

National Pirogov Memorial Medical University, Vinnytsia

APPROVE

**Higher Educational Institution
Vice-Rector for Scientific and
Academic Work and International Links**



Inna ANDRUSHKO

September 2 2024

"I AGREE"

**Head of General Hygiene and
Ecology Department of HEI**



Igor SERGETA

August 28, 2024

**SYLLABUS
of the subject
"HYGIENE AND ECOLOGY"**

Specialty	222 Medicine
Educational level	Master of Medicine
Educational program	EPP "Medicine", 2022
Academic year	2024-2025
Chair	Department of general hygiene and ecology
Lecturer	Associate Professor of HEI Nataliya STOYAN, Associate Professor of HEI Oksana DYAKOVA, Associate professor of the HEI Inna DREZHENKOVA, Associate professor of HEI Lyudmila PROTSYUK, senior lecturer of HEI Ruslan TEKLIUK, Lecturer of HEI T.V. Tysevykh
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Syllabus compiled by	PhD, Assoc.Prof. of HEI Larisa VAKOLIUK

1. Status and structure of the subject

Subject status	Mandatory
Subject Code in discipline in EPP/place of discipline in EPP	EC 21 / subject of professional training
Year/semester	2 nd - 3 rd year (IV th - V th semester)
Scope of the discipline (total number of hours/ number of ECTS credits)	180 hours / 6 ECTS credits
Number of content modules	8 modules
The structure of the subject	Lectures - 26 hours Practical classes - 64 hours Independent work - 90 hours
Language of education	English
Form of education	Face-to-face or remote according to the order

2. Description of the discipline

Short abstract of the course, relevance. The subject direction of the discipline is general and special issues of hygiene and ecology. The course is aimed at obtaining fundamental knowledge about the regularities of the influence of the surrounding and internal environment on the human body and public health, as well as a hygienic assessment of the influence of the factors of the production environment of enterprises and environmental factors on the health of workers and the population, preventive measures to preserve health and environmental protection. Knowledge of hygiene for doctors of preventive and curative profiles is necessary during the performance of professional activities: analysis of the state of health of the population or its individual contingents in connection with anthropogenic and social conditions of life and work; diagnosis of diseases related to the state of the environment and production environment; primary, secondary and tertiary prevention of diseases, organization, implementation and control over the implementation of preventive measures; assessment of conditions of stay in organized teams (children's, educational); analysis of the difficulty and tension of labor and professional activity in order to determine the need to transfer employees with certain health disorders to easier types of work, prescribing medical and preventive nutrition, dispensary service, sanatorium-resort treatment, rehabilitation; the ability to recommend methods and means of daily routine, study, work, personal hygiene, diet, use of natural factors and a complex of methods and means of hardening the body; provision of medical recommendations and orders regarding the use of methods and means of prevention of intra-hospital infections, infections and invasions among the population during its service in the polyclinic, at home, in organized teams; carrying out sanitary and educational work among patients, in organized teams (children's, educational, labor) and among the general population, etc.

Prerequisites. In order to successfully master the discipline, the student needs the knowledge obtained in the process of studying the following disciplines of general training: life safety, basics of labor protection, human anatomy, medical biology, medical and biological physics, medical chemistry, biological and bioorganic chemistry, physiology, microbiology.

The purpose of the course and its importance for professional competence. The goal of discipline is study of the theoretical foundations of preventive medicine, in particular hygiene and ecology, as sciences that are the basis of the preventive component of the professional outlook of a specialist in the field of "Medicine" training. Laying the theoretical foundations of hygiene and ecology (terminology, laws, methods, principles of hygienic regulation, regulatory and methodological support for the application of preventive measures) and practicing practical skills in the prevention of diseases of infectious and non-infectious origin in accordance with the principles of the current legislation of Ukraine. Acquire the ability to hygienically assess the impact of physical, chemical, microbiological factors, etc. on the human body and the environment; the ability to use favorable health factors of the environment to strengthen human health, harden the body, etc.

Post-requisites . The main provisions of the educational discipline can be applied when studying the disciplines of professional training, namely: pathophysiology; microbiology, social medicine, public health, clinical immunology, infectious diseases, including children's infectious

diseases, oncology, internal medicine; surgery, pediatrics and other clinical disciplines and other educational disciplines, which involves the integration of teaching with these disciplines and the application of acquired knowledge, abilities and skills in the process of further education and in professional activities.

3. Learning outcomes.

After successful study of the discipline, the applicant will be able to:

1. Form requirements for oneself and those around you regarding the preservation of the environment, as well as implement ways of preserving it.
2. Use algorithms and standard schemes for determining the regime of work and rest during treatment, based on the preliminary and clinical diagnosis of the disease.
3. Use the principles of rational, preventive, curative-prophylactic and curative-dietary nutrition for the prevention and treatment of diseases of non-infectious and infectious origin .
4. Assess the state of the environment and the presence of factors that affect the health of the population.
5. Know the principles of water supply organization, activity and rest regime, formation of a favorable production environment, primary prevention of diseases and injuries; principles and methods of promoting a healthy lifestyle.
6. To know the principles and systems of planning and implementation of preventive and anti-epidemic measures regarding infectious diseases in typical conditions and in conditions of epidemic adversity based on the results of analysis, data of the examination of the center of infectious diseases .
7. Apply methods of detection and early diagnosis of infectious diseases and food poisoning, organization of primary anti-epidemic measures in the center of infectious diseases . Know preventive and anti-epidemic methods of organizing measures to prevent the spread of infectious diseases .
8. Use methods of assessing the health of the population;
9. Assess environmental factors that negatively affect the health of the population with the help of laboratory studies, assess the health of certain contingents, environmental factors and determine the relationship between them; implement measures to prevent the negative impact of environmental factors on the health of the population;
10. Know the socio-economic and biological determinants that affect the health of the population; types and methods of prevention to prevent the negative impact of socio-economic factors on the health of the population and its individual groups.

4. Content and logistics of the discipline

Content module 1 . Introduction to hygiene and ecology. Basics of preventive and ongoing sanitary supervision.	4th semester 8 hours / 0.27 credits	Lectures no 1 Practical classes No. 1 Topics for self-study No. 1
Content module 2 . Environment and methods of its research. Air hygiene, soil hygiene, sanitary cleaning of populated areas.	4th semester 28 hours / 0.93 credits	Lectures No. 1-3 _ Practical classes No. 2-6 Topics for self-study No. 2
Content module 3. Water hygiene and water supply.	4th semester 17 hours / 0.57 credits	Lecture No. 4 Practical classes No. 7-9 Topics for self-study No. 3
Content module 4. Food hygiene.	4th semester 26 hours / 0.87 credits	Lectures No. 5-6 Practical classes No. No. 10-13 Topics for self-study No. 4-5
Content module 5. Hygiene of children and adolescents.	5th semester 25 hours / 0.83 credits	Lectures No. 7-8 Practical classes No. No. 15-19 Topics for self-study No. 6

Content module 6. Occupational hygiene.	5th semester 20 hours / 0.67 credits	Lecture No. 9 Practical lessons No. 20-23 Topics for self-study No. 7-8
Content module 7. Radiation hygiene.	5th semester 10 hours / 0.33 credit	Lecture No. 10 Practical lessons No. 24-25
Content module 8. Hospital hygiene.	5th semester 13 hours / 0.43 credit	Lectures No. 11-12 Practical lessons No. 26-27 Topics for self-study No. 9
Content module 8. Psychohygiene. Healthy lifestyle and personal hygiene.	5th semester 15 hours / 0.5 credit	Lectures No. 13 Practical lessons No. 29-31 Topics for self-study No. 9

Program of the subject

Module 1. General issues of hygiene and ecology

Content module 1. Introduction to hygiene and ecology. Basics of preventive and current sanitary supervision.

Topic 1. Hygiene as a science. The place and importance of hygiene in the system of medical sciences and the practical activity of a doctor. Basic laws of hygiene. Methods of hygienic research.

Topic 2. The history of the emergence and main stages of development and the current state of hygiene.

Content module 2. Environment and methods of its research. Air hygiene, soil hygiene, sanitary cleaning of populated areas.

Topic 3. Hygienic assessment of radiant energy, Methodology for determining the intensity of ultraviolet radiation and its use for the prevention of diseases and sanitation of the air environment.

Topic 4. Methods of determining the hygienic assessment of natural and artificial lighting of premises.

Topic 5. The method of determining and hygienic assessment of the temperature and humidity regime of premises and the direction and speed of air movement.

Topic 6. Methods of hygienic assessment of the air environment and the effectiveness of ventilation of premises. Hygienic evaluation of the complex influence of the microclimate on human heat exchange.

Topic 7. Methods of hygienic assessment of the influence of climate and weather conditions on human health. Hygiene planning and development of settlements. General method of sanitary inspection and description of the object.

Topic 8. Soil hygiene and cleaning of populated areas

Content module 3 . Water hygiene and water supply.

Topic 9. Hygienic assessment of water supply. The method of hygienic assessment of drinking water based on the data of sanitary inspection of water supply systems and the results of laboratory analysis of samples.

Topic 10. Methods of sanitary inspection of water supply sources and water sampling for bacteriological and sanitary-chemical research.

Topic 11. Methods of sanitary inspection of water supply sources and water sampling for bacteriological and sanitary-chemical research.

Topic 12. Endemic goiter, fluorosis and caries, as a hygienic problem, their prevention (seafood, iodized salt, defluoridation and fluoridation of water).

Content module 4 . Food hygiene.

Topic 13. Hygienic assessment of the degree of quality of food products. Methods of sanitary examination of milk and dairy products, flour, bread, meat, fish and canned goods.

Topic 14. Methods of preservation of food products. Food additives, their hygienic characteristics.

Topic 15. Studying the adequacy and balance of nutrition. Methodology for calculating human energy expenditure and its needs in food substances. Methodology of hygienic assessment of human nutrition and organized collectives.

Topic 16. Studying the adequacy and balance of nutrition. Methodology for assessing the nutritional status and vitamin availability of the human body. Methods of laboratory quality control of beverages and assessment of their adulteration.

Topic 17. Theoretical aspects and methods of prevention of alimentary and alimentary-related diseases. Methods of investigation and prevention of cases of food poisoning.

Topic 18. Hygienic supervision of nutrition of different age groups, professions, sick inpatients, health care facilities. Parenteral nutrition, its hygienic rationale.

Module 2. Special issues of hygiene and ecology.

Content module 5. Hygiene of children and adolescents.

Topic 1. Methods of studying age-related psychophysiological characteristics of the body of children and adolescents. Assessment of children's functional readiness to study at school.

Topic 2. Hygienic assessment of the daily routine and educational process of students of different ages.

Topic 3. Methods of hygienic assessment of equipment and maintenance of educational institutions for children and adolescents. Hygienic assessment of children's furniture. Medical and sanitary supervision of the conditions of upbringing and education of children and adolescents at school.

Topic 4. Hygienic basics of planning and equipment of preschool and school institutions, methods of their hygienic assessment.

Topic 5. Methods of assessing the state of health and physical development of children and adolescents.

Content module 6. Occupational hygiene.

Topic 6. Hygienic assessment of the degree of difficulty and intensity of work.

Topic 7. Hygienic assessment of the impact of noise and vibration on the human body.

Topic 8. Methods of hygienic assessment of dangerous and harmful factors of the production environment and the body's reaction to their influence. Hygienic assessment of dust.

Topic 9. Medical and sanitary part and health centers of industrial enterprises, hygienic aspects of their work.

Topic 10. Methods of hygienic evaluation of dangerous and harmful factors of the production environment and the body's reaction to their influence. Hygienic evaluation of toxic chemicals. Occupational diseases and poisoning and their prevention.

Topic 11. Methods of investigation of occupational diseases and poisonings. Preliminary and periodic medical examinations as measures of their prevention.

Content module 7. Radiation hygiene.

Topic 12. Methods and means of radiation control and anti-radiation protection of those working with sources of ionizing radiation and the population in their places of residence.

Topic 13. Hygienic assessment of anti-radiation protection of personnel and radiation safety of patients when using radionuclides and other sources of ionizing radiation in medical institutions. Calculation methods for evaluating radiation safety and parameters of population protection against external exposure.

Content module 8. Hygiene of medical and preventive institutions.

Topic 14. Hygienic assessment of placement and planning of individual structural divisions of the hospital according to project materials. Peculiarities of planning and arrangement of specialized hospitals and departments.

Topic 15. Hygienic assessment of the stay of patients and the work of medical personnel in medical and preventive institutions. Hygienic basics of prevention of nosocomial infections.

Topic 16. Hygienic basics of sanitary and anti-epidemic regime. Modern methods of disinfection.

Content module 9. Psychohygiene. Healthy lifestyle and personal hygiene.

Topic 17. Psychohygienic basics of optimizing daily human activities.

Topic 18. Hygienic aspects of medical biorhythmology and chronohygiene . Hygiene of the adaptation process. Scientific basis of diagnosis and prevention of chronic fatigue.

Topic 19. Hygienic evaluation of hospital and household clothes. Methods of hygienic assessment of oral cavity care products.

Topic 20. Prevention of alcoholism, drug addiction, smoking.

The topics of the lecture course reveal the problematic issues of the relevant sections of the discipline.

Practical classes involve theoretical substantiation of the main issues of the topic and the acquisition of the following skills:

1. Hygienic assessment of natural and artificial lighting.
2. Hygienic assessment of radiant energy.
3. Hygienic assessment of the indoor microclimate.
4. Hygienic assessment of air quality and ventilation efficiency.
5. A generalized method of assessing air quality and ventilation efficiency.
6. Sanitary examination of the quality of drinking water.
7. Hygienic assessment of climate and weather.
8. Hygienic assessment of the soil.
9. General principles of the methodology of studying the impact of denatured natural environment on the health of the population.
10. Basic principles of sanitary examination of food products.
11. Sanitary examination of milk and dairy products.
12. Sanitary examination of meat and meat products.
13. Sanitary examination of flour and flour products.
14. Sanitary examination of fish and fish products.
15. Sanitary examination of canned goods.
16. Hygienic evaluation of the adequacy and balance of nutrition.
17. Sanitary examination of construction projects of medical and preventive facilities.
18. Hygienic assessment of hospital construction systems, land plot, main departments and premises of the hospital.
19. Hygienic evaluation of the conditions of stay of patients and the work of medical personnel in medical and preventive institutions.
20. Hygienic evaluation of hospital and household clothes.
21. Methods of hygienic assessment of oral cavity care products.
22. Principles of radiation control method selection.
23. Evaluation of the radiation background of the area and object.
24. The method of determining the necessary anti-radiation protection.
25. Hygienic evaluation of anti-radiation protection in the radiology department of the hospital.
26. Hygienic assessment of the difficulty and intensity of work.
27. Hygienic assessment of working conditions at an industrial enterprise.
28. Methods of investigating cases of occupational poisoning and occupational diseases.
29. Hygienic evaluation of the noise and vibration situation in the production premises.
30. Methods of studying the content of dust and chemicals in the air of industrial premises.
31. Assessment of functional readiness of children and adolescents to enter school.
32. Hygienic assessment of educational work at school.
33. Hygienic assessment of physical development of children and adolescents
34. Hygienic assessment of motor activity of children and adolescents.
35. Hygienic evaluation of the organization of extracurricular activities and students' free time.
36. The methodology of researching the peculiarities of the formation and development of socially and professionally significant psychophysiological functions.
37. Psychohygienic foundations of professional orientation and professional selection.

At practical classes, students together with the teacher analyze theoretical questions, draw up protocols of laboratory work in workbooks, solve clinically-oriented situational problems and test tasks, formulate conclusions on the studied topic.

The student's independent work involves preparation for practical classes and mid-term tests, study of topics for independent work outside the classroom, preparation of presentations, diagrams, tables. Control of mastering topics of independent work outside the classroom is carried out at intermediate control classes and final control of the discipline.

Individual work includes researching scientific literature, preparing reviews on the given topics for presentation at meetings of the student scientific circle, performing scientific and practical research, participation in professional Olympiads, scientific and practical conferences, competitions of student scientific works.

Thematic plans of lectures, calendar plans of practical classes, thematic plan of independent work outside the classroom, scope and directions of individual work are published on the website of the department.

Route of obtaining materials: Department of general hygiene and ecology/ To the student/ Full-time study/ Medicine/ 3rd year/ Teaching and methodical materials/ or via the link <https://www.vnmuedu.ua/> Department of general hygiene and ecology#. Access to the materials is carried out from the student's corporate account [s 000 XXX @ vnmuedu . ua .](mailto:s000XXX@vnmuedu.ua)

5. Forms and methods of monitoring learning success

Current control in practical classes	Methods: oral or written survey, testing, solving situational problems, conducting laboratory studies, their interpretation and evaluation of their results (drawing up a protocol in a workbook)
Control of assimilation of the thematic section of the discipline at intermediate control classes	Methods: oral or written survey, testing, solving situational problems, control of practical skills
Final semester control (credit) at the end of the 5th semester	According to the regulations on the organization of the educational process at VNMU named after E. Pirogov (link https://www.vnmuedu.ua/General information/Basic documents)
The final control of the discipline is a differentiated assessment	Methods: oral survey, testing, solution of situational problems, control of practical skills (according to the regulations on the organization of the educational process at VNMU named after E. Pirogov (link https://www.vnmuedu.ua/General information/Basic documents)
Means of diagnostics of learning success	Theoretical questions, tests, clinically-oriented situational tasks, practical tasks, demonstration of practical skills

6. Evaluation criteria

Assessment of knowledge is carried out according to the Regulations on the organization of the education in Vinnytsia Pirogov memorial medical university (link <https://www.vnmuedu.ua/General> information / Basic documents)

Current control	According to the four-point system of traditional grades: 5 - "excellent", 4 - "good", 3 - "satisfactory", 2 - "unsatisfactory"
Control of skills	According to the four-point system of traditional evaluations
Test	On a 200-point scale (arithmetic mean for the semester is converted into points) Credited: from 122 to 200 points Not credited: less than 122 points (see Evaluation Scale)
Final control of the	Points for oral exam, solving of Practical situations, control of skills.

discipline	Score for differentiated credit: 71-80 points - "excellent" 61-70 points - "good" 50-60 points - "satisfactory" Less than 50 points - "unsatisfactory" / did not pass
Discipline assessment:	Current performance - from 72 to 120 points (conversion of the average traditional grade for practical classes on a 120-point scale): 60% of the grade for the discipline Final control - from 50 to 80 points: 40% of the grade for the discipline Individual work - from 1 to 12 points A total of 122 to 200 points.

Discipline evaluation scale: national and ECTS

The sum of points for all kinds of educational activities	ECTS assessment	Score on a national scale
180-200	A	credited
170-179.9	B	
160-169.9	C	
141-159.9	D	
122-140.99	E	
60-121.99	FX	not credited with the possibility of retake
0-59.99	F	unsatisfactory with mandatory retake of the discipline

7. Policy of the subject/course

The student has the right to receive high-quality educational services, access to modern scientific and educational information, qualified advisory assistance during the study of the discipline and mastery of practical skills. The policy of the department during the provision of educational services is student-centered, based on the normative documents of the Ministry of Education and the Ministry of Health of Ukraine, the university charter and the procedure for providing educational services, regulated by the basic provisions of the organization of the educational process at M.I. Pirogov VNMU and the principles of academic integrity.

Compliance with the rules of the VNMU routine, safety techniques at practical classes. Instruction on safety techniques for handling chemical reagents, technical and electrical devices is given at the first practical session by the teacher. A student who has not been instructed is not allowed to perform practical work.

After the announcement of the **"AIR ALARM" signal**, students must proceed from the educational premises to the shelter in an organized manner with the teacher. The teacher is the last to leave the audience, checks the premises for the absence of students and employees, and then goes to the shelter. Inside the protective structure, students must quickly and calmly take their seats and observe the rules of behavior in the shelter. During the stay in the protective structure, teachers provide the necessary support, take measures for a comfortable and calm stay in the shelter. After the danger is over and the alarm is declared, the teachers make sure that all students leave the shelter and continue their studies in the classrooms.

Requirements for preparation for practical classes. The student must come to the practical session on time. A student who is more than 15 minutes late for class is not allowed to attend the last class and must complete it in the prescribed manner.

The student must be theoretically prepared according to the topic, test tasks for the current topic must be solved in the workbook, extracurricular work has been completed.

During practical classes, the student must wear a medical gown. Students who do not have a robe are not allowed to attend class.

The student must observe safety rules during practical classes and during his stay in the premises of the department.

During the discussion of theoretical issues, students should demonstrate tolerance, courtesy and respect for their fellow students and the teacher; when performing practical tasks, the workplace must be kept in order and cleaned after performing practical work.

Lectures in video format are posted on the university website, department page (<https://www.vnmue.edu.ua/> department of general hygiene and ecology/ to the Student).

Use of mobile phones and other electronic devices. The use of mobile phones and other electronic devices during the lesson is allowed only as a calculator for performing calculations during solving situational problems.

Academic integrity. While studying the discipline, the student must be guided by the Code of Academic Integrity of VNMU named after E. Pirogov (<https://www.vnmue.edu.ua/> general information/ Main documents/ Code of academic integrity). In case of violation of the norms of academic integrity during the current and final examinations (writing off, giving a verbal prompt to a fellow student during the evaluation of his knowledge, using a mobile phone during the evaluation of knowledge, etc.), the student receives a grade of "2" and must work it out to his teacher in the prescribed manner within two weeks after receiving an unsatisfactory grade.

Retake of classes. Missed classes are made up in accordance with the procedure established in the Regulations on the Organization of the Educational Process at VNMU named after E. Pirogov (link <https://www.vnmue.edu.ua/> General information/Basic documents) at the time determined by the practice schedule (published on the website of the department <https://www.vnmue.edu.ua/> department of general hygiene and ecology#) to the teacher on duty. In order to make up for the missed class, the student must submit a completed protocol of the workbook on the relevant topic and answer questions on the topic of the class in writing or orally. Rework of missed lectures is carried out after providing a synopsis of the lecture material, or preparing your own presentation on the topic of the missed lecture .

Discipline control is given in the Regulations on the Organization of the Educational Process at VNMU named after E. Pirogov (link <https://www.vnmue.edu.ua/> General information/Main documents). Students who have not missed unworked practical classes and lectures and have received an average traditional grade of at least "3" are admitted to the final examination.

Additional individual grades. Individual grades for the subject (from 1 to 12) a student can receive for individual work, the scope of which is published on the department's website in the teaching and methodical materials of the discipline, the number of points is determined by the results of the IRS according to the Regulations on the Organization of the Educational Process at VNMU named after M.I. Pirogov (link <https://www.vnmue.edu.ua/> General information/Basic documents).

Resolution of conflict issues. In the event of misunderstandings and claims against the teacher due to the quality of educational services, assessment of knowledge and other conflict situations, the student must first notify the teacher of his claims. If the conflict issue is not resolved, the student has the right to submit an appeal to the head of the department in accordance with the Regulation on consideration of appeals by applicants for higher education at VNMU named after E. Pirogov (<https://www.vnmue.edu.ua/> General information/Basic documents).

Policy in the conditions of distant learning. The distance learning procedure is regulated by the Regulation on the introduction of elements of distance learning at VNMU named after E. Pirogov (<https://www.vnmue.edu.ua/> General information/Main documents). The main educational platforms for conducting training sessions are Microsoft Team , Google Meets . The procedure for conducting practical classes and lectures, exercises and consultations during distance learning is published on the website of the department (<https://www.vnmue.edu.ua/> department of general

hygiene and ecology / To the student or <https://www.vnmu.edu.ua/> of general hygiene and ecology / News).

Feedback from the teacher is carried out through messengers (Viber , Telegram , WhatsApp) or e-mail (at the choice of the teacher) during working hours.

1. Educational resources

Educational and methodological support of the discipline is published on the website of the department (<https://www.vnmu.edu.ua/> department of general hygiene and ecology/ to the student).

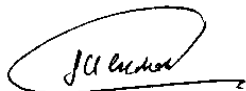
Consultations are held twice a week according to the consultation schedule.

2. The schedule and distribution of groups by teachers is published on the website of the department ((<https://www.vnmu.edu.ua/> department of general hygiene and ecology / To the student).

3. The questions for the intermediate and final tests of the discipline are published on the website of the department ((<https://www.vnmu.edu.ua/> department of general hygiene and ecology / To the student).

The syllabus for the discipline "Hygiene and Ecology" was discussed and approved at the meeting of the Department of General Hygiene and Ecology (protocol No. 1, dated August 28, 2024).

Responsible for the course



Ruslan TEKLIUK

Head of the department



Ihor SERGETA