PRIVATE HIGHER EDUCATIONAL INSTITUTION
"INTERNATIONAL ACADEMY OF ECOLOGY AND MEDICINE"
Department of Fundamental Disciplines

WORKING PROGRAM OF EDUCATIONAL DISCIPLINE

" Hygiene and Ecology "

LEVEL OF HIGHER EDUCATION Second (master's) level
DEGREE OF HIGHER EDUCATION Master's degree
BRANCH OF KNOWLEDGE 22 Healthcare
SPECIALTY 222 Medicine

Reviewed and approved
at the meeting of the Academic Council
Protocol No. 1, dated August 01, 2016

Kiev 2016

Working program of education discipline Hygiene and Ecology for the preparation of students of higher education of the second (master's) level of higher education in specialty 222 Medicine.

Introduction

The program in the academic discipline " Hygiene and Ecology " is compiled in accordance with the educational and professional program for the training of specialists of the second (master's) level of specialty 222 Medicine, fields of knowledge 22 Health care, the Law of Ukraine "On Higher Education" dated 07.01.2014. No. 1556- VII (Article 13, Clause 7), the provision "On the organization of the educational process at the International Academy of Ecology and Medicine", methodological recommendations approved by the Central Methodical Office of Higher Medical Education of the Ministry of Health of Ukraine regarding the development of programs of educational disciplines in accordance with industry standards of higher education. The discipline "Hygiene and ecology" belongs to the Professional training section of the training plan for students of higher education of the second educational (master's) level.

1. Description of the academic discipline

<table>
<tr><td>Name of indicators</td><td>Field of knowledge, direction of training, educational and qualification level</td><td>Characteristics of the academic discipline</td></tr>
<tr><td>The number of credits is 8,5</td><td>Branch of knowledge
22 " Healthcare "
(code and name)</td><td>full-time education</td></tr>
<tr><td rowspan="11">The total number of hours is 255</td><td rowspan="5">Specialty:
222
" Medicine "</td><td>Normative</td></tr>
<tr><td>Year prepared in ki</td></tr>
<tr><td>3rd</td></tr>
<tr><td>Semester</td></tr>
<tr><td>5 th | 6 th</td></tr>
<tr><td rowspan="6">Education level:
master</td><td>Lectures</td></tr>
<tr><td>20 hours</td></tr>
<tr><td>Practical, seminar</td></tr>
<tr><td>60 hours</td></tr>
<tr><td>Laboratory</td></tr>
<tr><td>0 hours</td></tr>
<tr><td>Independent work</td></tr>
<tr><td>175 hours</td></tr>
<tr><td>Individual tasks:</td></tr>
<tr><td>Type of control:
Current and final, modular</td></tr>
</table>

1. The purpose and tasks of the educational discipline

The purpose of studying the discipline "Hygiene and Ecology" - the formation of future specialists' knowledge, skills and competencies to ensure effective assessment of the impact of a complex of environmental factors on the human body and public health and the development of preventive and health-improving measures aimed at eliminating or reducing to safe levels the impact of negative factors for the preservation and strengthening of health I, disease prevention; acquisition by students of the necessary knowledge, skills, actions, target tasks, skills that correspond to the ultimate goals of learning the academic discipline in accordance with the OPP.

The main ones **tasks** the study of the discipline "Hygiene and Ecology" is the laying of 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) and practice of practical skills regarding: prevention of diseases of infectious and non-infectious origin in accordance to the basics of the current legislation of Ukraine; preventive and current sanitary supervision; mastering laboratory research methods (organoleptic, physical, chemical, biological, bacteriological methods); the use of favorable health factors of the environment for strengthening human health, hardening the body, etc. As a result of studying the academic discipline, the student must to be able to analyze the state of the environment, assess the impact of its factors on the health of various population groups, justify hygienic measures for the prevention of diseases.

2. Program of educational discipline

Thematic plan

Names of modules, submodules and topics	Number of hours		
	Lectuers	Practice – no classes	SRS
1	2	3	4
Hygiene as a science. Ecology as a science. Environment and human health. The biosphere and its hygienic importance. Bioethical aspects and biosafety issues of biosphere denaturation.	2	6	15
Weather and climate hygiene. Acclimatization, heliometeotropic reactions and their prevention, bioethical principles of assessing the impact of climate and weather conditions on human health.	2	6	15
Actual issues of communal hygiene (problems of urbanization, housing hygiene, microclimate, lighting, heating, ventilation, water and water supply, soil, cleaning of populated areas, biosafety of housing).	2	5	20
Current issues of occupational hygiene, biosafety in occupational hygiene.	2	6	15
Current issues of hygiene of children and adolescents. Issues of bioethics and biosafety in the hygiene of children and adolescents.	2	5	15
Nutrition as a health factor. Issues of biosafety in food hygiene.	2	6	15
Hygiene of medical and preventive facilities and prevention of nosocomial infections. The issue of biosafety in the activities of medical and preventive institutions.	2	5	15
Current issues of radiation hygiene. Issues of bioethics and biosafety when using ionizing radiation.	2	6	15
Basics of organizing sanitary and hygienic measures in the Armed Forces of Ukraine during peacetime and wartime emergencies. Hygiene of field placement of troops and population.	2	5	15
Basics of organizing and carrying out sanitary and medical supervision control over food and water supply of the personnel of the Armed Forces of Ukraine field conditions.	2	5	15
Preparation to exam	-	5	20
TOTAL	20	60	175

Program of educational discipline

The topic of the	Abstract
1. Hygiene as a science. Ecology as a science. Environment and human health. The biosphere and its hygienic significance. Bioethical aspects and biosafety issues of biosphere denaturation.	Hygiene and ecology as sciences, their purpose, tasks, content, connection with other sciences. The history of hygiene. Prophylactic orientation of domestic medicine, public and personal, primary, secondary and tertiary prevention, defining priorities. Sanitation as a branch of practical health care activity. Basics of hygiene methodology: general philosophical laws and categories, their use in hygiene. 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. Biosphere, its components (atmosphere, hydrosphere, lithosphere). Specific methods of hygienic research. The hygienic value of solar radiation. Teachings of V.I. Vernadsky about the noosphere. Hygienic significance of the biosphere. Denaturation of the biosphere. The main sources, types and consequences of anthropogenic pollution of atmospheric air and indoor air. Characteristics of sources of atmospheric pollution in the settlement. Patterns of distribution of pollutants in the atmosphere, factors on which the level of air pollution depends. Transformation of chemicals in atmospheric air. Impact of polluted air on the health and living conditions of the population. Ways and means of preventing the negative impact of polluted atmospheric air on health.
2. Weather and climate hygiene. Acclimatization, heliometeotropic reactions and their prevention, bioethical principles of assessing the impact of climate and weather conditions on human health.	Weather, definition of the concept. The main patterns of weather formation. Weather-forming and weather-characterizing factors. Direct and indirect influence of weather on human health. Medical weather classifications. Heliometeotropic reactions of a healthy and sick person. Prevention of heliometeotropic reactions: permanent, seasonal, urgent. The influence of weather on the dynamics of atmospheric air pollution. Concept of temperature inversion. Climate, definition of the concept. Climate-forming and climate-characterizing factors and indicators. General and applied (medical, construction) climate classifications. Climatic features of different geographical regions. Climate, health and working capacity. Acclimatization. Climatotropic reactions of healthy and sick people, their prevention. Use of climate for medical and health purposes. Peculiarities of the influence of different types of weather on the health of the elderly.
3. Actual issues of communal hygiene (problems of urbanization, housing hygiene, microclimate, lighting, heating, ventilation, water and water supply, soil, cleaning of populated areas, biosafety of housing).	Concept of urbanization. The influence of the urbanized environment on the health of the population. The variety of housing on its hygienic assessment. Building materials and microclimate, indoor air pollution, sanitary and technical equipment of apartments. Microclimate, heating, ventilation, natural and artificial lighting, methods of their measurement and hygienic assessment. Water as an environmental factor, its hygienic value. Consumption norms, general hygienic requirements for the quality of drinking water. Water as an etiological factor of non-infectious diseases. Danger to human health of excessive content in water of various chemicals of natural origin and chemical compounds that enter water sources and drinking water as a result of anthropogenic pollution during its purification and other methods of quality improvement. Concept of biogeochemical provinces. The role of water and water supply conditions in the spread of infectious diseases. Classification of infectious diseases, the causative agents of which are transmitted by water (cholera, typhoid, dysentery, etc.). The role of sanitary indicator microorganisms for the assessment of the quality of drinking water by bacterial composition (coli index, coli titer, microbial number). 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. Water purification methods. Decentralized water supply system. The general arrangement scheme of the main water supply facilities from underground and surface sources of water supply. water supply

	Water supply network and its arrangement. Causes of contamination and infection of water in the water supply network; prevention methods. Sanitary supervision of water supply in populated cities. Zones of sanitary protection of main buildings . Ground, definition of the concept. Origin, formation, mechanical structure, physical properties and chemical composition of soil. Hygienic evaluation 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 influence of contaminated soil on the health and sanitary living conditions of the population. Evaluation of the sanitary condition of the soil by chemical and biological indicators. Theoretical bases and methods of hygienic regulation - maximum permissible concentrations of harmful chemical substances in soil. The significance of the sanitary state of the soil and the sanitary protection of water bodies in the biosafety of the population. Principles of cleaning populated areas. Systems and structures for temporary storage, removal, disposal and utilization of solid and liquid waste of domestic and industrial origin. Sewerage of populated areas, its importance in the prevention of infectious diseases. The influence of sewage in populated areas on the sanitary condition of the soil and living conditions of the population. General scheme and facilities for cleaning domestic wastewater. Wastewater treatment and sanitary protection of water bodies. The concept of small sewage and the conditions of its use. Features of collection, temporary storage, removal and disposal of waste from medical and preventive facilities (wastewater, waste from surgical, infectious and other departments). Methods of disposal and disposal of industrial and radioactive waste.
4. Current issues of occupational hygiene, biosafety in occupational hygiene.	The social and hygienic significance of work. work physiology, harmful factors of the labor process. Changes in physiological processes in the human body during work and their physiological and hygienic evaluation. The concept of occupational hazards and occupational diseases, their classification. Organization of the workplace. Ergonomics. Physiological and hygienic features of the work of an elderly person. Hygienic requirements for work regime. Sanitary legislation on labor protection. Harmful and dangerous factors of working conditions and production environment. The influence of physical factors of the industrial environment (noise, vibration, high- frequency electromagnetic oscillations, etc.) on the health of workers. Industrial microclimate, the factors that determine it, the impact of an unfavorable microclimate on the health of workers, preventive measures. Hygienic requirements for heating, ventilation and lighting of industrial premises. Occupational diseases and poisoning and their prevention.
5. Actual issues of hygiene of children and adolescents. Issues of bioethics and biosafety in the hygiene of children and adolescents.	Hygiene of labor, physical, psychophysiological education and upbringing of children and adolescents. Methods of their hygienic assessment. Methods of hygienic assessment of equipment and maintenance of educational institutions for children and adolescents. Methods of studying age-related psychophysiological characteristics of children and adolescents. Hygienic evaluation of the educational regime of children of different age groups. Medical professional consultation and medical professional selection of adolescents in school and clinic conditions. Evaluation criteria and health indicators of children and adolescents. Methodology of comprehensive assessment of the state of health of children and adolescents. Hygienic requirements for the organization of extracurricular and school activities and students' free time. Peculiarities of the distribution of children and adolescents by health groups. Tasks of the doctor regarding the organization and conduct of health-improving activities in children's groups (schools, gymnasiums, lyceums, colleges, boarding schools, vocational schools, orphanages, preschools, work and recreation camps, extracurricular facilities).

6. Nutrition as a health factor. Issues of biosafety in food hygiene.	Food hygiene, its environmental and social problems. The method of assessing the nutritional status of a person, his needs in food substances and energy. Scientific bases of rational, preventive, curative, dietary and curative-prophylactic nutrition. Methods of assessment of adequate nutrition according to the menu-layout, provision of vitamins. Physiological and hygienic value of nutrients and hygienic characteristics of food products. Theoretical aspects and methods of prevention of alimentary and alimentary-related diseases. Methods of investigation and prevention of food poisoning. Hygienic basics of medical, dietary and medical and preventive nutrition.
7. Hygiene of medical and preventive facilities and prevention of nosocomial infections. The issue of biosafety in the activities of medical and preventive institutions.	Hygienic assessment of placement and planning of individual structural units of the hospital according to project materials. Peculiarities of planning and arrangement of specialized hospitals and departments. Hygienic evaluation of conditions of stay of patients and occupational hygiene of medical workers in treatment and prevention institutions.
8. Current issues of radiation hygiene. Issues of bioethics and biosafety when using ionizing radiation.	Radiation hygiene, anti-radiation protection in medical institutions and other objects where sources of ionizing radiation are used . Methods and means of radiation control. Calculation methods of anti-radiation safety assessment and external radiation protection parameters. Hygienic evaluation of anti-radiation protection of personnel and radiation safety of patients when using ionizing radiation in medical institutions.
9. Basics of organizing sanitary and hygienic measures in the Armed Forces of Ukraine during peacetime and wartime emergencies. Hygiene of field placement of troops and population.	Definition and content of military hygiene in emergency situations in peacetime and in wartime. 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 intended for actions in emergency situations in peacetime and in wartime. Organization and implementation of temporary deployment of military and civilian emergency rescue formations for liquidators of the consequences of emergency situations. Peculiarities of the organization and implementation of sanitary and hygienic measures in emergency situations and combat situations, taking into account the peculiarities of military field conditions. Hygiene of field placement of troops and population. Types of field housing, their hygienic assessment. Placement in populated areas, promising field facilities. The concept of fortification structures, their types, characteristics of the main requirements for them (habitability). Peculiarities of the microclimate and chemical composition of the air in closed fortifications and their effect on the body. Sanitary supervision of bathhouse and laundry service for the personnel of formations and the injured population. Procedure for collecting and burying the dead. Duties of the military medical service. Occupational hygiene of the personnel of the Armed Forces of Ukraine during the liquidation of the consequences of emergency situations and during wartime.
10. Basics of organizing and carrying out sanitary and medical supervision control over food and water supply of the personnel of the Armed Forces of Ukraine field conditions.	Organization of food in emergency situations, during wartime. Food standards for personnel and their characteristics. Food in conditions of contamination of the area and objects with highly effective poisonous substances, radioactive and contamination with bacterial (biological) substances, in conditions of possible use of weapons of mass destruction. Organization and conduct of medical examination of food in conditions of possible contamination with radioactive, poisonous substances and bacterial agents. Maximum permissible levels of radioactive and toxic substance concentrations in products in emergency situations. Prevention of food poisoning. Selection of water sources and assessment of their quality with the help of reporting tools. Assessment of water quality, report sets and devices, their tactical and technical data, research methods. Field water supply points, hygienic requirements for them. Equipment. Organization and implementation of sanitary supervision of cleaning, disinfection, decontamination of water in emergency situations. Cleaning, decontamination, decontamination of OR, decontamination, desalination of water in field conditions, in emergency situations and during wartime.

Learning outcomes.

According to with requirements educational and professional programs students should:

know:

- symptoms and course of diseases;
- methods of diagnostic and therapeutic procedures appropriate for specific disease states;
- methods of individual and population health assessment, different systems of disease classification and medical procedures;
- ethical, social and legal conditions for practicing the medical profession and the principles of health promotion, based on scientific evidence and accepted standards;
- the importance of environmental xenobiotics, including their exogenous transformation and the role of biomarkers (exposure, effects, vulnerability) in the diagnosis of environmental and occupational diseases.

be able to:

- plan the diagnostic procedure and interpret its results;
- identify medical problems and prioritize medical management;
- plan own learning activities and constantly learn in order to update own knowledge;
- communicate and share knowledge with colleagues in a team;
- collect information on the presence of risk factors for communicable and chronic diseases and plan prevention activities at different levels of prevention;
- cooperate with other professions in the field of health protection;
- conducts community interview, is able to interpret levels of pollution in the aspect of effective standards, and is able to identify organs and systems susceptible to harmful substances, the performance of individual xenobiotics present in the environment and the working environment.

is ready to:

- to be guided by the well-being of a patient;
- promote health-promoting behaviors;
- perceive and recognize own limitations and self-assessing educational deficits and needs;
- use objective sources of information.

Teaching methods.

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

1. Verbal methods: lecture, conversation, interactive lecture;
2. Visual methods: illustration, demonstration, demonstration at the patient's bedside.
3. Practical methods: performing practical work and solving clinical situational tasks to develop skills and abilities; simulation training.
4. Students' independent work on understanding and assimilation of new material
5. Use of control and educational computer programs
6. Innovative teaching methods: Case-based learning (Learning through the analysis of a clinical case, situation); brain storm; educational discussion; educational debate; role play; team-based learning; think-pair-share.

The types of training according to the curriculum are: lectures; practical training; independent work of acquirers.

Control methods.

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

Forms of current control are: *in the* dream survey (frontal, individual, combined), interview; **practical verification of the formed professional skills** (carried out based on the results of solving clinical cases, working with medical documentation, performing practical skills, working at the patient's bedside); **test control** ("open" and "closed" test tasks).

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

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

The final (summary) control is carried out :

- in the form of a written test, which includes test tasks, theoretical questions
- control of practical skills (solving clinical cases, medical history protection, assessment of correct performance of practical skills - practical-oriented exam .

According to the specifics of professional training, preference is given to test and practically oriented control.

The form of final control of study success.

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

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

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

Scheme of calculation and distribution of points received by students.

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

The first and second semesters of studying the discipline end with a credit.

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

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

The learner receives credit at the last lesson in the discipline based on the results of the current assessment.

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

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

Table 1. Recalculation of the average grade for the current activity into a multi-point scale (for disciplines ending with a differential credit)

4-point scale	120-point scale	4-point scale	120-point scale	4-point scale	120-point scale	4-point scale	120-point scale
5	120	4.45	107	3.91	94	3.37	81
4.95	119	4.41	106	3.87	93	3.33	80
4.91	118	4.37	105	3.83	92	3.29	79
4.87	117	4.33	104	3.79	91	3.25	78
4.83	116	4.29	103	3.74	90	3.2	77
4.79	115	4.25	102	3.7	89	3.16	76
4.75	114	4.2	101	3.66	88	3.12	75
4.7	113	4.16	100	3.62	87	3.08	74
4.66	112	4.12	99	3.58	86	3.04	73
4.62	111	4.08	98	3.54	85	3	72
4.58	110	4.04	97	3.49	84	Less than 3	Not enough
4.54	109	3.99	96	3.45	83		
4.5	108	3.95	95	3.41	82		

The maximum number of points that a student can score for the current educational activity for admission to the diff. credit is 120 points.

The minimum number of points that a student must score for the current educational activity for admission to the diff. the credit is 72 points. The calculation of the number of points is carried out on the basis of the grades received by the student on a 4-point (national) scale during the study of the discipline, by calculating the arithmetic mean (CA), rounded to two decimal places.

Assessment of individual student tasks . Points for individual tasks are awarded only under conditions of their successful completion and defense. The number of points awarded for different types of individual tasks depends on their volume and importance, but no more than 10-12 points. They are added to the sum of points scored by the student in classes during the current educational activity. In no case can the total amount for the current activity exceed 120 points.

Assessment of students' independent work . Students' independent work, which is provided for by the topic of the lesson along with classroom work, is evaluated during the current control of the topic in the corresponding lesson. The mastery of topics that are presented only for independent work is checked during the final control. The maximum number of points that a student can score while taking the diff. credit is **80 points.**

The evaluation of the final control is considered passed if the student scored at least 60% of the maximum number of points (for a 200-point scale – at least **50 points**).

Determining the number of points a student has scored in a discipline: the number of points a student has scored in a discipline is determined as the sum of points for the current educational activity and for the final control (dif. credit).

Conversion of the number of points from the discipline into grades on the ECTS scale and on the four-point (traditional) scale

Subject scores are independently converted to both the ECTS scale and the national grading scale, but not vice versa. **Table 2.**

Criteria for setting the assessment according to the traditional 4-point and ECTS scale for taking the exam :

Score in points	Rating by national scale	Rating according to the ECTS scale
180-200	Perfectly	A
160 -179	Fine	B
15 0-159		C
130 -149	Satisfactorily	D
120 -129		E
50 - 119	Unsatisfactorily	FX
0-49		F

Evaluation criteria.

During the evaluation of the mastery of each topic for the current educational activity, the higher education applicant is given grades according to the national (traditional) scale, taking into account the approved evaluation criteria:

- *grade "excellent" (5)* - the student flawlessly mastered the theoretical material of the topic of the lesson, demonstrates deep and comprehensive knowledge of the relevant topic, the main provisions of scientific primary sources and recommended literature, thinks logically and constructs an answer, freely uses the acquired theoretical knowledge when analyzing practical material, expresses his attitude to certain problems, demonstrates a high level of assimilation of practical skills;
- *grade "good" (4)* - the student has mastered the theoretical material of the lesson well, has the main aspects from primary sources and recommended literature, presents it with arguments; possesses practical skills, expresses his thoughts on certain problems, but certain inaccuracies and errors are assumed in the logic of the presentation of theoretical content or in the performance of practical skills;
- *rating "satisfactory" (3)* - the student has basically mastered the theoretical knowledge of the subject, orients himself in primary sources and recommended literature, but answers unconvincingly, confuses concepts, additional questions cause the student uncertainty or lack of stable knowledge; when answering questions of a practical nature, reveals inaccuracies in knowledge, does not know how to evaluate facts and phenomena, connect them with future activities, makes mistakes when performing practical skills;
- *rating "unsatisfactory" (2)* - the student has not mastered the educational material of the topic, does not know scientific facts, definitions, hardly orients himself in primary sources and recommended literature, lacks scientific thinking, practical skills are not formed.

Estimates given on a traditional scale are converted into points. The minimum number of points that a student must score for the current academic activity per semester for admission to the exam is 120 points.

Approved:

Україна * м.Київ * Приватний заклад вищої освіти "МІЖНАРОДНА АКАДЕМІЯ ЕКОЛОГІЇ ТА МЕДИЦИНИ" Ідентифікаційний код 37857335

В.о.Ректора /Acting Rector **Mykhailo SALIUTA**