

**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



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**August 28, 2024**

**SYLLABUS  
of the subject  
HYGIENE AND ECOLOGY**

Specialty	221 Dentistry
Educational level	Master of Dentistry
Educational program	EPP "Dentistry", 2023
Academic year	2024-2025
Chair	Department of General hygiene and ecology
Lecturer	MD, Professor of HEI, Ihor SERGETA, Associate Professor of HEI Olga BRATKOVA, Associate Professor of HEI Larisa VAKOLIUK, Associate Professor of HEI Oksana DUDARENKO, Associate Professor of HEI Stanislav LATANYUK, Associate Professor of HEI Nataliya STOYAN
Contact Information	<a href="http://vnmu.edu.ua/">http://vnmu.edu.ua/</a> department of General hygiene and ecology. Ukraine, Vinnytsia, V. Stusa str. 2 .
Compiler of the syllabus	Associate Professor of HEI Oksana DYAKOVA

## 1. Status and structure of the subject

Subject status	Mandatory
Code of subject in OPP/place of subject in OPP	EC 20 / professional training subject
Course/semester	2nd year ( III semester)
Scope of the subject (total number of hours/ number of ECTS credits)	90 hours / 3 ECTS credits
Number of content modules	3 modules
The structure of the subject	Lectures - 10 hours Practical classes - 40 hours Independent work - 40 hours
Language of teaching	Ukrainian
Form of education	Face-to-face or remote according to the order

## 2. Description of the subject

### Short abstract of the course, relevance.

The professional training of doctors in specialty 221 "Dentistry" cannot be high quality and effective without a deep study of preventive subjects - hygiene and sanitation, ecology and epidemiology.

The expansion of dental services requires familiarization of future dentists, as well as doctors who plan to engage in private practice, with sanitary-technical and sanitary-hygienic requirements for dental offices of various profiles, means of preventing intra-hospital infections and preventing the adverse impact of harmful professional factors on health dentist

Therefore, training at the modern level of a dentist requires mastering fundamental knowledge in the field of hygiene and ecology, taking into account the elements of bioethics in practical activities.

Hygiene and ecology as an educational subject:

1. It is based on the students' study of medical biology, medical and biological physics, biological and bioorganic chemistry, human anatomy, and the basics of occupational health and safety.

2. Lays the foundations for students' study of environmental factors and their impact on general and dental human health.

3. Arms the dentist with practical skills for implementing preventive measures, regarding the observance of personal hygiene, food hygiene, household hygiene, work hygiene, education and training of children and adolescents by healthy and sick people, maintenance of medical and preventive dental facilities in a proper sanitary condition, ensuring radiation safety patients and staff of dental institutions.

4. Opens wide opportunities for the formation of preventive thinking in future dentists, equips them with fundamental theoretical knowledge and practical skills aimed at preserving and strengthening general and dental health.

These are the main, but not all, activities of a dentist that require knowledge of human hygiene and ecology.

In connection with the above, medical education should contribute to the formation of young dental specialists not only clinical, primarily preventive, i.e. hygienic thinking, understanding of the role of environmental factors and social living conditions in the occurrence of health disorders and diseases, justification of preventive measures .

Dental care of the population causes an urgent need for in-depth knowledge of hygiene, primary, secondary and tertiary prevention of diseases and skills in hygienic research.

**Prerequisites .** In order to successfully master the subject, the student needs the knowledge obtained in the process of studying the following subjects 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 activity.** The main goal of teaching the subject "Hygiene and Ecology" is the 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 worldview of a specialist in the field of preparation for the professional qualification "Dentist", the educational qualification "Master of Dentistry", acquisition by students of the necessary knowledge, skills, actions, target tasks, skills that correspond to the ultimate goals of studying the subject in accordance with the Standard of Higher Education of Ukraine.

**Post-requisites .** The main provisions of the subject can be applied when studying the subjects: pathophysiology, internal medicine, social medicine, public health and other subjects at the choice of the student of higher education.

### 3. Learning outcomes.

After successfully studying the subject, the applicant will be able to:

1. To plan and implement measures on the philology of dental diseases among the population to prevent the spread of dental diseases.
2. Analyze the epidemiological situation and carry out mass and individual, general and local drug and non-drug prevention measures for dental diseases.
3. Determine the nature of the treatment of dental disease (according to list 2): 3. fluorosis, 10. caries, 22. changes in the SOPR in allergic lesions, 23. changes in the SOPR in intoxication with salts of heavy metals, 29. symptomatic manifestations in the SOPR of hypo- and avitaminosis , 30. Diseases and abnormalities of the tongue ( desquamative glossitis), 32. Independent and symptomatic cheilitis , 36. Endemic fluorosis, 38. Caries and its complications in temporary and permanent teeth in children, 43. Allergic diseases, 50. Independent and symptomatic cheilitis , announce by making a reasoned decision according to existing algorithms and standard schemes.
4. To determine the nature, principles of the regime of work, rest and the necessary diet in the treatment of dental diseases (according to list 2): 3. fluorosis, 10. caries, 22. changes in the SOPR in allergic lesions, 23. changes in the SOPR in intoxication with heavy metal salts, 29 Symptomatic manifestations of hypo- and avitaminosis , 30. Diseases and abnormalities of the tongue ( desquamative glossitis), 32. Independent and symptomatic cheilitis , 36. Endemic fluorosis, 38. Caries and its complications in temporary and permanent teeth in children, 43. Allergic SOPR diseases, 50. independent and symptomatic cheilitis , glossitis on the basis of a preliminary or final clinical clinical diagnosis by making an informed decision according to existing algorithms and standard schemes.
5. Assess the impact of the environment on the state of health of the population in the conditions of a medical institution according to standard methods.
6. Follow a healthy lifestyle, use self-regulation and self-control techniques.

### 4. Content and logistics of the subject

Module 1 ( Hygienic importance of the environment and methods of its hygienic research. Hygienic basics of nutrition )	3rd semester 30 hours/ 1 credit	Lectures No. 1-2 Practical lessons No. 1-8 Topics for independent processing No. 1-5
Module 2 ( Hygienic basics of water supply . Hygiene and physiology of work. Hygienic basics of activity of medical and preventive institutions. Radiation hygiene ).	3rd semester 23 h/ 0 . 76 credits	Lectures No. 3-4 Practical classes No. 9-14 Topics for self-study No. 7-9
Module 3 (Hygienic basics of a healthy lifestyle and development of children and adolescents. Military hygiene.)	3rd semester 15.5 hours/ 0.52 credits	Lectures No. 5 Practical lessons No. 15-19 Topics for self-study No. 6

## **Module 1. Hygiene and ecology**

### **Content module 1 . Hygienic significance of the environment and methods of its hygienic research. Hygienic basics of nutrition.**

Topic 1. Introduction to hygiene and ecology. Hygienic significance of components of the biosphere, physical properties and chemical composition of the air environment. Hygienic assessment of indoor microclimate. Hygiene of natural and artificial lighting . Hygienic importance of solar radiation, climate and weather . Soil and health. Sanitary cleaning of populated areas.

Topic 2. The place and importance of hygiene in the system of medical sciences and practical activities of a dentist. Methods of hygienic research.

Topic 3. Hygienic assessment of radiant energy. The method of using ultraviolet radiation for the purpose of disease prevention and sanitation of the air environment.

Topic 4. Hygienic evaluation of natural and artificial lighting of premises.

Topic 5. Microclimate and its hygienic significance. The method of determining and hygienic assessment of the temperature and humidity regime of premises and the direction and speed of air movement. The method of hygienic assessment of the air environment and the efficiency of ventilation of premises. Hygienic evaluation of the complex influence of the microclimate on human heat exchange.

Topic 6. Methods of hygienic assessment of the influence of climate and weather conditions on human health. Hygienic assessment of the sanitary state of the soil. Methods of studying the influence of denatured environment on the state of health of the population.

Topic 7. Nutrition and health of the population. Scientific basis of rational nutrition. Hygienic basics of prevention of alimentary diseases and food poisoning. Methods of evaluation of oral cavity care products.

Topic 8. Studying the adequacy and balance of nutrition. Methodology for calculating human energy expenditure and its nutrient needs . Norms of physiological needs in basic nutrients and energy. Methodology for assessing the nutritional status and vitamin availability of the human body.

Topic 9. Physiological and hygienic significance of the main nutrients of the food ration. Hygienic evaluation of the degree of quality and the method of sanitary examination of food products.

Topic 10. Theoretical aspects and methods of prevention of alimentary and alimentary-related diseases. Methods of investigating cases of food poisoning.

### **Content module 2. Hygienic basics of water supply . Hygiene and physiology of work. Hygienic bases of activity of medical and preventive institutions. Radiation hygiene.**

Topic 11. Water and health. The hygienic value of water. Hygienic basics of water supply. Methods of improving the quality of drinking water. Hygiene of populated areas.

Topic 12. Hygienic assessment of water supply and drinking water. Reading laboratory analyzes of water.

Topic 13. Methods of improving the quality of drinking water. Methodology for determination of fluoride content in drinking water. Endemic fluorosis and caries as a hygienic problem and their prevention.

Topic 14. Work and health. Hygiene and physiology of work. Hygienic characteristics of physical, chemical and biological factors of the production environment. Hygiene of medical and preventive facilities, including dental facilities. Hygiene and labor protection of the dentist. Radiation hygiene.

Topic 15. Hygienic assessment of the impact of noise and vibration.

Topic 16. Hygienic assessment of exposure to toxic chemicals. Methods of investigating cases of occupational diseases and poisonings.

Topic 17. Hygiene of medical and preventive dental facilities. Hygienic evaluation of the conditions of stay of patients and the work of medical personnel in a dental polyclinic.

Topic 18. Methods of monitoring anti-radiation protection of personnel and radiation safety of patients when using radionuclides and other sources of ionizing radiation in medical facilities, in particular in the radiology department (office) of a dental polyclinic. Calculation methods for evaluating radiation safety and parameters of population protection against external exposure.

**Content module 3. Hygienic basics of a healthy lifestyle and development of children and adolescents. Military hygiene.**

Topic 19. Problems of medicine and public health. Hygiene as a science. Basic laws of hygiene. Methods of hygienic research. Teaching about children's health. Hygiene of children and adolescents. The state of health of schoolchildren and the factors that shape it. Hygienic basics of organizing educational and extracurricular activities of students of different ages. Actual issues of personal hygiene. Modern problems of psychohygiene.

Topic 20. Hygienic assessment of the educational process at school and children's furniture.

Topic 21. Methods of assessing the state of health and physical development of children and adolescents.

Topic 22. Hygienic basics of a healthy lifestyle. Psychohygiene and personal hygiene. Methods of hygienic assessment of oral cavity care products.

Topic 23. Organization and implementation of sanitary supervision of the field placement of military and civilian formations in emergency situations and during war. Organization and implementation of sanitary supervision of the working conditions of military personnel, liquidators of the consequences of hostilities and emergency situations.

Topic 24. Organization and implementation of sanitary supervision of water supply and food safety of military and civilian formations in emergency situations and during war.

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

Practical classes involve theoretical substantiation of the main issues of the topic and the acquisition of the following practical 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. Methodology for researching the peculiarities of the formation and development of socially and professionally significant psychophysiological functions.
37. Psychohygienic foundations of professional orientation and professional selection.
38. Methods of sanitary and hygienic control of water supply and nutrition in field and extreme conditions.
39. Sanitary technique water and food expertise .
40. The method of sanitary and hygienic control of security body military personnel vitamins \_

In 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 subject.

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.

The route of receiving materials: Department of general hygiene and ecology/ To the student/ Full-time study/ Dentistry/ 2nd year/ Educational and methodological materials/ or via the link <https://www.vnmue.edu.ua/> Department of general hygiene and ecology#. Materials can be accessed from the student's corporate account [s 000 XXX @ vnmue.edu.ua.](mailto:s000XXX@vnmue.edu.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,
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	their interpretation and evaluation of their results (drawing up a protocol in a workbook)
The final control of the subject is a differentiated assessment	Methods: oral survey, solution of situational problems, control of practical skills (according to the regulations on the organization of the educational process at M.I.Pyrogov VNMU (link <a href="https://www.vnmu.edu.ua/General">https://www.vnmu.edu.ua/General</a> 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 in accordance with the Regulation on the organization of the educational process at VNMU named after M.I. Pirogov (link <https://www.vnmu.edu.ua/General> information/Basic documents).

Current control	According to the five - point system of traditional evaluations: 5 "excellent", 4 "good", 3 "satisfactory", 2 "unsatisfactory"
Control of practical skills	According to the five - point system of traditional evaluations
Test	On a 200-point scale (the average arithmetic grade for the semester is converted into points) Scored: from 122 to 200 points Not admitted: less than 122 points (see Grading scale)
Evaluation of discipline :	Arithmetic average of traditional grades obtained for practical classes. The obtained value of the average traditional assessment is converted into points according to the scale of conversion of traditional assessments into rating points (200 points) Individual work - from 1 to 12 points Total from 122 to 200 points.

## Subject assessment scale: national and ECTS

The sum of points for all types of educational activities	Rating ECTS	Assessment by the national scale for credit
<b>180-200</b>	<b>A</b>	credited
<b>170-179.99</b>	<b>B</b>	
<b>160-169.99</b>	<b>C</b>	
<b>141-159.99</b>	<b>D</b>	
<b>122-140.99</b>	<b>E</b>	
<b>0-121.99</b>	<b>FX</b>	not credited with the possibility of retake
	<b>F</b>	unsatisfactory with mandatory retake of the discipline

## 7. Policy of 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 subject 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 VNMU named after M.I. Pirogov and 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.

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 available on the website: Department of Hygiene and Ecology/Students/Full-time study/Dentistry/2nd year/Hygiene and Ecology/Lecture Presentations/ or via the link [https://www.vnmue.edu.ua/Department of Hygiene and Ecology](https://www.vnmue.edu.ua/Department%20of%20Hygiene%20and%20Ecology). Access to the materials is carried out from the student's corporate account s000XXX@vnmue.edu.ua.

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

**Academic integrity.** While studying the subject, the student must be guided by the Code of Academic Integrity of VNMU named after M.I. 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.

**Skippping 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 M.I. Pyrohova (link [https://www.vnmue.edu.ua/ General information/Main documents](https://www.vnmue.edu.ua/General%20information/Main%20documents)) 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 regular teacher. 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 .



subject **control is given in the Regulations on the Organization of the Educational Process at VNMU named after M.I. Pirogov** (link [https://www.vnmue.edu.ua/ General](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 points.** Individual points in the subject (from 6 to 12) a student can receive for individual work, the scope of which is published on the website of the department in the teaching and methodical materials of the subject, 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](https://www.vnmue.edu.ua/General) information/Main documents).

**Resolution of conflict issues.** In the event of misunderstandings and claims against the teacher due to the quality of educational services, knowledge assessment and other conflict situations, the student must first notify the teacher of his/her 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 M.I. Pirogov ( [https://www.vnmue.edu.ua/ General](https://www.vnmue.edu.ua/General) information/Main documents).

**Policy in the conditions of distance learning.** The distance learning procedure is regulated by the Regulation on the introduction of elements of distance learning at VNMU named after M.I. Pirogov ( [https://www.vnmue.edu.ua/ General](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.vnmue.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 subject is published on the website of the department ( <https://www.vnmue.edu.ua/> department of general hygiene and ecology/ to the student).

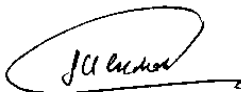
Consultations are held twice a week according to the consultation schedule.

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

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

The syllabus for the subject "Hygiene and Ecology" was discussed and approved at the meeting of the Department of General Hygiene and Ecology (Protocol No. 1, August 30, 2023)

Responsible for the course



Ruslan TEKLIUK

Head of the department



Igor SERGETA