

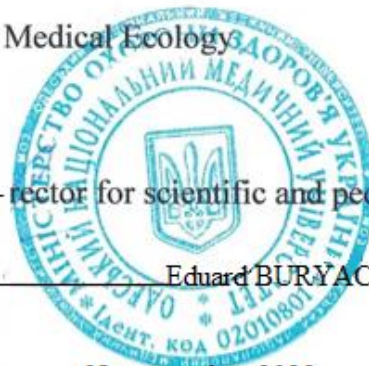
MINISTRY OF HEALTH PROTECTION OF UKRAINE

ODESSA NATIONAL MEDICAL UNIVERSITY

Department of Hygiene and Medical Ecology



Vice-rector for scientific and pedagogical work



APPROVE

Eduard BURYACHKIVSKY

01 september 2023

**WORKING PROGRAM OF EDUCATIONAL DISCIPLINE
"HYGIENE IN THE PHARMACY"**

Level of higher education: second (master's)

Field of knowledge: 22 "Health care"

Specialty: 226 "Pharmacy"

Educational and professional program: Pharmacy

The work program is compiled on the basis of the educational and professional program "Pharmacy" for the training of specialists of the second (master's) level of higher education in the specialty 226 "Pharmacy" of the field of knowledge 22 "Health care", approved by the Scientific Council of ONMedU (protocol No. 8 of June 29, 2023).

Developers:

Professor Babienko V.V.

Senior Lecturer Sheikh Ali D.H.

Docent Kobolev E.V.

Associate Professor Hanikina S.O.

Senior Lecturer Shanyhin A.V.

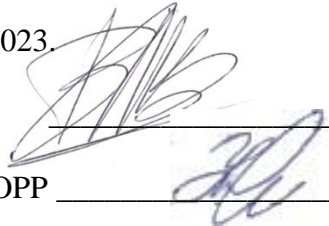
Senior Lecturer Vatan M.M.

Assistant Rozhnova A.M.

The work program was approved at the meeting of the department of hygiene and medical ecology

Protocol No. 1 dated August 30, 2023.

Head of the department



Volodymyr BABIENKO

Agreed with the guarantor of the OPP



Lina UNGURYAN

1. Description of the academic discipline:

Name of indicators	Field of knowledge, specialty, specialization, level of higher education	Characteristics of the academic discipline
Total number: Credits: 3 Hours: 90 Content modules: 2	Branch of knowledge 22 "Health care"	<i>Correspondence form of education Elective discipline</i>
	Specialty 226 "Pharmacy"	<i>A year of training: 2</i>
	<i>Semester III</i>	
	<i>Lectures (0 hours)</i>	
	<i>Seminars (6 hours)</i>	
	<i>Practical (0 hours)</i>	
	<i>Laboratory (0 hours)</i>	
	<i>Independent work (84 hours)</i>	
	<i>including individual tasks (0 hours)</i> <i>The form of the final control-credit</i>	

2. The purpose and tasks of the educational discipline

Purpose: The purpose of teaching the academic discipline "**Hygiene in Pharmacy**" is: studying the theoretical foundations of preventive medicine, in particular hygiene and ecology, as sciences that are the basis of the preventive component of the professional worldview of a specialist in the field of training "Pharmacy"; mastering the necessary knowledge, skills, actions, target tasks, skills that correspond to the ultimate goals of studying the academic discipline in accordance with the Standard of Higher Education of Ukraine.

Task:

1. Laying the theoretical foundations of hygiene and ecology as sciences (terminology, laws, methods, principles of hygienic regulation. Normative and methodical support for the application of preventive measures) and practicing practical skills regarding: prevention of diseases of infectious and non-infectious origin in accordance with the principles of the current legislation of Ukraine;
2. Mastering laboratory research methods (organoleptic, physical, chemical, biological, bacteriological methods);
3. Use of favorable environmental health factors to strengthen human health, harden the body, etc.

The process of studying the discipline is aimed at forming elements of the following competencies:

Integral (IC):

- IC – Ability to solve problems of a research and/or innovative nature in the field of pharmacy and to critically consider and solve practical problems in professional pharmaceutical activity using provisions, theories and methods of fundamental, chemical, technological, biomedical and socio-economic sciences; integrate knowledge and solve complex issues, formulate judgments based on insufficient or limited information; clearly and unambiguously convey one's own knowledge, conclusions and their validity to a professional and non-professional audience. Ability to continue learning with a high degree of autonomy.

General (GC):

- GC01. Ability to think abstractly, analyze and synthesize, learn and be modernly educated.
- GC02. Knowledge and understanding of the subject area and understanding of professional activity.
- GC03. Ability to communicate in the national language both orally and in writing.
- GC04. The ability to communicate in a foreign language (mainly English) at a level that ensures effective professional activity.
- GC05. The ability to evaluate and ensure the quality of the work performed.
- GC06. Ability to work in a team.
- GC07. The ability to realize one's rights and responsibilities as a member of society; to realize the values of a civil (free democratic) society and the need for its sustainable development, the rule of law, the rights and freedoms of a person and a citizen in Ukraine.
- GC08. The ability to preserve and multiply moral, cultural, scientific values and achievements of society based on understanding 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, technology and technologies, to use various types and forms of motor activity for active recreation and leading a healthy lifestyle.
- GC09. Ability to use information and communication technologies.
- GC10. The ability to act socially responsibly and consciously.
- GC11. Ability to apply knowledge in practical situations.
- GC12. The desire to preserve the environment.
- GC13. Ability to show initiative and entrepreneurship.
- GC14. Ability to adapt and act in a new situation.
- GC15. Knowledge and understanding of the subject area and understanding of professional activity
- GC16. The ability to conduct experimental research at the appropriate level

Special professional (SP):

- SP07. The ability to carry out sanitary and educational work among the population for the purpose of prevention of common diseases, prevention of dangerous infectious, viral and parasitic diseases, as well as for the purpose of promoting timely detection and support of adherence to the treatment of these diseases in accordance with their medical and biological characteristics and microbiological features.

Program learning outcomes (PLO):

- PLO 10. To carry out sanitary and educational work among the population for the purpose of prevention and in the event of outbreaks of dangerous infectious, viral and parasitic diseases
- PLO 15. Predict and determine the influence of environmental factors on the quality and consumer characteristics of medicinal products of natural and synthetic origin and other products of the pharmacy assortment, organize their storage in accordance with their physical and chemical properties and the rules of Good Storage Practice (GSP).
- PLO 25. Adhere to the norms of the sanitary and hygienic regime and the requirements of safety equipment when carrying out professional activities.

As a result of studying the academic discipline, the student of higher education must:

Know: methods of disease prevention, methods of laboratory research of the environment, regulatory and legal bases of Sanitary Legislation

Be able:

Provide an appropriate sanitary and hygienic assessment based on the results of laboratory studies of microclimate factors

Assess the quality of water based on the results of chemical and microbiological studies

Conduct:

- assessment of physical development of children and adolescents based on anthropometric results of research
- preventive sanitary and hygienic measures to combat NCI
- luxmetry of the level of natural and artificial lighting of premises of various purposes
- water sampling for chemical and microbiological indicators.
- chemical analysis of dairy products for adulteration.
- assessment of the diet of different age groups for compliance with established standards
- chemical, organoleptic, bacteriological research of food and water quality
- prevention of occupational diseases and poisonings
- Determine the biodose of ultraviolet radiation using the Gorbachev device.

4. Contents of the academic discipline "Hygiene in Pharmacy"

Content module No. 1 "Fundamentals of GENERAL HYGIENE"

Topic 1 Water and its hygienic value.

The role of water in the occurrence of infectious diseases. Hygienic assessment of sources and water supply systems. Water purification and disinfection methods. State sanitary rules and norms ("Drinking water", 2010). Hygienic requirements for water used in the manufacture of medicinal products.

Topic 2 Hygienic basics of nutrition.

Nutrition as a health factor. Physiological norms of nutrition depending on living conditions, sex, age and nature of work, the main areas of sanitary and hygienic control.

Topic 3 Soil and its hygienic value.

The role of soil in the occurrence and spread of diseases, the main directions of soil protection.

Topic 4 Hygienic basics of improvement of public and industrial premises.

Natural and artificial lighting of premises, hygienic requirements for it. Ventilation: natural, artificial. Hygienic assessment of natural and artificial ventilation. Heating and hygienic requirements for it. Sanitary assessment of various heating systems. The role of elements of sanitary improvement in the work of pharmacies and pharmaceutical enterprises.

Content module 2

FUNDAMENTALS OF HYGIENE OF PHARMACY INSTITUTIONS AND PHARMACEUTICAL ENTERPRISES

Topic 5 Basics of occupational hygiene and industrial toxicology

Labor activity and physiological functions of the body. Physiological changes in the body during work. Fatigue. Overfatigue, its causes and prevention.

General information about industrial hazards and occupational diseases, means of prevention. Microclimate, shock, noise, radiation at pharmaceutical enterprises. Dust as a specific factor in the manufacture of medicines.

Harmful chemicals. Ways of finding and releasing poisons. Action of industrial poisons. Dependence of the toxic effect on the chemical structure, physical and chemical properties, exposure, concentration and other factors. Local and general action of poisons. Acute and chronic poisoning.

Combating industrial hazards. Prevention of occupational diseases. Maximum permissible concentrations (MPC).

Topic 6 Pharmacy hygiene

Decree of the Cabinet of Ministers of Ukraine No. 447 dated 12.05.1997 "On streamlining the activity of drug pharmacies". Basics of hygienic improvement of pharmacies. Hygienic requirements for the selection of territory, planning, heating, ventilation, interior decoration, equipment. Building regulations and pharmacy design rules.

Hygienic assessment of technological processes in the manufacture of drugs in pharmacies. Bacterial contamination of air, water, equipment, medicinal environments, etc.

Pyrogenicity of injection solutions, its causes and prevention. Hygienic requirements for obtaining purified water and for injections. Sanitary and anti-epidemic regime during the manufacture of medicines in pharmacies. Combating microbial contamination. Personal hygiene of pharmacy staff (Order of the Ministry of Health of Ukraine No. 139 dated 14.06.1993).

Hygienic aspects of the scientific organization of work in pharmacies. Physiological and hygienic justification of work and rest regime. Industrial hazards and occupational diseases of pharmacy employees. Prevention of occupational diseases.

Topic 7 Hygiene of control and analytical laboratories

Hygienic requirements for placement, planning, sanitary improvement of control and analytical laboratories. Manufacturing hazards. Preventive measures.

Topic 8 Hygiene of pharmacy warehouses

Hygienic requirements for the selection of the territory, placement, planning and sanitary improvement. Manufacturing hazards. Preventive measures.

Topic 9 Occupational hygiene at pharmaceutical enterprises

Hygienic evaluation of modern technological processes of obtaining synthetic medicinal substances. OMR system.

Sanitary and hygienic features of working conditions in the production of inorganic and organic compounds. Sanitary and hygienic and medical and preventive measures.

Topic 10 Occupational hygiene and health measures in the production of antibiotics

Hygienic characteristics of the technological processes of obtaining antibiotics by biological synthesis. Peculiarities of working conditions in the production of semi-synthetic and synthetic antibiotics. The specificity of the impact of industrial hazards on the body. Occupational diseases. Sanitary and hygienic and medical and preventive measures.

Topic 11 Occupational hygiene in the production of phytopreparations Hygienic assessment of technological processes of obtaining phytopreparations. Preparatory processes and processing of raw materials. Peculiarities of extraction (maceration, remaceration, percolation, continuous extraction, circulation, etc.). Occupational hazards. Sanitary and hygienic and medical and preventive measures.

Topic 12 Occupational hygiene in the production of biotechnological preparations
Production of biotechnological preparations in modern conditions: vitamins; hormonal, enzyme and liposomal preparations; vaccines; serums; diagnostics, etc. Occupational hazards and preventive measures

Topic 13 Sanitary education

The role and tasks of sanitary education in the complex of measures to protect the health of the population. Forms and methods of implementation. Participation of pharmaceutical workers in sanitary education of the population

4. The structure of the academic discipline

Names of topics	Number of hours				
	In total	including			
		lectures	seminars	practical	laboratory
Content module 1. "BASES OF GENERAL HYGIENE"					
Topic 1 Water and its hygienic value.	2		2		
Topic 2 Hygienic basics of nutrition.	9		2		7
Topic 3 Soil and its hygienic value.	7				7
Topic 4 Hygienic basics of improvement of public and industrial premises.	7				7
<i>Together according to content module 1</i>	25		4		21
Content module 2. "HYGIENE FUNDAMENTALS OF PHARMACY INSTITUTIONS AND PHARMACEUTICAL ENTERPRISES"					
Topic 5 Basics of occupational hygiene and industrial toxicology	9		2		7
Topic 6 Pharmacy hygiene	7				7

Topic 7 Hygiene of control and analytical laboratories	7					7
Topic 8 Hygiene of pharmacy warehouses	7					7
Topic 9 Occupational hygiene at pharmaceutical enterprises	7					7
Topic 10 Occupational hygiene and health measures during production	7					7
Topic 11 Occupational hygiene during production phytopreparations	7					7
Topic 12 Occupational hygiene in the production of biotechnological preparations	7					7
Topic 13 Sanitary education	7					7
<i>Together according to content module 2</i>	65		2			63
	90		6			84

5. Topics of lectures / seminars / practical / laboratory classes

5.1. Topics of lectures

Not provided

5.2. Topics of seminar classes

№	Topic	Number hours
1	Water and its hygienic value.	2
2	Basics of occupational hygiene and industrial toxicology	2
3	Sanitary education	2
Together		6

5.3. Topics of practical classes

Not provided

5.4. Topics of laboratory classes

Laboratory classes are not provided.

6. Independent work of a student of higher education

№	Topic.	Number hours
	The type of independent work is an essay	
1.	Soil composition and its hygienic and epidemiological significance	2
2.	Soil pollution and self-cleaning.	2
3.	Hygienic and epidemiological importance of cleaning populated areas.	2
4.	Sanitary protection of the soil and the degree of its contamination.	2
5.	Physiological role and hygienic value of water.	2
6	Types and methods of water quality improvement.	2
7	Epidemiological value of water.	2
8	Hygienic requirements for the quality of drinking water and its sanitary evaluation according to the state standard "Drinking water"	2
9	Sanitary protection of reservoirs.	2
10	Physiological and hygienic basics of nutrition.	2
11	Energy value of food.	2
12	Nutritional mode.	2
13	Vitamins, classification. Source of supply.	2
14	Prevention of food-borne toxic infections and diseases caused by consumption of poor-quality food.	2
15	Prevention of vitamin deficiency.	2
16	Mineral substances, importance for health.	2
17	Food preservation methods and terms of their implementation.	2
18	Hygiene of clothes and shoes.	2
19	Body and oral hygiene.	2
20	Requirements for personal hygiene of a pharmacist.	2
21	Hygienic requirements for the equipment and facilities of pharmacy premises.	2
22	Industrial hazards and dangerous factors in the pharmacist's work.	2
23	Methods of preventing industrial injuries and the development of occupational diseases in pharmacy establishments.	2
24	Requirements for the sanitary regime of pharmacies according to the order of the Ministry of Health of Ukraine No. 275.	2
25	Preventive measures to eliminate the influence of industrial harmful and dangerous factors in the pharmacist's work.	2
26	Definition of the concepts of "disinfection", "sterilization", the mode of sterilization of drugs.	2
27	Requirements for the planning of pharmacies and their types.	2
28	Requirements for the building of pharmacies. The area of the land plot,	2

	landscaping.	
29	Sanitary and demonstrative biological factors of air cleanliness in pharmacies.	2
30	Types of bactericidal lamps, calculations of their use in pharmacies.	2
31	Pharmacy lighting requirements. Natural and artificial lighting. Lighting standards.	2
32	Ventilation of pharmacy premises and its types.	2
33	Calculations of the necessary artificial ventilation of pharmacies.	2
34	Requirements for the planning and maintenance of pharmacy points.	2
35	Requirements for the manufacture of sterile and non-sterile medicines according to the order of the Ministry of Health of Ukraine No. 275.	2
36	Sanitary and educational work, its meaning, forms and methods.	2
37	Peculiarities of the organization of sanitary and educational work in the pharmacy.	2
38	Sanitary requirements for cleaning premises, care for pharmacy equipment.	2
39	Sanitary and hygienic control of pharmacy establishments.	2
40	Disinfection measures of workplaces and quality control of disinfection.	2
41	Disinfection of pharmacist's hands and quality control of disinfection.	2
42	Medical examinations of pharmacy workers.	2
	Total	84

7. Teaching methods

Practical classes: conversation, solving situational problems, practicing skills, filling out protocols on the subject of classes, performing laboratory studies.

Independent work: independent work with recommended basic and additional literature, with electronic information resources, independent work with a bank of test tasks.

8. Forms of control and assessment methods (including criteria for evaluating learning outcomes)

Current control: oral survey, testing, assessment of performance of practical skills, assessment of performance of work with devices, solution of situational tasks, assessment of activity in class.

Final control: credit.

Evaluation of the current educational activity in a practical session:

- Evaluation of theoretical knowledge on the subject of the lesson:
 - methods: survey, solving a situational problem
 - maximum score – 5, minimum score – 3, unsatisfactory score – 2.
- Assessment of practical skills on the topic of the lesson:
 - methods: assessment of the correctness of the performance of practical skills
 - maximum score – 5, minimum score – 3, unsatisfactory score – 2.

The grade for one practical session is the arithmetic average of all components and can only have a whole value (5, 4, 3, 2), which is rounded according to the statistical method.

Current evaluation criteria in practical training

Rating	Evaluation criteria
«5»	The student is fluent in the material, takes an active part in discussing and solving the situational problem, confidently demonstrates practical skills, expresses his opinion on the topic of the lesson, demonstrates clinical thinking.
«4»	The student has a good command of the material, participates in the discussion and solution of the situational problem, demonstrates practical skills with some errors, expresses his opinion on the topic of the lesson, demonstrates clinical thinking.
«3»	The applicant does not have sufficient knowledge of the material, is unsure of participating in the discussion and solution of the situational problem, demonstrates practical skills with significant errors.
«2»	The applicant does not possess the material, does not participate in the discussion and solution of the situational problem, does not demonstrate practical skills.

Credit is given to the applicant who completed all tasks of the work program of the academic discipline, took an active part in practical classes, completed and defended an individual assignment and has an average current grade of at least 3.0 and has no academic debt.

Assessment is carried out: at the last lesson before the beginning of the examination session - with the tape system of learning, at the last lesson - with the cyclical system of learning. The credit score is the arithmetic mean of all components according to the traditional four-point scale and has a value that is rounded according to the statistics method with two decimal places after the decimal point.

9. Distribution of points received by students of higher education

The obtained average score for the academic discipline for applicants who have successfully mastered the work program of the academic discipline is converted from a traditional four-point scale to points on a 200-point scale, as shown in the table:

Conversion table of a traditional assessment into a multi-point scale

Traditional four-point scale	200-point scale
Perfectly («5»)	185 – 200
Fine («4»)	151 – 184
Satisfactorily («3»)	120 – 150
Unsatisfactorily («2»)	Below 120

A multi-point scale (200-point scale) characterizes the actual success of each applicant in learning the educational component. The conversion of the traditional grade (average score for the academic discipline) into a 200-point grade is performed by the information and technical department of the University.

According to the obtained points on a 200-point scale, the achievements of the applicants are evaluated according to the ECTS rating scale. Further ranking according to the ECTS rating scale allows you to evaluate the achievements of students from the educational component who are studying in the same course of the same specialty, according to the points they received.

The ECTS scale is a relative-comparative rating, which establishes the applicant's belonging to the group of better or worse among the reference group of fellow students (faculty,

specialty). An "A" grade on the ECTS scale cannot be equal to an "excellent" grade, a "B" grade to a "good" grade, etc. When converting from a multi-point scale, the limits of grades "A", "B", "C", "D", "E" according to the ECTS scale do not coincide with the limits of grades "5", "4", "3" according to the traditional scale. Acquirers who have received grades of "FX" and "F" ("2") are not included in the list of ranked acquirers. The grade "FX" is awarded to students who have obtained the minimum number of points for the current learning activity, but who have not passed the final examination. A grade of "F" is assigned to students who have attended all classes in the discipline, but have not achieved a grade point average (3.00) for the current academic activity and are not admitted to the final examination.

Applicants who study in one course (one specialty), based on the number of points scored in the discipline, are ranked on the ECTS scale as follows:

Conversion of the traditional grade from the discipline and the sum of points on the ECTS scale

Evaluation on the ECTS scale	Statistical indicator
A	Top 10% achievers
B	The next 25% of earners
C	The next 30% of earners
D	The next 25% of earners
E	The next 10% of earners

10. Methodological support

- Working program of the academic discipline
- Syllabus
- Methodical developments for practical classes
- Methodical recommendations for independent work of higher education applicants
- Multimedia presentations
- Situational tasks
- Electronic bank of test tasks by subdivisions of the discipline

Educational and methodical literature:

1. Pharmaceutical hygiene.: study guide/ V.V., Babienko, A.V. Mokienko, O.A. Gruzevskyi - Odessa: Press-courier, 2022. 324p.
2. Hygiene propaedeutics; textbook: in 2 vols. T1/ V.V., Babienko, A.V. Mokiyeenko - Odessa: Preskuryer, 2022. 400p.
3. Hygiene propaedeutics; textbook: in 2 volumes T2/ V.V. Babienko, A.V. Mokiyeenko - Odessa: Preskuryer, 2022. 400p.

11. Questions for preparing for the final inspection

1. History of the development of the science of hygiene.
2. Subject and tasks of hygiene.
3. The contribution of outstanding scientists to the development of hygiene.
4. Methods of hygienic research.
5. Chemical composition of atmospheric air and its hygienic significance.
6. Norms of chemical composition of air.

7. Hygienic characteristics of solar radiation.
8. Physical factors of air and their hygienic importance.
9. Sanitary and hygienic significance of atmospheric air pollution.
10. Sources of air pollution.
11. Sanitary protection of atmospheric air.
12. Methods of air disinfection in the premises of pharmacies.
13. Methods of determining the microclimate of industrial premises.
14. Influence of temperature, humidity, speed of air movement on people's health.
15. Soil composition and its hygienic and epidemiological significance.
16. Soil pollution and self-cleaning.
17. Hygienic and epidemiological importance of cleaning populated areas.
18. Physiological role and hygienic value of water.
19. Types and methods of water quality improvement.
20. Epidemiological significance of water.
21. Hygienic requirements for the quality of drinking water and its sanitary evaluation according to the state standard "Drinking water"
22. Sanitary protection of reservoirs.
23. Physiological and hygienic basics of nutrition.
24. Energy value of food.
25. Diet.
26. Vitamins, classification. Source of supply.
27. Prevention of food toxic infections and diseases caused by the consumption of poor-quality food.
28. Prevention of vitamin deficiency.
29. Mineral substances, importance for health.
30. soil protection and degree of its pollution.

12. Recommended literature

Main:

1. Pharmaceutical hygiene.: study guide/ V.V., Babienko, A.V. Mokienko, O.A. Gruzevskyi - Odesa: Press-courier, 2022. 324p.
2. Hygiene propaedeutics; textbook: in 2 vols. T1/ V.V., Babienko, A.V. Mokiyeenko – Odesa: Preskuryer, 2022. 400 p. Hygiene propaedeutics; textbook: in 2 volumes T2/ V.V. Babienko, A.V. Mokiyeenko - Odessa: Preskuryer, 2022. 400p.

Additional:

1. "Hygiene in the practice of a dentist"; educational and methodological manual/ Babienko V.V., Mokiyeenko A.V., Kobolev E.V./ Odesa: Press-courier. 2022 180 p.
2. Water hygiene and water supply of populated areas: a study guide/ Babienko V.V., Mokienko A.V. – Odesa: Press-courier, 202

13. Electronic information resources

1. <http://moz.gov.ua> – Ministry of Health of Ukraine
2. www.ama-assn.org - American Medical Association / AmericanMedicalAssociation
3. www.who.int - World Health Organization
4. www.dec.gov.ua/mtd/home/ - State Expert Center of the Ministry of Health of Ukraine

5. <http://bma.org.uk> - British Medical Association
6. www.gmc-uk.org - General Medical Council (GMC)
7. www.bundesaerztekammer.de – German Medical Association