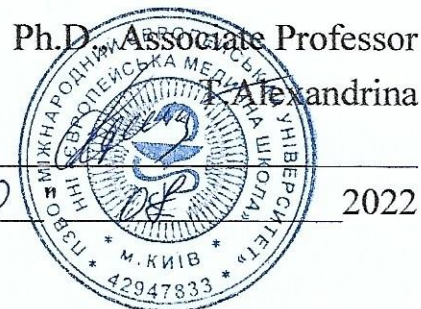


**INTERNATIONAL EUROPEAN UNIVERSITY  
EDUCATIONAL AND SCIENTIFIC INSTITUTE  
"EUROPEAN MEDICAL SCHOOL"**

**APPROVED**

**Director of ESI"EMS"**

**Ph.D. Associate Professor**



" 30

2022


**COURSE TRAINING PROGRAM  
on  
HYGIENE AND ECOLOGY**

<b>Degree level</b>	Master
<b>Field of study</b>	22 "Health care"
<b>Specialty</b>	222 "Medicine"

**Kyiv - 2022**

DEVELOPED AND SUBMITTED: Educational and Scientific Institute "European Medical School", Department of Fundamental and Medical and Preventive Disciplines.

Developed by: Moiseeva H.V., Doctor of Medicine, Professor of the Department of Fundamental and Medical Preventive Disciplines, Kopach K.D., Candidate of Medical Sciences, Associate Professor of the Department of Fundamental and Medical Preventive Disciplines.

Discussed and approved by the Department of Fundamental and Medical Preventive Disciplines №. 1 from " 25 " 08 2022  
Head of the department Kostynskyi G.B. 

Approved at the meeting of the Scientific Council of the ESI"EMS"  
№ 1 of " 29 " 08 of 2022

## INTRODUCTION

**The study program of the academic discipline "Hygiene and Ecology"** is developed in accordance with Standard of higher education of Ukraine for training specialists of the second (master's) level, field of knowledge 22 - "Health care", specialty - 222 "Medicine", educational qualification "Master of Medicine", professional qualification "Doctor".

### **Description of the academic discipline (abstract)**

The program of study of the discipline "Hygiene and Ecology" is intended for higher medical institutions of education of Ukraine in accordance with the requirements of the credit transfer system of the organization of the educational process of the ECTS, based on a combination of learning technologies by sections and credit assessment credits - units of measurement of the student's educational load necessary for mastering the discipline or its section.

In accordance with the curriculum for training specialists of the second (master's) level of higher education in the field of knowledge 22 "Health care", the academic discipline "Hygiene and ecology" is taught in the 2nd and 3rd years of study.

For the study of the discipline "Hygiene and ecology" 5 credits (150 hours) are provided, of which 92 classroom hours, 58 - independent work.

### **Information volume of the academic discipline**

Name of indicators	Field of knowledge, direction of training, educational and qualification level	Characteristics of the academic discipline	
		full-time education	
<b>The number of credits is 5</b>	<b>Branch of knowledge 22 "HEALTH PROTECTION"</b>	Normative (optional)	
	Field of study "Medicine"		
2 sections	Specialty: 222 "Medicine"	A year of training	
Substantial births - 10		2 and 3	
<b>The total number of hours is 150</b>		Semester	
	Lectures		
Weekly workload: The second year of study - 2 hours, The third year of study - 3 hours.	<b>Education level: "Master of Medicine" qualifications of a professional "doctor"</b>	16	8
		Practical	
		28	40
		Individual work	
		16	42
type of control			
		test	exam

The ratio of hours of classroom classes to independent and individual work is 61.3% and 38.7%, respectively.

**The subject** of study of the academic discipline is: hygiene - which gives concepts about the forms and methods of preserving and strengthening public and individual health by implementing preventive measures with further use of the acquired knowledge in the practical work of a doctor; ecology - which examines the state of the environment and the regularities of its influence on man in particular and society in general, as well as the peculiarities of the negative reactions of the environment in response to the activities of mankind.

### **Interdisciplinary connections.**

In order to successfully master the discipline, a student of higher education needs the knowledge obtained in the process of studying the following disciplines of general training: "Medical and biological physics", "Medical informatics", "Medical chemistry", "Medical biology", "Human anatomy", "Physiology". The main provisions of the academic discipline can be applied when studying the disciplines of professional training, namely: "Pathophysiology", "Social medicine, organization and economics of health care", "Infectious diseases", "Surgery", "Oncology and radiation medicine", "Epidemiology and principles of evidence-based medicine" and others, which involves the integration of teaching with these disciplines and the application of acquired knowledge, skills and abilities in the process of further education and in professional activities.

### **1. The purpose and tasks of the educational discipline**

**Goal of the academic discipline "Hygiene and Ecology"** stems from the goals of the educational and professional training program for graduates of a higher education institution and is determined by the content of those systemic knowledge and skills that a doctor must master. The knowledge that students receive from the academic discipline is basic for the block of disciplines that provide professional and practical (PP block) training.

#### **1.1. The purpose of teaching the academic discipline "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 "Medicine" field of training;
- acquisition by students of the necessary knowledge, skills, actions, target tasks, skills that correspond to the ultimate goals of learning the academic discipline in accordance with the OPP.

#### **1.2. The main tasks study of the discipline "Hygiene and ecology" is:**

- study of the theoretical foundations of hygiene and ecology (terminology, laws, methods, principles of hygienic regulation, instructional and regulatory support, development and implementation of preventive measures);
- development of practical skills regarding the prevention of diseases of infectious and non-infectious origin in accordance with the principles of the current legislation of Ukraine;
- mastering laboratory research methods (organoleptic, physical, chemical, biological, bacteriological, etc.);
- the use of favorable environmental factors for improving human health, hardening the body, etc.

#### **1.3 Competencies and learning outcomes**

The list of graduate competencies, the formation of which is facilitated by the study of the discipline "Hygiene and ecology" and its relationship with the normative content of the training of students of higher education in the field of knowledge 22 "Health care", formulated in terms of learning outcomes in the Second Standard of Higher Education of Ukraine (master's ) level of higher education.

According to the requirements of the Standard of Higher Education of Ukraine, the second (master's) level of higher education in the discipline "Hygiene and Ecology" ensures that students acquire the following levels of competence:

<b>general competence (ZK)</b>	
<b>ZK 1</b>	Ability to abstract thinking, analysis and synthesis
<b>ZK 2</b>	Ability to learn and master modern knowledge
<b>ZK 3</b>	Ability to apply knowledge in practical situations
<b>ZK 4</b>	Knowledge and understanding of the subject area and understanding of professional activity
<b>ZK 5</b>	Ability to adapt and act in a new situation
<b>ZK 6</b>	Ability to make informed decisions
<b>ZK 7</b>	Ability to work in a team
<b>ZK 8</b>	Ability to interpersonal interaction
<b>ZK 10</b>	Ability to use information and communication technologies
<b>ZK 11</b>	Ability to search, process and analyze information from various sources
<b>ZK 12</b>	Determination and persistence in relation to assigned tasks and assumed responsibilities
<b>Professionals competence (FC)</b>	
<b>FC 4</b>	The ability to determine the necessary regime of work and rest in the treatment and prevention of diseases.
<b>FC 5</b>	The ability to determine the nature of nutrition in the treatment and prevention of diseases
<b>FC 9</b>	Ability to carry out medical evacuation measures
<b>FC 11</b>	Ability to solve medical problems in new or unfamiliar environments in the presence of incomplete or limited information, taking into account aspects of social and ethical responsibility
<b>FC 13</b>	Ability to carry out sanitary and hygienic and preventive measures
<b>FC 14</b>	Ability to plan and carry out preventive and anti-epidemic measures for infectious diseases
<b>FC 15</b>	The ability to conduct an examination of working capacity.
<b>FC 17</b>	The ability to assess the impact of the environment, socio-economic and biological determinants on the state of health of an individual, family, population.
<b>FC 25</b>	Adherence to professional and academic integrity, to be responsible for the reliability of the obtained scientific results
<b>Software the results teaching (PRN)</b>	

<b>PRN 1</b>	Have thorough knowledge of the structure of professional activity. To be able to carry out professional activities that require updating and integration of knowledge. To be responsible for professional development, the ability for further professional training with a high level of autonomy
<b>PRN 2</b>	Understanding and knowledge of fundamental and clinical biomedical sciences, at a level sufficient for solving professional tasks in the field of health care
<b>PRN 3</b>	Specialized conceptual knowledge, which includes scientific achievements in the field of health care and is the basis for conducting research, critical understanding of problems in the field of medicine and related interdisciplinary problems.
<b>PRN 19</b>	Plan and implement a system of anti-epidemic and preventive measures regarding the occurrence and spread of diseases among the population
<b>PRN 20</b>	Analyze the epidemiological situation and carry out measures for mass and individual, general and local prevention of infectious diseases
<b>PRN 21</b>	Search for the necessary information in the professional literature and databases of other sources, analyze, evaluate and apply this information
<b>PRN 23</b>	Assess the impact of the environment on human health in order to assess the morbidity of the population
<b>PRN 24</b>	To organize the necessary level of individual safety (own and the persons he cares for) in case of typical dangerous situations in the individual field of activity.

**Upon completion of the "Hygiene and Ecology" discipline, students should know:**

- the influence of environmental factors on the state of health of various population groups;
- methods of hygienic assessment of the influence of environmental factors on the health of the population;
- the laws of hygienic science and the general regularities of the relationship between health and the factors and conditions of the human life environment;
- basics of prevention of diseases of infectious and non-infectious origin;
- principles of a healthy lifestyle and basics of personal hygiene;
- methods of preventive and ongoing sanitary supervision;
- principles of organization and implementation of preventive measures in connection with the development of territorial, administrative and production units;
- the principles of organizing and carrying out preventive measures in accordance with the principles of the current legislation of Ukraine.

**Upon completion of the "Hygiene and Ecology" discipline, students should be able to:**

- conduct an analysis of the state of the environment and the impact of its factors on the health of various population groups;

- with the help of methods of hygienic assessment to determine the influence of environmental factors on the health of the population;
- to interpret the basic laws of hygienic science and to establish general patterns of connection between health and the factors and conditions of the human life environment;
- substantiate hygienic measures for the prevention of diseases of infectious origin;
- plan measures to maintain a healthy lifestyle, personal hygiene and implement them in health care practice;
- to plan organizational and substantive measures regarding preventive and ongoing sanitary supervision;
- coordinate plans for carrying out preventive measures with plans for the development of territorial, administrative and production units;
- analyze the state of the environment on the basis of integral criteria for assessing the health of the population;
- justify the implementation of preventive measures in accordance with the principles of the current legislation of Ukraine;
- to plan measures for the organization of medical support in emergency conditions.

## **2. Information volume academic discipline.**

5 ECTS credits, 150 hours are assigned to the study of the discipline "Hygiene and Ecology". The program of the academic discipline is structured and presented in two sections and 10 content sections:

**Chapter 1** . General issues of hygiene and ecology are divided into 4 substantive sections and 12 topics.

**Section 2**. Special issues of hygiene and ecology is divided into 6 substantive sections and 24 topics.

### **SECTION 1. General issues of hygiene and ecology**

**Content section 1. Introduction to hygiene and ecology. Hygiene and ecology as sciences. Basics of preventive and current sanitary supervision**

**Topic 1. Hygiene as a science, its purpose, tasks, content, methods of hygienic research.**

Definition of hygiene. its purpose, task, content, connection with other sciences. Preventive orientation of domestic medicine, public and personal, primary, secondary and tertiary prevention, defining priorities. The importance of knowledge of hygiene for the formation of professional thinking and practical activities of doctors of various specialties. Concepts of methodology as a doctrine of scientific knowledge of reality. Basics of hygiene methodology: general philosophical laws and categories, their use in hygiene . Theoretical foundations of hygiene, their essence, the contribution of the most prominent domestic scientists-hygienists for their scientific justification, interpretation and practical use. Methods and techniques of hygienic research, their classification. Methods of studying the state of the environment and its hygienic assessment, methods of studying the impact of the environment on human health. Specific methods of hygienic research.

The concept of hygienic standards, its varieties, objects subject to regulation, importance in carrying out preventive measures. Principles of hygienic rationing.

Sanitation as a branch of practical health care activity. Types of sanitation. Sanitary-epidemiological service - state and departmental, structure of public service in Ukraine. Preventive state and departmental sanitary supervision, its essence, main stages and forms of activity of a sanitary doctor. Current state and departmental sanitary supervision. Basics of sanitary legislation, its most important elements and significance for the implementation of preventive measures.

## **Topic 2. History of origin, main stages of development and current state of hygiene**

An empirical stage in the history of hygiene. Empirical hygiene in the countries of the Ancient East. China, Greece, Ancient Rome, Russia. Achievements of Hippocrates, Avicenna, D. Fracastoro, B. Ramatsini in the field of preventive medicine. Sanitary culture of Kyivan Rus during the empirical stage of hygiene development. Activities of Eupraxia. Feodosiy Pecherskyi, Agapit Pecherskyi, Peter Mohyla, Danyla Samoiloivych in the field of health care. Views of M.Ya. Mudrova HA. Zakharyina, S.P. Botkina, M.I. Pirogov on the role of preventive medicine.

Scientific and experimental stage of hygiene development. The role of M. Pettenkofer, F.F. Erisman, O.P. Dobroslavina, V.A. Subbotina, G.V. Khlopina and other scientists in the formation of the spider-experimental stage of the development of hygiene. Development of hygienic science in Ukraine. Contribution of V.V. Udovenko, V.Ya. Pidgayetskyi. AND I. Gorbachevsky, O.V. Korchak-Chepurkivskyi, O.M. Marzeeva, L.I. Medvidya, P.I. Barannyka, D.M. Kalyuzhny, V.Z. Martyniuk, G.H. Shahbazyana, R.D. Gabovycha, E.H. Honcharuka, I.I. Slepushkina.

International cooperation in hygienic science in the modern period.

*Content section 2. Hygienic importance of the environment and methods of its research. Hygiene of inhabited places and housing. Air hygiene*

### **Topic 3. The hygienic value of solar radiation**

Physical foundations of solar radiation. The concept of solar activity, "solar wind", interplanetary magnetic field. Interaction of components of solar radiation with the Earth's magnetosphere and atmosphere. The solar spectrum at the boundary between the atmosphere and the Earth's surface. The influence of solar activity on the biosphere, the human body and the health of the population. Hygienic value of the infrared radiation of the Sun, pathology caused by its excessive action, its prevention. Infrared radiation of artificial origin and the use of its sources in medicine. Hygienic significance of the visible radiation of the Sun and its use in medicine, devices for determination. Hygienic value of ultraviolet radiation of the Sun and its use in medicine, devices for determination. Biogenic and abiogenic action of ultraviolet rays. Insufficient and excessive ultraviolet radiation, their negative impact on the body. Concept of erythemal and prophylactic dose of ultraviolet radiation. Artificial sources of ultraviolet radiation and their comparative hygienic characteristics. The use of natural and artificial ultraviolet radiation for the prevention of human diseases, prevention of the harmful effects of physical, chemical and biological factors.

### **Topic 4. Hygienic importance of components of the biosphere (atmosphere, hydrosphere, lithosphere)**

Biosphere, its components (atmosphere, hydrosphere, lithosphere). The teachings of V. And Vernadsky about the noosphere. Atmosphere and its structure. The natural chemical composition of atmospheric air and the hygienic value of its individual



components . Oxygen, nitrogen, carbon dioxide. Ozone, their biological role. Atmospheric pressure and its effect on the body . The electrical state of the atmosphere ( air ionization , the Earth's electric field , geomagnetic field, radio frequency electromagnetic fields, and others), its hygienic significance. Denaturation of the biosphere. The main sources, types and consequences of anthropogenic pollution of atmospheric air and indoor air. Characteristics of sources of atmospheric pollution in the settlement. Patterns of distribution of pollutants in the atmosphere, factors on which the level of air pollution depends. Transformation of chemicals in atmospheric air. Impact of polluted air on the health and living conditions of the population. Direct effect on the body: acute poisoning, chronic specific and non-specific diseases. Indirect action due to atmospheric circulation, weakening of ultraviolet radiation, reduction of the level of illumination, etc. Ways and means of preventing the negative impact of polluted atmospheric air on health.

### **Topic 5. Hygienic significance of climate, weather, their influence on the health of the population**

Weather, definition of the concept. The main patterns of weather formation. Weather-forming and weather-characterizing factors. Types of atmospheric circulation , main thermobaric formations: anticyclones, cyclones, atmospheric fronts. Direct and indirect influence of weather on human health. Medical weather classifications. Heliometeotropic reactions of a healthy and sick person. Prevention of heliometeotropic reactions: permanent, seasonal, urgent. The influence of weather on the dynamics of atmospheric air pollution. Concept of temperature inversion.

Climate, definition of the concept. Climate-forming and climate-characterizing factors and indicators. General and applied (medical, construction) climate classifications. Climatic features of different geographical regions. Climate, health and working capacity. Concept of medical geography and medical-geographic mapping. Acclimatization. Phases of acclimatization. Climatotropic reactions of healthy and sick people, their prevention. Peculiarities of acclimatization in conditions of polar zones, deserts, highlands, dry and humid tropics. Use of climate for medical and health purposes.

### **Topic 6. Hygiene of populated areas. Housing hygiene. Microclimate, heating, ventilation, natural and artificial lighting, methods of their measurement and hygienic assessment**

Housing, social and hygienic problems of housing construction in Ukraine and other countries of the world. Types of residential and public buildings. Hygienic characteristics of building and finishing materials.

Hygienic value of physical properties of air (temperature, humidity and speed of movement). Microclimate and its hygienic significance. Types and effects of uncomfortable (cooling and heating) microclimates on human heat exchange and health. Methods and indicators of assessing the complex effect of the microclimate on the human body.

The hygienic value of natural and artificial lighting in residential and public spaces, their hygienic assessment.

Methods of determination and hygienic assessment of dust, chemical and bacteriological air pollution. Basic concepts about species, hygienic values and indicators of ventilation: The necessary and actual volume and frequency of ventilation,

their scientific justification. Unfavorable physical and chemical factors in the operation of household appliances. Hygienic characteristics of natural and synthetic building and finishing materials" and products from them.

City transport and other adverse environmental factors in the conditions of the settlement (noise, vibration, electromagnetic fields, air pollution, excessive psychogenic loads, etc.) , their sources and measures to eliminate harmful effects.

Hygienic and socio-hygienic problems of the modern village. Sanitary and technical equipment of rural housing . Ways to improve the level of communal conditions for rural residents . State sanitary supervision of the construction of residential and public buildings, their sanitary and technical equipment.

***Content section 3. Water hygiene and water supply, soil hygiene, sanitary cleaning of populated areas***

**Topic 7. Water hygiene and water supply**

Water as an environmental factor, its hygienic value. General hygienic requirements for the quality of drinking water . its organoleptic properties, chemical composition, epidemic safety . The influence of organoleptic properties of drinking water on the level of water consumption and ethane of the sanitary culture of the population.

Water as an etiological factor of non-infectious diseases. Danger to human health of excessive content in water of various chemicals of natural origin and chemical compounds that enter water sources and drinking water as a result of anthropogenic pollution during its purification and other methods of improving water quality.

Epidemiological value of water. The role of water and water supply conditions in the spread of infectious diseases. Classification of infectious diseases, the causative agents of which are transmitted by water (cholera, typhoid, dysentery, etc.). The role of sanitary-indicative microorganisms for assessing the quality of drinking water by bacterial composition (coli-index, coli-titer. microbial number) .

Sources of water supply, their comparative hygienic characteristics. State standard of drinking water quality of sources of centralized economic and drinking water supply. Methods of water purification: basic (brightening, decolorization and disinfection) and special (de-ironing, softening, demineralization, deodorization, deactivation, fluoridation, defluoridation, and others). Decentralized water supply system. Causes of contamination and infection of water in the water supply network, methods of prevention. Sanitary supervision of water supply in populated cities. Zones of sanitary protection of the main water supply facilities .

**Topic 8. Soil hygiene and cleaning of populated areas**

Soil, definition of the concept. Origin, formation, mechanical structure, physical properties and chemical composition of soil. Hygienic evaluation of different types of soils. Geochemical, geoenvironmental characteristics of soils.

Sources of soil pollution in modern conditions of industrialization and chemicalization of the national economy. The influence of contaminated soil on the health and sanitary living conditions of the population. The role of soil in the emergence and spread of infectious diseases (anaerobic infections) and invasions. Soil and diseases of non-infectious etiology. Processes and indicators of soil self-cleaning. Evaluation of the sanitary condition of the soil by chemical and biological indicators.

Theoretical bases and methods of hygienic regulation - maximum permissible concentrations of harmful chemical substances in the soil.

Principles of cleaning populated areas. Liquid waste, its classification and sanitary-epidemic significance. Sewerage of populated areas, its importance in the prevention of infectious diseases. The influence of the sewage system of populated areas on the sanitary condition of the pound and the living conditions of the population.

General scheme and facilities for cleaning domestic wastewater. Wastewater treatment and sanitary protection of water bodies. Scientific basis of open water protection. The concept of small sewage and the conditions of its use.

Features of collection, temporary storage, removal and disposal of waste from medical and preventive facilities (wastewater, waste from surgical, infectious and other departments). Methods of disposal and disposal of industrial and radioactive waste. Hygienic requirements for places and types of burial of the dead. Hygienic characteristics of cremation.

#### ***Content section 4 . Labor hygiene.***

**Topic 9. Hygiene and physiology of work. The method of hygienic assessment of the difficulty and intensity of work, the harmfulness of the labor process. Sanitary legislation in the field of labor protection.**

Work and work, definition of concepts, socio-hygienic significance of work. Physiology of work, harmful factors of the labor process. Changes in physiological - processes in the human body during work and their physiological and hygienic assessment. Fatigue and overfatigue, measures to prevent overfatigue.

The concept of occupational hazards and occupational diseases, their classification. Diseases associated with a high level of neuropsychological stress, intensification of production processes.

Organization of the workplace. Monotony of work, its prevention. Forced position of the body, tension of individual organs and systems and prevention of diseases related to them. The concept of difficulty and intensity of work. Ergonomics. Hygienic requirements for work regime.

**Topic 10. Hygienic characteristics of harmful factors of the production environment and the body's reaction to their influence.**

Harmful and dangerous factors of working conditions and production environment. The influence of physical factors of the industrial environment (noise, vibration, high- frequency electromagnetic oscillations, etc.) on the health of workers.

"Noisy" disease and its prevention. Vibration disease and its prevention. Industrial microclimate, the factors that determine it, the impact of an unfavorable microclimate on the health of workers, preventive measures.

Peculiarities of occupational hygiene at reduced and increased atmospheric pressure. Altitude, mountain, decompression, caisson diseases, their prevention.

Methods of determining dustiness, chemical pollution of the production environment. Chemical factors of the production environment. Carcinogenic, mutagenic, allergenic factors in production, prevention of their harmful effects. Industrial dust, its classification, prevention of harmful effects. Industrial toxicology. Complex, combined, combined action of industrial hazards. Biological factors in production, prevention of their adverse effects.

Hygienic requirements for heating, ventilation and lighting of industrial premises. Methods and means of prevention of industrial injuries.

**Topic 11. Occupational diseases and poisoning and their prevention.**

Occupational poisonings and their prevention.

Occupational hygiene in the main branches of industrial and agricultural production, women and adolescents, the elderly and the disabled.

The role of therapeutic and preventive nutrition in the prevention of occupational diseases.

Means of individual protection against harmful and dangerous factors of the production environment (protection of the body, vision, hearing, respiratory organs).

**Topic 12. Medical and sanitary part and health centers of industrial enterprises, hygienic aspects of their work.**

The content of the work of doctors of medical and sanitary departments of industrial enterprises. Shop doctor, organization and main directions of his work.

Sanitary legislation in the field of occupational hygiene. Code of Labor Laws of Ukraine (Labor Code of Ukraine).

**Chapter 2. Special issues of hygiene and ecology**

*Content section 5 . Food hygiene*

**Topic 13. Food hygiene, its environmental and social problems. The method of assessing the nutritional status of a person, his needs in food substances and energy.**

Physiological and hygienic basics of nutrition. Importance of nutrition for health and physical development. Alimentary pathology, its prevalence and classification. Theories of nutrition, functions of food and types of nutrition.

Methods of determining human energy expenditure and needs in basic nutrients. Legislative norms of physiological need for nutrients and energy for different population groups, their scientific justification.

**Topic 14. Scientific bases of rational, preventive, curative, dietary and curative-prophylactic nutrition. Methods of assessment of adequate nutrition according to the menu-layout, provision of vitamins**

The concept of rational preventive, curative, dietary and curative-prophylactic nutrition and their main principles.

Methods of assessment of nutritional adequacy.

The concept of the nutritional status of the body and methods of its assessment.

Methods of assessment of adequate nutrition according to the menu-layout, provision of vitamins.

**Topic 15. Physiological and hygienic value of nutrients and hygienic characteristics of food products. Methods of investigation and prevention of food poisoning**

The physiological and hygienic role of proteins. Scientific substantiation of protein needs. Hygienic characteristics of proteins of animal and plant origin. Protein quality indicators. Sources of proteins and essential amino acids.

Physiological and hygienic role of fats. Quality indicators of fats of various origins. Physiological and hygienic role of polyunsaturated fatty acids, phosphatides, sterols. Scientific substantiation of the body's needs for fats. Sources of fats. Culinary fats. "Overheated fats".

The physiological and hygienic role of carbohydrates. Scientific substantiation of the body's needs for simple and complex carbohydrates. Carbohydrate quality indicators. Sources of carbohydrates. The concept of refined and "protected" carbohydrates.

Vitamins, mineral salts, flavors, their physiological and hygienic role. Sources of vitamins and minerals. Micro- and macroelementoses, their clinical manifestations and prevention.

Hygienic characteristics of food products. Sanitary examination of food products. Cereals, legumes and oil crops, vegetables, fruits and berries. Meat and meat products. Fish, poultry and other food products. Eggs Milk and dairy products. Milk fats.

Scientific and technical progress and its impact on the quality of food products. Genetically modified products and socio-hygienic problems associated with their use.

Food poisoning, their classification. Food toxic infections, etiology, pathogenesis, prevention. Bacterial toxicoses. Botulism, etiology, pathogenesis, prevention. Staphylococcal toxicosis, etiology, pathogenesis, prevention.

Food poisoning of a non-microbial nature. The importance of food chains in the migration of toxic and radioactive substances from various environmental objects to the human body. Impact of residual amounts of chemicals in food products on public health.

Prevention of food poisoning of microbial, non-microbial nature and unknown etiology, duties of a doctor in the investigation of food poisoning and in their prevention.

### **Topic 16. Theoretical aspects and methods of prevention of alimentary and alimentary-related diseases. Hygienic basics of medical, dietary and medical and preventive nutrition**

Alimentary diseases, their classification (protein-energy deficiency, hypovitaminosis, vitamin deficiency), their clinical manifestations and prevention.

Food in the conditions of an ecologically unfavorable environment and harmful industries.

Therapeutic and preventive nutrition. The composition of rations of medical and preventive nutrition.

Medical and dietary nutrition. Medicinal and dietary properties of individual products. Characteristics of therapeutic diets. products and mixtures of baby food. Products of geroprotective direction. Hygiene of public catering enterprises. Organization of medical and dietary nutrition in medical and preventive institutions and its control. Methods and means of medical control of nutrition of certain population groups. Principles of nutrition for people of different age groups, professions, and athletes.

#### ***Content section 6 . Hygiene of children and adolescents.***

**Topic 17. Hygiene of children and adolescents. Patterns of growth and development of the child's body. Hygiene of labor, physical, psychophysiological education and upbringing of children and adolescents. Methods of their hygienic assessment.**

Environmental factors and social conditions of life affecting the processes of health formation of children and adolescents. Evaluation criteria and health indicators of children and adolescents. Methodology\* of comprehensive assessment of the state of

health of children and adolescents. Peculiarities of the distribution of children and adolescents by health groups.

Basic indicators of physical development. Rules of anthropometry. Requirements for tables of regional standards of physical development. The concept of biological and calendar age. Indicators of the level of biological development of children and adolescents.

Methods of assessing the physical development of children and adolescents (method of sigmal deviations, assessment according to regression scales, complex and centile methods). Methods of assessing the state of health and physical development of organized children's groups.

Tasks of a doctor regarding the organization and implementation of health-improving events in children's groups (schools, gymnasiums, lyceums, colleges, boarding schools, vocational schools, orphanages, preschools, work and recreation camps, extracurricular facilities).

The system of managing the health of children and adolescents. The role of the family doctor in the formation of favorable hygienic conditions for the upbringing and education of the child.

### **Topic 18. Methods of hygienic assessment of equipment and maintenance of educational institutions for children and adolescents.**

Factors and conditions of the environment and educational process affecting the health of children and adolescents. Changes in the state of health and diseases caused by environmental factors and the conditions of students' stay in educational institutions.

Hygienic requirements for the land plot, building and group section of children's and general educational institutions. The principle of functional zoning and its meaning. Hygienic requirements for planning, arrangement, equipment, microclimate, ventilation, lighting and sanitary and technical improvement of the main premises of educational institutions.

The main preventive measures to improve the sanitary and hygienic conditions of students' stay in modern educational institutions.

### **Topic 19. Methods of studying age-related psychophysiological characteristics of children and adolescents. Hygienic evaluation of the educational regime of children of different age groups.**

Anatomical-physiological and psychophysiological features of the body of children and adolescents of different age and sex groups. Medical, physiological and psychological- pedagogical criteria for assessing a child's level of development. Methods of studying age-related psychophysiological features of the body of children and adolescents. Changes in the state of health and diseases caused by the irrational organization of the educational process.

The concept of the daily regime and the main regime elements. Peculiarities of hygienic regulation of students' daily activities. Hygienic principles of compiling and evaluating the daily routine of children and adolescents of different age groups.

Hygienic requirements for the organization of the educational process in modern general educational institutions. Hygienic requirements for the timetable at school, its evaluation method. Hygienic requirements for the organization and methods of conducting the lesson.

Hygienic requirements for school textbooks and teaching aids. Peculiarities of the educational process in innovative educational institutions (gymnasiums, lyceums, colleges, etc.), specialized schools, children's sanatoriums and health facilities. Hygienic requirements for the organization of extracurricular activities and students' free time.

**Topic 20. Methods of hygienic control of the organization of physical education and labor training of children and adolescents. Medical professional consultation and medical professional selection of adolescents in school and clinic conditions.**

Hygienic principles of rational organization of physical education of children and adolescents . Types, means and forms of physical education in modern educational institutions.

The concept of motor activity. Methods of quantitative measurement and hygienic assessment of motor activity. Prevention of hypokinesia. Hygienic requirements for places of physical education classes.

Medical control over the organization of physical culture classes and hygienic aspects of medical support for physical education of children and adolescents. The main types, principles and methods of hardening are organized.

Hygienic principles of rational organization of labor and polytechnic education of children and adolescents. Physiological-hygienic bases of control over labor training of schoolchildren. Hygienic requirements for the content, mode and conditions of the organization and conduct of labor training in the conditions of various types of modern educational institutions.

Professional orientation as a hygienic problem. Concept of professional selection. Methods of predicting professional success.

**Content section 7 . Preventive and current sanitary supervision.**

**Topic 21. Basics of preventive sanitary supervision. The method of "reading" construction drawings during the examination of projects.**

Preventive sanitary supervision, its purpose, tasks and content. The main types of documents regulating regulatory requirements for the design of objects of various purposes. The concept of the construction project and its main parts (textual and graphic).

Situational plan, its content, hygienic assessment. General plan, its main indicators, hygienic assessment. Vertical sections of buildings, floor plans. Conventional signs of building structures and sanitary-technical equipment on drawings.

The method of determining the coefficient of natural illumination according to drawings using the graphs of A.I. Danylyuk The method of determining the time of insolation according to drawings using the control-insolation ruler.

**Topic 22. General methods of current sanitary supervision .**

Tasks and content of current sanitary supervision. The concept of the object of sanitary supervision. Classification and characteristics of objects of sanitary supervision. The value and place of the method of sanitary description in the hygienic assessment of the object. Questionnaire-survey method, technical and sanitary passports of the object.

Tasks and general scheme of sanitary description of the object. Methods and indicators used in sanitary inspection of the object: cartographic and construction

drawings, physical, chemical, bacteriological, physiological, biological, clinical, toxicological and mathematical and statistical methods.

Criteria for evaluating the results obtained during the inspection of the object. General scheme of sanitary inspection of residential, public, industrial facilities and premises. Issuance of an act of inspection of the object.

*Content section 8. Hygiene of medical and preventive facilities. Radiation hygiene.*

**Topic 23. 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 .**

The importance of the optimal hygienic regime of medical and preventive facilities for increasing the efficiency of treatment of patients, prevention of intra-hospital infections, creation of safe working conditions for personnel and their improvement. Modern hospital construction systems (centralized, block, decentralized, pavilion, mixed), their comparative hygienic assessment, prospects for improvement. Hygienic requirements for land plots where hospitals are located.

Situational and general plans for the construction of hospital facilities, hygienic requirements for the main indicators of the construction (distance from sources of air and soil pollution, area, density of construction and landscaping, mutual arrangement of buildings, sanitary improvement of the site), functional zoning of the territory.

Hygienic requirements for the planning, equipment and mode of operation of departments: reception (for somatic, infectious, children's departments), therapeutic, surgical, infectious profile, children's departments, specialized hospitals (psychoneurological, phthisiatric, and others).

Ward section, its composition, hospital ward, options for its planning and equipment for somatic patients, infectious, mental, resuscitation, rehabilitation. Peculiarities of the planning of boxes, semi-boxes in infectious, children's departments of the hospital.

Hygienic requirements for wards, microclimate, air environment, lighting, heating, ventilation, noise regime. Norms of lighting, microclimate, carbon dioxide content as an indicator of chemical air pollution, bacterial insemination.

**Topic 24. Hygienic evaluation of conditions of stay of patients and occupational hygiene of medical workers in medical and preventive institutions .**

Measures to prevent nosocomial infections. Hygienic requirements for sanitary treatment of patients, their toilet, change of underwear. Requirements for the regimen of prevention of respiratory and intestinal diseases among patients and staff during epidemics.

Mode, methods and means of wet cleaning of premises with the use of antiseptic preparations, ventilation of premises, isolation of patients. Removal and disposal of solid waste, disinfection of sewage wastewater in medical facilities, their features in rural hospitals, separately located health facilities.

Organization of medical and preventive nutrition for patients in hospitals. Hygienic requirements for placement, planning, equipment, food preparation technology in hospital food units. Prevention of food poisoning and alimentary infections in a hospital.



Medical control over the storage of food products, food preparation, ensuring the quality and taste of products and ready-made food, their distribution to the department. Sampling and assessment of completeness and good quality of dishes by the doctor on duty. Organization and means of objective control over the health of hospital food block staff and their compliance with personal hygiene requirements.

**Topic 25. Radiation hygiene, anti-radiation protection in medical facilities and other facilities where sources of ionizing radiation are used. Methods and means of radiation control.**

The relevance of hygienic problems of a radiation nature caused by scientific and technical progress, anti-radiation protection of workers with industrial sources of ionizing radiation and radiation safety of the population in their places of residence.

Physical foundations of radiation safety and anti-radiation protection: essence and nature of radioactivity, types of nuclear transformations, ionizing radiation, the occurrence of which is accompanied by their occurrence, their qualitative and quantitative characteristics, use in practical activities.

Hygienic characteristics of ionizing radiation and their sources. The essence and features of interaction of ionizing radiation with substances, practical use of this knowledge.

Biological effect of ionizing radiation, its features and basic conditions on which it depends. Deterministic and stochastic effects of human exposure, conditions of their occurrence. Ionizing radiation as an environmental factor, their sources (natural, man-made enhanced of natural origin, industrial), their characteristics. Radiation background.

Patterns of the formation of radiation exposure of the population, its hygienic assessment, ways of reduction.

Radiation safety of the population in their places of residence, the factors that determine it (chronic exposure to artificially enhanced sources of natural origin, medical exposure, radioactive pollution of the environment). The natural radionuclide radon and medical X-ray diagnostic procedures for the population as the main components of human radiation exposure, their hygienic assessment and special measures to reduce the radiation exposure of people due to these factors.

Chernobyl disaster and its consequences for the health of the population and the environment. Hygienic aspects of life, nutrition, work and recreation of the population living in the territories that have undergone radioactive contamination.

**Topic 26. Calculation methods for evaluating anti-radiation safety and parameters of protection against external radiation .**

Ionizing radiation as an industrial hazard. Conditions on which the radiation hazard depends when working with radionuclides and other sources of ionizing radiation.

Protection measures against external radiation based on the physical laws of its attenuation (protection by quantity, time, distance, shielding).

The principles underlying the selection of material and the calculation of the thickness of protective screens against ( $\beta$ -,  $\gamma$ -, X-ray radiation).

The importance of calculation methods of radiation hazard assessment and parameters of protection against external radiation in the complex of measures for anti-radiation protection of personnel.

**Topic 27. Hygienic assessment of anti-radiation protection of personnel and radiation safety of patients when using ionizing radiation in medical institutions.**

Ionizing radiation as an industrial hazard. Conditions on which the radiation hazard depends when working with radionuclides and other sources of ionizing radiation. Closed sources of ionizing radiation, their purpose, features of radiation danger and anti-radiation protection when working with them (external exposure). Open sources of ionizing radiation, their purpose, features of radiation danger and anti-radiation protection when working with them (external and internal exposure).

Anti-radiation protection of personnel and radiation safety of patients in x-ray departments of medical institutions. Peculiarities of radiation safety and anti-radiation protection in the structural units of the radiology department of the hospital.

Radiation and medical control during work with radionuclides and other sources of ionizing radiation, its organizational forms, types, programs, devices, criteria for evaluating results, guiding documents.

Hygienic regulation of ionizing radiation, scientific concepts on which it is based. The main provisions of the "Radiation Safety Norms of Ukraine (IIRBU-97)" and the "Basic Sanitary Rules for Preserving Radiation Safety of Ukraine (OSCU - 2005)".

***Content section 9. Emergency hygiene.***

**Topic 28. Basics of organizing sanitary and hygienic measures in emergency situations. Organization and implementation of sanitary supervision of the field deployment of civilian formations and their working conditions during the liquidation of the consequences of disasters .**

Definition and content of emergency hygiene. The role and place of sanitary and hygienic measures in the general system of medical support of civil defense formations and other formations intended for actions in emergency situations, liquidation of the consequences of disasters. Peculiarities of the organization and implementation of sanitary and hygienic measures in emergency situations.

International and national formations on disaster medicine. Control over bath and laundry services for the affected population and civil formations during the liquidation of the consequences of disasters. Organization of the collection and removal of sewage and waste during the liquidation of the consequences of disasters.

**Topic 29. Organization and implementation of sanitary supervision of the adequacy and safety of food for civilian formations and the injured population in field conditions during emergency situations .**

Organization of food in field conditions. Organization and implementation of sanitary supervision and medical control of nutrition in field conditions in emergency situations. Tasks of the medical service for food supervision in emergency situations.

Food in conditions of contamination of the area and objects with highly effective poisonous substances and radioactive substances, in conditions of possible use of weapons of mass destruction.

Ways and mechanisms of contamination of food with radioactive, poisonous substances and bacterial agents. Protection of food from them during transportation, storage, preparation, distribution and reception of food.

**Topic 30. Organization and conduct of medical examination of food in field conditions in emergency situations.**

Organization and conduct of medical examination of food in conditions of possible contamination with radioactive and poisonous substances and bacterial means. Stages, powers, means and methods of examination. Scope and capabilities of laboratory research. Characteristics of timesheet laboratory sets and devices. Research methods used in the examination. Maximum permissible levels of radioactive and toxic substance concentrations in products in emergency situations. Methods of decontamination and degassing of food and containers.

**Topic 31. Organization and implementation of sanitary supervision of water supply to civil formations and the affected population in field conditions during emergency situations. Selection of water sources and assessment of their quality with the help of reporting tools.**

Responsibilities of various services for the organization of water supply for the personnel of formations and the population in field conditions. Organization and exploration of water sources. Assessment of water quality, report sets and devices, their tactical and technical data, research methods.

Field water supply points, hygienic requirements for their equipment.

**Topic 32. Organization and implementation of sanitary supervision of cleaning, disinfection, decontamination of water in field conditions in emergency situations.**

Cleaning, disinfection, decontamination, desalination of water in field conditions, in emergency situations.

Sanitary and medical supervision of the water supply of civilian formations and the affected population in field conditions in emergency situations, in the presence of water contamination with radioactive and poisonous substances.

**Topic 33. Hygienic characteristics of the main factors that determine working conditions in emergency situations.**

Occupational hygiene in emergency situations. Hygienic characteristics of the main factors that determine working conditions and prevention of their adverse effects on the body.

Air pollution with harmful gases, their composition, impact on the human body. Psychoemotional tension and stress, their overcoming. Sanitary and hygienic measures carried out during the movement and basing of formations, their peculiarities in conditions of low and high temperatures. Hygienic features of the work of medical workers and rescuers when eliminating the consequences of emergency situations.

Hygienic features of the use of personal protective equipment during fire extinguishing, works during floods and other emergency situations.

*Content section 10. Healthy lifestyle, personal hygiene and mental hygiene.*

**Topic 34. Healthy lifestyle, personal hygiene. Physical culture, the basics are hardened. Prevention of alcoholism, drug addiction, toxicomania , tobacco smoking .**

Healthy lifestyle, definition, content. Personal hygiene as a branch of hygienic science, its content and significance for preserving and strengthening health in modern conditions.

Body, skin and hair hygiene. Modern detergents, their hygienic evaluation. Oral and dental hygiene, means of care for them, their hygienic assessment.

Hardening The main factors of hardening. Principles, methods and means of hardening using natural factors (solar radiation, air, water, etc.). Requirements for the organization, planning and mode of operation of solariums and photorias. Hygienic assessment of steam and dry heat baths.

Prevention of hypokinesia. Physical culture as one of the most important elements of personal hygiene in modern conditions. Types of physical culture, hygienic value of morning gymnastics, stay and walks in the fresh air. Organization of hygienic control over the dosage of physical exertion.

Negative consequences of active and passive tobacco smoking for health. Adverse effect on health of excessive alcohol consumption, drug addiction and drug addiction, their harmful effects on health. Medical and social problems, significance, ways and means of prevention of bad habits and drug addictions.

The main ways and means of hygienic education and upbringing of different population groups. Criteria for the effectiveness of the doctor's work aimed at the formation of a healthy lifestyle.

### **Topic 35. Concepts of psychohygiene, psychoprophylaxis, medical biorhythmology and chronohygiene, methods of their research and hygienic assessment.**

Basics of psychohygiene. Psychoprophylaxis. Peculiarities of the influence of hereditary and environmental factors on the mental health of children and adolescents. The structure of the characteristics of a person's personality (characteristics of temperament and character, motivational orientation, peculiarities of the neuropsychological state, etc.). Psychohygienic principles of rational organization of educational and professional activities. Iatrogenic, therapeutic and prophylactic meaning of the word in everyday life, at work, in the relationship between a doctor and a patient. Self-training. Biological rhythms and state of health. The concept of biological rhythms. Prerequisites and reasons for the emergence of medical biorhythmology as a science. Basic biorhythmological types. Desynchronosis as the main type of chronopathology. Types of desynchronosis. Biorhythmological principles of rational organization of educational and professional activities. Combination of the time of training classes with the time of optimum physiological functions of the body. Motor activity as a synchronizer of biological rhythms. Rational organization of free time as an important factor in the implementation of the amplitude-phase program of biorhythms. Chronohygiene as a basis for the prevention of desynchronosis.

Hygiene of mental and operator work. Psychohygienic foundations of the scientific organization of work. The concept of active and passive recreation. Sleep hygiene.

### **Topic 36. Clothing and footwear hygiene. Hygienic assessment of detergents, fabrics and household, industrial and hospital clothes.**

Hygiene of clothes and shoes. Hygienic requirements for different types of fabrics. Comparative hygienic characteristics of clothes and shoes made of natural and artificial fabrics and materials.

Requirements for clothing and footwear for different age groups of the population.

Personal hygiene products, methods of their research and evaluation. Hygienic assessment of modern detergents.

### 3. The structure of the academic discipline

The name of meaningful sections and topics	Number of hours			
	Tha t's all	Including		
		l	p	s.r
<b>CHAPTER 1</b> <b>General issues of hygiene and ecology</b>				
<i>Content section 1. Introduction to hygiene and ecology. Hygiene and ecology as sciences. Basics of preventive and current sanitary supervision</i>				
Topic 1. Hygiene as a science, its purpose, tasks, content, methods of hygienic research	5	2	2	1
Topic 2. History of origin, main stages of development and current state of hygiene	1			1
<i>Content section 2. Hygienic importance of the environment and methods of its research. Hygiene of inhabited places and housing. Air hygiene</i>				
Topic 3. The hygienic value of solar radiation	4	1	2	1
Topic 4. Hygienic importance of components of the biosphere (atmosphere, hydrosphere, lithosphere)	5	1	2	2
Topic 5. Hygienic importance of climate, weather, their impact on the health of the population	6	2	2	2
Topic 6. Hygiene of populated areas. Housing hygiene. Microclimate, heating, ventilation, natural and artificial lighting, methods of their measurement and hygienic assessment	7	2	4	1
<i>Content section 3. Water hygiene and water supply, soil hygiene, sanitary cleaning of populated areas</i>				
Topic 7. Water hygiene and water supply	7	2	4	1
Topic 8. Soil hygiene and cleaning of populated areas	6	2	2	2
<i>Content section 4. Labor hygiene</i>				
Topic 9. Hygiene and physiology of work. The method of hygienic assessment of the difficulty and intensity of work, the harmfulness of the labor process. Sanitary legislation in the field of labor protection.	5	2	2	1
Topic 10. Hygienic characteristics of harmful factors of the production environment and the organism's reaction to their influence.	5		4	1
Topic 11. Occupational diseases and poisoning and their prevention.	5	2	2	1
Topic 12. Medical and sanitary part and health centers of industrial enterprises, hygienic aspects of their work.	4		2	2
<b>Together by chapter 1 General issues of hygiene and ecology</b>	<b>60</b>	<b>16</b>	<b>28</b>	<b>16</b>
<b>SECTION 2</b> <b>Special issues of hygiene and ecology</b>				
<i>Content section 5. Food hygiene</i>				
Topic 13. Food hygiene, its environmental and social problems. The method of assessing the nutritional status of a person, his needs in food substances and energy.	5	1	2	2
Topic 14. Scientific bases of rational, preventive, curative, dietary and curative-prophylactic nutrition. Methods of assessment of adequate nutrition according to the menu-layout, provision of	4		2	2

vitamins				
Topic 15. Physiological and hygienic value of nutrients and hygienic characteristics of food products. Methods of investigation and prevention of food poisoning	5	1	2	2
Topic 16. Theoretical aspects and methods of prevention of alimentary and alimentary-related diseases. Hygienic basics of medical, dietary and medical and preventive nutrition	4		2	2
<b><i>Content section 6. Hygiene of children and adolescents</i></b>				
Topic 17. Hygiene of children and adolescents. Patterns of growth and development of the child's body. Hygiene of labor, physical, psychophysiological education and upbringing of children and adolescents. Methods of their hygienic assessment.	4	2		2
Topic 18. Methods of hygienic assessment of equipment and maintenance of educational institutions for children and adolescents.	4		2	2
Topic 19. Methods of studying age-related psychophysiological characteristics of children and adolescents. Hygienic evaluation of the educational regime of children of different age groups.	4		2	2
Topic 20. Methods of hygienic control of the organization of physical education and labor training of children and adolescents. Medical professional consultation and medical professional selection of adolescents in school and clinic conditions.	4		2	2
<b><i>Content section 7. Preventive and current sanitary supervision</i></b>				
Topic 21. Basics of preventive sanitary supervision. The method of "reading" construction drawings during the examination of projects	3		1	2
Topic 22. General methods of current sanitary supervision	3		1	2
<b><i>Content section 8. Hygiene of medical and preventive facilities. Radiation hygiene.</i></b>				
Topic 23. 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.	6	2	2	2
Topic 24. Hygienic evaluation of conditions of stay of patients and occupational hygiene of medical workers in medical and preventive institutions.	4		2	2
Topic 25. Radiation hygiene, anti-radiation protection in medical institutions and other facilities where sources of ionizing radiation are used. Methods and means of radiation control.	6	2	2	2
Topic 26. Calculation methods for evaluating anti-radiation safety and parameters of protection against external radiation.	4		2	2
Topic 27. Hygienic assessment of anti-radiation protection of personnel and radiation safety of patients when using ionizing radiation in medical institutions.	4		2	2
<b><i>Content section 9. Emergency hygiene</i></b>				
Topic 28. Basics of organizing sanitary and hygienic measures in emergency situations. Organization and implementation of sanitary supervision of the field placement of civilian formations and their working conditions during the liquidation of the consequences of disasters.	4		2	2
Topic 29. Organization and implementation of sanitary supervision of the adequacy and safety of food for civilian formations and the injured population in field conditions during emergency situations.	3		2	1
Topic 30. Organization and conduct of medical examination of food in field conditions in emergency situations.	4		2	2

Topic 31. Organization and implementation of sanitary supervision of water supply to civil formations and the affected population in field conditions during emergency situations. Selection of water sources and assessment of their quality with the help of reporting tools.	3		2	1
Topic 32. Organization and implementation of sanitary supervision of cleaning, disinfection, decontamination of water in field conditions in emergency situations.	3		2	1
Topic 33. Hygienic characteristics of the main factors that determine working conditions in emergency situations.	1			1
<b><i>Content section 10. Healthy lifestyle, personal hygiene and mental hygiene</i></b>				
Topic 34. Healthy lifestyle, personal hygiene. Physical culture, the basics are hardened. Prevention of alcoholism, drug addiction, drug addiction, tobacco smoking.	3		2	1
Topic 35. Concepts of psychohygiene, psychoprophylaxis, medical biorhythmology and chronohygiene, methods of their research and hygienic assessment.	3		2	1
Topic 36. Clothing and footwear hygiene. Hygienic assessment of detergents, fabrics and household, industrial and hospital clothes	2			2
<b>Together by chapter 2 Special issues of hygiene and ecology</b>	<b>90</b>	<b>8</b>	<b>40</b>	<b>42</b>
<b>TOGETHER WITH DISCIPLINE</b>	<b>150</b>	<b>24</b>	<b>68</b>	<b>58</b>

#### 4. Lecture topics

No s/p	Topic name	Number of hours
<b>Section 1. General issues of hygiene</b>		
1	Hygiene as a science, its purpose, tasks, content, methods of hygienic research	2
2	The hygienic value of solar radiation. Hygienic significance of biosphere components (atmosphere, hydrosphere, lithosphere)	2
3	Hygienic significance of climate, weather, their impact on public health	2
4	Hygiene of populated areas. Housing hygiene.	2
5	Water hygiene and water supply	2
6	Soil hygiene and cleaning of populated areas	2
7	Hygiene and physiology of work	2
8	Occupational diseases and poisoning and their prevention.	2
	<b>Together by chapter 1</b>	<b>16</b>
<b>Chapter 2. Special issues of hygiene</b>		
9	Food hygiene, its environmental and social problems. Physiological and hygienic value of nutrients and hygienic characteristics of food products	2
10	Hygiene of children and adolescents. Hygiene of labor, physical, psychophysiological education and upbringing of children and adolescents.	2
11	Hygiene of medical and preventive institutions. Peculiarities of planning, improvement and equipment of medical institutions.	2
12	Radiation hygiene. Ionizing radiation as an environmental factor and industrial hazard.	2
	<b>Together by chapter 1</b>	<b>8</b>
	<b>EVERYTHING</b>	<b>24</b>

## 5. Topics of seminar classes are not provided for in the program

## 6. Topics of practical classes

No s/p	Topic name	Number Hour
<b>Section 1. General issues of hygiene</b>		
1.	Introductory lesson. The place and importance of hygiene in the system of medical sciences and the practical activity of a doctor. Methods of hygienic research.	2
2.	Methods of determining the intensity and preventive dose of ultraviolet radiation	2
3	The method of using ultraviolet radiation for the purpose of disease prevention and sanitation of the air environment	2
4	Methods of determining and hygienic assessment of natural and artificial lighting of premises.	2
5	Methods of hygienic assessment of the complex influence of microclimate parameters on human heat exchange.	2
6	Methods of determination and hygienic assessment of air dustiness	2
7	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 drinking water samples	2
8	Methods and means of cleaning and disinfection of water in centralized and decentralized water supply.	2
9	The method of hygienic evaluation of the soil based on the data of the sanitary survey of the land plot and the results of the laboratory analysis of samples.	2
10	Methodology of hygienic assessment of dangerous and harmful factors of the production environment and the body's reaction to their influence.	2
11	The method of hygienic assessment of noise and vibration. Methods of determination and hygienic assessment of air dustiness.	2
12	The method of hygienic assessment of the difficulty and intensity of work in order to prevent overfatigue and increase work capacity. Hygienic requirements for work regime.	2
thirteen	Methods of investigation of occupational diseases and poisonings.	2
14	Methods of studying the morbidity of employees of production enterprises	2
<b>Together by chapter 1</b>		<b>28</b>
<b>Chapter 2. Special issues of hygiene</b>		
15	Methods of studying and assessing the nutritional status of a person.	2
16	Methodology for calculating human energy expenditure and food needs.	2
17	The method of assessing the adequacy of nutrition of organized groups according to the menu-layout.	2
18	Methods of investigating cases of food poisoning.	2
19	Methods of assessing the state of health and physical development of children and adolescents.	2
20	Methods of studying age-related psychophysiological characteristics of children and adolescents.	2



21	Hygienic assessment methods equipment and maintenance of educational institutions for children and adolescents.	2
22	Basics of preventive sanitary supervision. Methodology of examination of construction projects. Methodology of "reading" and hygienic assessment of construction drawings.	2
23	Hygienic assessment of placement and planning of individual structural units of the hospital according to project materials.	2
24	Hygienic assessment of conditions of stay of patients and occupational hygiene of medical workers in treatment and prevention institutions.	2
25	Methods and means of radiation control and anti-radiation protection of workers working with sources of ionizing radiation and the population in their places of residence	2
26	Calculation methods of radiation hazard assessment and parameters of protection against external radiation	2
27	Hygienic assessment of anti-radiation protection of personnel and radiation safety of patients when using radionuclides and other sources of ionizing radiation in medical facilities	2
28	Organization and implementation of sanitary supervision of the field placement of military and civilian formations in emergency situations	2
29	Organization and implementation of sanitary supervision of the quality and safety of food for military and civilian formations in emergency situations	2
30	Organization and conduct of medical examination of food in field conditions in emergency situations	2
31	Organization and conducting reconnaissance of sources of water supply in emergency situations, assessment of water quality by field methods. Sanitary supervision of cleaning, disinfection, decontamination of water in field conditions in emergency situations.	2
32	Organization and implementation of sanitary supervision of the working conditions of liquidators of the consequences of emergency situations	2
33	Healthy lifestyle and personal hygiene	2
34	Psychohygienic foundations of optimization of daily human activity	2
	<b>Together by chapter 2</b>	40
<b>IN TOTAL</b>		<b>68</b>

## 8. Topics for independent studies

No s/p	Topic name	Number of hours
	<b>Chapter 1. General issues of hygiene and ecology</b>	
<b>AND</b>	<i>Preparation for practical classes</i> – theoretical preparation and development of practical skills	9
<b>II</b>	<i>Independent processing of topics that are not included to the classroom lesson plan:</i>	
1	The history of emergence, the main stages of development and the current state of hygiene.	1
2	Denaturation of the biosphere. The main sources, types and consequences of anthropogenic pollution of atmospheric air and indoor	1

	air	
3	Heliometeotropic reactions of a healthy and sick person. Prevention of heliometeotropic reactions: permanent, seasonal, urgent. The influence of weather on the dynamics of atmospheric air pollution. Concept of temperature inversion.	1
4	Hygienic and socio-hygienic problems of the modern village. Sanitary and technical equipment of rural housing .	1
5	Ergonomics. Hygienic requirements for work regime.	1
6	Peculiarities of occupational hygiene at reduced and increased atmospheric pressure. Altitude, mountain, decompression, caisson diseases, their prevention	1
7	Sanitary legislation on labor protection. (KzpP of Ukraine).	1
	<b>Total according to section 1</b>	<b>16</b>
	<b>Chapter 2. Special issues of hygiene</b>	
<b>AND</b>	<i>Preparation for practical classes</i> – theoretical preparation and development of practical skills	18
<b>II</b>	<i>Independent processing of topics that are not included to the classroom lesson plan:</i>	
8	Legislative norms of physiological need for nutrients and energy for different population groups, their scientific justification	2
9	Scientific bases of rational, preventive, curative, dietary and curative-prophylactic nutrition.	1
10	Theoretical aspects and methods of prevention of alimentary and alimentary-related diseases.	2
11	Hygiene of labor, physical, psychophysiological education and upbringing of children and adolescents	2
12	Hygienic requirements for the land plot, building and group section of children's and general educational institutions. The principle of functional zoning and its meaning	1
13	Hygienic requirements for the organization of extracurricular activities and students' free time.	2
14	The general method of current sanitary supervision	1
15	Sampling and assessment of completeness and good quality of dishes by the doctor on duty. Organization and means of objective control over the health of hospital food block staff and their compliance with personal hygiene requirements.	2
16	Protection measures against external radiation based on the physical laws of its attenuation (protection by quantity, time, distance, shielding).	2
17	The main provisions of the "Radiation Safety Norms of Ukraine (IIRBU-97)" and "Basic Sanitary Rules for Preserving Radiation Safety of Ukraine (OSCU - 2005)"	2
18	Basics of organization of sanitary and hygienic measures in emergency situations	1
19	Examination of food in conditions of possible contamination with radioactive and poisonous substances and bacterial agents. Stages, powers, means and methods of examination. Scope and capabilities of laboratory research	1
20	Hygienic characteristics of the main factors that determine working conditions and prevention of their adverse effects on the body.	2
21	Hygiene of clothes and shoes. Hygienic assessment of detergents, fabrics and household, industrial and hospital clothes	2
	<b>Total according to section 2</b>	<b>42</b>

## **9. Individual tasks are not provided for in the program.**

### **10. Teaching methods**

According to the sources of knowledge, teaching methods are used: verbal - story, explanation, lecture, instruction; visual - demonstration, illustration; practical - practical work, problem solving. According to the nature of the logic of knowledge, methods are used: analytical, synthetic, analytical-synthetic, inductive, deductive. According to the level of independent mental activity, the following methods are used: problem-based, searching, research.

1. Verbal methods: lecture, conversation;
2. Team-based learning (TBL). Team-oriented training.
3. Research-based learning (RBL). Learning through research
4. Exchange of opinions (think-pair-share).
5. Students' independent work on understanding and assimilation of new material
6. Use of control and educational computer programs
7. Types of educational classes according to the curriculum are: lectures; practical training; independent work of students.

### **11. Control methods**

**Current control** is carried out on the basis of control theoretical knowledge, practical skills and abilities.

**Forms of current control** are: *in the* dream survey (frontal, individual, combined), interview; practical verification of professional skills (conducted based on the results of practical work at the end of the class); test control ("open" and "closed" test tasks).

Current control is mandatory. During the evaluation of mastering of each topic from all disciplines of the curriculum for the current educational activity, the student is given grades on a 4-point (traditional scale) taking into account the approved evaluation criteria for the discipline. All types of work provided by the curriculum are taken into account. The student must receive a grade in each topic. The teacher conducts a survey of each student in the group at each lesson and assigns a grade in the journal of attendance and student performance according to the traditional scale ("5", "4", "3", "2").

When evaluating the student's current educational activity, 20% of the grade is the student's independent work, which takes into account the knowledge of the topic of independent study and the performance of work in the notebook.

The final (summary) control of the sections is carried out at the end of the section in the form of a written test, which includes test tasks from the "Step-1" bank, theoretical questions and control of practical skills (solving situational problems, defining and describing macro- and micropreparations, etc.) .

Such methods of control as oral, written and test are used, which should contribute to increasing the motivation of students-future specialists for educational and cognitive activities. According to the specifics of professional training, preference is

given to test and written control. In the case of final control, preference is given to written or test control.

### 12. Form of final control of study success .

The final control of the discipline is carried out on the basis of theoretical control knowledge, practical skills and abilities.

**Assessment** is a form of final control, which consists in assessing the student's learning of the learning material based solely on the results of his performance of certain types of work in practical, seminar or laboratory classes. Semester assessment of subjects is carried out after the end of its study, before the beginning of the examination session.

**An exam (differential assessment)** is a form of final control of a student's assimilation of theoretical and practical material from an educational discipline.

### 13. Scheme of accrual and distribution of points received by students.

The maximum number of points for a discipline is 200 points. The ratio between the results of the evaluation of the current educational activity and the final control of knowledge is 60% and 40%.

#### **The first semester of studying the discipline ends with a test.**

*The maximum number of points* that a student can score for the current educational activity while studying the discipline is 200 points, *the minimum number of points* - the minimum number of points - is 120 points.

*The calculation of the number of points* is carried out on the basis of the grades received by the student on a 4-point (national) scale during the study of the discipline, by calculating the arithmetic mean, rounded to two decimal places.

The student receives a credit in the last lesson of the discipline based on the results of the current assessment.

Only those students who do not have academic debt and whose average score for the current academic activity in the academic discipline is at least 3.00 are admitted to the credit.

The average grade for the current activity is converted into points on a 200-point scale, according to the conversion table (Table 1).

**Table 1.**

**Recalculation of the average grade for the current activity into a multi-point scale (for disciplines ending with credit)**

4-point scale	200-point scale	4-point scale	200-point scale	4-point scale	200-point scale	4-point scale	200-point scale
5	200	4.47	179	3.94	158	3.42	137
4.97	199	4.44	178	3.92	157	3.39	136
4.94	198	4.42	177	3.89	156	3.37	135
4.92	197	4.39	176	3.87	155	3.34	134
4.89	196	4.37	175	3.84	154	3.32	133
4.87	195	4.34	174	3.82	153	3.29	132
4.84	194	4.32	173	3.79	152	3.27	131
4.82	193	4.29	172	3.77	151	3.24	130

4.79	192	4.27	171	3.74	150	3.22	129
4.77	191	4.24	170	3.72	149	3.19	128
4.74	190	4.22	169	3.69	148	3.17	127
4.72	189	4.19	168	3.67	147	3.14	126
4.69	188	4.17	167	3.64	146	3.12	125
4.67	187	4.14	166	3.62	145	3.09	124
4.64	186	4.12	165	3.59	144	3.07	123
4.62	185	4.09	164	3.57	143	3.04	122
4.59	184	4.07	163	3.54	142	3.02	121
4.57	183	4.04	162	3.52	141	3	120
4.54	182	4.02	161	3.49	140	< 3	70-119 (refolding)
4.52	181	4.00	160	3.47	139		
4.49	180	3.97	159	3.44	138		

The learning result is also evaluated on a two-point scale (passed/failed).

**Table 2**

**The scale of transferring points to the national system**

According to the national system	On a 200-point scale
counted	from 120 to 200 points
not counted	less than 119 points

Students' independent work, which is provided for by the topic of the lesson along with classroom work, is evaluated during the current control of the topic in the corresponding lesson.

**The second semester (the last semester of studying the discipline)** ends with a final control in the form of an exam.

Only those students who do not have academic debt (all missed classes have been completed) and whose average score for the current educational activity in the academic discipline is at least "3" are admitted to the exam.

*The maximum number of points* that a student can score for the current educational activity for admission to the exam is 120 points and is defined as the sum of the arithmetic average of all grades received in the semester.

*The minimum number of points* that a student must score for the current educational activity for admission to the exam is 72 points. Recalculation of the average grade for the current academic performance (on a 120-point scale) in the table. 3.

**Table 3.**

**Recalculation of the average grade for the current academic performance in a multi-point scale for disciplines ending with an exam**

4-point scale	200-point scale	4-point scale	200-point scale	4-point scale	200-point scale
5	120	4.29	103	3.58	86
4.96	119	4.25	102	3.54	85
4.92	118	4.21	101	3.50	84
4.87	117	4.17	100	3.46	83
4.83	116	4.12	99	3.42	82
4.79	115	4.08	98	3.37	81
4.75	114	4.04	97	3.33	80
4.71	113	4.00	96	3.29	79
4.67	112	3.96	95	3.25	78

4.62	111	3.92	94	3.21	77
4.58	110	3.87	93	3.17	76
4.54	109	3.83	92	3.12	75
4.50	108	3.79	91	3.08	74
4.46	107	3.75	90	3.04	73
4.42	106	3.71	89	3	72
4.37	105	3.67	88	Less than 3	Not enough
4.33	104	3.62	87		

The maximum number of points that a student can score when taking the exam is 80 (the minimum number is at least 50).

Discipline assessment is defined comprehensively as the sum of points for the current educational activity and points for the exam.

From the allocated 120 points for the current educational activity, 4 to 12 additional points are allocated for the assessment of individual independent work of higher education applicants, according to the work curriculum. Encouragement points are added to the final grade for the discipline at the end of its study.

Points with disciplines for students, which successfully completed the program are converted into the national scale and ECTS system (tables 4, 5).

Table 4.

Discipline points	Evaluation on a 4-point scale
From 180 to 200 points	5
From 150 to 179 points	4
From 149 points to the minimum number of points that the student must score	3
Below the minimum number of points that the student must score	2

Table 5

**Scale assessment: national and ECTS**

Total points for all types educational activity	Rating ECTS	Rating by national scale	
		for exam, diploma	for offset
180-200	A	perfectly	counted
160-179	B	okay	
150-159	C	satisfactorily	
130-149	D		
120-129	E		
50-119	FX	unsatisfactorily with the possibility of refolding	not counted with possibility rearrangement
0-49	F	unsatisfactorily with mandatory repeated studying the discipline	not counted with mandatory repeated study disciplines

#### **14. Methodological support**

1. Working curriculum of the discipline;
2. Plans of lectures, practical classes and independent work of students;
3. Abstracts of lectures on the discipline;
4. Methodical instructions for practical classes for students;
5. Methodical materials that ensure independent work of students;
6. Test and control tasks for practical classes;
7. List of exam questions

#### **15. Recommended literature.**

##### **1. Basic literature (basic):**

1. Hygiene and ecology: textbook / [V. H. Bardov, S. T. Omelchuk, N. V. Merezhkina, etc.]; in general edited by V. G. Bardov. – Vinnytsia: Nova kniga, 2020. – 572 p.
2. Hygiene and epidemiology in the system of military medical training and emergency medicine / S. Bondar, T. Gut, R. Gut. - Kyiv: "Medytsyna", 2018. - 344 p
3. Basics of ecology and preventive medicine: a textbook / D. O. Lastkov, I. V. Sergeta, O. V. Shvydky, and others. – K: VSV "Medicine", 2017. – 472 p.
4. General hygiene. Social and hygienic monitoring: учеб. for universities / P.I. Melnychenko [and others]: under the editorship. P.I. Melnychenko. - M.: Practical Medicine, 2015. – 512 p.
5. Basics of ecology: textbook for students. higher education institutions / [V. H. Bardov, V. I. Fedorenko, E. M. Biletska, etc.]; under the editorship V. G. Bardova, V. I. Fedorenko. – Vinnytsia: Nova Kniga, 2013. – 424 p.
6. Hygiene with the basics of ecology: educational and methodical manual (University I-III years)/ L. V. Dovzhenko, I. K. Linkova. - Kyiv: "Medicine", 2017. - 49 p.
7. Radiation hygiene/ V.O. Murashko, D.S. Mechev, V.G. Bardov et al. – Vinnytsia: Nova Kniga, 2013. – 376 p.

##### **2. Supporting literature:**

8. Infectious diseases: textbook / V.M. Kozko, G.O. Solomennyk, K.V. Yurko et al. - VSV Medicine, 2019. - 312 p.
9. Apanasenko G.L. Introduction to the new healthcare paradigm. Health and fitness. - Kyiv: "Yurka Yubchenkr" Publishing House. 2020, 287 p.
10. Healthy Lifestyle. Study guide Olga Ezhova.–Kyiv "University Book", 2017. – 127 p.
11. Dmytrotsa O. The assessment of motor activity of the high school students during the COVID-19 pandemic // Health security in the cross-border cooperation area of the Poland-Belarus-Ukraine program (May 19-21, 2021, Lutsk).
12. O. Dmytrotsa. Peculiarities of dental health indicators of smokers depending on the duration of smoking / O. Dmytrotsa, I. Kotsan, A. Morenko, S. Shvaiko, N.

- Yanko, A. Poruchynskiy, N. Shevchuk // Wiadomości Lekarskie 2018, tom LXXI , nr 4. - P. 937 (based on the materials of the All-Ukrainian scientific and practical conference with international participation "Poltava Public Health Days", Poltava - May 24-25, 2018.
13. Fundamentals of preventive medicine: a textbook / P.S. Bebeshko, Yu.S. Skorobekha, O.P. Korinyak. - 2nd ed., revision. and additional – K.: VSV "Medicine", 2011. – 184 p. - Vulture of the Ministry of Health. - 400 p.
  14. Hygiene of children and adolescents: a guide for students of universities of III-IV levels of accreditation / edited by M.M. Outside. Odesa: Press-courier, 2014. 263 p.
  15. Electronic guide to studying the course "School hygiene and peculiarities of hygienic education of children and adolescents in specialized institutions" / P.M. Polushkin Donetsk: DNU, 2014. 176 p.
  16. Sanitary regulations for institutions of general secondary education <https://eo.gov.ua/2020/12/15/novyy-sanitarnyy-rehlament-dlia-shkil-shcho-zminylosia/>
  17. Physical development of the child: education. manual for students of the 3rd year of med. Faculty / O. G. Ivanko, M. V. Patsera, N. V. Kyzima [and others]. – Zaporizhzhia: [ZDMU], 2013. 65 p.
  18. Dmytrotsa O.R. Indicators of blood oxygen saturation of schoolchildren living in radioactively contaminated territory // Scientific and practical conference dedicated to the sixteenth reading of Marzeyev "Physical factors of the environment and their influence on the formation of the health of the population of Ukraine": Collection. theses add., Issue 20 // organizing committee: A.M. Serdyuk (head) [etc.]. K.: "TR Studio Advertising Agency". 2020. 244 p.
  19. Hygiene and ecology in terms, schemes, tables and tests: education. help of V.F. Moskalenko, O.P. Yavorovskiy, D.O. Lastkov, S.I. Garkavy and others. K.: VSV "Medicine", 2012. - 208 p.
  20. Chaplyk V.V. Emergency medicine: a textbook for higher medical students. education institutions / Chaplyk V.V., Oliynyk P.V., Omelchuk S.T. - Vinnytsia: New Book, 2012. - 352 p

#### **Internet resources**

1. Ministry of Health of Ukraine <https://moz.gov.ua/>
2. Public Health Center <https://phc.org.ua/>
3. <https://zakon.rada.gov.ua/laws/show/1005/96>
4. <https://zakon.rada.gov.ua/rada/show/v0062282-97#Text>