

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

Petro Mohyla Black Sea National University

Medical Institute

Department of Hygiene, Social Medicine and Public Health



2019 year

Course Description

Hygiene and ecology

field of knowledge 22 «Health care»

in the specialty 222 «Medicine»

Developer

Head of the Department of Developer

Guarantor of the educational program

Director of the institute

Head of NMV

Muntian L.Ya.

Zyuzin V.O.

Klimenko M.O.

Grishchenko G.V.

Shkirchak S.I.

Mykolaiv • 2019

1. Description of the discipline

Characteristic	Characteristics of the discipline	
Name of discipline	Hygiene and ecology	
Field of knowledge	22 "Health care"	
Specialty	222 "Medicine"	
Specialization (if any)	-	
Educational program	Medicine	
Level of higher education	Master	
Discipline status	Normative	
Curriculum	2, 3 years	
Academic year	2019 - 2020 academic year	
Semester number (s):	Full-time	Correspondence form
	IV – V	
Total number of ECTS credits / hours	6 credits / 180 hours	
Course structure: - lectures - seminars (practical, laboratory, semi-group) - hours of independent work of students	Full-time	Correspondence form
	30 hours	
	70 hours 80 hours	
Percentage of classroom load	0.77 %	
Language of instruction	English	
Form of intermediate control (if any)	Certification	
Form of final control	4th semester - credit , 5th semester - exam	

2. Purpose, tasks and results of the discipline

The purpose of the discipline "Hygiene and Ecology" follows from the objectives of the educational-professional training program for graduates of higher medical education and is determined by the content of the system of knowledge and skills that must be mastered by a doctor. The purpose of teaching the discipline "Hygiene and Ecology" is: to study the theoretical foundations of preventive medicine, which are the basis of the preventive component of the professional worldview of a specialist in the field of training "Medicine"; mastering by students of the necessary knowledge, skills, actions, target tasks, skills that meet the ultimate goals of studying the discipline in accordance with the Standard of Higher Education of Ukraine :

- formation of knowledge and skills to study the impact of environmental factors on the human body and public health;
- formation of the ability to conduct a hygienic assessment of environmental factors and their compliance with hygienic standards;
- formation of skills on registration of preventive recommendations on the basis of results of these researches .

Learning objectives :

- laying the theoretical foundations of hygiene and ecology, as sciences (terminology, laws, methods, principles of hygienic regulation, regulatory and methodological support for the application of preventive measures);
- development of practical skills on: prevention of diseases of infectious and non-infectious origin in accordance with the basics of current legislation of Ukraine;
- carrying out preventive and current sanitary supervision;
- mastering laboratory research methods (organoleptic, physical, chemical, biological, bacteriological methods);
- use of favorable health factors of the environment to strengthen human health, hardening the body.

Expected learning outcomes:

Integrative final program learning outcomes, the formation of which is facilitated by the discipline:

1. Analyze the state of the environment and the impact of its factors on the health of different groups.

2. Demonstrate mastery of methods for hygienic assessment of the impact of environmental factors on human health.
3. Interpret the basic laws of hygienic science and the general patterns of connection of health with the factors and conditions of the living environment.
4. Justify hygienic measures for the prevention of diseases of infectious origin.
5. Plan activities to maintain a healthy lifestyle, personal hygiene and implement them in health care practice.
6. Plan organizational and substantive measures for preventive and ongoing sanitary supervision.
7. Coordinate plans for preventive measures with plans for the development of territorial, administrative and production units.
8. Analyze the state of the environment on the basis of integrated criteria for assessing the health of the population.
9. Justify the implementation of preventive measures in accordance with the basics of current legislation of Ukraine .

Learning outcomes for the discipline - a set of knowledge, skills, abilities, other forms of competence acquired by a person in the learning process in accordance with the standard of higher education, which can be identified, quantified and measured.

According to higher education standards, students must:

Know :

- problems of environmental protection and ways to preserve it ;
- environmental factors that adversely affect public health , methods of assessing public health ;
- methods of assessment of environmental factors and methods of determining the relationship between them ;
- measures to prevent the negative impact of environmental factors on public health .

Be able to :

- to form requirements to oneself and others regarding the preservation of the environment ;
- assess the state of health of the population, the state of the environment and negative factors influencing health ;

- interpret methods and means of hygienic research ;
- to form preventive measures on the basis of data on the relationship between the state of the environment and the state of health of certain contingents .

Competences and learning outcomes , the formation of which is facilitated by the discipline (relationship with the normative content of higher education training, formulated in terms of learning outcomes in the Standard). According to the requirements of the standard, the discipline provides students with the acquisition of competence:

- measure and evaluate microclimate indicators (temperature, humidity, air velocity, radiation temperature);
- determine and evaluate the indicators of natural (light factor, natural light factor and others) and artificial lighting (lighting, brightness, etc.) using a light meter and calculation methods ;
- to determine the intensity of ultraviolet radiation by biological methods ;
- to take air samples by sedimentation and aspiration methods for contamination by microbes, dust, chemicals for laboratory analysis, to evaluate the results of analyzes, to calculate and evaluate the necessary and actual volumes and multiplicity of ventilation of premises ;
- to take and evaluate water samples when choosing sources of water supply and drinking water on the basis of organoleptic indicators and results of laboratory analysis; have methods of purification, special treatment and disinfection of water, evaluate their effectiveness ;
- assess the sanitary condition of the soil according to the results of physico-chemical indicators, chemical, bacteriological, helminthological analysis;
- be able to calculate daily energy expenditure and the body's needs for nutrients, assess the adequacy of the diet to energy expenditure;
- be able to conduct sanitary inspections of food facilities, assess the quality of food;
- assess the harmfulness and danger of working conditions based on the results of instrumental and laboratory studies of physical factors, the air of the working area; identify and evaluate psychogenic factors in the workplace ;
- evaluate stomatoscopic, somatometric, physiometric, neuropsychological indicators of development of children and adolescents; to give hygienic recommendations

concerning the mode of training and rest of schoolboys, to estimate improving actions;

- assess the sanitary regime in the ward, section, department, treatment and prevention, health care facility as a whole and give recommendations for its provision and improvement;
- assess the radiological situation, occupational safety when working in X-ray rooms, radiological laboratories and departments;
- to determine and evaluate working conditions, psychogenic factors of liquidators of catastrophe consequences, to organize and carry out preventive measures.

The developed program corresponds to the *educational-professional program (OPP)* and is focused on the formation of *competencies*:

general (ZK) - ZK1-ZK10 OPP :

- Ability to apply knowledge in practical situations;
- Knowledge and understanding of the subject area and understanding of the profession;
- Ability to exercise self-regulation, lead a healthy lifestyle, ability to adapt and act in a new situation.
- Ability to choose a communication strategy; ability to work in a team; interpersonal skills
- Ability to communicate in the native language both orally and in writing; ability to communicate in a second language
- Skills in the use of information and communication technologies
- Ability to abstract thinking, analysis and synthesis, the ability to learn and be modernly trained.
- Ability to apply knowledge in practical situations.
- Ability to evaluate and ensure the quality of work performed.
- Definiteness and persistence in terms of tasks and responsibilities
- Ability to act socially responsible and public consciousness
- The desire to preserve the environment.

professional (FC) - FC19 OPP:

- Ability to process state, social, economic and medical information.

According to the educational-professional program, the expected *program learning outcomes (PRN)* include the skills of *PRN4, PRN12 OPP :*

- Know the types and methods of adaptation, principles of action in a new situation. To be able to apply means of self-regulation, to be able to adapt to new situations (circumstances) of life and activity. Establish appropriate connections to achieve results. Be responsible for the timely use of self-regulatory methods.
- Evaluate information about the diagnosis in the health care institution, its unit, using a standard procedure, using knowledge about the person, his organs and systems, based on the results of laboratory and instrumental studies

3. The program of the discipline

Block 1. General issues of hygiene and ecology .

Topic № 1. Hygiene as a science, its purpose, objectives, content, methods of hygienic research . Hygiene as a science, its purpose, tasks, content, connection with other sciences. Ecology as a science, its purpose, tasks, content, connection with other sciences. Preventive orientation of domestic medicine, public and personal prevention, primary, secondary and tertiary, defining priorities. Sanitation as a branch of practical health care. Varieties of sanitation. The value of hygiene knowledge for the formation of professional thinking and practice of doctors of various specialties. 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.

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. Rammatzini, in the field of preventive medicine. Sanitary culture of Kievan Rus during the empirical stage of hygiene development. Activities of Eupraxia, Theodosius of Pechersk, Agapit of Pechersk, Peter Mohyla, Danylo Samoilovich in the field of health. Views of M.Ya. Мудрова, Г.А. Zakhar'ina, SP Botkin, M.I. Pirogov on the role of preventive medicine.

Scientific and experimental stage of hygiene development. The role of M. Pettenkofer, FF Erisman, OP Dobroslavina, VA Subbotina, GV Khlopin and other scientists in the formation of the scientific and experimental stage of hygiene development.

Development of hygienic science in Ukraine . Contribution of VV Удовенка, В.Я. Pidhaetskoho, I. Ya. Gorbachevsky, OV Korchak- Cherpurkivsky, OM Marzeeva, LI Bear, P.I. Varannika, D.M. Kalyuzhnogo, VZ Мартинюка, Г.Х. Shahbazyan, R.D. Габовича, Є.Г. Гончарука, І.І. Slepushkina.

The contribution of prominent Russian scientists to the development of hygienic science of the twentieth century. The contribution of prominent Russian scientists OO Minha, F.G. Krotkova, ZG Frenkel, P.E. Kalmikova, MF Galanina, R.A. Бабаянца, А.А. Letaveta, S.N. Cherkinsky, VO Рязанова, Г.І. Rummyantseva, GI Сидоренка, Г.І. Serdyukovskaya, Yu.P. Пивоварова, П.О. Золотова, Г.В. Selyuzhitsky and others in the development of hygienic science of the twentieth century.

History of origin, main stages of development and current state of ecology. Botanical and geographical reports of ecological content in the cultures of the Ancient East, China, Greece, Ancient Rome, Ukraine and Russia. Development of ecology in the countries of the world at different stages of development of society. International cooperation in hygienic and ecological sciences in the modern period.

Topic 3. Hygienic value of solar radiation. Physical bases 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. Solar spectrum at the boundary of the atmosphere and the earth's surface. The value of the ozone layer of the atmosphere, ozone "holes". The impact of solar activity on the biosphere, the human body and human health.

Hygienic value of 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 value of visible radiation of the Sun and its use in medicine, devices for determination. Issues of biosafety of solar radiation.

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. The concept of erythema 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 harmful effects of physical, chemical and biological factors. Features of the effect of ultraviolet radiation on the elderly. Features of UVB use for primary and secondary prevention of various diseases in the elderly. Issues of bioethics in the application of ultraviolet radiation.

Topic 4. Hygienic value of biosphere components (atmosphere, hydrosphere, lithosphere). Biosphere, its components (atmosphere, hydrosphere, lithosphere). VI Vernadsky's doctrine of 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. Electrical state of the atmosphere (air ionization, electric field of the Earth, geomagnetic field, electromagnetic fields of radio frequencies and others), its hygienic value.

Denaturation of the biosphere. The main sources, types and consequences of anthropogenic air pollution and indoor air. Characteristics of sources of air pollution in the settlement. Regularities of distribution of pollution in the atmosphere, factors on which the level of air pollution depends. Transformation of chemicals in atmospheric air. The impact of polluted air on the health and living conditions of the population. Direct effect on the body: acute poisoning, chronic specific and nonspecific diseases. Indirect action due to atmospheric circulation, attenuation of ultraviolet radiation, reduction of light levels, etc. Ways and means of prevention of negative impact of polluted air on health. Bioethical aspects and issues of biosafety of denaturation of the biosphere.

Topic 5. Hygienic value of climate, weather, their impact on public health.

Weather, definition. Basic laws of weather formation. Weather-forming and weather-characterizing factors. Types of atmospheric circulation, main thermobaric formations: anticyclones, cyclones, atmospheric fronts. Direct and indirect effects of weather on human health. Medical weather classifications. Helioteotropic reactions of healthy and sick people. Prevention of heliometeotropic reactions: permanent, seasonal, urgent. Influence of weather on the dynamics of air pollution. The concept of temperature inversion.

Climate, definition. Climate-forming and climate-characterizing factors and indicators. General and applied (medical, construction) classifications of climate. Climatic features of different geographical regions. Climate, health and efficiency. The concept of medical geography and medical-geographical

mapping. Acclimatization. Phases of acclimatization. Climatotropic reactions of healthy and sick people, their prevention. Features of acclimatization in the polar regions, deserts, highlands, dry and humid tropics. Use of climate for medical and health purposes. Features of the effect of different types of weather so different types of climate on the health of the elderly. Manifestations of heliometeotropic reactions in the elderly and their prevention. Features of the course of acclimatization phases in the elderly. Bioethical aspects and issues of biosafety of the impact of natural and anthropogenic factors on human health .

Biological rhythms and state of health. The concept of biological rhythms. Prerequisites and causes of medical biorhythmology as a science. Basic biorhythmological types. Desynchronosis as the main type of chronopathology. Types of desynchronoses. Biorhythmological principles of rational organization of educational and professional activity. Combination of training time 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 prevention of desynchronoses.

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. Types of residential and public buildings. Hygienic characteristics of construction and finishing materials.

Hygienic value of physical properties of air (temperature, humidity and speed of movement). Microclimate and its hygienic value. Types and influence of uncomfortable (cooling and heating) microclimate on human heat exchange and health. Features of the influence of the heating microclimate on the elderly, their manifestations and prevention. Features of the influence of the cooling microclimate on the elderly, their manifestations and prevention. Methods and indicators for assessing the complex effect of the microclimate on the human body (physical modeling, effective-equivalent temperatures, the resulting temperatures and others).

Hygienic value of natural and artificial lighting in residential and public premises, their hygienic assessment.

Methods for determination and hygienic assessment of dust, chemical and bacteriological air pollution. Basic concepts of types, hygienic value and indicators of

ventilation. Necessary and actual volume and frequency of ventilation, their scientific substantiation. The concept of an air cube.

Adverse physical and chemical factors in the operation of household appliances. Hygienic characteristics of natural and synthetic building and finishing materials and products from them. Hygiene and biosafety of housing with the use of modern chemical compounds in the home.

Urban transport and other adverse environmental factors in 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. Hygienic features of planning and development of rural settlements. Sanitary equipment of rural housing. Ways to increase the level of communal conditions for rural residents.

State sanitary supervision over the construction of residential and public buildings, their sanitary equipment. Biosafety of residential and public buildings and structures.

Topic № 7. Water hygiene and water supply. Water as an environmental factor, its hygienic value. Norms of water consumption depending on the level of communal and sanitary improvement of the settlement, living conditions, stay and human activity. General hygienic requirements for drinking water quality, its organoleptic properties, chemical composition, epidemic safety. Influence of organoleptic properties of drinking water on the level of water consumption and the state of sanitary culture of the population.

Water as an etiological factor of diseases of non-infectious nature. Danger to human health of excessive content in water of various chemicals of natural origin and chemical compounds that fall due to anthropogenic pollution into water sources and drinking water during its purification and other ways to improve quality. The concept of biogeochemical provinces. Endemic fluorosis, water-nitrate methemoglobinemia. Hygienic value of insufficient content of some microelements in water for caries (fluoride), endemic goiter (iodine) and other diseases.

Epidemiological significance 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 fever, dysentery, etc.). The role of sanitary-indicative microorganisms for assessing the

quality of drinking water by bacterial composition (coli-index, coli-titer, microbial count).

Sources of water supply, their comparative hygienic characteristics. Centralized and decentralized water supply systems, their comparative hygienic characteristics. Scientific substantiation of drinking water quality standards. State sanitary rules and norms of water quality. Methods of water purification: basic (lightening, decolorization and disinfection) and special (iron removal, softening, demineralization, deodorization, decontamination, fluorination, defluorination and others). Decentralized water supply system. Hygienic requirements for the arrangement and operation of mine wells and catchments of springs. "Rehabilitation" of wells and disinfection of water in them.

General scheme of arrangement of the main structures of the water supply system from underground and surface water supply sources. Water supply network and its arrangement. Causes of water pollution and infection in the water supply network; prevention methods. Sanitary supervision of water supply of populated cities. Sanitary protection zones of the main water supply facilities. Bioethical aspects and issues of biosafety of water supply sources use. The value of drinking water quality in the biosafety of the population.

Topic 8. Soil hygiene and cleaning of settlements. Soil, definition. Origin, formation, mechanical structure, physical properties and chemical composition of soil. Hygienic assessment of different types of soils. Geochemical, geoendemic characteristics of soils. Sources of soil pollution in modern conditions of industrialization and chemicalization of the national economy. The impact of contaminated soil on the health and sanitary living conditions of the population. The role of soil in the occurrence and spread of infectious diseases (anaerobic infections) and invasions. Soil and diseases of non-infectious etiology. Processes and indicators of soil self-cleaning. Assessment of soil sanitation according to chemical and biological indicators.

Theoretical bases and methods of hygienic rationing - maximum permissible concentrations of harmful chemicals in the soil. Importance of sanitary condition of soil and sanitary protection of water objects in biosafety of the population.

Principles of cleaning settlements. Systems and facilities for temporary storage, removal, disposal and utilization of solid and liquid waste of domestic and industrial origin. Liquid waste, their classification and sanitary-epidemiological

significance. Sewerage of settlements, its importance in the prevention of infectious diseases. Influence of sewerage of settlements on sanitary condition of soil and living conditions of the population. General scheme and facilities for domestic wastewater treatment. Wastewater treatment and sanitary protection of reservoirs. Scientific bases of protection of open reservoirs. The concept of small sewerage and conditions of its use. Features of collection, temporary storage, removal and disposal of waste from treatment and prevention facilities (wastewater, waste surgical, infectious and other departments). Methods of disposal and utilization of industrial and radioactive waste. Hygienic requirements for places and types of burial of the dead. Hygienic characteristics of cremation.

Topic № 9. Occupational hygiene and physiology. Methods of hygienic assessment of the severity and intensity of work, the dangers of the labor process. Sanitary legislation in the field of labor protection. Work and labor, definition of concepts, socio-hygienic significance of labor. Physiology of labor, 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 fatigue. The concept of occupational hazards and occupational diseases, their classification. Diseases associated with high levels of mental stress, intensification of production processes.

Workplace organization. Monotony of work, its prevention. Forced body position, tension of individual organs and systems and prevention of diseases associated with them. The concept of difficulty and intensity of work. Ergonomics. Physiological and hygienic features of the work of an elderly person. Indicators of the severity and intensity of work of the elderly and their changes during employment. The influence of adverse factors of the production environment on the rate of aging of the employee. Hygienic requirements for the mode of operation. Sanitary legislation on labor protection. (Labor Code of Ukraine). Issues of bioethics and biosafety in occupational health.

Topic 10. Hygienic characteristics of harmful factors of the production environment and the body's response to their impact. Harmful and dangerous factors of working conditions and production environment. Influence of physical factors of the production environment (noise, vibration, high-frequency electromagnetic oscillations, etc.) on the health of workers. "Noise" disease and its prevention. Vibration disease and its prevention. Industrial microclimate, factors that

determine it, the impact of adverse microclimate on the health of workers, preventive measures. Features of occupational hygiene at low and high atmospheric pressure. Altitude, mountain, decompression, caisson diseases, their prevention.

Methods for determining dust, chemical contamination 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 occupational injuries. Issues of bioethics and biosafety in the prevention of harmful and dangerous factors of the production environment.

Topic 11. Occupational diseases and poisonings and their prevention. MR rofesiyni poisoning and its prevention. Occupational hygiene in the main industries of industrial and agricultural production, women and adolescents, the elderly and the disabled. Means of individual protection against harmful and dangerous factors of the production environment (protection of body, sight, hearing, respiratory organs).

Content module 2. Special issues of hygiene and ecology .

Topic 12 . Hygiene of children and adolescents. Patterns of growth and development of the child's body. Hygiene of labor, physical, psychophysiological training and education of children and adolescents. Methods of their hygienic assessment. Environmental factors and social living conditions that affect the formation of the health of children and adolescents. General patterns of growth and development of children and adolescents. Assessment criteria and health indicators for children and adolescents. Methods of comprehensive assessment of the health of children and adolescents. Features of the distribution of children and adolescents by health groups.

The main 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. Modern ideas about epochal and

intra-age acceleration and deceleration (retardation). Methods for assessing the physical development of children and adolescents (the method of sigmoid deviations, regression scales, complex and centile methods). Methods of assessing the state of health and physical development of organized children's groups.

Tasks of the doctor on the organization and carrying out of improving actions in children's collectives (schools, gymnasiums, lyceums, colleges, boarding schools, vocational schools, orphanages, preschool establishments, camps of work and rest, out-of-school establishments). Child and adolescent health management system. The role of the family doctor in the formation of favorable hygienic conditions for the upbringing and education of the child.

Topic 13 . Methods of hygienic assessment of equipment and maintenance of educational institutions for children and adolescents. Factors and conditions of the environment and the educational process affecting health 'I'm children and adolescents. The shift in the state of health 'I and diseases that are caused by the influence of environmental factors and conditions of stay of pupils in schools.

Hygienic requirements for the land plot, building and group section of the children's preschool institution. The principle of group isolation and its significance. Hygienic requirements for the land plot and the building of the general educational institution. The principle of functional zoning and its significance. Hygienic requirements for planning, arrangement, equipment, microclimate, ventilation, lighting and sanitation of the main premises of educational institutions. Hygienic requirements for educational furniture and their physiological justification. Rules for marking desks, other school furniture and seating students. Hygienic requirements for the placement of school furniture in the school classroom. The main preventive measures to improve the sanitary and hygienic conditions of students in modern educational institutions.

Topic 14 . Methods of studying the age psychophysiological features of children and adolescents. Hygienic assessment of the educational regime of children of different age groups. Anatomical-physiological and psychophysiological features of the body of children and adolescents of different ages and genders. Medical, physiological and psychological-pedagogical criteria for assessing the level of development of the child. Methods of studying age psychophysiological features of an organism of children and teenagers. Health changes and diseases caused by irrational organization of the educational

process. The concept of school maturity. Hygienic bases and methods of determining the functional readiness of the child to study at school.

The concept of daily routine and basic regime elements. Features of hygienic rationing of daily activities of students. Hygienic principles of compiling and evaluating the daily routine of children and adolescents of different ages. Hygienic requirements for the organization of the educational process in modern secondary schools. Hygienic requirements for school schedules and methods of its evaluation. Hygienic requirements for the organization and methods of the lesson. Features of education of six-year-old children. Hygienic requirements for school textbooks and manuals. Features 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 free time of students.

Topic 15 . Methods of hygienic control over the organization of physical education and labor training of children and adolescents. Medical and professional consultation and medical professional selection of adolescents in the school and clinic. Hygienic principles of rational organization of physical education of children and adolescents. Types, means and forms of physical culture in modern educational institutions. The concept of motor activity. Methods of quantitative measurement and hygienic assessment of motor activity. Prevention of hypokinesia. Physiological and hygienic bases of assessment of a lesson of physical culture. Hygienic requirements for places of physical education classes. Medical control over the organization of physical education classes and hygienic aspects of medical support of physical education of children and adolescents. Physiological and hygienic bases of hardening of an organism of children and teenagers. Basic types, principles and methods of hardening organization. Hygienic principles of rational organization of labor and polytechnic education of children and adolescents. Physiological and hygienic bases of control over labor training of schoolchildren. Hygienic requirements for the content, mode and conditions of organization and conduct of labor training in different types of modern educational institutions. Vocational guidance as a hygienic problem. Professiography. Modern system of professional orientation, its functions and leading components. Scientific bases of medical and professional consultation. The concept of professional selection. Methods for predicting professional success .

Topic 16 . Food hygiene, its environmental and social problems. Methods for assessing the nutritional status of man, his needs for nutrients and energy. Physiological and hygienic bases of nutrition. The importance of nutrition for health and physical development. Alimentary pathology, its prevalence and classification. Theories of nutrition, food functions and types of nutrition. Methods for determining human energy consumption and needs in essential nutrients. Methods for determining the energy consumption of an elderly person and his needs for essential nutrients. Legislative norms of physiological need for nutrients and energy for different groups of the population, their scientific substantiation. Legislative norms of physiological need for nutrients and energy for different groups of the population, their scientific substantiation. Bioethical aspects of human nutritional status assessment.

Topic 17 . Scientific bases of rational, preventive, medical, dietary and medical-preventive food. Methods for assessing adequate nutrition according to the menu layout, provision of vitamins. The concept of rational preventive, curative, dietary and curative nutrition and their basic principles. Methods of assessing the adequacy of nutrition. The concept of nutritional status of the organism and methods of its assessment. Methods for assessing adequate nutrition according to the menu layout, provision of vitamins. Methods and means of medical control over the nutrition of certain age groups. Principles of nutrition of people of different ages, professions, athletes.

Topic 18 . Physiological and hygienic value of nutrients and hygienic characteristics of food products. Physiological and hygienic role of proteins. Scientific substantiation of protein needs. Hygienic characteristics of proteins of animal and vegetable origin. Protein quality indicators. Sources of proteins and essential amino acids. Physiological and hygienic role of fats. Quality indicators of fats of different origin. Physiological and hygienic role of polyunsaturated fatty acids, phosphatides, sterols. Scientific substantiation of the body's needs for fats. Sources of fats. Cooking fats. "Overheated fats". 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 macroelementosis, their clinical manifestations and prevention.

Hygienic characteristics of food products. Sanitary examination of food products. Cereals, legumes and oilseeds, vegetables, fruits and berries. Meat and meat products. Fish, poultry and other foods. Eggs. Milk and dairy products. Milk fats. Scientific and technological progress and its impact on food quality. Genetically modified products and socio-hygienic problems associated with their use. Issues of food hygiene in the biosafety of the population.

Topic 19 . Theoretical aspects and methods of prevention of alimentary and alimentary-conditioned diseases. Methods of investigation and prevention of food poisoning. Hygienic bases of medical, dietary and treatment-and-prophylactic nutrition. Alimentary diseases, their classification. Food poisoning, their classification. Food poisoning of microbial nature. Food poisoning, etiology, pathogenesis, prevention. Bacterial toxicosis. Botulism, etiology, pathogenesis, prevention. Staphylococcal toxicosis, etiology, pathogenesis, prevention. Mycotoxicosis, their etiology, diagnosis, clinic, prevention. Food poisoning of non-microbial nature, products that are toxic in nature, products that have acquired toxic properties under storage conditions, products contaminated with toxic substances (xenobiotics) - heavy metals, pesticides and others. Food poisoning of unknown etiology, hypotheses of their occurrence, features of the clinic. The importance of food chains in the migration of toxic and radioactive substances from various environmental objects to the human body. The effect of residual chemicals in food on public health. Prevention of food poisoning of microbial, non-microbial nature and unknown etiology, responsibilities of the doctor in the investigation of food poisoning and their prevention. Instructional and legislative documents used in the investigation of food poisoning and their prevention. The role of aerogenic, purulent diseases, healthy carriers of intestinal pathogens among the staff of food units in the occurrence of food poisoning of microbial nature and infections. Food in an environmentally unfavorable environment and harmful industries. Therapeutic and preventive nutrition. Therapeutic and dietary nutrition. Parenteral nutrition, its hygienic justification. Products and mixtures of baby food. Geroprotective products. Organization of medical and dietary nutrition in medical and preventive institutions and control over it. Rules of culinary processing of food products in order to preserve their good quality, vitamins, prevention of diseases of the digestive system (gastritis, gastric ulcers and others). Methods of food preservation, their hygienic characteristics. Nutritional supplements, their hygienic characteristics.

Methods and means of medical control over the nutrition of certain groups of the population. Principles of nutrition of people of different ages, professions, athletes. Hygienic supervision of nutrition of different age groups, professions, patients in hospitals, health facilities. Issues of bioethics and biosafety in the investigation of food poisoning.

Topic 20 . Hygienic assessment of the location and planning of individual structural units of the hospital according to the project materials. Features of planning and arrangement of specialized hospitals and departments. The value of the optimal hygienic regime of treatment and prevention facilities to increase the effectiveness of treatment of patients, prevention of nosocomial infections, creating safe working conditions for staff and their improvement. Modern hospital building systems (centralized, block, decentralized, pavilion, mixed), their comparative hygienic assessment, prospects for improvement. Hygienic requirements for land plots of hospitals. Situational and general development plans of hospitals , hygienic requirements for the main indicators of development (distance from sources of air pollution, soil, area, density of buildings and landscaping, placement of buildings, sanitation of the site), functional zoning of the territory. Hygienic requirements for planning, equipment and mode of operation of departments: reception (for somatic, infectious, pediatric departments), therapeutic, surgical, infectious profile, children's departments, specialized hospitals (psychoneurological, tuberculosis and others). Ward section, its composition, hospital ward, options for its planning and equipment for somatic patients, infectious, mental, resuscitation, rehabilitation. Features of planning of boxes, semi-boxes in infectious, children's departments of hospital. Hygienic requirements for the area, cubature of chambers, their scientific substantiation. Requirements for the orientation of the windows of the chambers, microclimate, air, lighting, heating, ventilation, noise. Standards of lighting, microclimate, carbon dioxide content as an indicator of chemical air pollution, bacterial contamination.

Topic 2 1. Hygienic assessment of the conditions of patients and occupational health of medical workers in treatment and prevention facilities. Sanitary and anti-epidemic regime in the hospital, clinic. Measures to prevent nosocomial infections. Hygienic requirements for sanitation of patients, their toilets, linen changes. Requirements for the regime of prevention of respiratory and intestinal diseases among patients and staff during epidemics. Mode, methods and

means of wet cleaning with the use of antiseptics, ventilation, isolation of patients. Removal and neutralization of solid waste, disinfection of sewage wastewater in medical institutions, their features in rural hospitals, separately located health facilities. Organization of therapeutic and treatment-and-prophylactic nutrition of patients in hospitals. Bioethical problems of health care of patients and medical workers in treatment and prevention facilities.

Topic 22 . Radiation hygiene, radiation protection in medical institutions and other facilities where sources of ionizing radiation are used. Methods and means of radiation control. Radiation pollution. Hygienic aspects of the Chernobyl accident. The urgency of hygienic problems of radiation nature, due to scientific and technological progress, radiation protection of workers with industrial sources of ionizing radiation and radiation safety of the population in their places of residence. Bioethical principles of radiation safety of the population . Physical foundations of radiation safety and radiation protection: the essence and nature of radioactivity, types of nuclear transformations, ionizing radiation, the occurrence of which they are accompanied, their qualitative and quantitative characteristics, use in practice. Qualitative and quantitative characteristics of radionuclides. Hygienic characteristics of ionizing radiation and their sources. The essence and features of the interaction of ionizing radiation with substances, the practical use of this knowledge. Biological action 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, industrial, industrial), their characteristics. Radiation background. Regularities of formation of radiation load of the population, its hygienic estimation, ways of decrease. Questions of bioethics and biosafety at application of ionizing radiation.

Radiation safety of the population in its places of residence, the factors that determine it (chronic exposure to man-made sources of natural origin, medical exposure, radioactive contamination of the environment). Natural radionuclide radon and medical X-ray and radiological diagnostic procedures for the population as the main components of human radiation exposure, their hygienic assessment and special measures to reduce radiation exposure in humans due to these factors.

The Chernobyl disaster and its consequences for public health and the environment. Hygienic aspects of life, food, work and leisure of the population living

in areas that have been exposed to radioactive contamination. The concept of living in the territories of Ukraine with high levels of radioactive contamination due to the Chernobyl disaster, the Laws of Ukraine on the legal regime of these territories and the legal status of the affected population.

Topic 23 . Calculated methods for assessing 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. Measures of protection against external radiation, based on the physical laws of its attenuation (protection by quantity, time, distance, shielding). Principles underlying the choice of material and calculation of the thickness of protective screens from β -, γ -, X-rays. The value of calculation methods for radiation hazard assessment and parameters of protection against external radiation in a set of measures for radiation protection of personnel.

Topic 24 . Hygienic assessment of radiation protection of personnel and radiation safety of patients with the use of 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 radiation protection when working with them (external irradiation). Open sources of ionizing radiation, their purpose, features of radiation danger and radiation protection when working with them (external and internal radiation). Radiation protection of personnel and radiation safety of patients in radiological departments of medical institutions. Features of radiation safety and radiation protection in the structural units of the radiology department of the hospital. Radiation and medical control when working with radionuclides and other sources of ionizing radiation, its organizational forms, types, programs, devices, criteria for evaluating results, guidelines. Hygienic standardization of ionizing radiation, scientific concepts on which it is based. Basic provisions of "Radiation safety standards of Ukraine (NRBU-97)" and "Basic sanitary rules for radiation safety of Ukraine (OSPU-2005)".

Topic 25 . Basics of organization of sanitary and hygienic measures in the Armed Forces of Ukraine in peacetime emergencies and in wartime. Hygiene of field placement of troops and population. Definition and content of military hygiene in peacetime and wartime emergencies. The role and place of sanitary and

hygienic measures in the general system of medical support of the Armed Forces of Ukraine, paramilitary formations of civil defense and other formations designed to act in emergencies in peacetime and in wartime. Organization and carrying out of temporary placement of military and civilian emergency rescue formations of liquidators of consequences of emergency situations. Features of the organization and carrying out of sanitary and hygienic actions in emergency situations and a fighting situation taking into account features of military field conditions. Hygiene of field placement of troops and population. Types of field housing, their hygienic assessment. Accommodation in settlements, perspective field constructions. The concept of fortifications, their types, characteristics of the basic requirements for them (habitability). Features of microclimate and chemical composition of air in closed fortifications and their impact on the body. Sanitary supervision over bath and laundry services of personnel of formations and the affected population. Sanitary and hygienic control over the maintenance and cleaning of the locations of troops and the affected population in the field. The order of collection and burial of the dead. Responsibilities of the military medical service.

Topic 26 . Fundamentals of organization and conduct of sanitary supervision and medical control over nutrition of personnel of the Armed Forces of Ukraine in the field. The organization of food in emergency situations, during the war. Organization and carrying out of sanitary supervision and medical control over food in the conditions of emergency situations. Nutrition standards for personnel and their characteristics. Tasks of the medical service for food supervision. Food in the conditions of infection of the district and objects with strong poisonous substances, radioactive and infection with bacterial (biological) substances, in the conditions of possible use of the weapon of mass destruction. Ways and mechanisms of food contamination with radioactive, toxic substances and bacterial agents. Protect food from them during transportation, storage, cooking, distribution and eating. Organization and conduct of medical examination of food in conditions of possible contamination with radioactive, toxic substances and bacterial agents. Stages, forces, means and methods of examination. Volume and possibilities of laboratory researches. Characteristics of regular laboratory kits and devices. Research methods used in the examination. Maximum permissible levels of radioactive and concentrations of toxic substances in products in

emergencies. Methods of decontamination, degassing and disinfection of food and containers. Prevention of food poisoning.

Topic 27 . Fundamentals of organization and conduct of sanitary supervision and medical control over water supply of personnel of the Armed Forces of Ukraine in the field . Organization and carrying out of sanitary supervision over water supply of the Armed Forces of Ukraine, paramilitary formations and the affected population in the conditions of emergency situations of peacetime and in wartime. Responsibilities of various services for the organization of water supply to the personnel of the Armed Forces of Ukraine and other formations in emergency situations in peacetime and in wartime. Organization and conduct of exploration of water sources. Selection of water sources and assessment of their quality with the help of regular means. Water quality assessment, report sets and devices, their tactical and technical data, research methods. Field water supply points, hygienic requirements for their equipment . Organization and carrying out of sanitary supervision over purification, disinfection, decontamination of water in the conditions of emergency situations. Purification, disinfection, neutralization of PR, decontamination, desalination of water in the field, in emergencies and in wartime. Sanitary supervision and medical control over the water supply of troops and the affected population in the field in emergencies, conditions of use of weapons of mass destruction, the presence of water contamination with radioactive substances and toxic substances.

Topic 28 . Occupational hygiene of personnel of the Armed Forces of Ukraine in the aftermath of emergencies and in wartime . Hygienic characteristics of the main factors that determine the working conditions of the labor process and the prevention of their adverse effects on the body in certain types of troops. Characteristics of jobs. Air pollution by harmful gases, their composition, effects on the human body. Sanitary and hygienic measures carried out when moving and basing formations in different climatic conditions, their features in conditions of low and high temperatures. Hygienic features of work of medical workers of military units and personnel of military medical institutions at liquidation of consequences of emergencies and in wartime. Hygienic features of the use of personal protective

equipment in the maintenance of weapons and military equipment in the land forces, air force, navy, fire fighting, floods and emergencies of any origin. Hygiene of military work of tankers. Hygiene of military work in missile forces and artillery, engineering troops. Features of service conditions, their impact on the human body and measures to protect servicemen. Hygiene of military work in radio engineering troops. Conditions of military work at radar stations. Specific and nonspecific environmental factors. Hygiene of military work on radio stations. Hygienic features of the use of personal protective equipment in the maintenance of weapons and military equipment in the II, Air Force, Navy, fire fighting and the consequences of emergencies. Organization and conduct of sanitary supervision over the working conditions of servicemen, liquidators of the consequences of hostilities and emergencies and during wartime.

Topic 29 . Healthy lifestyle, personal hygiene. Physical culture, basics of hardening. Prevention of alcoholism, drug addiction, substance abuse, smoking. Healthy lifestyle, definition, content. Personal hygiene as a branch of hygienic science, its content and significance for maintaining and strengthening health in modern conditions. Body, skin and hair hygiene. Modern detergents, their hygienic assessment. Oral and dental hygiene, care products, their hygienic assessment. Hardening. The main factors of hardening. Principles, methods and means of hardening with the use of natural factors (solar radiation, air, water, etc.). Requirements for the organization, planning and operation of solariums and photo booths. Hygienic assessment of steam and dry 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 activity. Negative effects of active and passive tobacco smoking on health. Adverse effects on health of excessive alcohol consumption, drug addiction and substance abuse, their harmful effects on health. Medical and social problems, meanings, ways and means of prevention of bad habits and drug addictions. The main ways and means of hygienic training and education of different groups of the population. Organization of hygienic control over the dosage of physical activity at different ages. Criteria for the effectiveness of the doctor, aimed at forming a healthy lifestyle.

Topic 30 . Hygiene of clothes and shoes. Hygienic assessment of detergents, fabrics and household, industrial and hospital clothing. Hygiene of clothes and shoes. Hygienic requirements for different types of fabrics. Comparative hygienic characteristics of clothing and footwear made of natural and artificial fabrics and materials. Requirements for clothing and footwear for different age groups. Physico-chemical parameters that characterize the hygienic properties of fabrics for the clothing of the elderly. Hygienic requirements for different layers of clothing for the elderly. Personal hygiene products, methods of their research and evaluation. Hygienic assessment of modern detergents.

The structure of the academic discipline

Names of content modules and topics	Number of hours				
	Full-time				
	Including				
	1	n	ind.	cf.	
1	2	3	4	5	6
Block 1 "General issues of hygiene and ecology"					
Topic 1. Hygiene as a science, its purpose, objectives, content, methods of hygienic research.	6	2	2		2
Topic 2. History of origin, the main stages of development and the current state of hygiene.	2				2
Topic 3. Hygienic value of solar radiation.	8	1	4		3
Topic 4. Hygienic value of biosphere components (atmosphere, hydrosphere, lithosphere).	4	1			3
Topic 5. Hygienic value of climate, weather, their impact on public health	10	2	2		6
Topic 6. Hygiene of populated areas. Housing hygiene. Microclimate, heating, ventilation, natural and artificial lighting, methods of their measurement and hygienic assessment.	20	2	10		8
Topic 7. Water hygiene and water supply.	13	1	4		8

Topic 8. Soil hygiene and cleaning of settlements.	6	1	2		3
Topic 9. Occupational hygiene and physiology. Methods of hygienic assessment of the severity and intensity of work, the dangers of the labor process. Sanitary legislation in the field of labor protection.	6	1	2		3
Topic 10. Hygienic characteristics of harmful factors of the production environment and the body's response to their impact.	7	1	2		4
Topic 11. Occupational diseases and poisonings and their prevention.	3				3
<i>Final control work</i>	2		2		
Together for block 1	87	12	30		45
Block №2 "Special issues of hygiene and ecology"					
Topic 12 . Hygiene of children and adolescents. Patterns of growth and development of the child's body. Hygiene of labor, physical, psychophysiological training and education of children and adolescents. Methods of their hygienic assessment.	5 , 5	0.5	4		1
Topic 13 . Methods of hygienic assessment of equipment and maintenance of educational institutions for children and adolescents.	3.5	0.5	2		1
Topic 14 . Methods of studying the age psychophysiological features of children and adolescents. Hygienic assessment of the educational regime of children of different age groups	1.5	0.5			1
Topic 15 . Methods of hygienic control over the organization of physical education and labor training of children and adolescents. Medical and professional consultation and medical professional selection of adolescents in the school and clinic	2.5	0.5			2
Topic 16 . Food hygiene, its environmental and social problems. Methods for assessing the nutritional status of man, his needs for nutrients and energy.	7	1	4		2

Topic 17 . Scientific bases of rational, preventive, medical, dietary and medical-preventive food. Methods for assessing adequate nutrition according to the menu layout, provision of vitamins.	5	1	2		2
Topic 18 . Physiological and hygienic value of nutrients and hygienic characteristics of food products.	5	1	2		2
Topic 19 . Theoretical aspects and methods of prevention of alimentary and alimentary-conditioned diseases. Methods of investigation and prevention of food poisoning. Hygienic bases of medical, dietary and treatment-and-prophylactic nutrition.	3	1			2
Topic 20 . Hygienic assessment of the location and planning of individual structural units of the hospital according to the project materials. Features of planning and arrangement of specialized hospitals and departments.	7	1	4		2
Topic 21 . Hygienic assessment of the conditions of patients and occupational health of medical workers in treatment and prevention facilities.	4	1			3
Topic 22 . Radiation hygiene, radiation protection in medical institutions and other facilities where sources of ionizing radiation are used. Methods and means of radiation control. Radiation pollution. Hygienic aspects of the Chernobyl accident.	8	3	4		1
Topic 23 . Calculated methods for assessing radiation safety and parameters of protection against external radiation.	2				2
Topic 24 . Hygienic assessment of radiation protection of personnel and radiation safety of patients with the use of ionizing radiation in medical institutions.	4	1	2		1
Topic 25 . Fundamentals of organization of sanitary and hygienic measures in the Armed Forces of Ukraine during peacetime emergencies and in wartime. Hygiene	7	1	4		2

of field placement of troops and population .					
Topic 26 . Fundamentals of organization and conduct of sanitary supervision and medical control over nutrition of personnel of the Armed Forces of Ukraine in the field.	7	1	4		2
Topic 27 . Fundamentals of organization and conduct of sanitary supervision and medical control over water supply of personnel of the Armed Forces of Ukraine in the field.	7	1	4		2
Topic 28 . Organization and conduct of sanitary supervision over the working conditions of servicemen, liquidators of the consequences of hostilities and emergencies.	7	1	2		4
Topic 29 . Healthy lifestyle, personal hygiene. Physical culture, basics of hardening. Prevention of alcoholism, drug addiction, substance abuse, smoking.	4	2			2
Topic 30 . Hygiene of clothes and shoes. Hygienic assessment of detergents, fabrics and household, industrial and hospital clothing.	1				1
<i>Final control work</i>	2		2		
Ra zom for block 2	93	18	40		35
Total hours	180	30	70		80

4. The content of the discipline

4.1. Lecture plan

№ s / n	Name topics	Number of hours
	BLOCK №1 "General issues of hygiene and ecology"	
1.	Hygiene as a science. Ecology as a science. Environment and human health. Biosphere and its hygienic value. Bioethical aspects and issues of biosafety of denaturation of the biosphere.	2

2.	Solar radiation, its hygienic value. The use of components of solar radiation in preventive medicine and biosafety issues of solar radiation.	2
3.	Weather and climate hygiene. Acclimatization, helioteotropic reactions and their prevention, bioethical principles for assessing the impact of climatic weather conditions on human health.	2
4.	Topical issues of communal hygiene (problems of urbanization, hygiene of housing, microclimate, lighting, heating, ventilation, soil, cleaning of settlements, biosafety of housing).	2
5.	Water hygiene and water supply.	2
6.	Current issues of occupational health, biosafety in occupational health.	2
	Block №2 "Special issues of hygiene and ecology"	
1 .	Topical issues of hygiene of children and adolescents. Issues of bioethics and biosafety in the hygiene of children and adolescents.	2
2 .	Nutrition as a factor of health. Biosafety issues in food hygiene.	2
3 .	Diseases associated with violation of the basics of nutrition and the use of substandard products, their prevention	2
5 .	Hygiene of medical and preventive institutions and prevention of nosocomial infections. Biosafety issues in the activities of treatment and prevention facilities.	2
6 .	Current issues of radiation hygiene. Issues of bioethics and biosafety in the use of ionizing radiation.	2
7 .	Sanitary protection of the environment from radioactive contamination as a hygienic problem. Hygienic aspects of the Chernobyl disaster.	2
8 .	Fundamentals of organization of sanitary and hygienic measures in the Armed Forces of Ukraine in peacetime and wartime emergencies. Hygiene of field placement of troops and population.	2
9 .	Fundamentals of organization and conduct of sanitary supervision and medical control over water supply of personnel of the Armed Forces of Ukraine in the field.	2
15.	Healthy lifestyle, biotic aspects of personal hygiene.	2

	<i>TOTAL number of lecture hours in the discipline</i>	30
--	--	----

4.2 Plans for practical classes

№ s / n	Topic	Number of hours
	BLOCK №1 "General issues of hygiene and ecology"	
1.	Introductory lesson. Methods of hygienic research. Organization of individual research work of students. Issues of bioethics and biosafety in preventive medicine.	2
2.	Methods for determining the intensity and prophylactic dose of ultraviolet radiation. Issues of bioethics in the application of ultraviolet radiation.	2
3.	Methods of using ultraviolet radiation to prevent diseases and rehabilitate the air environment, biosafety of ultraviolet radiation.	2
4.	Methods of determination and hygienic assessment of natural lighting. Biosafety of residential and public buildings and structures.	2
5.	Methods of determination and hygienic assessment of artificial lighting. Biosafety of residential and public buildings and structures.	2
6.	Methods of determination and hygienic assessment of temperature and humidity of the premises, the impact on human heat transfer, bioethical aspects. Methods of determination and hygienic assessment of the direction and speed of air movement, the impact on human heat transfer, bioethical aspects.	2
7.	Methods of hygienic assessment and biosafety of complex influence of microclimate parameters on human heat exchange.	2
8.	Methods of hygienic assessment of climatic weather conditions and their impact on human health. Bioethical aspects and issues of biosafety of natural and anthropogenic factors.	2
9.	Methods of sanitary and chemical research of indoor air	2

	environment and its hygienic assessment. Methods for determining the concentration of CO ₂ and air oxidation as indicators of anthropogenic air pollution and ventilation.	
10.	Methods of sanitary inspection of water supply sources and water sampling for bacteriological and sanitary-chemical research.	2
11.	Methods of hygienic assessment of drinking water according to the sanitary inspection of water supply systems and the results of laboratory analysis of samples. The value of drinking water quality in the biosafety of the population.	2
12.	Methods of hygienic soil assessment according to the sanitary inspection of the land plot and the results of laboratory analysis of samples. Sanitary cleaning of settlements. Importance of sanitary condition of soil and sanitary protection of water objects in biosafety of the population.	2
13.	Methods of hygienic assessment of the severity and intensity of work in order to prevent fatigue and improve performance. Bioethical aspects of occupational health.	2
14.	Methods of hygienic assessment of noise and vibration. Issues of bioethics and biosafety in the prevention of noise and vibration. Methods of determination and hygienic assessment of air dust. Biosafety issues in occupational health	2
15	<i>Final control work on block1</i>	2
TOGETHER:		30
Block №2 "Special issues of hygiene and ecology"		
1.	Methods for assessing the health and physical development of children and adolescents. Bioethical problems of bad habits in adolescents.	4
2.	Methods of hygienic assessment of equipment and maintenance of educational institutions for children and adolescents.	2
3.	Methods of studying and assessing human nutritional	4

	<p>status. Bioethical aspects of human nutritional status assessment.</p> <p>Methods for calculating human energy consumption and nutrient needs.</p>	
4	Methods of assessing the adequacy of nutrition of organized teams on the menu layout and bioethical principles of nutrition.	2
5 .	Methods of investigating cases of food poisoning. Issues of bioethics and biosafety in the investigation of food poisoning.	2
6 .	Hygienic assessment of the location and planning of individual structural units of the hospital according to the project materials, biological safety in treatment and prevention facilities.	2
7 .	Methods and means of radiation control and radiation protection of workers with sources of ionizing radiation and the population in their places of residence. Bioethical principles of radiation safety of the population .	4
8 .	Hygienic assessment of radiation protection of personnel and radiation safety and biosafety of patients with the use of radionuclides and other sources of ionizing radiation in medical institutions.	2
9 .	Organization and conduct of sanitary supervision over the field deployment of military and civilian formations in emergencies and during war.	2
10 .	Features of placement of military and civilian formations in protective structures under the influence of various striking factors.	2
11 .	Organization and conduct of sanitary supervision over the completeness and safety of food of military and civilian formations in emergencies and during war.	2
12 .	Organization and conduct of medical examination of food in the field in emergencies and in combat with the help of regular means.	2
13 .	Organization and conduct of reconnaissance of water supply sources in emergencies and during war. Assessment of water	2

	quality by field methods.	
14 .	Organization and conduct of sanitary supervision over purification, disinfection, decontamination of water in the field in emergencies and during war.	2
15 .	Organization and conduct of sanitary supervision over the working conditions of servicemen, liquidators of the consequences of hostilities and emergencies.	2
16 .	Occupational hygiene of military personnel in the maintenance of weapons, military equipment, radar stations.	2
17 .	<i>Final control work on block 2 :</i>	2
<i>TOTAL :</i>		<i>40</i>
<i>TOTAL number of hours of practical classes in the discipline</i>		<i>70</i>

Note * -Plan of each practical lesson:

- 1) Written solution of test problems on the theory.
- 2) Group work on errors, at the same time an oral interview on all material of the topic.
- 3) Assessment of knowledge.

4.3. Tasks for independent work

In training students occupies a special place independent work on the material being studied. Formuvannya comprehensively developed individual student left and achieved not only under the influence of organized educational activities but also due vla with his individual efforts of the students themselves. It is known that one just does not get a certain set of knowledge, skills and abilities, and can be obtained only through their own zusy l lyam.

Students' independent work is a set of various educational techniques and actions, with the help of which they independently consolidate and deepen previously acquired theoretical knowledge, practical skills and abilities, as well as master new ones. It is extremely important for the formation and improvement of professional skills, thinking and beliefs. Therefore, this method is the internal basis of any other method of teaching students and a necessary prerequisite for the didactic connection of different teaching methods. Modern educational processes

and the scientific and technological revolution make the method of independent work of students one of the main methods of teaching.

The main types of independent work of students are:

work with printed sources;

independent training;

independent watching of movies, TV programs, listening to radio programs, etc.

Thus, teachers have enough solid arsenal of both general and spetsyfi including their methods of teaching students. During their use it is necessary to take into account the psychological and pedagogical patterns of the learning process, the nature and content of the subject, modern requirements for the organization and implementation of the didactic process, the availability of didactic infrastructure in the school, the level of training subjects and objects. Of course, Mr. and taken separately method does not solve all problems if not used creatively, in conjunction with other methods.

There are two types of tasks for independent work of students. Tasks of a theoretical nature, which are not thoroughly considered within the lectures, are made for independent mastering by the student. They are a supplement to the lecture course. The student must work on normative and literary sources and be ready to answer questions during practical classes and exams. Tasks and tasks are of a practical nature.

№ z.p.	TOPIC	Number of hours
BLOCK 1: GENERAL ISSUES OF HYGIENE AND ECOLOGY		
1.	Preparation for practical classes (theoretical training, development of practical skills)	22

2.	Online courses and online testing	2
3.	Independent elaboration of topics that are not included in the classroom plan Block 1 (list attached)	10
4.	Individual work	9
5.	Preparation for the final test	2
TOGETHER		45
BLOCK 2: SPECIAL ISSUES OF HYGIENE AND ECOLOGY		
1.	Preparation for practical classes (theoretical training, development of practical skills)	17
2.	Online courses and online testing	2
3.	Independent elaboration of topics that are not included in the plan of classroom classes Block 2 (list attached)	10
4.	Individual work	4
5.	Preparation for the final test	2
TOGETHER		35

Topics for self-study (Block 1.)

№ s/ n	Topic	Number of hours
1	History of origin, main stages of development and current state of hygiene.	
2	Psychohygienic bases of optimization of daily human activity.	
3	Scientific bases of medical biorhythmology and chronohygiene.	
4	Hygienic assessment of the impact of tropical climate on living conditions, working capacity and public health.	
5	Methods and means of purification, disinfection of water with centralized and decentralized water supply.	
6	Endemic fluorosis and caries as a hygienic problem, their prevention (defluoridation, water fluoridation).	
7	Water hygiene and features of water supply of the population in the	

	conditions of a tropical climate.	
8	Modern methods of removal and disposal of household and industrial waste.	
9	Methods of hygienic assessment of dangerous and harmful factors of the production environment and the body's response to their impact. Sanitary legislation on labor protection.	
10	Methods of investigating cases of occupational diseases and poisonings. Preliminary and periodic medical examinations as measures for their prevention.	
1.	Topics for self-study (Block 2). Methods of study and Methods of studying the age-related psychophysiological characteristics of children and adolescents. Hygienic assessment of the daily routine and educational process of children of different ages.	
2	Methods of hygienic control over the organization of physical education and labor training of children and adolescents. Medical and professional consultation and medical professional selection of adolescents in the school and clinic.	
3	Features of nutrition of people of different age groups, professions, athletes, patients in hospitals, health facilities.	
4	Radiation pollution. Hygienic aspects of the Chernobyl accident.	
5	Peculiarities of planning and arrangement of specialized hospitals and departments. Hygienic assessment of placement and planning of separate structural subdivisions of the hospital and conditions of stay of patients in treatment-and-prophylactic establishments. Occupational health of medical workers in treatment and prevention facilities.	
6	Organization and conduct of sanitary supervision over the cleaning of military and civilian formations in emergencies and during war.	
7	Organization and conduct of sanitary supervision over the working conditions of servicemen, liquidators of the consequences of hostilities and emergencies. Occupational health of a military medic in the field.	

8	Organization and conduct of sanitary supervision over bath and laundry services for personnel of military and civilian formations in emergencies and during war.	
9	Features of temporary placement of the affected population in emergency situations and during the war.	
10	Healthy lifestyle and personal hygiene. Physical culture and basics of hardening. Hygienic clothes and shoes. Hygienic assessment of detergents, fabrics and household, industrial, hospital clothing.	

John dyvidualni task

Selection and review of scientific literature on the subject of the discipline program of the student's choice with the writing of an abstract and its public defense.

Selection and review of scientific literature on the subject of research work of the department with the preparation of a scientific report at a meeting of the SNT or at student conferences.

Experimental research on the topic of research work of the department with the publication of results in scientific journals.

Assessment of an individual task is carried out in accordance with the criteria and scores of a particular practical lesson.

Typical test tasks to be solved in practical classes.

1. Define the subject of "hygiene":

A. Science that studies the patterns of development of pathological processes in the human body due to the influence of exogenous and endogenous environmental factors in order to substantiate hygienic standards, sanitary norms and rules and preventive measures, the implementation of which provides optimal conditions for

human life, preservation and strengthening of health and prevention of various diseases

- B. The field of medical knowledge that implements sanitary measures
- C. Science that develops criteria for human health
- D. The science of sanitary well-being of the population
- E. Science that studies the patterns of environmental impact on the human body and public health in order to substantiate hygienic standards, sanitary norms and rules and preventive measures, the implementation of which provides optimal conditions for human life, preservation and strengthening of health and prevention the emergence of various diseases

2. Name the founder of hygiene as an independent science:

And Minh OO

W. Pettenkofer M.

S. Dobroslavin OP

D. Mechnikov II

E. Pasteur L.

3. Name the main purpose of hygiene:

- A. Preservation and strengthening of human health
- B. Study of the state of the environment
- C. Study of etiology and pathogenesis of diseases
- D. Substantiation of hygienic standards and criteria of human health
- E. Forecasting the sanitary situation for the future

4. Name the main periods of development of hygiene as a science:

- A. Ergonomic and physiological
- B. Revolutionary and evolutionary
- C. Empirical and experimental-scientific
- D. Industrial and post-industrial
- E. Soviet and post-Soviet

5. Name the environmental factors that affect human health:

- A. Genetic, phenotypic
- B. Physical, chemical, biological, psychological

- C. Psychological, psychophysiological, physiological
- D. Global, population, individual
- E. Collective, individual, personal

4.4. Ensuring the educational process

1. Multimedia projectors, computers, screens for multimedia presentations, lecture presentations.
2. Demonstration screens, laptops, files in Power Point and Word with tasks for practical and final classes.
3. Exam tickets.

For successful completion of the course it is obligatory to use literature sources located in the libraries of the university and the city, the Internet, software - MS Word, Excel.

Students are also given the opportunity to use educational and scientific literature from the library of the department and medical institute of the Black Sea National University named after Petro Mohyla, as well as electronic textbooks, which are downloaded into the Moodle system.

A number should be used to assess and select teaching methods available classifications based on different principles:

- according to the source of knowledge (verbal, visual and practical methods are separated, because there are no other sources than words, images and experience);
- at the appropriate stage of training, each of which solves specific tasks (focus on methods of preparing learners to study the material, which involves the awakening of interest, cognitive needs, updating of basic knowledge, necessary skills and methods of learning new material, and methods of concretization and deepening of knowledge, acquisition of practical skills that contribute to the use of knowledge, and methods of monitoring and evaluation of learning outcomes);

- by the method of directing educational activities without direct or indirect (from the separate methods of explanation of the teacher and various methods of organizing independent work of students);
- by the logic of the educational process (reliance on inductive and deductive, analytical and synthetic methods);
- for didactic purposes, separate methods of organizing the activities of those who are taught, methods of stimulating activities, such as competitions, contests, games, incentives and other methods of testing and evaluation.

5. Final control

In the 4th semester - credit, in the 5th semester - exam.

Modern didactics distinguishes the following methods of control: methods of oral control, methods of written control, methods of practical control, didactic tests, observations, methods of graphic control, methods of programmed and laboratory control.

In accordance with the requirements of the regulations of the educational process for the successful acquisition of knowledge by students and their objective assessment is carried out:

- **systematic current control of knowledge** is carried out during practical classes in the form of selective oral examination and test tasks, preparation of reports on the topic of the lesson, additions to reports, participation in discussions, presentation of independent tasks.

- **certification** takes place in the form of a standardized survey on theoretical issues, students write current written test tasks, practical tasks on meaningful modules;

- **assessment of the level of performance of individual work** is carried out on the basis of checking the content of work and its protection in the form of a report, abstract.

- **the individual task** is checked for compliance with the design in accordance with the requirements, as well as the completeness, thoroughness of the material, the presence of interesting facts and examples, conclusions.

List of control questions for credit

1. Hygiene as a scientific discipline, its purpose, tasks, objects of study.
2. Sanitation. Definitions, types of sanitation and their characteristics.
3. Solar radiation and its hygienic value, the main components of solar radiation. Spectral composition of the ultraviolet part of solar radiation.
4. The main types of biological (biogenic and abiogenic) action of UVR and its features for each region of the spectral composition of UVR.
5. The concept of erythematous, physiological, prophylactic dose of UFO.
6. Artificial sources of UVR, and their use for preventive purposes.
7. Health disorders and diseases associated with deficiency and excess of UVR and measures for their prevention.
8. Definition of "Weather", factors that characterize the weather and their hygienic significance.
9. Definition of "Weather", factors that shape the weather and their hygienic significance.
10. Definition of "Climate", climate-forming factors and their hygienic significance.
11. Definition of "Climate", climatic characteristics and their hygienic significance.
12. Human helioteotropic reactions, definitions, specific and nonspecific manifestations of human helioteotropic reactions. Measures to prevent heliometeotropic reactions.
13. Describe the main thermobaric formations, their impact on public health.
14. Influence of meteorological conditions on the dynamics of atmospheric air pollution.
15. The use of climatic factors for health and prevention purposes.
16. Physical nature and hygienic value of natural light.
17. Types of artificial lighting sources, their comparative characteristics (advantages, disadvantages).
18. Comparative characteristics of incandescent and fluorescent lamps. Hygienic assessment.

19. Hygienic value of water. Physiological functions of water in the human body.
20. Epidemiological significance of water.
21. Classifications of methods of purification, disinfection of water, their comparative hygienic characteristics.
22. The concept of general and special methods of water purification, their hygienic characteristics, indications and contraindications for use.
23. Methods of water disinfection and their hygienic characteristics. Advantages and disadvantages of water disinfection methods.
24. Organoleptic indicators of water quality and their hygienic characteristics.
25. Indicators of water quality by chemical composition, their hygienic value.
26. Indicators that characterize the epidemic safety of water (sanitary-microbiological and sanitary-chemical indicators) and their hygienic value.
27. Features of occurrence and signs of water epidemics (give examples of water epidemics).
28. Endemic importance of water. The role of water in the occurrence of geochemical endemics (give examples of endemic diseases).
29. Toxicological significance of water (give examples of diseases).
30. Fluoridation and defluoridation of drinking water as a hygienic problem. Methods of fluoridation and defluoridation of drinking water, indications and contraindications to their use.
31. Hygienic, epidemic and endemic value of soil.
32. Basic physical properties of soil and their hygienic value.
33. The main biotic and abiotic components of the soil, their hygienic characteristics.
34. Soil as a factor in the transmission of infectious diseases.
35. Sources of soil contamination, their classification and hygienic characteristics.
36. Processes of self-cleaning of soil from organic substances (to represent schematically).
37. Waste disposal systems, their hygienic characteristics.
38. Sanitary cleaning of settlements, ensuring the collection and removal of solid waste. Methods of solid waste disposal.

39. Modern directions of solid and liquid household and industrial waste management.
40. The main sources of air pollution, air of residential and public premises.
41. The main air pollutants of residential (public) premises, the main indicators of the degree of pollution of the premises.
42. Influence of different concentrations of carbon dioxide on the human body, methods for determining the concentration of CO₂ in the air.
43. Hygienic value of ventilation of residential and public buildings, indicators of ventilation efficiency.
44. Definition of "microclimate", its hygienic value.
45. Hygienic value of air humidity, humidity indicators, measurement methods.
46. Hygienic value of the temperature of the surrounding objects (radiation temperature, infrared radiation), measurement methods.
47. Hygienic value of indoor air movement, measurement methods.
48. Principles of hygienic standardization of microclimate parameters in residential and public buildings.
49. Influence of a heating microclimate on a human body, ways of prevention of its influence.
50. Influence of cooling microclimate on a human body, ways of prevention of its influence.
51. Name the clinical and physiological indicators of the state of the organism, which are studied in the study of the complex effects of the microclimate on the human body.
52. Specific and nonspecific effect of noise on the human body, noise disease.
53. Fundamentals and principles of hygienic noise regulation. Measures to reduce the adverse effects of noise on the human body.
54. Biological action of vibration, vibration disease. Fundamentals and principles of hygienic vibration normalization.
55. Types of work, their physiological and hygienic characteristics.
56. Fatigue, explanations and scientific substantiation of their development. Prevention of fatigue during physical and mental work.
57. Indicators (ergonomic, physiological) of the difficulty of work, their hygienic value.

58. Indicators (ergonomic, physiological) of labor intensity, their hygienic value.
59. Sources and hygienic value of dust in the air of industrial premises.
60. Properties of dust on which the degree of harmfulness of its influence on an organism depends. Pneumoconiosis, their types, pathogenesis and prevention.

The list of questions to be taken for the exam in the discipline "Hygiene and Ecology":

1. Hygiene as a scientific discipline, its purpose, tasks, objects of study.
2. The main types of biological (biogenic and abiogenic) action of UVR and its features for each region of the spectral composition of UVR.
3. The concept of erythematous, physiological, prophylactic dose of UFO.
4. Artificial sources of UVR, and their use for preventive purposes.
5. Health disorders and diseases associated with deficiency and excess of UVR and measures for their prevention.
6. Definition of "Weather", factors that shape and characterize the weather, their hygienic significance.
7. Definition of "Climate", climate-forming and climate-characterizing factors, their hygienic value.
8. Human helioteotropic reactions, definitions, specific and nonspecific manifestations of human helioteotropic reactions. Measures to prevent heliometeotropic reactions.
9. Describe the main thermobaric formations, their impact on public health.
10. Physical nature and hygienic value of natural light.
11. Types of artificial lighting sources, their comparative characteristics (advantages, disadvantages).
12. Hygienic value of water. Physiological functions of water in the human body.
13. Classifications of methods of purification, disinfection of water, their comparative hygienic characteristics.
14. The concept of general and special methods of water purification, their hygienic characteristics, indications and contraindications for use.
15. Methods of water disinfection and their hygienic characteristics. Advantages and disadvantages of water disinfection methods.

16. Organoleptic indicators of water quality and their hygienic characteristics.
17. Indicators of water quality by chemical composition, their hygienic value.
18. Indicators that characterize the epidemic safety of water (sanitary-microbiological and sanitary-chemical indicators) and their hygienic value.
19. Endemic importance of water. The role of water in the occurrence of geochemical endemics (give examples of endemic diseases).
20. Fluoridation and defluoridation of drinking water as a hygienic problem. Methods of fluoridation and defluoridation of drinking water, indications and contraindications to their use.
21. Hygienic, epidemic and endemic value of soil.
22. Basic physical properties of soil and their hygienic value.
23. The main biotic and abiotic components of the soil, their hygienic characteristics.
24. Soil as a factor in the transmission of infectious diseases.
25. Sources of soil contamination, their classification and hygienic characteristics.
26. Waste disposal systems, their hygienic characteristics.
27. Sanitary cleaning of settlements, ensuring the collection and removal of solid waste. Methods of solid waste disposal.
28. Modern directions of solid and liquid household and industrial waste management.
29. The main sources of air pollution, air of residential and public premises.
30. The main air pollutants of residential (public) premises, the main indicators of the degree of pollution of the premises.
31. Influence of different concentrations of carbon dioxide on the human body, methods for determining the concentration of CO₂ in the air.
32. Hygienic value of ventilation of residential and public buildings, indicators of ventilation efficiency.
33. Definition of "microclimate", its hygienic value.
34. Hygienic value of air humidity, humidity indicators, measurement methods.
35. Hygienic value of the temperature of the surrounding objects (radiation temperature, infrared radiation), measurement methods.
36. Hygienic value of indoor air movement, measurement methods.

37. Principles of hygienic standardization of microclimate parameters in residential and public buildings.
38. Influence of a heating microclimate on a human body, ways of prevention of its influence.
39. Influence of cooling microclimate on a human body, ways of prevention of its influence.
40. The effect of noise on the human body, noise sickness. Fundamentals and principles of hygienic noise regulation. Measures to reduce the adverse effects of noise on the human body.
41. Biological action of vibration, vibration disease. Fundamentals and principles of hygienic vibration normalization.
42. Types of work, their physiological and hygienic characteristics.
43. Fatigue, explanations and scientific substantiation of their development. Prevention of fatigue during physical and mental work.
44. Indicators of severity and intensity of work, their hygienic value.
45. Sources and hygienic value of dust in the air of industrial premises. Pneumoconiosis, their types, pathogenesis and prevention.
46. Criteria for assessing the health of children and adolescents. Features of the distribution of children and adolescents by health groups.
47. Assessment of physical development by a comprehensive method. The concept of biological and calendar age.
48. Physical development as an important criterion for assessing health. The main indicators of physical development. Methods of assessing the physical development of children and adolescents.
49. Health disorders and diseases caused by environmental factors and the educational process.
50. Hygienic requirements for the land plot of a secondary school. The principle of functional zoning and its significance. Hygienic requirements for the building of a secondary school. Building systems, their characteristics.
51. Hygienic requirements for planning school class and placing desks in the classroom. Hygienic requirements for children's furniture, their physiological justification.

52. Hygienic principles of compiling and evaluating the daily routine of children and adolescents of different ages. Hygienic requirements for school schedules and methods of its evaluation.
53. Physiological and hygienic bases of assessment of a lesson of physical culture. Hygienic requirements for places of physical education classes. Features of the division of children into groups of physical education.
54. Concepts, principles and conditions of rational nutrition.
55. Changes in the human body in violation of the principles of nutrition. Classification of diseases of alimentary origin.
56. Physiological significance and basic functions of nutrition. Types of food.
57. Daily energy consumption of a person, its main components.
58. Classification of nutrients (nutrients) and their functions in the body.
59. Method of calculating human energy consumption from anthropometric and timekeeping data.
60. Methods of calculating human needs for nutrients.
61. The most common hypovitaminosis in individual and collective nutrition, their causes, methods and means of diagnosis and their prevention.
62. Food poisoning of microbial nature. Types, prevention.
63. Food poisoning of non-microbial nature. Types, prevention.
64. Principles of nutrition of people of different ages, professions, athletes.
65. Tasks and content of preventive sanitary supervision, stages of work of sanitary subservice at carrying out preventive sanitary supervision.
66. Tasks and content of current sanitary supervision.
67. Hygienic requirements for the planning and improvement of treatment and prevention facilities. Modern hospital building systems, their comparative characteristics.
68. Occupational hazards, hygiene and labor protection of medical personnel of surgical profile.
69. Occupational hazards, hygiene and labor protection of medical staff of therapeutic profile.
70. Nosocomial infection. Definition, main routes of transmission, prevention of STIs.
71. Radiation hygiene as a branch of hygienic science and sanitary practice, its purpose and tasks. Ionizing radiation as an industrial hazard.

72. Classification and characterization of ionizing radiation sources involved in the formation of human radiation exposure.
73. Features of biological action of ionizing radiation on the human body. The main types of radiation damage to the body and the conditions of their occurrence.
74. Groups of radiation-hygienic regulated quantities, their purpose.
75. The concept of the dose limit of the human body. Radiation dose limits for different categories of the population and staff.
76. Methods and means of radiation control when working with sources of ionizing radiation.
77. Types of radiation exposure (external and internal radiation) on the body, the conditions on which they depend.
78. Features of radiation danger and radiation protection when working with sources of ionizing radiation.
79. . Characteristics of radiation hazard in the X-ray diagnostic room and the conditions on which it depends. Requirements for X-ray room planning.
80. Ways to reduce the radiation exposure of staff and patients of medical institutions.
81. Define the concept of "Healthy lifestyle", name the subjective and objective methods and means of a healthy lifestyle.
82. Features of sanitary supervision in the Armed Forces. Tasks, forces and means of medical service for hygienic support, civilian formations.
83. Peculiarities of occupational hygiene of liquidators of consequences of catastrophes.
84. Hygienic requirements for temporary compact placement of military, civilian formations, rescue teams and the affected population in emergencies depending on climatic, weather and seasonal conditions.
85. Organization of food for military and civilian formations in the field during emergencies and during the war, its forms (collective, group, individual).
86. Responsibilities of the medical service, methods and means of hygienic control over the completeness and safety of food of personnel of formations and the affected population in the field in emergencies, in combat.
87. Determination of military hygiene. Subject, task.

88. Features of drinking water requirements in the field during emergencies and during war. Hygienic characteristics of different sources of water supply in terms of their use in emergencies and during war.

89. Methods of disinfection and water purification and features of their use in field conditions in emergencies and during war.

90. Characteristics of methods for decontamination of water from radioactive products of nuclear explosions.

Example of a test ticket

CREDIT TICKET № 0

Petro Mohyla Black Sea National University

Level of higher education - master

Field of knowledge: 22 "Health care"

Specialty 222 "Medicine"

Academic discipline

Hygiene and ecology

Option № 0

1. Hygiene as a scientific discipline, its purpose, objectives, objects of study.
2. Physical nature and hygienic value of natural light.
3. Hygienic value of air humidity, humidity indicators, measurement methods.

4. Sources and hygienic value of dust in the air of industrial premises.

Approved at a meeting of the Department of Hygiene, Social Medicine and Public Health. Protocol № ____ dated ____ 2020

Head of the Department

Doctor of Medicine Prof. Zyuzin VO

Examiner Ph.D.

Associate Professor (B.Sc.) Muntyan L.Ya.

Example of an exam ticket

EXAMINATION TICKET № 0

Petro Mohyla Black Sea National University

Level of higher education - master

Field of knowledge: 22 "Health care"

Specialty 222 "Medicine"

Academic discipline

Hygiene and ecology

Option № 0

1. The main types of biological (biogenic and abiogenic) action of UVR and its features for each region of the spectral composition of UVR.
2. Soil as a factor in the transmission of infectious diseases.
3. Definition of "microclimate", its hygienic value.

4. Biological action of vibration, vibration disease. Fundamentals and principles of hygienic vibration normalization.

Approved at a meeting of the Department of Hygiene, Social Medicine and Public Health. Protocol № ____ dated _____ 2020

Head of the Department

Doctor of Medicine, Prof. Zyuzin V.O.

Examiner Ph.D.

Associate Professor (B.Sc.) Muntyan L.Ya.

Example of the final control work on block 1

1. Define the concept of "solar radiation":

- A. Integral flux of corpuscular particles and electromagnetic radiation
- B. The force field generated by stationary electric charges
- C. Surface density of light
- D. Optical radiation
- E. Physical field due to magnetic field

2. List the main components of the electromagnetic spectrum of solar radiation:

- A. Gamma radiation, X-rays, ultraviolet radiation, infrared radiation, the visible part of the spectrum, radio radiation
- B. Gamma radiation, X-rays, ultraviolet radiation, the visible part of the spectrum, infrared radiation, radio radiation
- C. X-rays, gamma radiation, ultraviolet radiation, visible part of the spectrum, radio radiation, infrared radiation

D. X-rays, gamma radiation, infrared radiation, ultraviolet radiation, visible part of the spectrum, radio radiation

E. Gamma radiation, X-rays, ultraviolet radiation, visible part of the spectrum, radio radiation, infrared radiation

3. Indicate the correct distribution of the main components of solar radiation (infrared: visible: ultraviolet radiation) at the upper limit of the atmosphere:

A. 40%: 45%: 15%

B. 43%: 52%: 5%

S. 55%: 25%: 20%

D. 59%: 40%: 1%

E. 60%: 35%: 5%

4. Specify the correct distribution of the main components of solar radiation (infrared: visible: ultraviolet radiation) on the Earth's surface:

A. 40%: 45%: 15%

B. 43%: 52%: 5%

S. 55%: 25%: 20%

D. 59%: 40%: 1%

E. 60%: 35%: 5%

5. Name what percentage of the total energy of solar radiation near the Earth's surface is the energy of ultraviolet rays:

A. 1%

B. 5%

C. 40%

D. 55%

E. 59%

6. Name the wavelength of the ultraviolet radiation range:

A. 10-290 nm

B. 10-400 nm

Pp. 760-800 nm

D. 760-10000 nm

E. Over 1000 nm

7. The range of the ultraviolet component of the solar spectrum reaching the earth's surface:

A. 10-400 nm

B. 290-400 nm

C. 400-700 nm

D. 760-1500 nm

E. 760-3000 nm

8. Name the biological effects of ultraviolet radiation:

A. Generally stimulating, tonic

B. Heat-forming, diuretic

C. Biogenic, abiogenic

D. Formation of free radicals, synthesis of actomyosin

E. Hematopoietic, pigment-forming

9. Name which types of biological action of ultraviolet radiation are biogenic:

A. Bactericidal, general stimulating

B. Bactericidal, carcinogenic

C. Antirachitic, general stimulating, pigment-forming

D. Photoallergenic, phototoxic

E. Antirachitic, carcinogenic

10. Name what types of biological effects of ultraviolet radiation are abiogenic:

A. Bactericidal, general stimulating

B. Bactericidal, carcinogenic

C. Antirachitic, general stimulating, pigment-forming

D. Photoallergenic, phototoxic

E. Antirachitic, carcinogenic

11. Indicate which areas will be divided into the range of ultraviolet radiation:

A. A, B

- B. A, B, C
- S. A, B, C, D
- D. A, B, C, D, E
- E. Hell, Bd, Sd, Dd

12. Specify the wavelength inherent in the area A of ultraviolet radiation:

- A. 10-280 nm
- B. 50-200 nm
- Pp. 100-250 nm
- D. 280-315 nm
- E. 315-400 nm

And so 20 tasks with the subsequent analysis of typical errors

An example of the final control work on block 2

1. Cases of nosocomial acute respiratory viral diseases are registered in the children's infectious diseases hospital. Hospitals are not equipped with supply and exhaust ventilation. The presence of boxes and semi-boxes in accordance with the design solutions is not provided. The data of laboratory analysis of air allowed to detect the following content of carbon dioxide (CO_2) in hospital wards: in ward №1 - 0.15%, in ward №2 - 0.25%, in ward №3 - 0.07%. Indicate in the air of which chamber the CO_2 content meets the hygienic requirements:

- A . In the ward №3
- B . In the ward №1
- C . In the ward №2
- D . In all chambers
- E . In no ward

2. The hospital ward measuring $5 \times 3.5 \text{ m}^2$ has two windows. Ventilation of the chamber is carried out by 4 times opening the windows during the day. Determination of carbon dioxide content was performed by passing air canisters through Drexel glasses with alkaline solution. Name the allowable content of carbon dioxide (CO_2) in the air of the chamber.

- A . 0.1%
- B . 0.04%
- C . 0.01%

D . 0.15%

E . 0.20%

3. In order to assess the microclimatic conditions of the ward of the therapeutic department on behalf of the doctor, the nurse made measurements. Measurement results: average air temperature - 20 ° C, air velocity - 0.2 m / s, relative humidity - 58%. Give a hygienic assessment of the microclimate of the ward.

A . The microclimate is comfortable

B . The microclimate is uncomfortable of cooling type

C . The microclimate is uncomfortable of heating type

D . The microclimate is uncomfortable with high humidity

E . The microclimate is uncomfortable with high air speed

4. The full box of the infectious department has an area of 22 m². What is the maximum number of beds it can be designed for?

A . 1

B . 2

C . 3

D . 4

E . 5

5. The frequency of exceeding the maximum permissible concentration of a toxic substance in the atmosphere is 100. What changes in the health of the population should be expected?

A . Acute poisoning

B . Expressed physiological changes in organs and systems

C . Increase in specific and nonspecific morbidity

D . Minor changes in health by some functional indicators

E . Changes in the health of the population will not be detected

6 . Microclimatic indicators were measured in the operating room of the regional clinical hospital. The results of the research: the average air temperature is 22 °C, relative humidity - 48%, air velocity - 0.1 m / s. Give a hygienic assessment of the operating room microclimate.

A . The microclimate is comfortable

B . The microclimate is uncomfortable

C . The microclimate is uncomfortable with high humidity

- D. The microclimate is uncomfortable cooling
- E. The microclimate is uncomfortable with high air velocity

7. At bacteriological research of air in chamber of therapeutic department the high level of pollution is defined. The room with an area of 28 m² has 4 beds, ventilation is carried out through the windows twice a day, the entrance to the department is equipped with a lock, garbage removal twice a day, wet cleaning in the morning and evening. What are the reasons for the increase in bacterial air pollution of the chamber?

- A. Insufficient ventilation
- B. Insufficient area for 1 bed
- C. Insufficient multiplicity of garbage removal
- D. Insufficient multiplicity of wet cleaning
- E. Lack of mechanical ventilation

8. During the sanitary inspection of the regional infectious diseases hospital it was established that it was built according to the decentralized (pavilion) system. Branches consist of boxes, semi-boxes and boxed wards. The area of each box and semi-box is 20 m², the orientation of the windows to the east, the light factor (SC) 1: 5, the coefficient of natural light (KPO) - 1.0%. Which of the following parameters does not meet the hygienic requirements?

- A Area of boxes and semi-boxes
- B Building system
- C Orientation of windows
- D Light factor
- E Coefficient of natural light (KPO)

9. During the sanitary inspection of the operating multi-profile hospital revealed: operating room area 38 m², windows oriented to the south, general lighting with fluorescent lamps - 400 lux., Air temperature in the operating room - 20 °C, air exchange rate - 10 times in 1 hour., sterile air supply is provided. Which of the following indicators does not meet hygienic standards?

- A. Orientation of windows
- B. Operating area
- C. Type and level of lighting
- D. air temperature
- E. Multiplicity of air exchange

293. Sterile gauze masks are used to protect the respiratory organs from respiratory infections. How often should they be changed?

- A. What 4 years
- B. Every two days
- C. Every day
- D . Hourly
- E. Weekly.

10. During the control over the observance of the terms of sale of perishable products at the food block of the central district hospital it was established that the products are stored at a temperature of 0-6 ° C, with frozen meat stored for 2 days, boiled sausage - 1.5 days, frozen fish - 1 day, sour cream - 2.5 days, butter - 12 days. For which of the following products are the shelf life violated?

- A. Butter
- B. Boiled sausage
- C. Frozen meat
- D . Cream
- E. Frozen fish

11. A patient with a previous diagnosis of cholera was admitted to the admission department of an infectious disease hospital. Where should the patient be placed?

- A. In boxing
- B. In the isolator
- C. In the semi-box
- D . In a separate room
- E. In the intensive care unit

12. During the sanitary and hygienic examination of the hospital ward it was established:

air temperature - 20 ° C, air velocity - 0.25 m / s, CO₂ content -0.4%, oxidation - 6.0 mg / m³ relative humidity - 60%. At the expense of what measures it is possible to improve sanitary and hygienic conditions of stay of patients in ward?

- A. Reduce air velocity
- B. Lower the air temperature
- C. Raise the air temperature
- D . Reduce air oxidation

E. Increase the relative humidity

And so 20 tasks with the subsequent analysis of typical errors

6. Evaluation criteria and diagnostic tools for learning outcomes

Distribution of points assigned to students

The maximum number of points assigned to students when mastering the block (credit) - 200 points, including for current educational activities - 120 points (the sum of points for current educational activities and for independent work of the student), according to the results of modular final control - 80 points.

The purpose of control - to conduct an objective, systematic analysis of the study and assimilation of future specialists in vchalno software- th material in accordance with the requirements of qualification characteristics, curricula, typical programs and labor discipline.

The tasks of control are to express in the evaluation criteria the knowledge and skills acquired by students on fragments of topics, individual topics and sections of program material in the discipline in order to further optimize the educational process, timely eliminate gaps in students' knowledge, their accustoming to independent work.

Form of control - 1) control of current performance at each practical lesson; 2) periodic academic certification as a result of the accumulation of current grades; 3) final lesson in the discipline.

Methods of control - 1) oral examination on the materials of topics and sections; 2) programmable komp` Books and bezkomp` computers tion control; 3) control of solving situational, typical and atypical problems.

The control of success at each practical lesson is carried out in the form of control of initial and final level of knowledge.

Control of the initial level of knowledge.

The control of the initial level of knowledge reflects the result of mastering by students of material on providing departments and courses, and also independent out-of-class preparation of students for the corresponding subject of employment.

The control of the initial level of knowledge is carried out in the form of an oral survey (see methodical materials for practical classes), sketching of schemes and filling of clichéd drawings. Duration of control of the initial level of knowledge is 20-25 minutes.

Tools for diagnosing learning success:

In the process of teaching students the following methods of control are used: methods of oral control, methods of written control, methods of practical control, didactic tests, observations, methods of graphic control, methods of program and practical control. In accordance with the requirements of the regulations of the educational process for the successful acquisition of knowledge by students and their objective assessment is carried out:

- systematic current control of knowledge during practical classes in the form of selective oral examination and test tasks, preparation of reports on the topic of the lesson, additions to reports, participation in discussions, presentation of independent tasks.

- certification in the form of a standardized survey on theoretical issues, students write current written test tasks, practical tasks on the content blocks ;

- assessment of the level of individual work on the basis of checking the work (content and specificity, sufficient completeness of the question; completeness of each opinion, no repetitions; economic literacy; correctness of the work) and its protection.

Distribution of points received by the student

In the autumn semester, a positive grade in each practical session can be from 4 to 8 points. A score below 4 points means "unsatisfactory", the lesson is not credited and is subject to practice in the prescribed manner. At the final test (RCC) for block 1, a student can get a maximum of 80 points. PKR is considered credited if the student scored at least 50 points.

In the spring semester, a positive assessment in a practical session can be from 2.5 to 5 points. A score below 2.5 points means "unsatisfactory", the lesson

is not credited and is subject to practice in the prescribed manner. At the final test (RCC) for block 2, the student can get a maximum of 40 points. PKR is considered credited if the student scored at least 30 points.

Assessment of student performance

Type of activity (task)	Maximum number of points
Block 1	
Topic 1	8
Topic 2	8
Topic 3	8
Topic 4	8
Topic 5	8
Topic 6	8
Topic 7	8
Topic 8	8
Topic 9	8
Topic 10	8
Topic 11	8
Topic 12	8
Topic 13	8
Topic 14	8
Together	120
Final control work on block 1	80
Together for block 1	200
Block 2	
Topic 1	5
Topic 2	5
Topic 3	5
Topic 4	5
Topic 5	5

Topic 6	5
Topic 7	5
Topic 8	5
Topic 9	5
Topic 10	5
Topic 11	5
Topic 12	5
Topic 13	5
Topic 14	5
Topic 15	5
Topic 16	5
Together	80
Final control work on block 2	40
Together for block 2	120
Exam	80
Together for block 2 and the exam	200

In order to assess the learning outcomes of the discipline , the **final control** is conducted **in the form of an exam, which is recommended for academic disciplines, which is part of the integrated test exams EDKI and "Step-2"**. Only students who have passed both final tests (according to blocks 1 and 2) in the discipline are admitted to the exam .

Criteria for assessing knowledge

Score 8 points in the autumn semester (5 points in the spring semester), 71-80 points on the RCC in the autumn semester (38-40 points in the spring semester) and 71-80 points on the exam (A on the ECTS scale and 5 on the national scale) the student's answer is evaluated if it demonstrates a deep knowledge of all theoretical positions and the ability to apply theoretical material for practical analysis and has no inaccuracies.

Score 5-6 points in the autumn semester (4 points in the spring semester), 61-70 points on the RCC in the autumn semester (35-37 points on the RCC in

the spring semester) and 61-70 points on the exam (B and C on the ECTS scale) and 4 on a national scale) the answer is evaluated if it shows knowledge of all theoretical provisions, the ability to apply them in practice, but some fundamental inaccuracies are allowed.

Score 4 points in the autumn semester (3 points in the spring semester), 50-60 points on the RCC in the autumn semester (30-34 points on the RCC in the spring semester) and 50-60 points on the exam on the ECTS D and E scale and 3 on a national scale) the student's response is evaluated provided that he knows the main theoretical principles and can use them in practice.

7 . Recommended sources of information.

1. Textbooks .
2. Methodical development of practical classes .
3. Sets of tasks for complex tests .
4. Materials of lectures and practical classes for multimedia presentations.
5. Methodical recommendations on the organization of lectures, practical classes, individual research work , independent work of students .
6. Demonstration materials, instructions for the use of technical teaching aids (devices and equipment)
7. Normative legal acts of Ukraine in the current edition.

1.

2.

7.1. Basic

1. The Constitution of Ukraine.
2. Fundamentals of Ukrainian legislation on health care.
3. Law of Ukraine "On Ensuring Sanitary and Epidemic Welfare of the Population".
4. Fundamentals of ecology: A textbook for students. higher education institutions /V.G. Bardov, VI Fedorenko, EM Biletskaya and others. - Vinnytsia: Nova Kniga, 2013. - 424 p.
5. Radiation hygiene: a textbook for interns and listeners / [Murashko VO, Mechev DS, Bardov VG etc.]. - Vinnytsia: Nova Kniga, 2013. - 376 p.

6. Occupational health: Textbook / YI Kundiev, OP Yavorovsky, AM Shevchenko and others; for order. acad. NAS of Ukraine, NAMS of Ukraine, prof. Yu.I. Kundieva, Corresponding Member NAMS of Ukraine prof. OP Yavorovsky. - К .: ВСВ "Медицина", 2011. - 904с.

7. Prevention of nosocomial infections (hygienic, epidemiological and microbiological aspects) / edited by VF Moskalenko - К .: "Health", 2013. - 160 p.

8. General hygiene. Socio-hygienic monitoring: textbook. for universities / PI Melnichenko [etc.]: ed. PI Melnichenko. - М .: Practical Medicine, 2015. - 512 p.

9. Military hygiene (general issues): textbook MI Khyzhnyak, LI Bidnenko, VM Yakymets [etc.]; for ed. prof. MI Khyzhnyak. - К .: УВМА, 2011. - 528 с.

7.2. Additional:

10. Hygiene and ecology: Textbook / Edited by VG Bardova. - Vinnytsia: Nova Kniga, 2006. - 720 p.

11. Human hygiene and ecology. Textbook for students of higher educational institutions / Under the general editorship. VG Bardova / Translation into Ukrainian. - Vinnitsa, N Peninsula book , 20 0 8 - 72 sec.

12. Hygiene and ecology. Textbook for students of higher medical educational institutions / Edited by VG Bardov / in English. - Vinnytsia: Nova Kniga, 2009. - 688 p.

13. Preventive medicine. General hygiene with the basics of ecology. I.I. Datsenko, RD Gabovich. Textbook, 2 editions. - Kyiv: "Health", 2004. - 792 p.

1 4 . Public hygiene. For order. Goncharuka EG Textbook. Kyiv, "Health", 2003. - 728p.

1 5 . Food hygiene with the basics of nutrition: Textbook; in 2 books. - Book: / For ed. prof. VI Cyprian. К .: Медицина, 2007. - 544 с.

1 6 . Occupational health and safety of medical workers. Textbook / Ed. VF Moskalenko, OP Yavorovsky. - К .: «Медицина», 2009. - 176 с.

1 7 . Pashko KO Military hygiene with hygiene in emergencies. - Ternopil; Ukrmedkniga, 2005. - 312 p.

1 8 . Badyuk MI, Levchenko FM, Tokarchuk VP, Solyaryk VV etc. Organization of medical support of troops: Textbook. [for students. higher honey. lock Education of

Ukraine III-IV levels of accreditation] / Ed. Professor Paska VV - К .: «МП Леся», 2005. - 425 с.

19. Occupational hygiene (research methods and sanitary-epidemiological surveillance). / For ed. AM Shevchenko, OP Yavorovsky. - Vinnytsia: NEW BOOK, 2005.- 528p.

20. Hygiene and labor protection of medical workers / VI СВИДОВЫЙ, E.E. Palishkina- SPb .: IzdatelstvoSPb GMA im. П Mechnikova, 2006. - 90 p.

21. Hygiene. Textbook for practical classes for students of medical faculties VNZ //B.Я. Umansky, DO Ластков, А.М. Bezsmertny, NF Ivanytska and others. - Donetsk, 2004. - 384 p.

22. Introduction to preventive medicine. Methodological and historical aspects / VV Babienko, AM Grinzovsky, Yu.M. Vorokhta. Tutorial. К .: Slovo Publishing House, 2012. - 232 p.

23. Formation and development of hygienic science in Ukraine: the way through the epochs and social upheavals (second half of the XIX - 20s of the XX century): monograph / Kotsur NI - Korsun-Shevchenkivskiyi, 2011. - 726 p.

24. General hygiene, social and hygienic monitoring: a guide to practical classes. Section "General Hygiene": Textbook. manual / PI Melnichenko [etc.]. - М .: Practical Medicine, 2014. - 332 p.

25. Alimentary obesity as a hygienic problem: a monograph / LI Buryak, E.M. Biletska, S.A. Shchudro, L.V. Григоренко. - Dnepropetrovsk: "Thresholds", 2012. - 274 p.

26. Pivovarov Yu.P. Hygiene and basics of human ecology: A textbook for students. higher honey. textbook institutions /Yu.P. Пивоваров, В.В. Korolik, L.S. Zinevich. Ed. Yu.P. Пивоварова. - М .: Publishing Center "Academy", 2004. - 528 p.

27. Basic sanitary rules of radiation protection of Ukraine (OSPU-2005). - 136с.

28. Chaplyk VV Emergency medicine: a textbook for students of higher medicine. textbook institutions / Chaplyk VV, Oliynyk PV, Omelchuk ST - Vinnytsia: New book, 2012. - 352 p.

29. Trokhimchuk VV, Orphan PS, Grinchuk IG, Lototsky VV Extreme and military pharmacy: Textbook / Ed. Dr. Pharm. Sciences, Prof. VV Trokhimchuk. - Ternopil: Ukrmedknyha, 2003. - 332 p.
30. Epidemiology of extreme conditions with a course of military epidemiology / Andreychin MA, Kopcha VS, Krushelnytsky OD, Narozhnov VV - Ternopil: Ukrmedknyha, 2002. - 270 p.
31. Radiation hygiene: Textbook / Edited by prof. V.Ya. Umansky and prof. S.T. Omelchuk. - Donetsk: Nord-Press, 2009. - 143 p.
32. Hygiene and ecology in terms, schemes, tables and tests: textbook. method VF Москаленко, О.П. Yavorovsky, DO Lastkov, SI Garkavy and others. K .: VSV "Medicine", 2012. - 208 p.
33. General Hygiene: A Guide for Practical Classes / Ed. Datsenko II - Lviv, 2001. - 472 p.

Information INTERNET resources

1. Official Internet - Representation of the President of Ukraine <http://www.president.gov.ua>.
2. The Verkhovna Rada of Ukraine <http://www.rada.gov.ua/>.
3. The Cabinet of Ministers <http://www.kmu.gov.ua/>.
4. Ministry of Education and Science of Ukraine <http://www.mon.gov.ua/>.
5. Ministry of Ecology and Natural Resources of Ukraine <http://www.menr.gov.ua/>.
6. State Service of Ukraine for Emergencies <http://www.dsns.gov.ua/>.
7. National Security and Defense Council of Ukraine <http://www.rnbo.gov.ua/>.
8. Permanent Mission of Ukraine to the United Nations <http://ukraineun.org/>.
9. North Atlantic Treaty Organization (NATO) <http://www.nato.int/>.
10. World Health Organization <http://www.who.int/en/>.
11. educational portals of higher medical educational institutions of Ukraine.