

SYLLABUS OF THE EDUCATIONAL COMPONENT**HYGIENE AND ECOLOGY**

Speciality: **221 Dental Medicine**
Educational and professional program: **Dental Medicine**
Component code in the educational program: **MC 27**
Higher education level: **second (master's degree)**
Form of education: **Full-time**
Year of study: **3rd**
Semester(s): **6th(spring)**
Type of educational component: **mandatory**
Academic year: **2026-2027**

Volume: **3 credits ECTS (90 hours)**
Training sessions: **lectures/practical classes, consultations**
Final control: **grading final test**
Prerequisites: **Medical Biology; Medical & bioorganic chemistry; Life safety. Fundamentals of bioethics and biosafety. Occupational safety; Biological chemistry; Microbiology, Virology and Immunology; Physiology; Pathological Physiology**

Department/Unit: **Department of Hygiene and Ecology, Nauki av., 4, korp.A, 5th floor**
Head of the educational component: assoc.prof. **Gerasymenko O.I., oi.herasymenko@knu.edu.ua**
Page of the educational component in the Distance Learning System of KhNMU (Moodle):
<https://distance.knu.edu.ua/course/view.php?id=452>

DESCRIPTION OF THE EDUCATIONAL COMPONENT

Brief description of the content of the subject:

The study of the discipline 'Hygiene and Ecology' is aimed at familiarising students with the basics of the theory of modern social and ecological systems, studying risk factors and safety in the workplace at higher education institutions and other types of production activities, and the algorithm of actions in emergency situations based on legislative regulations of the occupational safety management system using innovative forms of training.

PURPOSE OF THE COURSE: studying the theoretical foundations of preventive medicine, in particular hygiene and ecology, as a science that forms the basis of the preventive component of a specialist's professional worldview.

LEARNING OUTCOMES:

- Determine the nature of the work regime, rest and necessary diet in the treatment of dental diseases (according to list 2) on the basis of a preliminary or final clinical diagnosis by making an informed decision using existing algorithms and standard schemes;
- Organise medical evacuation measures among the population and military personnel in emergency situations, including martial law, during the deployment stages of medical evacuation, taking into account the existing medical evacuation support system;
- Analyse and evaluate governmental, social, and medical information using standard approaches and computer information technologies;
- Evaluate the impact of the environment on the health of the population in a medical facility using standard methods;
- Set goals and determine the structure of personal activities based on the results of an analysis of specific social and personal needs;
- Maintain a healthy lifestyle, use self-regulation and self-control techniques;
- Adhere to the requirements of ethics, bioethics and deontology in your professional activities;
- Organise the necessary level of individual safety (for yourself and those in your care) in the event of typical dangerous situations arising in your individual field of activity.
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CONTENT OF THE EDUCATIONAL COMPONENT**List of lecture topics (10 hours):**

1. Hygiene and ecology as a branch of medical science and health care.
2. Environment and human health.
3. Water as the health factor.
4. Hygiene of nutrition.
5. Hygiene of patient care institutions. Hygiene of dentist labour.

List of seminar topics:

Not included in the curriculum.

List of topics of practical classes (30 hours):

1. Introductory lesson. Research methods used in hygiene.
2. Methods of determination of ultra-violet radiation. Methods of determination and hygienic assessment of natural lighting and artificial illumination in different premises
3. Method of determination and hygienic estimation of microclimatic parameters.
4. Hygienic assessment of drinking water according to salt content. Prophylaxis of fluorosis and caries.
5. Hygienic assessment of the drinking water based on results of the laboratory analysis
6. Methods of study and hygienic estimation of collective and individual nutrition adequacy.
7. Methods of medical control on the organism provision with vitamins.
8. Method of the food poisoning cases investigation.
9. Methods of study and hygienic estimation of physical development of children and adolescents.
10. Hygienic assessment of the location and planning of dental clinic according to the project.
11. Hygienic assessment of the internal design of dental clinic according to the project materials.
12. Method of hygienic inspection of the planning and equipment of dentist clinic. Hygienic assessment of the conditions of dentist' labour.
13. Method of control of antiradiative protection of personnel and patients in medical establishments.
14. Sanitary supervision and medical control of water supply sources in extreme conditions.
15. Grading final test.

List of laboratory topics:

Not included in the curriculum.

List of topics of independent work of the student (50 hours)

1. Use of ultraviolet radiation in dentistry (for air sanitation in premises of dental clinic, for disinfection of dental tools and at use of photo-polymers' lamps).
2. Hygienic estimation of climate and weather conditions and their influence on human health. Sanitary protection and biosafety of atmospheric air.
3. Endemic fluorosis and dental caries as a sanitary problem, their prevention (water defluorination, water fluorination).
4. Endemic goiter as a sanitary problem, its etiology and prevention.
5. Alimentary prophylactic of main dental diseases.
6. Hygienic problems of nutrition in conditions of polluted environment and hazardous industry.
7. Features of composite, complex and connective action of harmful substances on organism (including work in prosthetic dental laboratory).
8. Organizing of sanitary and anti-epidemic regimen in dental clinic.
9. Preventing of emotional burnout syndrome for doctors.

The IWS is aimed at deepening and consolidating the theoretical knowledge gained during classroom training and contributing to the formation of professional competencies. The results of the IWS are subject to control and are included in the final control of knowledge.

Consultations: Online consultations according to the department's schedule with prior registration via the teacher's corporate email.

Teaching methods: verbal (conversation); visual (illustrations, presentation materials, video materials); practical (independent work, pair work, group work).

EVALUATION

Current Learning Activities (CLA). The assessment of students' academic performance is carried out in accordance with the Instructions for assessing the academic performance of higher education students at KhNMU (https://knmu.edu.ua/doc_block_type/instrukczyi-navchalnogo-proczesu/). The assessment for practical or final classes ranges from 2 to 5 points. Submission of assignments late for insignificant reasons will result in a reduction in the grade in accordance with the percentage of the delay in time from the time of completion of the assignment. Assignments are checked within 24 hours. Grades are entered into the electronic journal. Unsatisfactory grades are worked off in accordance with the Regulations on the procedure for students of KhNMU to work off academic sessions (chrome-extension://efaidnbmnnnibpcajpcgclefindmkaj/https://knmu.edu.ua/wp-content/uploads/2021/05/pol_por-vidprac-zaniat.pdf).

The total number of rating points for studying the discipline during the semester is calculated as the sum of points received based on the results of current control and points received based on the results of the final semester control. The maximum number of points for the semester is 200 points, the minimum is 120 points. The assessment of applicants is carried out in accordance with the 'Instructions for the assessment of the academic performance of higher education applicants at Kharkiv National Medical University', approved by order of KNMU No. 181 dated 21 August 2021.

Individual tasks (ITA) Individual tasks for applicants (hereinafter referred to as ITA) are not mandatory, but if desired, they can be completed and assessed in ECTS credits (no more than 10), which are added to the total number of credits earned for current academic activities. At a department meeting, a list of individual assignments was approved (participation with reports in student conferences, specialised competitions, preparation of analytical reviews with presentations and plagiarism checks) with points awarded for each type of activity.

Final assessment. Admission to the grading final test (GFT) is conditional upon the absence of academic debt.

Grade in subject (GS). $GS = CLA + ITA + GFT$

Appealing the results of the final control is carried out in accordance with the procedure established in KhNMU (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_apel_kontrol.pdf).

POLICIES OF THE EDUCATIONAL COMPONENT

Recommendations for working on the course: actively participate in all forms of class work, devote time each day to independent work and preparation for classes, ask questions during classes, attend consultations, submit assignments on time, and complete all forms of assessment.

Attending classes. Attendance at lectures and practical classes is compulsory. The dress code for offline classes is a white medical gown. If you are more than 5 minutes late, you may not be admitted to the class. Missed classes are made up in accordance with the Regulations on the procedure for making up classes by students of KhNMU (chrome-extension://efaidnbmnnnibpcajpcgclefindmkaj/https://knmu.edu.ua/wp-content/uploads/2021/05/pol_por-vidprac-zaniat.pdf).

Academic integrity. KhNMU stands on the positions of zero tolerance to manifestations of academic dishonesty. Any violations of the principles of academic integrity entail responsibility in accordance with the procedure established by KhNMU (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_ad-1.pdf).

Use of electronic gadgets and artificial intelligence tools only allowed with the teacher's permission.

Policy on persons with special educational needs. Applicants with special educational needs should contact the teacher to develop an individual educational pathway.

Teacher Response Time: 24 hours.

Technical requirements for the course:

- access to a computer, laptop, tablet or smartphone
- Corporate Google account with your own photo
- skills in working with Google Workspace (Google Meet, Docs, Sheets, Slides, Forms) and Moodle
- *other requirements of the department*

Technical support: ASM (ev.shevtsov@knu.edu.ua), Google (tehotdelknu@gmail.com), Moodle (al.korol@knu.edu.ua)

RECOMMENDED SOURCES

Basic

1. Hygiene and Ecology: student's book / [V.G.Bardov, S.T.Omelchuk, N.V.Merezhkina et al.]; ed. by V.G.Bardov. — Vinnytsia: Nova Knyha, 2022. — 456 p.
2. Natural Hygiene Handbook / James M. Lennon; True North Health Center. 2021. 254 p.
3. Environment and human health: overview of European Environmental Agency <https://www.eea.europa.eu/en/europe-environment-2025/thematic-briefings/environment-and-human-health/overview>

Supplementary

1. Essential environmental health standards in health care / Edited by John Adams, Jamie Bartram, Yves Chartier. WHO Press, 2022. 59 p.
2. Martin N., Hunter A., Constantine Z., Mulligan S. The environmental consequences of oral healthcare provision by the dental team. Journal of Dentistry, 2024. V. 142, 104842. <https://doi.org/10.1016/j.jdent.2024.104842>.
3. Healthcare System Development Strategy for the Period until 2030 (CMU Resolution No. 34-r dated 17 January 2025).
4. Strategy for reforming the system of state supervision (control) in the field of environmental protection, rational use, reproduction and protection of natural resources for the period until 2029 (Order of the CMU No. 625-r of 25 June 2025).

Acting Head of Department of Hygiene and Ecology _____ Igor ZAVGORODNII