

**226 PHARMACY, INDUSTRIAL PHARMACY**  
 educational and professional program of second (master) level  
**«CLINICAL PHARMACY»**



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Field of knowledge	22 Health care
Specialty	226 Pharmacy, Industrial Pharmacy
Amount of credits	300 credits of ECTS
Program length	4 years 10 months/5 years 6 months; 4 years 6 months.
Mode of study	Full-time/low residence

**Educational and professional program** is aimed at the development of professional competence in:

I. Providing information and counseling assistance to the patient/patient`s representative and doctors about the choice and rational use of medicines in pharmacy and clinical healthcare establishments.

II. Monitoring of side effects and/or ineffectiveness of drug therapy in pharmacy and clinical healthcare establishments.

III. The implementation of organization, research and innovation activities in the field of clinical research and study of bioequivalence of drugs.

IV. The development of local drug formularies in clinical health establishments based on the evaluation of the ratio "efficacy-safety" and pharmaco-economic feasibility.

V. The implementation of organizational procedures to provide the population and healthcare establishments with medicines and other pharmaceutical products; during drug manufacturing and quality control of medicines.

**Features of the educational and professional program:**

- It has got a specialized professional training;
- It aims to improve communication, consulting, managerial and research skills;
- It requires in-depth knowledge of the courses of the biomedical field, special practice in clinical pharmacology, pharmaceutical information and pharmaceutical care, pharmaco-economics.

**Components of the program:**

№	Name of Course
<i>Compulsory Courses</i>	
1.	Introduction to Specialty with Introductory Practice
2.	Latin Language and Medical Terminology

<b>№</b>	<b>Name of Course</b>
3.	English Language
4.	Philosophy
5.	Biophysics, Physical Methods of Analysis
6.	Medical Biology, Parasitology and Genetics
7.	Human Anatomy and the Basics of Histology
8.	Normal Physiology
9.	Pathological Physiology
10.	Microbiology with Immunology Fundamentals
11.	Fundamentals of Clinical Medicine
12.	Biological Chemistry
13.	Pharmacology
14.	Pharmacotherapy with Pharmacokinetics
15.	Clinical Pharmacology
16.	Pharmaceutical Botany
17.	Inorganic Chemistry
18.	Organic Chemistry
19.	Analytical Chemistry
20.	Physical and Colloid Chemistry
21.	Pharmacognosy
22.	Pharmaceutical Chemistry
23.	Drug Technology (Pharmacy-Based Technology of Drugs)
24.	Drug Technology (Industrial Technology of Drugs)
25.	Organization and Economics of Pharmacy
26.	Social Pharmacy
27.	Pharmaceutical Management and Marketing
28.	Pharmacoeconomics
29.	Clinical Pharmacy and Pharmaceutical Care
<i>Elective Courses</i>	
30.	Higher Mathematics and Statistics
31.	Statistical Methods in Pharmacy
32.	History of World and Ukrainian Culture
33.	Culturology
34.	Ukrainian Language
35.	Ukrainian Language (professionally oriented)
36.	Logics
37.	Psychology of Communication
38.	Valeology
39.	Cell Biology
40.	Modern Problems of Molecular Biology
41.	Information Technology in Pharmacy
42.	Fundamentals of Web Resources
43.	Fundamentals of System Analysis
44.	Hygiene in Pharmacy and Ecology
45.	Epidemiology of Disease
46.	English Language (professionally oriented)
47.	Foreign Language (professionally oriented)
48.	First Pre-Medical Aid
49.	Nursing

<b>№</b>	<b>Name of Course</b>
50.	Emergency Medicine
51.	Bioethics and Biosafety
52.	Propaedeutics of Pediatrics
53.	Propaedeutics of Internal Medicine
54.	Laboratory and Functional Diagnostics
55.	Laboratory Service. Evaluation of Analytical Methods
56.	Pharmaceutical Law and Legislation
57.	Jurisprudence and Medical law
58.	Medical Cosmetics
59.	Cosmetics Pharmacy Assortment
60.	Clinical Biochemistry
61.	Functional Biochemistry
62.	Medical and Pharmaceutical Commodity Science
63.	Fundamentals of Materials Science, Packaging
64.	Medical and Analytical Toxicology
65.	Fundamentals of Toxicological Chemistry And Clinical Toxicology
66.	Express Analysis of Acute Intoxication
67.	Ethics and Deontology in Pharmacy
68.	Basics of Consumer Behavior in Pharmacy
69.	Labor protection in the Industry, Civil Protection
70.	Good Pharmaceutical Practices
71.	Biopharmacy
72.	Pharmacognostic Basics of Herbal Medicine
73.	Drug technology Improvement
74.	Fundamentals of Medical Standardization
75.	Health Organization and Insurance Medicine
76.	Evidence Based Medicine
77.	Pharmaceutical Representative Training
78.	Nutritionology
79.	Bromatology
80.	Medical chemistry
81.	Clinical Study of Drugs
82.	Good Clinical Practice
83.	Clinical Pharmacy in Cardiology
84.	Clinical Pharmacy in Dermatology
85.	Clinical Pharmacy in the Clinic of Mental Illness
86.	Clinical Pharmacy in Pediatrics
<i>Practical Training</i>	
87.	Pharmaceutical Training: - Pharmacognosy - Technology of Drugs (Pharmacy-Based and Industrial) - Clinical Pharmacology - Organization and Economics of Pharmacy - Management and Marketing in Pharmacy - Pharmaceutical Chemistry

№	Name of Course
	- Pharmacoconomics - Pharmaceutical Information and Pharmaceutical Care
<i>Certification</i>	
88.	Standardized Test-Examination (Licensed integrated) «KROK-1. Pharmacy»
89.	Standardized Test-Examination (Licensed integrated) «KROK-2. Pharmacy»
90.	Integrated Practically Oriented Graduation Examination
91.	Master`s Thesis

### **Employment and competitive advantages of program graduates**

*Professional is trained for the next activities according the Ukrainian Industry Classification System 009:2010:*

Class 46.46 Distribution trade of pharmaceutical products;

Class 47.73 Retail trade of pharmaceutical products in specialized stores;

Class 47.74 Retail trade of medical and orthopedic products in specialized stores;

Class 72.19 Research and experimental development in the field of other natural and technical sciences;

Class 73.20 Market research and public opinion polling;

Class 86.90 Other activities in the field of health care.

*The professional is able to perform the following professional work:*

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should pass a program of postgraduate education (internship), where training is carried out on the base of educational programs for training a specialist in clinical pharmacy of a certain specialization (the list is approved by order No. 81 of February 23, 2005 of the Ministry of Health of Ukraine).

After internship training, a professional should be able to perform the professional work indicated in Ukrainian State Occupation Classification 003-2010 and may occupy relevant primary posts:

2224.2 Pharmacist;

2224.2 Clinical pharmacist.

Besides the professional can work at the chemical and pharmaceutical industry enterprises, at forensic chemical and toxicological laboratories, research institutes, clinical health care institutions, higher educational establishments and branch institutions of various departments, carrying out the relevant functions in the following posts:

224.1 Junior Research Scientist (pharmacy)

224.1 Research Scientist (pharmacy)

224.1 Research Consultant (pharmacy)

### **Program learning outcomes**

1. To professionally apply pharmaceutical law and regulatory documents concerning pharmaceutical activities as well as to formulate conclusions.

2. To organize the activities of the pharmacy shop: manufacture activity, to provide the population with drugs and pharmacy products, accounting systems in pharmacies.

3. To analyze the indicators of the effectiveness and availability of pharmaceutical assistance, to carry out the marketing management of the assortment policy of the pharmaceutical establishments.

4. To carry out quality control of medicinal products, including medicinal plant raw origin, and their certification; conduct continuous monitoring of the proper storage of medicines and medicinal products in pharmaceutical companies.

5. To analyze drugs and their metabolites in biological fluids and body tissues.

6. To obtain the necessary information from certain sources to ensure the circumstances for the provision of high-quality and safe pharmaceutical care. Based on the results of monitoring the efficacy and safety of medicines, he must formulate appropriate conclusions.

7. To provide informational and advisory assistance to the patient/patient's representative and doctors, and to provide pharmaceutical care in prescribing and dispensing the drug in the clinical and pharmacy healthcare establishments.

8. To carry out the preventive work and anti-epidemic arrangements to prevent diseases; provide first pre-medical aid.

9. To investigate the influence of biomedical factors on biopharmaceutical characteristics and the efficacy and safety of drugs.

10. To formulate conclusions about the patient's condition according to the results of a clinical, laboratory, instrumental study. Collaborate with professionals of practical medicine.

11. To organize and conduct clinical trial of drugs; to evaluate the compliance of a new drug with registration requirements, compliance of the generic drug with original one.

12. To analyze the indicators of the effectiveness and cost of drugs; formulate conclusions about the possibility of their inclusion in the local drug formularies of clinical health establishments.