EdC 24.	Extreme Medicine	3.00	Credit

EdC 25.	Clinical Pharmacy and Pharmaceutical Care	9.00	Exam
EdC 26.	Pharmaceutical Management and Marketing	6.00	Exam
EdC 27.	Organization and economics of pharmacy	6.00	Exam
EdC 28.	Pharmacotherapy with pharmacokinetics	3.00	Exam
EdC 29.	Pharmaceutical and Medical Commodity	4.00	Diff. credit
EdC 30.	Toxicological and forensic chemistry	4.00	Diff. credit
EdC 31.	Pharmacoeconomics	3.00	Credit
EdC 32.	Labor protection and labor protection in the industry	3.00	Credit
EdC 33.	Drug Toxicology	3.00	Credit
EdC 34.	Pharmaceutical Biotechnology	3.00	Credit
EdC 35.	Quality systems in pharmacy	3.00	Credit
EdC 36.	Biopharmacy	3.00	Credit
EdC 37.	Standardization of medicines	3.00	Diff. credit
EdC 38.	Social Pharmacy	3.00	Credit
EdC 39.	Technology of medicinal cosmetics	3.00	Credit
EdC 40.	Resource Studies of Medicinal Plants	3.00	Credit
Total of mandatory components:			192.00
Elective components of OP			
Cycle of general preparation			
EIC 1.	History of Ukraine and Ukrainian culture	3.00	Credit
EIC 2.	Foreign language	3.00	Credit
EIC 3.	Fundamentals of Chemical Metrology	3.00	Credit
EIC 4.	Biology with the basics of genetics	4.00	Diff. credit
EIC 5.	Biogenic elements	5.00	Credit
EIC 6.	Admission to Pharmacy	3.00	Credit
EIC 7.	Information technologies in pharmacy	5.00	Diff. credit
EIC 8.	Life Safety; Fundamentals of Bioethics and Biosafety	3.00	Credit
EIC 9.	Ethics and Deontology in Pharmacy	3.00	Credit
EIC 10.	Religious Studies	4.00	Credit
EIC 11.	Modern civilization and culture	4.00	Credit
EIC 12.	Psychology of communication. Fundamentals of consumer behavior in pharmacy	5.00	Credit
EIC 13.	Physical education		Credit
Cycle of general preparation			
EIC 14.	Training practice in pharmacognosy	3.00	Diff. credit
EIC 15.	Side effects of drugs	4.00	Credit
EIC 16.	Physico-chemical analysis in the creation of drugs	4.00	Credit
EIC 17.	Factors and mechanisms of pharmacological activity and toxicity of drugs at the stages of pharmacokinetics	4.00	Credit
EIC 18.	Phytotherapy	5.00	Credit
EIC 19.	Homeopathic remedies	3.00	Credit
EIC 20.	Intellectual property and international marketing in pharmacy	4.00	Credit

EIC 21.	Training of reserve officers in the field of knowledge Healthcare. Specialty "Pharmacy"	3.00	Diff. credit
	Total of elective components		75.00
EdC 41.	Educational practice in pharmaceutical botany	3.00	Diff. credit
EdC 42.	Industrial pharmaceutical practices by specialization	30.00	Diff. credit
	TOTAL OF THE EDUCATIONAL PROGRAM		300.00

2.2. Structural and logical scheme of EP
Schedule of studying the components of OPP "Pharmacy, Industrial pharmacy"

Code	Components of the educational program (academic disciplines, course projects (works), practices, qualification work)
	I semester
EdC 1.	Ukrainian language (professional)
EdC 1.	Ukrainian as a foreign language *
EdC 4.	Latin Language
EdC 14.	General and inorganic chemistry
EdC 15.	Human anatomy and physiology
EdC 16.	Higher mathematics and statistics
EdC 17.	Biological physics with physical methods of analysis
EIC 1.	History of Ukraine and Ukrainian culture
EIC 2.	Foreign Language
EIC 4.	Biology with the basics of genetics
EIC 10.	Religious studies
EIC 11.	Modern civilization and culture
	II semester
EdC 1.	Ukrainian as a foreign language *
EdC 2.	Philosophy
EdC 4.	Latin Language
EdC 14.	General and inorganic chemistry
EdC 15.	Human anatomy and physiology
EdC 17.	Biological physics with linguistic methods of analysis
EIC 5.	Biogenic elements
EIC 6.	Introduction to pharmacy
EIC 8.	Life Safety; basics of bioethics and biosafety
EIC 9.	Ethics and deontology in pharmacy
EIC 13.	Physical Education
	III semester
EdC 1.	Ukrainian as a foreign language *
EdC 3.	Foreign language (professional)
EdC 6.	Physical and colloid chemistry
EdC 7.	Pathological physiology
EdC 8.	Pharmaceutical botany
EdC 9.	Organic chemistry

EdC 10.	Analytical chemistry
EdC 11.	First aid with introductory medical practice
EdC 13.	Microbiology with the basics of immunology
EIC 7.	Information technology in pharmacy
	IV semester
EdC 1.	Ukrainian as a foreign language *
EdC 3.	Foreign language (professional)
EdC 6.	Physical and colloid chemistry
EdC 7.	Pathological physiology
EdC 8.	Pharmaceutical botany
EdC 9.	Organic chemistry
EdC 10.	Analytical chemistry
EdC 13.	Microbiology with the basics of immunology
EdC 19.	Hygiene in pharmacy and ecology
EdC 41.	Educational practice in (pharmaceutical botany
EIC 3.	Fundamentals of chemical metrology
EIC 12.	Psychology of communication. Fundamentals of consumer behavior in pharmacy
EIC 13.	Physical education
	V semester
EdC 1.	Ukrainian as a foreign language *
EdC 5.	Biological chemistry
EdC 12.	Computer simulation in pharmacy
EdC 18.	Drug technology
EdC 20.	Pharmaceutical chemistry
EdC 21.	Pharmacognosy
EdC 22.	Pharmacology
EdC 23.	Pharmaceutical law and legislation
EIC 16.	Physico-chemical analysis in the creation of drugs
	VI semester
EdC 1.	Ukrainian as a foreign language *
EdC 5.	Biological chemistry
EdC18.	Drug technology
EdC20.	Pharmaceutical chemistry
EdC 21.	Pharmacognosy
EdC 22.	Pharmacology
EdC 24.	Extreme medicine
EIC 15.	Side effects of drugs
EIC 17.	Factors and mechanisms of pharmacological activity and toxicity drugs at the stages of pharmacokinetics
EIC 21.	Training of health reserve officers. Specialty "Pharmacy"
	VII semester
EdC 18.	Drug technology
EdC 20.	Pharmaceutical chemistry
EdC 27.	Organization and economics of pharmacy

EdC 28.	Pharmacotherapy with pharmacokinetics
EdC 30.	Toxicological and forensic chemistry
EdC 32.	Labor protection and labor protection in the industry
EdC 33.	Medical toxicology
EIC 18.	Phytotherapy
EIC 19.	Homeopathy
	VIII semester
EdC 18.	Drug technology
EdC 20.	Pharmaceutical chemistry
EdC 25.	Clinical pharmacy and pharmaceutical care
EdC 26.	Pharmaceutical management and marketing
EdC 27.	Organization and economics of pharmacy
EdC 29.	Pharmaceutical and medical commodity science
EdC 30.	Toxicological and forensic chemistry
EdC 31.	Pharmacoeconomics
EIC 14.	Training practice in pharmacognosy
EIC 20.	Intellectual property and international marketing in pharmacy
	IX semester
EdC 20.	Pharmaceutical chemistry
EdC 25.	Clinical pharmacy and pharmaceutical care
EdC 26.	Pharmaceutical management and marketing
EdC 34.	Pharmaceutical biotechnology
EdC 35.	Quality systems in pharmacy
EdC 36.	Biopharmacy
EdC 38.	Social pharmacy
EdC 40.	Resource science of medicinal plants
	X semester
EdC 37.	Standardization of medicines
EdC 39.	Technology of medicinal cosmetics
EdC 42.	Manufacturing pharmaceutical practices by specialization

*for foreign students

3. Form of attestation of higher education applicants

Attestation of graduates of the educational program of specialty 226 "Pharmacy, Industrial Pharmacy" is carried out in the form of a single state qualification exam and (by decision of the Academic Council of the Faculty) defense of master's thesis and ends with the issuance of a standard document specializing in "Pharmacy".

Certification is carried out openly and publicly.

Requirements for the existence of a system of internal quality assurance in higher education (Defined in accordance with European standards and recommendations for quality assurance in higher education (EBE) and Article 16 of the Law of Ukraine "On Higher Education")

1.	<p><i>Principles and procedures for ensuring the quality of education</i></p>	<p>Defined and legitimized in the documents: Law of Ukraine "On Higher Education" of 01.07.2014 under № 1556-UII, "Standards and recommendations for quality assurance in the European Higher Education Area" of the European Association for Quality Assurance in Higher Education, the national standard of Ukraine " Quality management systems "SSTU IBO 9001: 2015.</p> <p>Principles of quality assurance of education:</p> <ul style="list-style-type: none"> compliance with European and national quality standards of higher education; autonomy of the higher education institution, which is responsible for ensuring the quality of educational activities and the quality of higher education; quality monitoring; a systematic approach that involves quality management at all stages of the educational process; constant improvement of the quality of the educational process; openness of information at all stages of quality assurance. <p>Procedures for ensuring the quality of education:</p> <ul style="list-style-type: none"> providing research and educational environment; improving the planning of educational activities; monitoring and periodic updating of the educational program; qualitative selection of the contingent of applicants for higher education at the master's level; high-quality selection of staff of scientific and pedagogical workers; improvement of material-technical and scientific-methodical bases for realization of the educational program; providing the necessary resources to finance the training of applicants for higher education at the master's level; development of information systems in order to increase the efficiency of educational process management; ensuring publicity of information about the activities of the university; creation of an effective system for the prevention and detection of academic plagiarism in the scientific and methodological works of university staff and applicants for higher education at the master's level;
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		creating an effective system for preventing corruption and bribery in the educational process of universities.
2.	<i>Monitoring and Periodic revision educational programs</i>	<p>The educational process at the master's level is carried out in accordance with the standard of higher education and the educational program developed on its basis.</p> <p>Monitoring and periodic review of the educational program is carried out in accordance with the regulations developed by the university. The criteria for reviewing the educational program are formulated both as a result of feedback from research and teaching staff, students, employers, and as a result of forecasting the development of the industry, the needs of society and the labor market.</p> <p>Indicators of the modern educational program are:</p> <ul style="list-style-type: none"> updatability in accordance with the current state of health care; participation of employers in the development and modification of the educational program; positive feedback from reviewers on the educational program; the level of satisfaction of students with the content of the educational program; positive feedback from employers on the level of training of graduates.
3.	<i>Prevention and detection of academic plagiarism</i>	<ul style="list-style-type: none"> formation of a university staff that does not accept and does not allow academic dishonesty; creating conditions of intolerance to cases of academic plagiarism; creation of expert commissions to detect academic plagiarism in scientific articles, monographs, textbooks, educational and methodical publications, dissertations, etc.; identifying and prosecuting those responsible for academic plagiarism.

Program guarantor, project team leader:
Head of the Department of Clinical Pharmacy
and clinical pharmacology,
d.med.n., professor

O.O. Yakovleva