

PRIVATE HIGHER EDUCATIONAL ESTABLISHMENT
"KYIV MEDICAL UNIVERSITY"



APPROVED BY
ACADEMIC COUNCIL OF
PHEE "KYIV MEDICAL UNIVERSITY"
Academic Council's Decision № 5, dated 29th December, 2021
Head of the Academic Council

Rector:  B. IVNYEV

The study program implemented on 1st of September, 2017
(Order № 325, dated 1st of September, 2017)

STUDY PROGRAM
"PHARMACY, INDUSTRIAL PHARMACY"

LEVEL OF HIGHER EDUCATION	<u>Second (Master's)</u>
DEGREE OF HIGHER EDUCATION	<u>Master</u>
FIELD OF KNOWLEDGE	<u>22 Health Care</u>
SPECIALTY	<u>226 Pharmacy, Industrial Pharmacy</u>
EDUCATIONAL QUALIFICATION	<u>Master of Pharmacy</u>
PROFESSIONAL QUALIFICATION	<u>Pharmacist</u>
MODE OF STUDY	<u>Full-Time and Part-Time</u>

CONTENT

Preface		3
Review by the external experts		4
List of abbreviations used		5
1.	The Study Program profile	7
2	The list of educational components of the Study Program	26
3.	Attestation of the students of the Study Program	31
4.	Legislation and regulations in medical education sphere	33
Appendix 1. Logical Structure of the Study Program (Module overview)		
Appendix 2. Matrix of correspondence of the Program Competencies with the Educational Components		
Appendix 3. Matrix of correspondence of Program Learning Outcomes to the Educational Components		

PREFACE

The Study Program “Pharmacy, Industrial Pharmacy” defines the prerequisites for the student’s enrollment, the duration of study and content of training, the list of educational components and their logical sequence, the number of ECTS credits required to complete the program, forms of Attestation of students and graduates, as well as a list of general and professional competencies and program learning outcomes.

The program was developed by the project team in accordance with the requirements of the Law of Ukraine "On Higher Education", Directive 2013/55/EU of the European Parliament and of the Council of 11/20/2013 and of the Federation International Pharmacy (FIP) Global Competency Framework (GbCF), 2020. Due to the unavailability of the national standard of higher education in specialty 226 "Pharmacy, Industrial Pharmacy" for the second (master's) level of higher education at the current moment, the mentioned above documents were used while developing this Study Program.

Guarantor of the Study Program (Andriy Gudzenko – Doctor of Pharmaceutical Sciences), Rector of the University (Dr. Borys Ivnyev -Doctor of Medical Sciences, Professor) and the Dean of the Pharmaceutical Faculty (Ludmila Haiova – Doctor of Medical Sciences, Professor) are responsible for the implementation of the Study Program and quality assurance.

The Study Program developers:

Olena Konovalova, Doctor of Pharmaceutical Sciences, Professor, project team leader;

Igor Gerashchenko, Doctor of Pharmaceutical Sciences, Professor;

Petro Sereda, Doctor of Medical Sciences, Professor, MD;

Viktor Tumanov, Doctor of Medical Sciences, Professor, MD;

Yevgenia Gergel, PhD, Associate Professor;

Oleksandr Kukhar, PhD, Associate Professor;

Olena Lozova, PhD, Associate Professor.

The Study Program “Pharmacy, Industrial Pharmacy” is approved by the Academic Council of Private Higher Educational Establishment “Kyiv Medical University”, protocol № 11 dated May 30th, 2016.

Launched in 2017/2018 academic year.

Amendments to the Study Program:

Academic Council’s Decision № 9, dated 18th June, 2017.

Academic Council’s Decision № 10, dated 25th June, 2018.

Academic Council’s Decision №10, dated 26th June, 2019.

Academic Council’s Decision №9, dated 03rd June, 2020

Academic Council’s Decision №5, dated 29th December, 2021

EXTERNAL APPROBATION

Oleg Koshoviy

Head of the Department of Pharmacognosy of the National Pharmaceutical University of the Ministry of Health of Ukraine, Doctor of Pharmaceutical Sciences, Professor. [Review_Koshoviy.pdf](#)

Oleksandr Mazulin

Professor of the Department of Clinical Pharmacy, Pharmacotherapy, Pharmacognosy and Pharmaceutical Chemistry of Zaporizhia State Medical University of the Ministry of Health of Ukraine, Doctor of Pharmaceutical Sciences, Professor. [Review_Mazulin.pdf](#)

LIST OF ABBREVIATIONS USED

NQF - National Qualifications Framework;

SP - Study Program;

PC - professional competencies;

GC - general competencies;

PLO - program learning outcomes;

CTEA – Classification of the Types of Economic Activities.

Codes:

OK - compulsory educational component;

BK - optional educational component;

1. THE STUDY PROGRAM PROFILE

1 - General information	
Full name of the higher educational establishment	Private Higher Education Establishment "Kyiv Medical University"
Degree of higher education	Master's degree
Professional qualification	Pharmacist
Educational qualification	<u>Master of Pharmacy, Industrial Pharmacy</u>
The official name of the Study Program	Pharmacy, Industrial Pharmacy
Type of diploma and scope of Study Program	Master's Diploma, single type, 300 ECTS credits.
Duration of study	<p>The duration of study for students enrolled on the basis of complete general secondary education is: for full-time study - 4 years 10 months (10 semesters); for part-time study - 5 years 6 months (11 semesters).</p> <p>The duration of study for students enrolled on the basis of qualification level of Junior Specialist/Junior Bachelor is: for full-time study - 3 years 10 months (8 semesters); for part-time study - 4 years 6 months (9 semesters).</p> <p>In case of enrolling on the basis of the qualification level of Junior Specialist/Junior Bachelor, only 30 previously awarded ECTS credits are recognized and transferred.</p>

Awarding of Degree and Professional Qualification	<p>Students who have successfully passed all types of Attestation are awarded the “Master's Degree in Pharmacy, Industrial Pharmacy” and the appropriate professional qualification of “Pharmacist” based on the decision of the Examination Commission and are granted the diploma of higher education.</p> <p>A student who have received an unsatisfactory grade or been admitted to the Attestation, but for any reason did not pass the Attestation, are expelled from the Kyiv Medical University. Afterwards, a student has the right to repass the Attestation not earlier than in one year during the next three years. Academic Transcript is issued for such a student upon request.</p>
Accreditation	Not accredited
Cycle / level	<p>National Qualifications Framework of Ukraine (NQF) - level 8;</p> <p>Qualifications Framework in the European Higher Education Area (FQ-EHEA) - second cycle;</p> <p>European Qualification Framework for Lifelong Learning (EQF-LLL) - level 7.</p>
Prerequisites for enrollment	<p>Ukrainian citizens are admitted based on:</p> <ul style="list-style-type: none"> - complete general secondary education and the external independent assessment; - previously gained educational qualification level of Junior Specialist or Junior Bachelor and based on the results of external independent assessment and professionally based exam (upon admission to the 2nd year of study). <p>For foreign citizens and stateless persons, admission is based on complete general secondary education and the results of two entrance exams: language proficiency exam (Ukrainian or English) and chemistry exam.</p>
Language (s) of instruction	Ukrainian or English
Term of validity of the Study Program	5 years

Web-address of the permanent placement of the Study Program	https://kmu.edu.ua/en/academic-planning/
2 - The aim of the Study Program	
<p>The main purpose of the study program is training of qualified competitive specialists in the pharmaceutical industry by acquiring appropriate professional competencies that meet the national and international requirements.</p> <p>Upon completion of the Study Program graduates must be a key players in the health care team, whether in clinical wards, research institutions, hospital or community pharmacies, providing the advanced knowledge of effectiveness and safety of drugs tailored to each individual patient. Also graduates must be able to develop of new drugs and new formulations for the pharmaceutical industry and to establish their own Pharmacy or to work in the field of drug promotion.</p>	
3 - Peculiarities (specifications) of the Study Program	
Level of higher education	Second (Master's)
Degree of higher education	Master
Field of knowledge	22 "Healthcare"
Specialty	226 "Pharmacy, Industrial Pharmacy"
Mode of study	Full-Time and Part-Time
Orientation of the Study Program	The Study Program is professionally and practically oriented.
The main focus of the Study Program	<p>The Study Program equips graduates with the diverse pharmaceutical skills needed for various career paths. The main focus of the Study Program is:</p> <ul style="list-style-type: none"> - advanced knowledge of pharmaceutical and analytical chemistry plus pharmaceutical compounding, to equip graduates with the special skills required for the production of

	<p>drugs with international quality;</p> <ul style="list-style-type: none"> - professional skills of specialists in pharmaceutical field for the national and global labor market; - ability to competently provide pharmaceutical services in the current development of the Healthcare field taking into account the pharmaceutical reform; - competencies of control over observance of standards, rules and regulations in accordance with the principles of Good Practices (GMP, GCP, GDP, GPP, etc.); - special skills for research methodologies in the pharmaceutical field of knowledge.
<p>Features of the Study Program</p>	<p>Features of the Study Program are student-centered approach with use of cutting-edge digital technologies.</p> <p>The Study Program includes the possibilities of traineeships and clerkships in health care facilities, leading pharmaceutical companies, industry enterprises and research institutions.</p> <p>The educational approach of the Study Program delivery is learning through research methodologies in which graduates are required to design and execute a research graduation project (Master's thesis).</p> <p>In addition, Study Program includes the possibility of learning of foreign languages and advantage of international mobility, as well as mobility within Institutions of Medical Academic Consortium.</p> <p>Another feature of the Study Program is Individual Learning Pathway, which is a route taken by a learner allowing him/her to build knowledge progressively and acquire the desired set of competences through the optional educational components. It provides student with a possibility to deepen professional knowledge within Study Program and achieve additional professional competencies depending on the student's choice.</p>

4 - Suitability of graduates to employment and further training

<p>Suitability for employment (professional rights of graduates)</p>	<p>Upon successful completion of the Study Program “Pharmacy, Industrial Pharmacy” with the professional qualification the Pharmacist Ukrainian graduates are able to work on the following positions (according to the Ukrainian Classifier of Professions ДК 003: 2010):</p> <ul style="list-style-type: none"> • Intern pharmacist • Junior research fellow (Pharmacy) • Researcher (Pharmacy) • Researcher - consultant (Pharmacy) <p>According to the National Classification of Economic Activities (NCEA), a graduate may work in institutions (or as a self-employed person) according to the following NCEA codes ДК 009: 2010:</p> <ul style="list-style-type: none"> • 01.28 Growing of spicy, aromatic and medicinal herbs; • 21.10 Manufacture of basic pharmaceutical products; • 21.20 Manufacture of medicines and pharmaceutical 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; • 73.20 Market research and public opinion polling; • 86.90 Other health care activities. <p>In addition, the Pharmacist can work in the enterprises of chemical and pharmaceutical industry, forensic chemical and toxicological laboratories, research institutes, clinical healthcare institutions, higher education institutions and international organizations, operating in the field of Healthcare (including promotion of drugs).</p> <p>- Foreign citizens after graduation can carry out further practical activity only after obligatory fulfilment of postgraduate education and licensing in accordance with the regulations of certain country where they aim to pursue the professional career.</p>
<p>Further training (academic rights of graduates)</p>	<p>Upon successful completion of the Study Program “Pharmacy, Industrial Pharmacy” with the professional qualification the Pharmacist further training is available in the form of:</p>

	<p>-Postgraduate Education programs - Internship in a certain pharmaceutical specialization;</p> <p>-Higher Education programs - PhD degree training in various specialties.</p>
5 - Teaching and assessment	
Teaching and learning	<p>The teaching process is competency-oriented, student-centered and problem-oriented with application of research learning. It is focused on the acquisition of basic professional competencies by the student.</p> <p>The delivery of the Study Program includes the follow teaching methods:</p> <ul style="list-style-type: none"> - classes (lectures, seminars, practical classes, tutorials); - self-directed learning (self-education of particular topics of educational components defined by faculty staff); - practical training (traineeship, clerkships, research work). <p>Digital technologies are utilized while performing all abovementioned types of classes.</p>
Assessment	<p>Student's performance assessment is carried out using European credit transfer and accumulation system (ECTS).</p> <p>Study results and assessment criteria are determined separately for each educational component of the Study Program.</p> <p>Students are awarded credits only for those educational components, on which all planned learning outcomes are reached, all necessary assignments are completed and a particular form of final control is passed.</p> <p>Assessment methods:</p> <ul style="list-style-type: none"> - Ongoing assessment, which is carried out during practical, laboratory, seminar classes and reflects the current progress in achieving of learning outcomes; - Final assessment, that reflects if a student has achieved Program Learning Outcomes of the particular educational component (for the internal final assessment) and of the whole

	<p>Study Program (for the external final assessment and graduate exams).</p> <p>Internal final assessment is carried out in three forms: differentiated credit, credit or exam; External final assessment is carried out in the form of Unified State Qualification Examination (USQE), which consists of: <i>After 3rd year of study:</i></p> <ul style="list-style-type: none"> - KROK-1 exam; - English for professional purposes exam <p><i>After 10th semester of full-time study and after 11th semester of part-time study:</i></p> <ul style="list-style-type: none"> - KROK-2 exam; - Practical Comprehensive Exam /Master`s Thesis Defense 																											
<p>Grading Scale</p>	<table border="1"> <thead> <tr> <th data-bbox="628 902 775 1014">University grading scale</th> <th data-bbox="775 902 874 1014">ECTS grade</th> <th data-bbox="874 902 1299 1014">Descriptor</th> <th data-bbox="1299 902 1394 1014">Awarding of credits</th> </tr> </thead> <tbody> <tr> <td data-bbox="628 1014 775 1048">180 - 200</td> <td data-bbox="775 1014 874 1048">A</td> <td data-bbox="874 1014 1299 1048">Excellent</td> <td data-bbox="1299 1014 1394 1391" rowspan="5">Passed</td> </tr> <tr> <td data-bbox="628 1048 775 1081">170 - 179</td> <td data-bbox="775 1048 874 1081">B</td> <td data-bbox="874 1048 1299 1081">Very Good</td> </tr> <tr> <td data-bbox="628 1081 775 1115">160 - 169</td> <td data-bbox="775 1081 874 1115">C</td> <td data-bbox="874 1081 1299 1115">Good</td> </tr> <tr> <td data-bbox="628 1115 775 1149">141 - 159</td> <td data-bbox="775 1115 874 1149">D</td> <td data-bbox="874 1115 1299 1149">Satisfactory</td> </tr> <tr> <td data-bbox="628 1149 775 1182">120 - 140</td> <td data-bbox="775 1149 874 1182">E</td> <td data-bbox="874 1149 1299 1182">Sufficiently</td> </tr> <tr> <td data-bbox="628 1182 775 1272">100 - 119</td> <td data-bbox="775 1182 874 1272">Fx</td> <td data-bbox="874 1182 1299 1272">Unsatisfactory with possible re-passing of final assessment</td> <td data-bbox="1299 1205 1394 1391" rowspan="2">Failed</td> </tr> <tr> <td data-bbox="628 1272 775 1391"><100</td> <td data-bbox="775 1272 874 1391">F</td> <td data-bbox="874 1272 1299 1391">Unsatisfactory with the mandatory repeated study of discipline</td> </tr> </tbody> </table>	University grading scale	ECTS grade	Descriptor	Awarding of credits	180 - 200	A	Excellent	Passed	170 - 179	B	Very Good	160 - 169	C	Good	141 - 159	D	Satisfactory	120 - 140	E	Sufficiently	100 - 119	Fx	Unsatisfactory with possible re-passing of final assessment	Failed	<100	F	Unsatisfactory with the mandatory repeated study of discipline
University grading scale	ECTS grade	Descriptor	Awarding of credits																									
180 - 200	A	Excellent	Passed																									
170 - 179	B	Very Good																										
160 - 169	C	Good																										
141 - 159	D	Satisfactory																										
120 - 140	E	Sufficiently																										
100 - 119	Fx	Unsatisfactory with possible re-passing of final assessment	Failed																									
<100	F	Unsatisfactory with the mandatory repeated study of discipline																										
<p>6 - Program competencies</p>																												
<p>IC (Integrated Competencies)</p>	<p>IC 1. Ability to integrate knowledge to solve typical and complex specialized problems;</p> <p>IC 2. Ability to solve practical problems in professional pharmaceutical activities applying the provisions, theories and methods of basic biomedical sciences and advance chemical, technological, social and economic sciences;</p> <p>IC 3. Ability to deal with an uncertainty and adapt to new situations.</p>																											

GC (General competencies)	GC 1. Ability to act socially responsible and demonstrate compassion, integrity, and respect for others;
	GC 2. Ability to demonstrate knowledge of established and evolving biomedical, chemical, technological, social and economic sciences, as well as the application of this knowledge to a pharmaceutical care and drug manufacture;
	GC 3. Ability to follow the principles of ecological safety and resolve issues linked to the ecological consequences of professional activities;
	GC 4 Ability to communicate in Ukrainian and English languages both orally and in writing;
	GC 5. Ability to demonstrate the qualities required to sustain lifelong personal and professional growth;
	GC 6. Interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, health professionals and pharmacists;
	GC 7. Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles;
	GC 8. Ability to conduct research at the appropriate level of professional activity.
PC (Professional competencies)	PC 1. Ability to use knowledge of regulations, legislation of Ukraine and recommendations of good pharmaceutical practices in professional activities.
	PC 2. Ability to define technological processes of development and manufacturing of medicines in accordance with the rules of good practice.
	PC 3. Ability to organize the production activities of pharmacies for the manufacture of drugs in various

	dosage forms in accordance with the rules of Good Pharmacy Practice (GPP).
	PC 4. Ability to organize and participate in drug manufacturing under the conditions of pharmaceutical companies, including the choice and validation of technological process in accordance with the rules of Good Manufacturing Practice (GMP).
	PC 5. Ability to procure medicinal plant raw materials in accordance with the rules of Good Agricultural and Collection Practice (GACP).
	PC 6. Ability to organize activities of a pharmacy aimed to provide the population and health care institutions with medicines, parapharmaceuticals, medical devices and medical cosmetics in accordance with the requirements of the National Medical Policy, Good Pharmacy Practice and other legal regulations.

	PC 7. Ability to organize the reporting and accounting system in pharmacies. To carry out commodity analysis, administrative record keeping, documentation and quality management in accordance with the regulations of Ukraine.
	PC 8. Ability to analyze and expect 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 9. Ability to develop, implement and apply management approaches in the professional activities of pharmacies, wholesalers, manufacturing companies and other pharmaceutical organizations in accordance with the principles of Good Educational Practices in Pharmacy and the FIP Global Framework.
	PC 10. Ability to organize the management of assortment, price regulation, sales of medicines and communication within pharmaceutical market players, conduct marketing research in the domestic and international markets.
	PC 11. Ability to analyze socio-economic processes in pharmacy, use different forms, methods and functions of the logistic system, analyze the consumer indicators, efficiency and accessibility of pharmaceutical care in terms of health insurance and drug reimbursement.
	PC 12. Ability to analyze drugs and medicinal plant raw materials in pharmacies and analytical labs of pharmaceutical companies in accordance with the requirements of the State Pharmacopoeia and other regulations.

	PC 13. Ability to control the quality of medicines, active pharmacological ingredients (API), medicinal plant raw materials and excipients in accordance with modern pharmacopoeial requirements and the requirements of good practices in pharmacy. Capability to determine a set of measures to detect and prevent the spread of counterfeit medicines.
	PC 14. Ability to develop quality control methods using the modern methods of analysis.
	PC 15. Ability to determine drugs and their metabolites in biological fluids and body tissues; to conduct chemical and toxicological studies to diagnose acute poisoning, drug and alcohol intoxication.
	PC 16. Ability to ensure proper storage of medicines and medical devices in accordance with their physicochemical properties and the rules of Good Storage Practice (GSP) in health care facilities.
	PC 17. Ability to provide pharmaceutical supervision.
	PC 18. Ability to follow the rules of pharmaceutical care in dispensing of OTC and Rx drugs.
	PC 19. Ability to provide first medical aid in an emergency.
	PC 20. Ability to provide professional counseling regarding biopharmaceutical, pharmacokinetic, pharmacodynamic and physicochemical characteristics of the drug.

	PC 21. Ability to conduct sanitary and educational activities among the population and to follow the sanitary and hygienic standards at pharmacy and pharmaceutical production.
7 - Program Learning Outcomes	
PLO (Program Learning Outcomes)	PLO 1. 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 2. To apply knowledge of general and professional disciplines in professional activities.
	PLO 3. To follow to the sanitary and hygienic standards and safety requirements while carrying out professional activities.
	PLO 4. To conduct an independent data research, analysis and synthesis from various sources and use obtained results to solve typical and complex specialized tasks in professional activity.
	PLO 5. To plan and develop own professional activity and competitiveness in the pharmaceutical labor market.
	PLO 6. To make decisions in standard and non-standard professional situations in compliance with the principles of ethics and deontology and be responsible for them.
	PLO 7. To perform professional activities using creative methods and approaches.
	PLO 8. To use Ukrainian and English in all aspects of professional activities and continuing professional development.
	PLO 9. To apply cutting-edge IT and digital technologies in professional activities.

	PLO 10. To work as a team player, ensuring effective communication in interdisciplinary and multicultural environment.
	PLO 11. To plan and carry out activities for evaluation of performance indicators and quality assurance in pharmaceutical field.
	PLO 12. To conduct scientific research, interpret scientific information and implement it in professional activities.
	PLO 13. To conduct sanitary and educational activities and to follow the professional sanitary and hygienic standards.

	PLO 14. To dispense medicines and other pharmaceutical products in complines with the rules of pharmaceutical care.
	PLO 15. To provide first medical aid in an emergency.
	PLO 16. To determine factors, depending on the condition, features of the human body and physicochemical properties of drugs and define its pharmacokinetics.
	PLO 17. To monitor the efficacy and safety of drugs using clinical, laboratory and instrumental investigation results.
	PLO 18. To select biological objects of analysis, determine xenobiotics and their metabolites in biological medium and evaluate the obtained results.
	PLO 19. To ensure proper storage of medicines and other pharmaceutical goods.
	PLO 20. To maintain all types of accounting in pharmacies, administrative records, processes of

	<p>commodity analysis and logistics aimed to provide the population and healthcare institutions with medicines and other pharmaceutical goods.</p>
	<p>PLO 21. To calculate the main economic indicators of pharmacies, as well as taxes and fees; to form all types of prices (wholesale, purchase and retail) for medicines and other pharmaceutical goods.</p>
	<p>PLO 22. To manage pharmaceutical organizations and enterprises, in order to make efficient management decisions.</p>
	<p>PLO 23. To analyse efficiency and accessibility of pharmaceutical care in terms of health insurance and drug reimbursement.</p>
	<p>PLO 24. To carry out professional activities with observance of Ukrainian and European regulations.</p>
	<p>PLO 25. To promote medicines in compliance with the rules of Good Publication Practice and standards of professional communication.</p>
	<p>PLO 26. To choose a rational technology, to manufacture medicines in various dosage forms according to prescriptions and orders of healthcare institutions. To perform technological operations to manufacture drugs at a pharmacy. To elaborate and form technological documentation.</p>
	<p>PLO 27. To determine the technology and organize the manufacture of medicines at pharmaceutical enterprises with registration of technological documentation.</p>
	<p>PLO 28. To organize and conduct rational procurement of medicinal plant raw materials; to</p>

	<p>develop and implement measures for the protection, reproduction and rational use of wild species of medicinal plants.</p>
	<p>PLO 29. To conduct SWOT-analysis for pharmaceutical enterprise and apply obtained results in strategic planning.</p>
	<p>PLO 30. To ensure quality control of medicines and record its results; to manage quality risks at all stages of the life cycle of medicines.</p>
	<p>PLO 31. To carry out all types of quality control and certification of medicines. To 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 methods of medicines standardization based on its organoleptic, physical, chemical, physicochemical and pharmaco-technological indicators, to carry out statistical processing of results in accordance with the requirements of the current State Pharmacopoeia of Ukraine.</p>
<p>8 – Resources for program implementation</p>	
<p>Staffing</p>	<p>The best faculty, staff, and learners are utilized for ensuring the highest quality of delivering the Study Program and they work together for the greater good.</p> <p>Academic staff delivering the Study Program have experience in teaching, research, management, educational and innovative work in the field of Healthcare and Pharmacy, and meet the requirements approved in the Resolution of Cabinet of Ministers of Ukraine №1187, dated December 30th, 2015.</p> <p>Academic staff, delivering classes in English, are fully certified with English proficiency tests and courses (Common European Framework of</p>

	Reference for Languages standards) with the level B2 and higher.
Resources, Facilities and Equipment	<p>The physical/material components of the Study Program include:</p> <ul style="list-style-type: none"> - laboratories; - classrooms, equipped with multimedia panels and/or projectors and specialized Smart-Boards “KMU Visionary”, which substitutes 8 devices that are commonly used in the educational process: computer, tablet, projector, projection screen, microphone, speaker, camera, writing whiteboard; - computer labs; - TOEFL iBT Certified Testing Center; - sports and recreation facilities; - dormitory; - tools and supplies that support learning. <p>Traineeship and clerkships are conducted using the resources of pharmacies, manufacturing companies, research institutions other institutions and organizations (on the basis of cooperation agreements).</p>
Informational and methodical support	<p>While delivering the Study Program faculty members use open educational resources which are: teaching, learning, and resource materials, tools, and media that reside in the public domain and may be used and repurposed freely by students. Particularly, faculty members and students of Medical Academic Consortium use "PrExam" platform, which consists of training and control modules and allows to create a virtual educational environment for teachers and students.</p> <p>Along with Pre-Exam we use Google Apps for Education and the multi-user cross-platforms, that facilitates accelerated learning and teaching in pharmaceutical sciences and anatomy across desktop, mobile, and augmented reality devices delivering 3D sessions.</p> <p>Students has free access to the university library, reading halls, electronic library, educational portal of the university and National Medical Library of Ukraine.</p>

9 – Academic mobility	
National credit mobility	National credit mobility is based on the agreements between Higher Educational Establishments of Ukraine. The program provides an opportunity for credit mobility among the Medical Academic Consortium, which unites Kyiv Medical University, Kharkiv Institute of Medicine and Biomedical Sciences and the Dnipro Institute of Medicine and Public Health.
International credit mobility	<p>Mobility in higher education mainly takes place through the Erasmus European Programme. Erasmus promotes the cooperation between higher education institutions focusing on the improvement of educational quality and the enhancement of the European dimension in higher education. It is implemented on the basis of an agreement between Kyiv Medical University and the Medical University of Silesia in Katowice (Republic of Poland).</p> <p>The Study Program also offers credit mobility based on agreements with Aichi Medical University (Japan) and Kazakhstan Medical University of Continuing Education. Besides International credit mobility, these agreements include:</p> <ul style="list-style-type: none"> - development of mutual Study Programs; - joint traineeship and clerkships for students; - conducting of joint research, which includes mutual financing; - publication of joint research results in international journals.
International Students Teaching	Training of International Students is conducted in English and Ukrainian in accordance with the requirements of the Ukrainian legislation. It is obligatory for International Students to study a separate educational component "Ukrainian as a Foreign Language". Knowing Ukrainian language allows them to actively participate in classes when they reach the traineeship and clerkships which is provides on pharmacies, manufacturing companies and research institutions. International students do not take

	the educational component “Training of Reserve Officers (specialty "Pharmacy)"”.
--	--

2. LIST OF EDUCATIONAL COMPONENTS OF THE STUDY PROGRAM

Code	Educational components of the Study Program	Number of credits	Form of final control
COMPULSORY COMPONENTS (OK)			
Fundamental Training			
OK 1	Ukrainian Language (professionally oriented)*	3,0	Credit
OK 1.1	Ukrainian as a Foreign Language**	9,0	Credit
OK 2	History of Ukraine and Ukrainian culture	3,0	Credit
OK 3	Foreign Language*	3,0	Credit
OK 4	Philosophy	3,0	Differentiated Credit
OK 5	English Language (professionally oriented)	4,0	Differentiated Credit
OK 6	Advanced Mathematics and Statistics	3,5	Differentiated Credit
OK 7	Biophysics and Physical Methods of Analysis	4,5	Credit
OK 8	Biology and Fundamentals of Genetics	4,0	Differentiated Credit
OK 9	Human Anatomy and Physiology	5,0	Differentiated Credit
OK 10	Latin Language	3,0	Differentiated Credit
OK 11	Microbiology and Fundamentals of Immunology	5,0	Exam
OK 12	Pathological Physiology	5,0	Exam
OK 13	Organic Chemistry	8,0	Exam
OK 14	General and Inorganic Chemistry	6,0	Exam
OK 15	Analytical Chemistry	8,0	Exam

OK 16	Pharmaceutical Botany	5,0	Differentiated Credit
OK 17	Biological Chemistry	6,0	Exam
OK 18	Information Technologies in Pharmacy	4,0	Differentiated Credit
Total		83,0	
Professional Training			
OK 19	Hygiene in Pharmacy and Ecology	3,0	Credit
OK 20	Ethics and Pharmaceutical Deontology	3,0	Credit
OK 21	Drugs and Technology	12	Exam
OK 22	Safety of Life Activity, Fundamentals of Bioethics and Biosafety	3,0	Credit
OK 23	Emergency Medical Aid	3,0	Credit
OK 24	Introduction to Pharmacy	3,0	Credit
OK 25	Pharmacognosy	8,5	Exam
OK 26	Pharmacotherapy and Pharmacokinetics	3,0	Credit
OK 27	Pharmacology	8,5	Exam
OK 28	Pharmaceutical Chemistry	13,0	Exam
OK 29	Physical and Colloid Chemistry	4,0	Exam
OK 30	Administration and Pharmacy Economics	6,0	Exam
OK 31	Clinical Pharmacy and Pharmaceutical Care	9,0	Exam
OK 32	Pharmaceutical and Medical Commodity Research	4,0	Differentiated Credit
OK 33	Pharmaceutical Management and Marketing	6,0	Exam
OK 34	Toxicological and Forensic Chemistry	4,0	Differentiated Credit
OK 35	Drug Toxicology	3,0	Credit
OK 36	Technology of Medicinal Cosmetics	3,0	Differentiated Credit
OK 37	Labor Protection in Pharmacy	3,0	Credit
OK 38	Pharmaceutical Law and Legislation	3,0	Credit
OK 39	Training of Reserve Officers (Specialty «Pharmacy»)*	3,0	Credit
Total		108	

Practice			
OK 40	Traineeship in Pharmaceutical Botany	3,0	Differentiated Credit
OK 41	Traineeship in Pharmacognosy	3,0	Differentiated Credit
OK 42	First Aid and Introductory Medical Practice	3,0	Differentiated Credit
OK 43	Pharmaceutical Clerkship; Pharmaceutical Chemistry; Administration and Pharmacy Economics; Pharmaceutical Management and Marketing; Drugs and Technology; Clinical Pharmacy and Pharmaceutical Care.	24	Differentiated Credit
	Total for practice	33,0	
Total number of ECTS credits for compulsory educational components:		224	
OPTIONAL COMPONENTS (BK)			
Fundamental Training			
Block 1			
BK 1.1	Valeology	5	Credit
BK 1.2	Linguistic and Country Studies		Credit
BK 1.3	Mass Commuication Education (professionally oriented)		Credit
Block 2			
BK 2.1	Career promotion in Pharmacy	4	Credit
BK 2.2	Medical Sociology		Credit
BK 2.3	Medical Law		Credit
Block 3			
BK 3.1	Bioactivity of Inorganic Compounds	4	Credit
BK 3.2	Topical Issues in Molecular Biology		Credit
BK 3.3	Bioactivity of Organic Compounds		Credit
Block 4			
BK 4.1	Pathophysiological Aspects of Civilization Diseases	4	Credit
BK 4.2	Clinical Human Anatomy		Credit

BK 4.3	Theoretical Fundamentals of Dosage Forms Technology		Credit
Block 5			
BK 5.1	Computer Simulation in Pharmacy	3	Credit
BK 5.2	IT Technologies in Pharmacy		Credit
Block 6			
BK 6.1	Fundamentals of Consumer's Pharmaceutical Buying Behavior	4	Credit
BK 6.2	Healthcare Entrepreneurship		Credit
BK 6.3	Topical Issues of Medical Physics		Credit
Block 7			
BK 7.1	Physicochemical Analysis of Medicines Development	4	Credit
BK 7.2	Innovative Qualitative Research Methods of Medicines		Credit
BK 7.3	Phytochemical Analysis of Medicines		Credit
Block 8			
BK 8.1	Nutrition and Bromatology	2	Credit
BK 8.2	Fundamentals of Virology		Credit
Block 9			
BK 9.1	Functional Biochemistry	4	Credit
BK 9.2	Pharmacogenetics		Credit
BK 9.3.1	Fundamentals of Pharmacokinetics		Credit
BK 9.3.2	Introduction to the Theory of Scientific Researches		Credit
Professional Training			
Block 10			
BK 10.1	Side Effect of Drugs	2	Credit
BK 10.2	Immunopharmacology		Credit
BK 10.3	Age Aspects of Pharmacology		Credit
Block 11			
BK 11.1	Social Interaction: pharmacist-doctor-patient	2	Credit
BK 11.2	Career Planning		Credit
BK 11.3	Administrative Management		Credit
Block 12			
BK 12.1	Clinical Research of Medicines	4	Credit

BK 12.2	Pharmaceutical Aspects of Drug Dependence and Toxicomania		Credit
BK 12.3	Manufacturing Processes and Equipment in Pharmacy		Credit
Block 13			
BK 13.1	Laboratory Diagnostics	2	Credit
BK 13.2	Pharmaceutical Logistics		Credit
Block 14			
BK 14.1	Pharmacoeconomics	3	Credit
BK 14.2	Pharmaeconomic Analysis in Health Care		Credit
Block 15			
BK 15.1	Evidence-Based Medicine	2	Credit
BK 15.2	Intellectual Property		Credit
Block 16			
BK 16.1	Clerkship in Clinical Pharmacy and Pharmaceutical Care	2	Credit
BK 16.2	Clerkship in Drugs and Technology		Credit
Block 17			
BK 17.1	Pharmaceutical Biotechnology	3	Credit
BK 17.2	Biotechnological Processes in Medicines Manufacturing		Credit
Block 18			
BK 18.1	Biopharmacy	3	Credit
BK 18.2	Development of Drugs		Credit
Block 19			
BK 19.1	Social Pharmacy	3	Credit
BK 19.2	Pharmacy's Societal Purpose		Credit
Block 20			
BK 20.1	Standardization of Medicines	3	Differentiated Credit
BK 20.2	Pharmaceutical Analysis of Drugs		Differentiated Credit
Block 21			
BK 21.1	Resource Studies of Medicinal Herbs	3	Differentiated Credit
BK 21.2	Cultivation and Conservation of Medicinal Herbs Biodiversity		Differentiated Credit

Block 22			
BK 22.1	Quality Assurance in Pharmacy	3	Credit
BK 22.2	Good Pharmacy Practice		Credit
Block 23			
BK 23.1	International Marketing in Pharmacy	6	Differentiated Credit
BK 23.2	Pharmaceutical Care and Clinical Pharmacy		Differentiated Credit
BK 23.3	Medicinal Herbs and Phytotherapy		Differentiated Credit
BK 23.4	Quality Control of Drugs		Differentiated Credit
BK 23.5	Chemical and Toxicological Analysis		Differentiated Credit
BK 23.6	Writing of (Master's) Thesis		
Total number of ECTS credits for optional educational components:		75	
Non-Credit Components			
NCC 1	Physical Training		Credit
Attestation			
	Unified State Qualification Examination (USQE).	1	
	Practical Comprehensive Exam /Master`s Thesis Defense		
TOTAL FOR WHOLE STUDY PROGRAM		300	

Note:

**- for Ukrainian citizens*

***- for international students*

3. ATTESTATION OF STUDENTS OF THE STUDY PROGRAM

Forms of Attestation of graduates of the Study Program	<p>Attestation of students is carried out in the form of the Unified State Qualification Examination (USQE) and Practical Comprehensive Exam / Master's Thesis Defense.</p> <p>The Unified State Qualification Examination (USQE) consists of the following components:</p> <p><i>After 3rd year of study:</i></p> <ul style="list-style-type: none"> - KROK-1 exam;
---	---

	<p>- English for professional purposes exam <i>After 10th year of full-time study and after 11th year of part-time study:</i></p> <p>- KROK-2 exam.</p> <p>The procedure and requirements for conducting USQE are defined by the Resolution of the Cabinet of Ministers of Ukraine (№334, dated March 28th, 2018). Requirements for Master's Thesis are set out in the “Regulations on the preparation and defense of Master's thesis at the Pharmaceutical Faculty of PHEE “Kyiv Medical University”. The Master's Thesis is subject to mandatory testing for academic plagiarism.</p> <p>The defense of Master's Thesis is carried out publicly.</p>
Master’s Thesis Requirements	<p>Requirements for Master’s Thesis are listed in the regulation “On preparation and defence of Master’s Theses on the Faculty of Pharmacy of PHEE “Kyiv Medical University”.</p> <p>Master’s Thesis is subject to mandatory academic plagiarism checking.</p> <p>The defence of Master’s Thesis is performed publically.</p>
Documents on successful completion of the Study Program	<p>Upon completion of the Study Program, graduates are awarded:</p> <ul style="list-style-type: none"> -the Master's Degree Diploma; -professional qualification “Pharmacist”; -Diploma Supplement of the European standard as an integral part of the diploma. <p>The diploma with honors is issued to graduates of the program who received at least 75% of grades "excellent" / “A” in all educational components.</p>

APPENDIX 1. LOGICAL STRUCTURE OF THE STUDY PROGRAM (MODULE OVERVIEW)

APPENDIX 2. MATRIX OF CORRESPONDENCE OF THE PROGRAM COMPETENCIES WITH THE EDUCATIONAL COMPONENTS

APPENDIX 3. MATRIX OF CORRESPONDENCE OF PROGRAM LEARNING OUTCOMES TO THE EDUCATIONAL COMPONENTS

4. LEGISLATION AND REGULATIONS IN MEDICAL EDUCATION SPHERE

1. Law of Ukraine «On Higher Education» 07/01/2014 561556-VII.
2. Law of Ukraine «On Education» 09/05/2017 №2145-VIII.
3. Resolution of the Cabinet of Ministers from 04/29/2015 № 266 «On approval of the list of branches of knowledge and specialties for which higher education students are trained».
4. Resolution of the Cabinet of Ministers of Ukraine from 03/28/2018 № 334 "On approval of the Procedure for conducting a single state qualification exam for applicants for a master's degree in the field of knowledge «Healthcare».
5. Resolution of the Cabinet of Ministers of Ukraine dated 05/10/2018 № 354 «On approval of the list of specialties for which a single state qualifying exam for a master's degree is carried out».
6. Resolution of the Cabinet of Ministers of 11/23/2011 №1341 «On approval of the National Qualifications Framework» (as amended from 06/12/2019, № 509; 06.25.2020, № 519).
7. National Classifier of Ukraine: «Classifier of Occupations» DK 003:2010// Publishing House «Sotsinform». - K .: 2010.
8. Order of the Ministry of Economic Development and Trade of Ukraine of November 18, 2014 № 1361 «On approval of the amendment to the National Classifier of Ukraine DK 003: 2010» (amendment № 2).
9. Resolution of the Cabinet of Ministers of Ukraine of December 30, 2015 № 1187 «About the adoption of Licensing conditions of carrying out educational activity in educational institutions» (with amendments from 10/05/2018 №347).
10. Methodical recommendations for the development of standards of higher education // Order of the Ministry of Education and Science of Ukraine dated 06/01/2016 №600 (as amended by the order of the Ministry of Education and Science of Ukraine dated 10/01/2019 №1254).
11. Law of Ukraine «On Licensing of Economic Activities» dated 03/02/2015 № 222-VIII (as amended by the Laws of Ukraine).
12. Law of Ukraine «Fundamentals of the Legislation of Ukraine on Health Care» dated 11/19/1992 №2801-XII (as amended by the Laws of Ukraine).
13. Law of Ukraine «On Medicinal Products» dated 04/02/1996 №123/96-BP (as amended by the Laws of Ukraine).

14. Order of the Ministry of Health of Ukraine «On approval of the Concept of development of the pharmaceutical sector of the Health Care of Ukraine for 2011-2020» dated 09/13/2010 № 769.
15. Guidelines ST-N MOHU 42-4.0:2016 «Medicines. Good manufacturing practice». - Kyiv: Ministry of Health of Ukraine. - 2016.- 335 pp., Approved by the order of the Ministry of Health of Ukraine dated 07/27/2016, №798.
16. Guidelines ST-N MOHU 42-3.0:2011 «Medicines. Pharmaceutical development (ICH Q8)». - Kyiv: Ministry of Health of Ukraine. - 2011.- 33 p., Approved by the order of the Ministry of Health of Ukraine dated 10/03/2011, №634.
17. Guidelines ST-N MOHU 42-4.2:2011 «Medicines. Quality risk management (ICH Q9)». - Kyiv: Ministry of Health of Ukraine. - 2011.- 26 pp., Approved by the order of the Ministry of Health of Ukraine dated 10/03/ 2011, №634.
18. Guidelines ST-N MOHU 42-4.3: 2011 «Medicines. Pharmaceutical quality system (ICH Q10)». - Kyiv: Ministry of Health of Ukraine. - 2011.- 22 pp., Approved by the order of the Ministry of Health of Ukraine dated 10/03/ 2011, №634.
19. Order of the Ministry of Health of Ukraine from March 29, 2002 №117 "Handbook of qualification characteristics of occupations. Issue 78. Health Care "1. The concept of "Pharmacist of seven stars", "Good practice of pharmaceutical education", 2000.
20. The Role of the Pharmacist in the Health Care System. Available from: <http://www.apps.who.int/medicinedocs/en/d/Jh2995e/1.5.html>. [Last accessed on 05/01/2014].
21. Directive 2005/36/EC OF the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications).
22. Recommendation of the European Parliament and of the Council 2008/C 111/01 on establishing a European Qualifications Framework for lifelong learning from 04/23/2008.
23. WFME Global Standards for Quality improvement: Basic Medical Education, WFME Global Standards for Quality improvement: Postgraduate Medical Education and WFME Global Standards for Quality improvement: Continuous Professional Development and Standards for PhD Education in Biomedicine and Health Sciences in Europe.
24. Code of Ethics for Pharmaceutical Workers of Ukraine, 2010
25. Glossary of Terms (Annex III). Erasmus + Program Guide.
26. Policy Brief Accreditation of Institutions for Health Professional Education.
27. Glossary of Medical Terms. Howard University, College of Medicine.
28. Pharmacy Workforce Intelligence: Global Trends Report // International Pharmaceutical Federation (FIP), 2018; 2020.
29. Federation International Pharmacy (FIP) Global Competency Framework (GbCF), 2020.

**Guarantor of the Study Program
Ph.D. , Doctor of Pharm. Science**

A handwritten signature in blue ink, appearing to read 'A. Gudzenko', with several horizontal strokes underneath.

A. Gudzenko