

MINISTRY OF HEALTH OF UKRAINE
Ivan Horbachevsky Ternopil National Medical University
of the Ministry of Health of Ukraine

Educational Program

«Pharmacy»

Second level of higher education
 specialty 226 Pharmacy, industrial pharmacy
 branch of knowledge 22 Healthcare
 Qualification: Master of Pharmacy. Pharmacist

APPROVED BY ACADEMIC BOARD

Head of academic board
 _____ /prof. M. Korda
 (protocol No _____ dated «23» 06 2021)

Educational program is effective from 01.09.20 ____
 Acting rector
 _____ /prof. A. Shulhai
 (order No _____ dated «23» 06 2021)



**Letter of agreement
of educational program**

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Head of educational department



A. Mashtalir

Head of the department of internal
quality assurance of higher education



A. Chornomydz

PREFACE

Developed by a working group consisting of:

1. Korobko Dmytro Borysovych – candidate of pharm. sciences (PhD), docent, dean of the Faculty of Pharmacy of Ivan Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine.
2. Marchyshyn Svitlana Mykhailivna – doctor of pharm. sciences (ScD), prof., head of the Department of Pharmacognosy and Medical Botany of Ivan Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine.
3. Kozyr Halyna Romanivna – candidate of pharm. sciences (PhD), docent, Department of Pharmacy Management, Economics and Technology of Ivan Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine.
4. Zahrychuk Hryhoriy Yaroslavovych – candidate of chem. sciences (PhD), docent, head of the Department of General Chemistry of Ivan Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine.
5. Lumar Artem Yuriovych – 5th year student of the pharmacy faculty of Ivan Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine.

**1. Profile of the educational program "Pharmacy"
of specialty 226 «Pharmacy»**

1 – General information	
Full name of the higher education institution and structural unit	Ivan Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine; Faculty of Pharmacy.
Level of higher education and title of qualification in the original language	Master; Educational qualification – Master of Pharmacy; Professional qualification – Pharmacist; Qualification written in diploma – Master of Pharmacy. Pharmacist.
Official name of the educational program	Pharmacy
Type of diploma and scope of educational program	Master's diploma, single, 300 ECTS credits, specified term – 4 years and 10 months; 3 years and 10 months Scope of Master's educational program: • on the basis of Certificate of Complete General Secondary Education – 300 ECTS credits • on the basis of Junior Specialist's Diploma, Junior Bachelor's Diploma, Bachelor's Diploma of Pharmaceutical and Medical Sciences – 240 ECTS credits
Availability of accreditation	- not accredited
Cycle/level	FQ-EHEA – second cycle, EQF-LLL – seventh level, National Qualifications Framework of Ukraine – seventh level Second (Master's) level
Prerequisites	Presence of a certificate of Complete General Secondary Education (based on certificates of external independent evaluation), or on the basis of Junior Specialist's Diploma, Junior Bachelor's Diploma, Bachelor's Diploma of Pharmaceutical and Medical Sciences. Training at the second level of higher education is carried out on a full-time and part-time basis. Terms of admission are determined by the Rules of Admission of Ivan Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine
Language(s) of instruction	Ukrainian, English
Duration of the educational program	01 September 2020 – 30 June 2025
Internet address of the permanent placement of the description of the educational program	http://www.tdmu.edu.ua/wp-content/uploads/2016/10

2 – The purpose of the educational program

To provide academic education for graduates in social sciences and humanities, medical and biological, and applied sciences and professional training by acquiring general and professional competencies for professional activities in the relevant position, including pharmaceutical care, ensuring safe and rational use of drugs, monitoring of the effectiveness of pharmacotherapy and / or side effects, willingness to bear (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 on the basis of pharmaceutical ethics and deontology.

3 – Characteristics of the educational program

Subject area (branch of knowledge, specialty)	<p>Branch of knowledge 22 Healthcare, specialty 226 Pharmacy.</p> <p><i>Objects of study are:</i> drugs at all stages of the life cycle, pharmaceutical care.</p> <p><i>Objectives of study are:</i> 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).</p> <p>Theoretical content of the subject area: includes consultative-communicative, organizational, technological, control-analytical, administrative-economic (managerial), research functions, determination of safety, efficiency and cost-effectiveness of pharmacotherapy, needs for medicines and other pharmaceutical products, organization of their 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 drugs, control over the quality of drugs; implementation of pharmaceutical care; conducting advertising and information work, adherence to the principles of pharmaceutical ethics and deontology, continuous improvement of the professional level.</p> <p>Methods, techniques and technologies: organoleptic, physical, chemical, physicochemical, biopharmaceutical, pharmacotechnological, microbiological, biochemical and pharmacological, clinical, economic calculations, pharmaco-economic; marketing research, modeling, forecasting, etc.</p> <p>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.</p>
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Orientation of the educational program	<p>Educational-professional, applied. The structure of the program involves the acquisition of knowledge about the sources of medicinal 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 plant-based materials.</p> <p>Ability to analyze and summarize information on the proper promotion, logistics, distribution and storage of drugs. 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 and modern equipment at the pharmacies and during industrial production. Ability to provide pharmaceutical care based on 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. The program meets the requirements of employers in the field of drug production, wholesale and retail sale of drugs, as it forms an innovative style of thinking, which is based on international documents governing all components of the circulation of drugs and relevant protocols.</p> <p>Key words: master of pharmacy; providing the population with quality drugs, medical supplies and devices, etc .; pharmaceutical care.</p>
Features of the program	<p>The educational program is based on modern scientific achievements in the field of pharmacy and the principles of evidence-based medicine. It provides the acquisition of a high level of knowledge and practical skills in extracting substances of medicinal importance, their purification, methods of drug manufacturing and their control.</p> <p>The program allows a person to gain a deep knowledge of the use of drugs in medical practice, as well as development of initial organizational (managerial) experience. The program is focused on the further personal development, within which both professional and scientific components (theoretical and</p>

	<p>applied) are possible. It provides the possibility of internships and training practice in educational institutions and pharmaceutical institutions abroad.</p> <p>The program 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. It forms specialists with a new style of thinking, which are able to generate innovative proposals and conduct systematic research in relevant areas. The mastering of the educational program is done in groups of higher education students with the appropriate number of students with a mandatory combination of practical and theoretical training.</p> <p>Mastering of the educational program is possible in both Ukrainian and English languages.</p>
4 – Suitability of graduates for employment and further education	
Suitability for employment	<p>The graduate of the educational program is prepared to work according to the КВЕД ДК 009-2010:</p> <p>Section A Agriculture, forestry and fisheries Chapter 01 Agriculture, hunting and related services Group 01.2 Growing perennial crops Class 01.28 Growing spicy, aromatic and medicinal crops</p> <p>Section C Processing industry Chapter 21 Manufacture of basic pharmaceutical products and drugs Group 21.1 Manufacture of basic pharmaceutical products Class 21.10 Manufacture of basic pharmaceutical products Group 21.2 Production of pharmaceutical drugs and materials Class 21.20 Production of pharmaceutical drugs and materials</p> <p>Section G Wholesale and retail trade; repair of motor vehicles and motorcycles Chapter 46 Wholesale trade, except of motor vehicles and motorcycles Group 46.4 Wholesale of pharmaceutical products Section 46.46 Wholesale of pharmaceutical products Chapter 47 Retail trade, except of motor vehicles and motorcycles Group 47.7 Retail sale of other goods in specialized stores Class 47.73 Retail sale of pharmaceutical goods in specialized stores Class 47.74 Retail sale of medical and orthopedic products in specialized stores</p>

	<p>Section M Professional, scientific and technical activities Chapter 73 Advertising and market research Group 73.2 Market research and public opinion polling Class 73.20 Market research and public opinion polling</p> <p>Section Q Health care and social care Chapter 86 Health care Group 86.9 Other health care activities Class 86.90 Other health care activities</p> <p>After completion of the educational program "Pharmacy", the graduate must enter the educational program of postgraduate education, which is carried out in accordance with current legal requirements, depending on the field of activity. In addition, the graduate can perform professional activities according to ДК 003:2010: 23157 laboratory assistant (pharmacy) (code КП – 3228); 24427 pharmacist-intern (code КП – 3228).</p> <p>After training in the internship, the graduate is able to perform the professional work specified in ДК 003: 2010 and may hold the appropriate primary position: Section 2. Professionals. Subsection 22. Professionals in life sciences and medical sciences Class 222. Professionals in medical sciences Subclass 2224. Professionals in the field of pharmacy Group 2224.1 Scientific researchers (pharmacy) Group 2224.2 Pharmacists: 2224.1 scientific researcher (pharmacy) 2224.1 scientific researcher-consultant (pharmacy) 2224.2 pharmacist 2224.2 pharmacist-analyst 2224.2 pharmacist-toxicologist 2224.2 pharmacist-homeopath.</p>
Further education	<p>After completion of educational program “Pharmacy” the graduate can be admitted into the third (educational-scientific) level of higher education – the degree of doctor of philosophy according to the requirements of the current legislation .</p>
5 –Teaching and assessment	
Teaching and educational process	<p>Student-centered learning, problem-oriented learning with a scientific component, lectures, seminars and practical classes,</p>

	practical training and internships, individual and autonomous learning (including dual), consultations with teachers, etc.
Assessment	<p>Assessment of student achievements is carried out on a national scale and ECTS scale.</p> <p>Types of control: current, intermediate, final, self-control.</p> <p>Forms of control: pass-fail tests, differentiated tests, exams with appropriate forms of control, stages 1 and 2 of the unified state qualification exam, including the implementation and defense of the master's thesis; current and intermediate oral and written questioning, testing using computer technology; evaluation of performance and defense of individual tasks (essays, presentations, etc.), defense of the results of internships.</p>
6 – Educational program competencies	
Integral competence	Ability to solve typical and complex specialized problems and critically comprehend and solve practical problems in professional pharmaceutical and/or research-innovational activities using the provisions, theories and methods of foundational, chemical, technological, biomedical and socio-economic sciences; to integrate knowledge and solve complex issues, to formulate judgments based on insufficient or limited information; to convey personal knowledge clearly and unambiguously, as well as conclusions and their validation to professional and non-professional audience.
General competences (GC)	<p>GC 1. Ability to act socially responsibly and civic consciously.</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 official state language both orally and in writing, the ability to communicate in a foreign language (mainly 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 branches of knowledge / types of economic activity.</p>

	<p>GC 11. Ability to assess and ensure the quality of the work performed.</p> <p>GC 12. Ability to conduct research at the appropriate level.</p> <p>GC 13. Ability to exercise the rights and responsibilities as a member of society, to comprehend 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 improve moral, cultural, scientific values and achievements of society based on understanding of the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in the development of society, equipment and technology, to use different types and forms of physical activity for active recreation and a healthy lifestyle.</p>
<p>Professional competencies of the specialty (PC)</p>	<p>Professional competencies are formed in accordance with the Global Framework of Competences of Pharmaceutical Specialists of the International Pharmaceutical Federation (FIP Education Initiatives. Pharmacy Education Taskforce. A Global Competency Framework, v. 1) and taking into account the national characteristics of higher pharmaceutical education.</p> <p>PC 1. Ability to conduct health education among the population to prevent widespread diseases, prevent dangerous infectious, viral and parasitic diseases, as well as to facilitate the timely detection and maintenance of adherence to the treatment of these diseases in accordance with their medical and biological characteristics and microbiological peculiarities.</p> <p>PC 2. Ability to provide an advice on prescription and over-the-counter drugs and other products of the pharmacy store; pharmaceutical care during the selection and sale of over-the-counter drugs by assessing the ratio between the risk and benefit, compatibility, indications and contraindications based on the health data of a particular patient, taking into account biopharmaceutical, pharmacokinetic, pharmacodynamic and physicochemical characteristics of the drug and other pharmaceutical products.</p> <p>PC 3. Ability to provide premedical care to patients and victims of extreme life endangering situations and emergencies.</p> <p>PC 4. Ability to ensure the rational use of prescription and over-the-counter drugs and other pharmaceutical products in</p>

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 use of drugs by the population according to the data on their clinical and pharmaceutical characteristics, as well as taking into account subjective features 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 drugs and other pharmaceutical products in accordance with their physicochemical properties and the rules of Good Storage Practice (GSP) in healthcare facilities.

PC 8. Ability to organize the activities of pharmacies to provide the population, healthcare facilities with drugs and other pharmaceutical products of the pharmacy stores and implement appropriate reporting and accounting systems (managerial, statistical, accounting and financial) in accordance with the requirements of National Medical Policy, Good Pharmacy Practice (GPP)) and carry out commodity analysis, administrative record keeping, 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 drugs 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 apply 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 provision system and its components in international practice, indicators of need, efficiency and availability of pharmaceutical care under conditions of health insurance application and reimbursement of the cost of drugs.

PC 12. Ability to use in professional activities the knowledge of regulations, legislation of Ukraine and recommendations of good pharmaceutical practices.

PC 13. Ability to demonstrate and apply communication skills, fundamental principles of 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 drugs in various forms using prescriptions of doctors and orders of medical establishments, including justification of technology and selection of auxiliary materials in accordance with the rules of Good Pharmacy Practice (GPP).

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

PC 16. Ability to organize and procure medicinal plant raw materials in accordance with the rules of Guidelines on good agricultural and collection practices (GACP) for Herbal Raw Materials, as a guarantee of the quality of medicinal plant raw materials and medicinal products based on those materials. Ability to predict and calculate methods to solve the problems of conservation and protection of growing areas of wild medicinal plants, in accordance with current legislation.

PC 17. Ability to organize and carry out general and marketing management of assortment, product innovation, pricing, sales and communication policies of pharmaceutical market participants based on the results of marketing research and taking into account market processes in national and international markets; ability to manage risks in the

pharmaceutical system.

PC 18. Ability to develop and implement a quality management system for pharmaceutical companies in accordance with the requirements of current Standards, ability to perform quality audits and risk management for the quality of pharmaceutical products.

PC 19. Ability to organize and control the quality of drugs in accordance with the requirements of the current State Pharmacopoeia of Ukraine and good practices in pharmacy, determine methods of sampling for control of drugs and standardize them in accordance with current requirements; ability to prevent the spread of counterfeit drugs.

PC 20. Ability to develop methods for quality control of drugs, including active pharmaceutical ingredients, medicinal plant raw materials and excipients using physical, chemical, physicochemical, biological, microbiological, pharmacotechnological and pharmacoorganoleptic control methods.

7 – Program learning outcomes (PLO)

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.

PLO 2. Apply knowledge of general and professional disciplines in professional activities.

PLO 3. Adhere to the norms of sanitary and hygienic regime and safety requirements while performing professional activities.

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.

PLO 5. Skills to position professional activity and personal qualities in the pharmaceutical labor market; ability to formulate the purposes of personal activity taking into account public and industrial interests.

PLO 6. Provide information for decision-making, be responsible for those decisions 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. Perform professional communication in the state official language, use oral communication skills using foreign

language, analyze texts of professional orientation and translate foreign language information sources.

PLO 9. Carry out professional activities using modern information technologies, "Information databases", navigation systems, Internet 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 as professional activity in case of outbreaks of infectious, viral and parasitic diseases.

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

PLO 15. Provide premedical care to patients during emergencies and victims of extreme life endangering situations.

PLO 16. Determine the influence of factors influencing the processes of absorption, distribution, deposition, metabolism and excretion of the drug taking into account condition, features of the human body and physicochemical properties of drugs.

PLO 17. Use clinical, laboratory and instrumental research data to monitor the efficacy and safety of drugs.

PLO 18. Select biological objects of analysis, determine xenobiotics and their metabolites in biological environments 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 drugs and consumer characteristics of other products of the pharmacy range during their storage.

PLO 20. Implement a set of organizational and managerial measures to provide the population and health care facilities

with drugs and other products of the pharmacy category. 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. To form all types of prices (wholesale, purchase and retail) for drugs and other products of the pharmacy category.

PLO 22. Manage pharmaceutical organizations and determine their effectiveness using management functions. Make management decisions based on the formed 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 legislative regulations of Ukraine and recommendations of good pharmaceutical practices.

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

PLO 26. To choose a rational technology, to produce drugs in various dosage forms according to doctors' prescriptions and orders of medical institutions, to prepare paperwork before their release. Perform technological operations: weigh, measure, dose a variety of drugs by weight, volume, etc. Develop and prepare technological documentation for the manufacture of drugs in pharmacies.

PLO 27. To substantiate the technology and organize the production of drugs at pharmaceutical enterprises and prepare technological documentation for the production of drugs at pharmaceutical enterprises.

PLO 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.

PLO 29. Ensure competitive positions and effective development of pharmaceutical organizations on the basis of

	<p>investigations using all elements of the marketing complex.</p> <p>PLO 30. Ensure quality control of drugs and maintain quality control results and records. Manage quality risks at all stages of the life cycle of drugs.</p> <p>PLO 31. Carry out all types of quality control of drugs; prepare quality certificates for the batches of the medicinal products 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 drugs; to substantiate and choose methods of their standardization, to carry out statistical processing of the results according to requirements of the current State Pharmacopoeia of Ukraine.</p>
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8 – Resource support for educational program implementation	
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Human resources support	<p>The educational program is supported by 20 departments consisting of 53 persons, including 41 candidates of sciences (PhD), among them 35 docents (associate professors); 12 doctors of sciences (ScD), professors. All scientific-pedagogical workers involved in the implementation of the educational component of the educational program are full-time employees of Ivan Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine, have a proven level of scientific and professional activity and qualifications, appropriate for the specialty. Majority of them have practical experience.</p>
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Infrastructure, building, equipment resource support	<p>Availability of educational and lecture classrooms, equipped with computer workstations, multimedia equipment, technical means of education; availability of bases for conducting internships of higher education seekers or current agreements for conducting internships at medical institutions; availability of necessary chemical reagents, equipment and devices, facilities.</p> <p>A “simulative educational pharmacy”, as a part of Faculty of Pharmacy, is available for the proper mastering of practical skills, as a component of the Center for Simulation Training of the University. The total area of educational buildings and</p>
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	<p>dormitories is 56734 m². The area of educational buildings is 37583 m², clinical bases - 8672 m². Training facilities occupy 24451 m², including gyms - 2219 m²; premises for scientific and pedagogical employees - 2881 m², support office premises - 5042 m², library, including reading rooms - 1114 m², dormitories - 19151 m², catering facilities (canteens, cafeterias) - 1025 m², dispensaries - 1432 m², medical care support rooms - 106 m². Sanitary and technical conditions in the specified divisions are in accordance to specifications.</p>
<p>Informational and educational methodical support</p>	<p>Appropriate educational and methodical support (complexes) of academic disciplines, which contain methodical documentation for seminars, practical classes, methodical instructions for independent work of students, individual tasks of practical orientation; methodical materials for passing of practical internships, tasks for knowledge assessment (examination tickets, test tasks, final, complex control tasks); modern information sources and computer equipment; personal Web-pages of the departments responsible for training masters of pharmacy, industrial pharmacy; fiber optic internet connection.</p> <p>Official university website is http://www.tdmu.edu.ua (information about educational programs, educational and scientific activities, structural subdivisions, admission rules, contacts). Currently, the University's Intranet has 3 terabytes of information.</p> <p>The general collection of the library is 399302 volumes. The average number of volumes of scientific literature per one scientific-pedagogical worker is 328 units. Eight reading rooms have 438 seats. The capacity of the printing base of the university is 5250000 sheets. The educational process uses 26 server computers, 1913 computer clients, 22 multimedia boards, 146 multimedia video systems and multimedia projectors; 193 virtual training programs; 47 computer classes.</p> <p>The university has 13 scientific journals, 11 of which are included in the list of scientific professional publications of Ukraine according to the new requirements of the order of the Ministry of Education and Science of Ukraine dated January 15, 2018 "On approval of the list of scientific professional publications of Ukraine".</p> <p>The university publishes 2 newspapers: "Medical Academy" and "University Hospital".</p>
<p>9 – Academic mobility</p>	

National credit mobility	National credit mobility is provided by bilateral agreements between Ivan Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine and other universities of Ukraine. Recognition of educational credits from other institutions of higher education in the framework of academic mobility is carried out in accordance with the concluded agreements.
International credit mobility	International credit mobility is provided by bilateral agreements between Ivan Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine and educational institutions of the partner countries. International mobility is carried out within the Erasmus+ and Erasmus Mundus Medea programs.
Training of foreign applicants for higher education	Training of foreign applicants for higher education is carried out in accordance with the requirements of current legislation.

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

2.1. List of components of the EP

Code from EP	Components of the educational program (educational disciplines, term/course projects (papers), internships, Master's thesis)	Number of credits	Form of final assessment
1	2	3	4
Required components (RC) of the EP			
Cycle of general training disciplines			
RC 1.	Human Anatomy and Physiology	5,00	Diff. test
RC 2.	Analytical Chemistry	8,00	Exam
RC 3.	English language	3,00	Pass-fail test
RC 4.	English for Specific Purposes	3,00	Diff. test
RC 5.	Biology and Fundamentals of Genetics	4,00	Diff. test
RC 6.	Biological physics and physical methods of analysis	4,50	Diff. test
RC 7.	Biological Chemistry	6,00	Exam
RC 8.	Higher mathematics and statistics	3,50	Diff. test
RC 9.	General and Inorganic Chemistry	7,00	Exam
RC 10.	Information Technology in Pharmacy	5,00	Diff. test
RC 11.	History of Ukraine and Ukrainian culture	3,00	Pass-fail test
RC 12.	Computer modeling in pharmacy	3,00	Diff. test
RC 13.	Latin language	3,00	Exam

RC 14.	Microbiology with the Basics of Immunology	5,00	Exam
RC 15.	Organic Chemistry	8,00	Exam
RC 16.	Pathological Physiology	5,00	Exam
RC 17.	Ukrainian Language (for Professional Purposes)	3,00	Diff. test
RC 18.	Pharmaceutical Botany	5,00	Exam
RC 19.	Physical and Coloidal Chemistry	4,00	Diff. test
RC 20.	Philosophy	3,00	Diff. test
Cycle of disciplines of professional training			
RC 21.	Biopharmaceutics	3,00	Pass-fail test
RC 22.	Introduction to pharmacy	3,00	Pass-fail test
RC 23.	Hygiene in pharmacy	3,00	Pass-fail test
RC 24.	Ethics and Deontology in Pharmacy	3,00	Pass-fail test
RC 25.	Extreme Medicine	3,00	Pass-fail test
RC 26.	Clinical Pharmacy and Pharmaceutical Care	9,00	Exam
RC 27.	Clinical Pharmacology and Toxicology	3,00	Pass-fail test
RC 28.	Organization and economy in pharmacy	6,00	Exam
RC 29.	Reserve Officers Training in the branch of knowledge «Healthcare». Specialty «Pharmacy»	3,00	Diff. test
RC 30.	Resources of Medicinal Plants	3,00	Pass-fail test
RC 31.	Standardization of Drugs	3,00	Pass-fail test
RC 32.	Pharmaceutical quality systems	3,00	Pass-fail test
RC 33.	Social pharmacy	3,00	Pass-fail test
RC 34.	Technology of Cosmetic Product	3,00	Pass-fail test
1	2	3	4
RC 35.	Drugs Technology	12,00	Exam
RC 36.	Toxicological and Forensic Chemistry	4,00	Diff. test
RC 37.	Pharmacognosy	8,50	Exam
RC 38.	Pharmacoeconomics	3,00	Pass-fail test
RC 39.	Pharmacology	8,50	Exam
RC 40.	Drug Therapy with the Basics of Pharmacokinetics	3,00	Exam
RC 41.	Pharmaceutical biotechnology	3,00	Pass-fail test
RC 42.	Pharmaceutical Chemistry	13,00	Exam
RC 43.	Pharmaceutical law and legislation	3,00	Pass-fail test
RC 44.	Pharmaceutical and Medical commodity	4,00	Diff. test
RC 45.	Pharmaceutical management and marketing	6,00	Exam
the total amount of credits of required components		210,00	
Elective components of the EP			
Elective disciplines (block 1, EB 1)			
EB 1.1.	Academic Writing	3,00	Pass-fail test
EB 1.2.	Bioactivity of inorganic compounds	3,00	Pass-fail test
EB 1.3.	Biogenic Elements	3,00	Pass-fail test

EB 1.4.	Bioethics	3,00	Pass-fail test
EB 1.5.	Medical parasitology	3,00	Pass-fail test
EB 1.6.	Fundamentals of Sociological Research	3,00	Pass-fail test
EB 1.7.	Environment and Health	3,00	Pass-fail test
EB 1.8.	Religious Studies	3,00	Pass-fail test
EB 1.9.	Modern civilization and culture	3,00	Pass-fail test
EB 1.10.	Philosophy of Health	3,00	Pass-fail test
Elective disciplines (block 2, EB 2)			
EB 2.1.	Pharmacist's communication skills	4,00	Pass-fail test
EB 2.2.	Bases of Chemical Metrology	4,00	Pass-fail test
EB 2.3.	Psychology of communication. Basics of consumer behavior	4,00	Pass-fail test
EB 2.4.	Pharmaceutical Aspects Alcoholism, Substance Abuse and Addiction	4,00	Pass-fail test
Elective disciplines (block 3, EB 3)			
EB 3.1.	English for Specific Purposes	4,00	Pass-fail test
EB 3.2.	Theoretical basis of Synthesis	4,00	Pass-fail test
EB 3.3.	Technology of extemporaneous drugs and cosmetics	4,00	Pass-fail test
EB 3.4.	Technology of homeopathic medicines	4,00	Pass-fail test
EB 3.5.	Factors and mechanisms of pharmaceutical activity and toxicity of medications on the stages of pharmacokinetics	4,00	Pass-fail test
EB 3.6.	Physico-chemical analysis in drug development	4,00	Pass-fail test
1	2	3	4
Elective disciplines (block 4, EB 4)			
EB 4.1.	Interaction of drugs	5,00	Pass-fail test
EB 4.2.	Intellectual property and international marketing in pharmacy	5,00	Pass-fail test
EB 4.3.	Nutritiology	5,00	Pass-fail test
EB 4.4.	Side effects of drugs	5,00	Pass-fail test
EB 4.5.	Drug development	5,00	Pass-fail test
EB 4.6.	Innovation management and human resources	5,00	Pass-fail test
EB 4.7.	Phytotherapy	5,00	Pass-fail test
Elective disciplines (block 5, EB 5)			
Elective disciplines from specializations:			
EB 5.1.	Clinical Pharmacy	3,00	Pass-fail test
EB 5.2.	Organization and economy in pharmacy	3,00	Pass-fail test
EB 5.3.	Pharmaceutical technology	3,00	Pass-fail test
EB 5.4.	Pharmaceutical chemistry	3,00	Pass-fail test
Internship from specialization, elective:			

EB 5.5.	Clinical Pharmacy	12,50	Diff. test
EB 5.6.	Organization and economy in pharmacy	12,50	Diff. test
EB 5.7.	Pharmaceutical technology	12,50	Diff. test
EB 5.8.	Pharmaceutical chemistry	12,50	Diff. test
the total amount of credits of elective components		81,00	
RC 46.	Training practice in pharmaceutical Botany	3,00	Diff. test
RC 47.	Training practice in pharmacognosy	3,00	Diff. test
RC 48.	First aid with introductory medical practice	3,00	Pass-fail test
THE TOTAL AMOUNT OF CREDITS OF THE EDUCATIONAL PROGRAM		300,00	

2.2. Structural and logical scheme of the EP

Year of study/number of ECTS credits	Components of the educational program
First year (60 ECTS credits)	Normative (required) disciplines (45 ECTS credits) Elective disciplines by student's choice (15 ECTS credits)
Second year (60 ECTS credits)	Normative (required) disciplines (52 ECTS credits) Elective disciplines by student's choice (8 ECTS credits)
Third year (59 ECTS credits)	Normative (required) disciplines (47 ECTS credits) Elective disciplines by student's choice (12 ECTS credits)
Fourth year (60 ECTS credits)	Normative (required) disciplines (45 ECTS credits) Elective disciplines by student's choice (15 ECTS credits)
Fifth year (61 ECTS credits)	Normative (required) disciplines (30 ECTS credits) Elective disciplines by student's choice (31 ECTS credits)

The sequence of mastering of the components of the educational program by year:

Code from EP	Components of the educational program (educational disciplines, term/course projects (papers), internships, Master's thesis)	Year of study				
		I	II	III	IV	V
1	2	3	4	5	6	7
Required components (RC) of the EP						
Cycle of general training disciplines						
RC 1.	Human Anatomy and Physiology	*				
RC 2.	Analytical Chemistry		*			
RC 3.	English language	*				
RC 4.	English for Specific Purposes		*			
RC 5.	Biology and Fundamentals of Genetics	*				
RC 6.	Biological physics and physical methods of analysis	*				
RC 7.	Biological Chemistry			*		
RC 8.	Higher mathematics and statistics	*				
RC 9.	General and Inorganic Chemistry	*				

RC 10.	Information Technology in Pharmacy		*			
RC 11.	History of Ukraine and Ukrainian culture	*				
RC 12.	Computer modeling in pharmacy			*		
RC 13.	Latin language	*				
RC 14.	Microbiology with the Basics of Immunology		*			
RC 15.	Organic Chemistry		*			
RC 16.	Pathological Physiology		*			
RC 17.	Ukrainian Language (for Professional Purposes)	*				
RC 18.	Pharmaceutical Botany		*			
RC 19.	Physical and Coloidal Chemistry		*			
RC 20.	Philosophy	*				
Cycle of disciplines of professional training						
RC 21.	Biopharmaceutics					*
RC 22.	Introduction to pharmacy	*				
RC 23.	Hygiene in pharmacy		*			
RC 24.	Ethics and Deontology in Pharmacy	*				
RC 25.	Extreme Medicine			*		
RC 26.	Clinical Pharmacy and Pharmaceutical Care				*	*
RC 27.	Clinical Pharmacology and Toxicology				*	
RC 28.	Organization and economy in pharmacy				*	
RC 29.	Reserve Officers Training in the branch of knowledge «Healthcare». Specialty «Pharmacy»			*		
RC 30.	Resources of Medicinal Plants					*
RC 31.	Standardization of Drugs					*
RC 32.	Pharmaceutical quality systems					*
1	2	3	4	5	6	7
RC 33.	Social pharmacy					*
RC 34.	Technology of Cosmetic Product					*
RC 35.	Drugs Technology			*	*	
RC 36.	Toxicological and Forensic Chemistry				*	
RC 37.	Pharmacognosy			*		
RC 38.	Pharmacoeconomics				*	
RC 39.	Pharmacology			*		
RC 40.	Drug Therapy with the Basics of Pharmacokinetics				*	
RC 41.	Pharmaceutical biotechnology					*
RC 42.	Pharmaceutical Chemistry			*	*	*
RC 43.	Pharmaceutical law and legislation			*		
RC 44.	Pharmaceutical and Medical commodity				*	
RC 45.	Pharmaceutical management and marketing				*	*
Elective components of the EP						
Elective disciplines (block 1, EB 1)						
EB 1.1.	Academic Writing	*				

EB 1.2.	Bioactivity of inorganic compounds	*				
EB 1.3.	Biogenic Elements	*				
EB 1.4.	Bioethics	*				
EB 1.5.	Medical parasitology	*				
EB 1.6.	Fundamentals of Sociological Research	*				
EB 1.7.	Environment and Health	*				
EB 1.8.	Religious Studies	*				
EB 1.9.	Modern civilization and culture	*				
EB 1.10.	Philosophy of Health	*				
Elective disciplines (block 2, EB 2)						
EB 2.1.	Pharmacist's communication skills		*			
EB 2.2.	Bases of Chemical Metrology		*			
EB 2.3.	Psychology of communication. Basics of consumer behavior		*			
EB 2.4.	Pharmaceutical Aspects Alcoholism, Substance Abuse and Addiction		*			
Elective disciplines (block 3, EB 3)						
EB 3.1.	English for Specific Purposes			*		
EB 3.2.	Theoretical basis of Synthesis			*		
EB 3.3.	Technology of extemporaneous drugs and cosmetics			*		
EB 3.4.	Technology of homeopathic medicines			*		
EB 3.5.	Factors and mechanisms of pharmaceutical activity and toxicity of medications on the stages of pharmacokinetics			*		
1	2	3	4	5	6	7
EB 3.6.	Physico-chemical analysis in drug development			*		
Elective disciplines (block 4, EB 4)						
EB 4.1.	Interaction of drugs				*	
EB 4.2.	Intellectual property and international marketing in pharmacy				*	
EB 4.3.	Nutritiology				*	
EB 4.4.	Side effects of drugs				*	
EB 4.5.	Drug development				*	
EB 4.6.	Innovation management and human resources				*	
EB 4.7.	Phytotherapy				*	
Elective disciplines (block 5, EB 5)						
Elective disciplines from specialization:						
EB 5.1.	Clinical Pharmacy					*
EB 5.2.	Organization and economy in pharmacy					*
EB 5.3.	Pharmaceutical technology					*
EB 5.4.	Pharmaceutical chemistry					*
Internship from specialization, elective:						
EB 5.5.	Clinical Pharmacy					*

EB 5.6.	Organization and economy in pharmacy					*
EB 5.7.	Pharmaceutical technology					*
EB 5.8.	Pharmaceutical chemisrty					*
OK 46.	Training practice in pharmaceutical Botany		*			
OK 47.	Training practice in pharmacognosy				*	
OK 48.	First aid with introductory medical practice		*			

3. Form of attestation of higher education students

Attestation of graduates of the educational program "Pharmacy", specialty 226 "Pharmacy" is conducted in the form of a unified state qualification exam (USQE), a comprehensive practice-oriented exam or (by decision of the academic board of the faculty) defense of master's thesis and ends with the issuance of a standard form document (diploma) of the Master's level with the qualification "Master of Pharmacy. Pharmacist".

USQE is carried out in accordance with the Resolutions of the Cabinet of Ministers of Ukraine No 334 dated 28.03.2018 "On the adoption of the Unified State Qualification Exam procedure for the students of higher education, master's degree, in the branch of knowledge "22 Healthcare" and No 354 dated 10.05.2018 "On the approval of the list of specialties for which Unified State Qualification Exam procedure is carried out for a master's degree."

Attestation is carried out openly and publicly.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
PLO 27																												
PLO 28																												
PLO 29																												
PLO 30																												
PLO 31																												
PLO 32																												

Labels of program learning outcomes and educational components	EB 1.9	EB 1.10	EB 2.1	EB 2.2	EB 2.3	EB 2.4	EB 3.1	EB 3.2	EB 3.3	EB 3.4	EB 3.5	EB 3.6	EB 4.1	EB 4.2	EB 4.3	EB 4.4	EB 4.5	EB 4.6	EB 4.7	EB 5.1	EB 5.2	EB 5.3	EB 5.4	EB 5.5	EB 5.6	EB 5.7	EB 5.8
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GC – general competencies; PC – professional competencies; PLO – program learning outcomes;
 • – checkmark about acquisition

6. Requirements for the availability of an internal quality assurance system for higher education institution

1	<p><i>Principles and procedures for ensuring the quality of education</i></p> <p>Principle and procedures are defined and legitimized in the following documents: Law of Ukraine "On Higher Education" dated 01.07.2014, No 1556-VII, "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 " NSTU ISO 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; – high-quality selection of the contingent of applicants for higher education for a master's degree; – high-quality selection of employees of scientific-pedagogical workers; – improvement of material and technical, scientific and methodological bases for the implementation 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 improve the management of the educational process; – ensuring of the publicity of information about the activities of Ivan Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine; – creation of an effective system of prevention and detection of academic plagiarism in the scientific publications of university employees and applicants for higher education at the master's level; – creation of an effective system for the prevention of corruption and bribery during the educational process at the Ivan Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine.
2	<p><i>Monitoring and periodic review of educational programs</i></p> <p>The educational process at the master's level is carried out at the university in accordance with the developed educational program.</p> <p>Monitoring and periodic review of the educational program is performed in accordance with the regulations developed by the Ivan Horbachevsky Ternopil</p>

		<p>National Medical University of the Ministry of Health of Ukraine.</p> <p>The criteria for reviewing the educational program are formulated as a result of feedback from research and teaching staff, graduates, employers, stakeholders, etc., and as a result of forecasting the development of the industry, the needs of society and the labor market.</p> <p>Indicators of the modernity of the 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; - a sufficient level of satisfaction of students of higher education program with the content of the educational program; - positive feedback from employers about the level of training of graduates of the educational program.
3	<i>Advanced training (upgrading, leveling up of qualification) of scientific-pedagogical, pedagogical, and scientific workers</i>	<p>Scientific-pedagogical, pedagogical, and scientific employees of Ivan Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine can increase the level of professional qualification in Ukraine and abroad. The university management provides various forms of professional development of employees (seminars, workshops, trainings, conferences, webinars, schools of pedagogical skills, etc.), taking into account the plan of leveling up of the qualification of higher education institution (HEI) for the relevant year, approved by the Academic Board of HEI and is put into effect by the order of the Rector.</p> <p>The amount of advanced training of scientific-pedagogical, pedagogical and scientific employees of Ivan Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine for five years may not be less than six ECTS credits.</p>
4	<i>Availability of information systems for proper management of the educational process</i>	<p>Electronic systems for collecting, summarizing and analyzing information on the quality of education of higher education students at the master's level.</p> <p>Electronic document management system.</p> <p>E-mail and hotline.</p>
5	<i>Publicity of information about educational programs, degrees of higher education and qualification</i>	<p>Ivan Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine has all information published in the section 'public information' on its official website: the relevant provisions about the organization of the educational process; admission rules; degrees of higher education for which specialists are trained, including the second (master's) level; educational programs, etc.</p>
6	<i>Prevention and detection of academic plagiarism</i>	<p>Procedures and measures:</p> <ul style="list-style-type: none"> – formation of the employees group of Ivan Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine, which 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, leader of the project team:

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