

226 PHARMACY

educational-professional program at second (master's) level
"TECHNOLOGIES OF PHARMACEUTICAL PREPARATIONS "



Program guarantor - **Gladukh Ievgeniy Volodymirovich**
Doctor of pharmaceutical sciences, professor, head of
Industrial pharmacy department
Faculty of pharmaceutical technologies and management
<https://promfarm.kh.ua>
e-mail: prom_farm@nuph.edu.ua

Branch of knowledge	22 Healthcare
Speciality	226 Pharmacy, industrial pharmacy
Program volume	300 ECTS credits
Program duration	4 years 10 months/ 5 years 6 months, 3 years 10 months, 4 years 6 months
Form of study	Full-time/correspondence

The educational-professional program "Technologies of Pharmaceutical Preparations" aims at developing the ability to apply acquired from general and vocational training disciplines knowledge, skills and competences to solve typical tasks of a specialist in the corresponding position, including the production of medicinal products, active pharmaceutical ingredients (pharmaceutical substances), perfumery and cosmetic and biotechnological products, therapeutic and prophylactic additives and medical supplements for food products, sanitary hygiene products, oils and animal fats, their storage, quality control, delivery; development of new or improvement of existing technological processes, selection of optimum conditions for the implementation of these processes and their management; use of modern methods of control of technological operations and finished products; design of industrial enterprises taking into account the requirements of safety, occupational and environmental safety; use in practice of software, microprocessor and computer technologies; marketing research on the basis of scientific planning of production and forecasting its development; the development of measures on occupational and the environmental safety.

Features of educational-professional program

The educational-professional program provides for production practices at chemical and pharmaceutical enterprises, enterprises for the production of perfumery and cosmetic and biotechnological products, medical supplements for food products, sanitary-hygienic products, oils and animal fats.

Components of the program:

N з/п	Name of the discipline
1	Obligatory subjects
2	Introduction to the speciality and history of industrial pharmacy
3	English
4	Higher mathematics

5	Latin
6	Physics, physical methods of analysis
7	Information technologies of management and design
8	General and inorganic chemistry
9	History and culture of Ukraine
10	Philosophy
11	Organic chemistry
12	Analytical chemistry and instrumental methods of analysis
13	Physical and colloidal chemistry
14	Pharmaceutical botany
15	Processes and apparatus of chemical and pharmaceutical manufactures
16	Physiology with the basics of human anatomy
17	First Aid
18	General biochemistry and molecular biology
19	General chemical technology
20	Industrial microbiology and sanitation
21	Pharmaceutical law and legislation
22	Theoretical Bases of Pharmaceutical Technology
23	Automation of chemical and technological processes
24	Pharmacognosy with the basics of medicinal plants biochemistry
25	Good pharmaceutical practices
26	Economics, planning and organization of CP enterprises
27	Industrial technology of pharmaceuticals
28	Pharmacology
29	Equipment and designing of CP enterprises
30	Pharmaceutical Chemistry
31	Industrial toxicology
32	Occupational Health in the industry
33	Industrial Biotechnology
34	Management and marketing in chemical and pharmaceutical production
35	Qualification and Validation in Pharmaceutical Production
36	Industrial technology of synthetic substances
	Subjects of choice
37	Ukrainian language and culture of Ukraine
38	Engineering and computer graphics
39	Culture of scientific language
40	Logics
41	Religious studies
42	History of the modern world
43	Fundamentals of Constitutional Law of Ukraine
44	Bioactivity of inorganic compounds
45	Valeology
46	Cell Biology
47	Modern problems of molecular biology
48	Work with information sources
49	Basics of system analysis
50	Effective and safe chemical research methods
51	Applied mechanics
52	Electrical engineering and basics of electronics
53	Industrial ecology
54	Fundamentals of mechanization and robotics
55	Features of foreign economic activity of enterprises of the pharmaceutical industry
56	Actual problems of smoking prevention, alcoholism, substance abuse and drug addiction
57	Optimization of production and quality control of ready medicines

58	Side effects of medicines
59	Fundamentals of scientific research and experiment planning
60	Computer technologies in the design of technological processes
61	Nutritionology
62	Fundamentals of Bioethics and Biosafety
63	Fundamentals of materials science, packing and packaging
64	Industrial technology of perfumery and cosmetics
65	Extreme medicine
66	Preparation of officers for the reserve of the field of knowledge "Health". Specialty "Pharmacy"
67	Ecological biochemistry
68	Mathematical modeling of technological processes
69	Pharmaceutical development of medicines
70	Sorbents of medical purpose
71	Counterfeiting of medicines
72	Nanotechnology
73	Database management and processing systems
74	Management of innovative activity
75	Organization of safe production technology
76	Entrepreneurship in the industry
	Practical training
77	Industrial general-engineer practice
78	Industrial technological practice
79	Industrial pre-diploma practice
	Graduates certification
80	Defence of master's work

Employment and the competitive advantages of the program graduates

After the training, a specialist is able to perform the professional work specified in SC 003-95 and may hold a corresponding primary position:

- 1222.2 Head of Production Control Laboratory
- 1222.2 Production master
- 1222.2 Production site master
- 1222.2 Shift master
- 1229.5 Authorized person (production of medicines)
- 1229.7 Head of laboratory
- 1237.1 Chief technologist
- 1237.1 Head Engineer
- 1312 Head of a small pharmaceutical manufacturing company
- 1314 The head of a small business for the sale of pharmaceuticals
- 2113.1 Researcher (chemistry)
- 2221.1 Researcher (pharmacy)
- 2113.1 Engineer -researcher
- 2146.1 Engineer - laboratory assistant
- 2149.1 Junior Research Fellow
- 2113.2 Chemist of the central laboratory
- 2113.2 Chemist of the technical control department
- 2113.2 Chemist of the shop laboratory
- 2146.2 Engineer -chemist
- 2149.2 Engineer -technologist
- 2149.2 Engineer of introduction of new equipment and technology
- 2149.2 Engineer of production preparation

2149.2 Engineer of equipment and materials acquisition
 2149.2 Debugging and Testing Engineer
 2149.2 Quality engineer
 2149.2 Standardization engineer
 2149.2 Engineer of environmental protection
 2149.2 Occupational safety engineer
 2149.2 Engineer - designer
 2149.2 Engineer of patent and inventive work
 2149.2 Engineer of calculations and modes
 2149.2 Engineer of operation and repair organization
 2224.1 Junior Research Fellow
 22260 Engineer of new equipment and technology introduction
 2310.2 Teacher
 2310.2 Assistant
 2419.1 Researcher (marketing, enterprise efficiency, rationalization of production)
 2419.2 Consultant on the rational production of pharmaceuticals
 2419.2 Specialist in methods for expanding the market
 2419.2 Specialist in methods for expanding the market for pharmaceutical products
 2412.2 Engineer – standardizer
 2419.2 Engineer of production management organization
 3429 Representative for pharmaceuticals advertising

In addition, the Master may work at enterprises of the chemical and pharmaceutical industry, enterprises for the production of perfumery, cosmetic and biotechnological products, medicinal supplements for food products, sanitary-hygienic products, oils and animal fats, forensic chemical and toxicological laboratories, scientific research institutes, higher educational establishments and branch offices of different departments, performing the corresponding functions.

Program learning outcomes

1. Apply knowledge of social and civil rights and responsibilities
2. To form your civic consciousness and be able to act in accordance with it.
3. Use professional knowledge to solve practical situations.
4. Track current trends in the industry, analyze professional information, make informed decisions, acquire modern knowledge
5. Apply knowledge of the laws and trends of modern economic development for enterprise development
6. Apply knowledge of the elements of industrial and social adaptation and form an effective strategy for personal adaptation to the new environment.
7. Use the ability to communicate in their native language both verbally and in writing,
8. Use the ability to communicate in a foreign language.
9. Use information and communication technologies in professional activities.
10. Choose communication methods and strategies to ensure effective teamwork.
11. Apply methods for assessing performance indicators, assess the quality of work performed and ensure the quality performance of professional work.
12. Search for scientific sources of information, organize scientific research at the appropriate level and process their results.
13. To use in professional activities knowledge of regulatory and legislative acts of Ukraine and recommendations of good pharmaceutical practices.

14. To carry out activities on the development and execution of documentation on the clear-cut definiteness of technological processes for the manufacture and production of medicines in accordance with the rules of good practices.
15. Design industrial production of medicines and organize production activities of a pharmaceutical company
16. To participate in the production of medicines in the conditions of pharmaceutical enterprises, including the choice of a technological process with the justification of the technological process and the selection of appropriate equipment in accordance with the requirements of Good Manufacturing Practice (GMP).
17. To organize and carry out the harvesting of medicinal plant raw materials taking into account the rational use of the resources of medicinal plants, to predict and justify ways to solve the problem of preserving and protecting the thickets of wild medicinal plants in accordance with the rules of good cultivation and collection of raw materials of plant origin (GACP).
18. Develop, implement and apply management approaches in the professional activity of wholesale intermediary, manufacturing enterprises and other pharmaceutical organizations in accordance with the principles of the FIP World Framework.
19. To organize and carry out general and marketing management of assortment, product-innovative, price, sales and communication policies of the subjects of the pharmaceutical market based on the results of marketing research and taking into account market processes in the national and international markets.
20. To analyze the socio-economic processes in pharmacy, forms, methods and functions of the system of pharmaceutical support of the population and its components in world practice, indicators of the need, efficiency and availability of pharmaceutical assistance in the conditions of medical insurance and reimbursement of the cost of medicines.
21. Organize, provide and conduct analysis of medicinal products and medicinal plant materials in the control and analytical laboratories of pharmaceutical enterprises in accordance with the requirements of the State Pharmacopoeia and other regulatory and legal acts.
22. Organize and monitor the quality of medicines in accordance with the requirements of the State Pharmacopoeia of Ukraine and good practices, determine methods of sampling for the control of medicines in accordance with the applicable requirements and certify them, prevent the spread of counterfeit medicines.
23. To carry out the development of methods for controlling the quality of medicines, pharmaceutical substances, medicinal plant materials and auxiliary substances using physical, physicochemical and chemical control methods.
24. Conduct qualification and validation processes for the production of drugs
25. Ensure proper storage of medicines and medical products in accordance with their physico-chemical properties and the rules of Good Storage Practices (GSP) in health care facilities.
26. To create safe conditions for conducting the technological process of production of medicines and to ensure the protection of the environment.
27. To ensure the rational use of drugs in accordance with the physico-chemical, pharmacological characteristics, biochemical, pathophysiological characteristics of a particular disease and pharmacotherapeutic regimens for its treatment.
28. To carry out home medical care to patients and victims in extreme situations.
29. To carry out sanitary and educational work among the population in order to prevent the spread of disease.