



MINISTRY OF HEALTH OF UKRAINE
ODESA NATIONAL MEDICAL UNIVERSITY
Department of Biophysics, Informatics and Medical Devices

APPROVE
Acting vice-Rector for Scientific and Pedagogical Work
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WORK PROGRAM ON THE CURRICULUM
" Technical safety of working with medical equipment"

Level of higher education: second (master)

Field of knowledge: 22 "Health care"

Specialty: 222 "Medicine"

Educational and professional program: Medicine

The work program is compiled on the basis of the educational and professional program of the second level of higher education for the preparation of masters in the specialty 222 "Medicine" of ONMedU, approved by the Scientific Council of ONMedU from August 23, 2022 (protocol No. 9).

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The work program was approved at the meeting of the Department of Biophysics, Informatics and Medical Equipment.

Protocol No. 14 of June 27, 2022.

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Protocol No. 6 dated June 30, 2022.

Reviewed and approved at the meeting of the Department of Biophysics, Informatics and Medical Equipment.

Protocol No. 1 dated August 30, 2022.

Head of the department  _____ Leonid GODLEVSKY

1. Description of the academic discipline:

Name of indicators	Characteristics of the academic discipline	
	Full-time education	
The total number of: Credits - 3 Hours - 90 Content subdivisions – 3	Selective	
	A year of training	2
	Semester	III
	Lectures	-
	Seminary	30 years
	Independent work	60 hours
	Including individual tasks	0
	Final control form	Diff. test

2. The purpose and tasks of the educational discipline — competences, program learning outcomes

The purpose: the study of the discipline is the theoretical and practical preparation of higher education students for the organization of safe work in health care institutions and institutions based on knowledge of labor law and the current legislation of Ukraine on the specified issues, through the assimilation of scientifically based norms of legal behavior of workers, education of the conscious attitude of workers to existence in environmental conditions, mastering the methodology of forecasting and detection of harmful environmental factors. The educational program provides for in-depth training of students of higher education to preserve the life and health of people both in everyday life and at work, as well as in emergency situations of various origins, including when eliminating the consequences of accidents and disasters in industry, on transport, radiation and chemically dangerous objects, as well as in areas of natural disasters (earthquakes, floods, landslides, fires, etc.).

Task. In the process of studying the discipline "Safety techniques for working with medical equipment", students of higher education master the skills of working with regulatory and legal documentation, which is a necessary element of safety in the professional activity of a doctor. Educational goal: master the skills of working with the State System of Regulatory and Technical Documents (STD), study the structure of regulatory documents taking into account the legal interdependence of the Constitution, Laws, State Standards of Ukraine (DSTU), including the System of Occupational Safety Standards (OSS), Normative Legal Acts on labor protection (NPAOP), State Sanitary Norms and Rules (DSanPin), Sanitary Norms and Rules (SNiP), orders and methodological instructions in the field of labor protection in accordance with the relevant current legislation and legal acts.

The process of studying the discipline is aimed at forming elements of the following competencies:

general

- GC2. Ability to learn and master modern knowledge
- GC3. Ability to apply knowledge in practical situations
- GC5. Ability to adapt and act in a new situation
- GC6. Ability to make informed decisions
- GC7. Ability to work in a team
- GC8. Ability to interpersonal interaction
- GC9. Ability to communicate in a foreign language
- GC12. Determination and persistence in relation to assigned tasks and assumed responsibilities
- GC16. The ability to evaluate and ensure the quality of the work performed
- GC17. Efforts to preserve the environment, analyze clinical data

Special

SC9. Ability to carry out medical evacuation measures

SC11. Ability to solve medical problems in new or unfamiliar environments in the presence of incomplete or limited information, taking into account aspects of social and ethical responsibility

SC15. The ability to conduct an examination of working capacity

SC16. Ability to maintain medical documentation, including electronic forms

SC17. The ability to assess the impact of the environment, socio-economic and biological determinants on the state of health of an individual, family, population

Program learning outcomes

PLO6. To establish a final clinical diagnosis by making a reasoned decision and analyzing the received subjective and objective data of clinical, additional examination, carrying out differential diagnosis, observing the relevant ethical and legal norms, under the control of the managing physician in the conditions of the health care institution (according to the list 2).

PLO15. To organize the provision of medical aid and medical evacuation measures to the population and military personnel in emergency situations and hostilities, including in field conditions.

PLO21. Search for the necessary information in the professional literature and databases of other sources, analyze, evaluate and apply this information.

PLO23. Assess the impact of the environment on human health in order to assess the morbidity of the population.

PLO24. To organize the necessary level of individual safety (own and the persons he cares for) in case of typical dangerous situations in the individual field of activity.

PLO30. Determine the management tactics of persons subject to dispensary supervision (children, pregnant women, workers whose professions require mandatory dispensary examination).

3. Content of the academic discipline

Content module 1. State standards and other normative documents operating in the field of health care and safety technology,

Topic 1. Organization of occupational health and safety in medical institutions and institutions of higher medical education

Subsection 3.1. Order of the Ministry of Health of Ukraine No. 268 dated 30.09.1994 "On the occupational safety service of the system of the Ministry of Health". Planning of labor protection measures. Acts on labor protection, operating in medical and preventive institutions, their composition and structure. Instructions on labor protection. Branch programs for improving the state of safety, occupational hygiene and the industrial environment. Offices of industrial safety and labor protection, main tasks and areas of work. Identifying, assessing and reducing the risks of hazardous events, quality management and safety culture. Occupational health and safety service of a medical and preventive institution, its structure, number, main tasks and functions. Instruction on occupational health and safety issues. Stimulation of labor protection. Socio-economic effect of labor protection of medical workers. Order of the Ministry of Education and Culture of Ukraine No. 563 dated 01.08.2001 "On approval of the Regulation on the organization of labor protection work of participants in the educational process in institutions and educational institutions."

Topic 2. Legal and organizational foundations of labor protection

NTD and their classification. The Constitution of Ukraine, its importance in the formation of the NTD system. . Reasons and signs of legal responsibility according to the current system of NTD of Ukraine. DSTU, their importance in the NTD system of Ukraine. SNiP, their importance in the NTD system of Ukraine. DSanPiN in the NTD system of Ukraine. NPAOP in the NTD system of Ukraine. Orders in the NTD system of Ukraine.

Topic 3. Hygiene and physiology of work, importance for creating safe working conditions

Labor hygiene and physiology - definition, purpose, tasks, research methods.

Classification of dangerous and harmful production factors.

The main physiological signs of physical and mental work. Physiological changes that occur in the organs and systems of the body during work.

Human capacity, dynamics and reasons for its changes during the working day.

Physiological essence of fatigue, existing theories and modern understanding of the mechanism of its occurrence.

Ways to prevent the development of fatigue.

Content module 2. Effect of physical factors on the human body. Emergency aid in case of accidents.

Topic 4. Professional hazards in the performance of functional duties of medical workers.

Production environment. Classification of harmful and dangerous factors. Requirements for the microclimate of the premises of medical and preventive facilities. Noise, its physical characteristics, nature of action on the body and preventive measures. Vibration disease, its manifestations and prevention. Ultrasound and infrasound. Reduced and increased atmospheric pressure. Electromagnetic fields, their impact on the human body and measures to prevent negative effects. Laser radiation, its application in medicine. The main classes and types of industrial poisons. Biological factors of the production environment.

Task(s) for self-training (extracurricular work).

Topic 5. Hygienic characteristics of the working conditions of medical workers

Familiarize yourself with the legislative and regulatory documents on occupational health and safety of medical workers. Study the order of the Ministry of Health of Ukraine "On the approval of the hygienic classification of work according to indicators of harmfulness and dangerous factors of the production environment, difficulty and tension of the labor process."

Topic 6. Emergencies and accidents at the LPZ, their investigation and accounting

Measures for the prevention of occupational diseases, accidents, injuries among medical workers.

The collective and labor agreement as a reflection of labor protection legislation. Social insurance fund against accidents at work and occupational diseases. Requirements for personal protective equipment and work clothes of medical workers. General safety requirements for technological equipment and processes in oil refineries. Safety during operation of pressure equipment and cryogenic equipment. Electrical safety. Conditions under which a person may be electrocuted. Fire prevention in the design and operation of medical facilities and medical equipment.

Content module 3. Safety rules when working with physiotherapy equipment

Topic 7. Hygiene and labor protection in medical institutions

Hygienic significance of the internal layout of buildings of medical institutions and dental offices to ensure hygiene and occupational safety. Personal hygiene of patients and medical personnel in the health care system and provision of favorable working conditions and prevention of hospital-acquired infections and occupational diseases. Articles of the Constitution of Ukraine on labor protection. Sanitary legislation in the field of labor protection. The Code of Labor Laws (KZpP), its main constituent provisions. "Hygienic classification of work according to indicators of harmfulness and dangerous factors of the production environment, difficulty and tension of the labor process", approved by the order of the Ministry of Health of Ukraine No. 248 dated 04/08/2014. Physical industrial hazards, their classification, significance in occupational pathology. Chemical industrial hazards, their classification, significance in occupational pathology. Biological industrial hazards, their classification, significance in occupational pathology. Psychophysiological industrial hazards, their classification, significance in occupational pathology. Methods and means of prevention of occupational pathology and labor protection in production.

Content module 4.**Topic 8. Influence of physical factors on the human body**

Production environment. Classification of harmful and dangerous factors. Requirements for the microclimate of the premises of medical and preventive facilities.

Noise, its physical characteristics, nature of action on the body and preventive measures.

4. Vibration disease, its manifestations and prevention. Ultrasound and infrasound. Reduced and increased atmospheric pressure Electromagnetic fields, their impact on the human body and measures to prevent negative effects. Laser radiation, its application in medicine. The main classes and types of industrial poisons. Biological factors of the production environment. Task(s) for self-training (extracurricular work)

Content module 5.**Topic 9. Safety rules during electrical procedures**

Electromagnetic fields, their impact on the human body and measures to prevent negative effects. safety rules when working with electrical appliances, devices operating under pressure in structural subdivisions; rules of safety technology in structural divisions of LPU of various profiles; basics of fire safety; causes of fires and their prevention in health care institutions; characteristics of the surrounding, production and household environment;

Topic 10. Preparation for the test. Organization of occupational health and safety in medical institutions and institutions of higher medical education. Practical safety rules during electrical procedures.

4. The structure of the academic discipline

Topic	Number of hours					
	In total	Including				
		L.	Sem.	Pr.	Lab.	IWS
Content module 1. State standards and other normative documents operating in the field of health care and safety technology,						
Topic 1. Organization of occupational health and safety in medical institutions and institutions of higher medical education	4	0	4	0	0	6
Topic 2 Legal and organizational foundations of labor protection	2	0	2	0	0	6
Topic 3. Hygiene and physiology of work, importance for creating safe working conditions	4	0	4	0	0	6
Content module 2. Effect of physical factors on the human body. Emergency aid in case of accidents						
Topic 4. Professional hazards in the performance of functional duties of medical workers	4	0	4	0	0	6
Topic 5. Hygienic characteristics of the working conditions of medical workers	2	0	2	0	0	6
Topic 6. Emergencies and accidents at the LPZ, their investigation and accounting	2	0	2	0	0	6
Content module 3. Safety rules when working with physiotherapy equipment						
Topic 7. Hygiene and labor protection in medical institutions	2	0	2	0	0	6
Content module 4. The influence of physical factors on the human body						

Topic 8. Influence of physical factors on the human body	4	0	0	0	0	6
Content module 5. Safety rules during electroprocedures						
Topic 9. Safety rules during electroprocedures	2	0	2	0	0	6
Topic 10. Preparation for the test	2	0	2	0	0	6
In total: hours:	90			0	30	60

5. Topics of lectures/seminars/practical/laboratory classes

5.1. Topics of lectures

Lectures are not provided.

5.2. Topics of seminar classes

№ z.p.	Topic	Years
1	Topic 1. Seminar lesson 1. State standards and other regulatory documents operating in the field of health care and safety technology Theoretical and practical training of students for the organization of safe work in institutions and health care facilities based on knowledge of labor law and current legislation of Ukraine on the specified issues. The concept of the discipline "Safety techniques for working with medical equipment".	4
2	Topic 1. Seminar class 2. Legal and organizational foundations of occupational health and safety in medical institutions and institutions of higher medical education. Planning of occupational health and safety measures. Acts on labor protection, operating in medical and preventive institutions, their composition and structure. Instructions on labor protection. Medical equipment that is the equipment of educational institutions and clinics	2
3	Topic 3. Seminar lesson 3. Hygiene and physiology of work, importance for creating safe working conditions	4
4	Topic 4. Seminar lesson 4. Professional hazards in the performance of functional duties of medical workers. Classification of harmful and dangerous factors. Requirements for the microclimate of the premises of medical and preventive facilities. Noise, its physical characteristics, nature of action on the body and preventive measures. Vibration disease, its manifestations and prevention. Ultrasound and infrasound. Reduced and increased atmospheric pressure. Electromagnetic fields, their impact on the human body and measures to prevent negative effects. Laser radiation.	4
5	Topic 5. Seminar lesson 5. Hygienic characteristics of the working conditions of medical workers, legislative and normative documents on occupational health and safety of medical workers. Order of the Ministry of Health of Ukraine "On the approval of the hygienic classification of work according to indicators of harmfulness and dangerous factors of the production environment, difficulty and tension of the labor process."	2

6	<p>Topic 6: Seminar lesson 6. Emergencies and accidents at the LPZ, their investigation and accounting</p> <p>Mechanisms of therapeutic action of preformed physical factors, methods of dosing procedures, reactions to procedures, indications and contraindications for physiotherapy; physiotherapy using electric currents; methods of physiotherapy using an electromagnetic field; methods of physiotherapy using mechanical vibrations; hydrotherapy, heat therapy and cryotherapy; manual therapy, massage; use of physiotherapy in diseases of organs and body systems.</p>	2
7	<p>Topic 7: Seminar lesson 7. Hygiene and labor protection in medical institutions</p> <p>Preservation of life and health of people both in everyday life and at work, as well as in emergency situations of various origins, including when eliminating the consequences of accidents and disasters in industry, transport, radiation and chemically hazardous objects .</p>	2

8	<p>Topic 8. Seminar lesson 8. The influence of physical factors on the human body</p> <p>The educational program provides for in-depth training of students of higher education to preserve the life and health of people both in everyday life and everyday life, as well as in production, as well as in the conditions of emergency situations of various origins in oil refineries, in industry, as well as in areas of natural disasters (earthquakes , floods, landslides, fires, etc.).</p>	2
9	<p>Topic 9. Seminar session 9. Safety rules during electroprocedures</p> <p>Safety rules during electroprocedures are very relevant during electroprocedures (electrophysiotherapy, electrosurgery, etc.) in modern medical procedures, particularly in emergency situations.</p>	2
10	<p>Topic 10. Seminar lesson 10. General overview of the material of the discipline. Preparation for the test. Differential calculation.</p> <p>Studying the discipline "Occupational safety and life safety" is an important step in expanding the outlook of future medical workers, their protection in the process of industrial and household activities in the conditions of emergency situations in peacetime and wartime. The need to ensure healthy and safe working conditions in health care institutions requires the need for appropriate training of specialists of higher medical educational institutions.</p>	2

5.3. Topics of practical classes

Practical classes are not provided.

5.4. Topics of laboratory classes

Laboratory classes are not provided.

6. Independent work of a student of higher education

№	Title of the topic / types of tasks	How many hours?
1	Topic 1. Preparation for a practical lesson 1	6
2	Topic 2. Preparation for a practical lesson 2	6
3	Topic 3. Preparation for a practical lesson 4	6
4	Topic 4. Preparation for a practical lesson 4	6
5	Topic 5. Preparation for a practical lesson 6	6
6	Topic 6. Preparation for a practical lesson 6	6
7	Topic 7. Preparation for a practical lesson 8	6
8	Topic 8. Preparation for a practical lesson 8	6
9	Topic 9. Preparation for a practical lesson 9	6
10	Topic 10. Preparation for a practical lesson 10 and diff. offset	6
	Total	60

7. Teaching methods

Seminar classes: conversation, checking the level of preparation, understanding and assimilation of theoretical material of the topic by students, discussion of complex issues of the topic, correction of possible mistakes, answers to questions and training exercises aimed at improving students' knowledge.

Independent work: independent work with recommended basic and additional literature, with electronic information resources.

8. Forms of control and evaluation methods (includes criteria for evaluating learning outcomes)

Current control: oral survey, assessment of practical problem-solving skills, assessment of class activity.

Final control: differential calculation.

The structure of the current assessment at the seminar session:

1. Evaluation of theoretical knowledge on the subject of the lesson:
 - methods: survey, problem solving;
 - maximum score – 5, minimum score – 3, unsatisfactory score– 2.
2. Assessment of practical skills on the subject of the lesson:
 - methods: assessment of the correctness of problem solving
 - maximum score – 5, minimum score – 3, unsatisfactory score– 2.

Current assessment criteria at the seminar session

Rating	Evaluation criteria
«5»	The applicant is fluent in the material, takes an active part in discussing and solving a situational clinical problem, confidently demonstrates practical skills during the review and interpretation of clinical, laboratory and instrumental research data, expresses his opinion on the subject of the lesson, demonstrates clinical thinking.
«4»	The applicant has a good command of the material, participates in the discussion and solution of a situational clinical problem, demonstrates practical skills during the review and interpretation of clinical, laboratory and instrumental research data with some errors, expresses his opinion on the subject of the lesson, demonstrates clinical thinking.

«3»	The acquirer does not have sufficient knowledge of the material, is unsure of participating in the discussion and solution of a situational clinical problem, demonstrates practical skills during the review and interpretation of clinical, laboratory and instrumental research data with significant errors.
«2»	The acquirer does not possess the material, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills during the review and interpretation of clinical, laboratory and instrumental research data.

Getter is admitted to differential credit provided that the requirements of the educational program are met and if he received at least 3.00 points for the current educational activity. Differential assessment is carried out at the last lesson.

The structure of the differential calculation

The content of the evaluated activity	Number
Answers to theoretical questions.	2

9. Criteria for evaluating the results of student learning on differential credit:

«5»	It is presented to a student who has worked systematically during the semester, has shown versatile and deep knowledge of the program material during the test, is able to successfully complete the tasks provided for by the program, has mastered the content of the main and additional literature, has realized the interrelationship of individual sections of the discipline, their importance for the future profession, showed creative abilities in understanding and using the educational program material, showed the ability to independently update and replenish knowledge; the level of competence is high (creative);
«4»	It is awarded to a student who has demonstrated complete knowledge of the curriculum material, successfully completes the tasks provided for by the program, has mastered the basic literature recommended by the program, has shown a sufficient level of knowledge in the discipline and is capable of their independent updating and renewal in the course of further education and professional activity; the level of competence is sufficient (constructive and variable)
«3»	It is presented to a student who has demonstrated knowledge of the basic curriculum material in the amount necessary for further education and subsequent work in the profession, copes with the tasks provided for by the program, made some mistakes in the answers on the differential assessment, but has the necessary knowledge to overcome the mistakes made under by the leadership of a scientific and pedagogical worker; level of competence - average (reproductive)
«2»	It is issued to a student who did not demonstrate sufficient knowledge of the main curriculum material, made fundamental mistakes in the answers on the differential assessment, cannot use the knowledge in further studies without the help of a teacher, did not manage to master the skills of independent work; the level of competence is low (receptive-productive)

9. Distribution of points received by students of higher education

The grade for the discipline consists of 50% of the grade for the current academic performance and 50% of the grade that the applicant received on the differential assessment.

The average score for the discipline is translated into a national score and converted into points on a multi-point scale (200-point scale).

The conversion of a traditional grade into a 200-point grade is performed by the information and technical department of the University using the "Contingent" program according to the formula:

$$\text{Average success score (current success in the discipline)} \times 40$$

Table of conversion of traditional assessment to multi-point assessment

National assessment for discipline	The sum of points for the discipline
Excellent ("5")	185 – 200
Good («4»)	151 – 184
Satisfactory ("3")	120 – 150
Unsatisfactory ("2")	Below 120

For by the ECTS rating scale the achievements of students in the educational component who are studying in the same course of the same specialty are evaluated, according to the points they received, by means of ranking, namely:

Conversion of the traditional grade from the discipline and the sum of points on the ECTS scale

Evaluation on the ECTS scale	Statistical indicator
A	Top 10% achievers
B	The next 25% of earners
C	The next 30% of earners
D	The next 25% of earners
E	The next 10% of earners

10. Methodological support

- Working program of the academic discipline
- Syllabus of the academic discipline
- Methodical developments for practical classes
- Methodical recommendations for independent work of higher education applicants
- Multimedia presentations

11. List of questions for the differential calculation

1. Basic principles of labor law.
2. Employment contract. Employment contract with young specialists.
3. Medical testinations.
4. Types of working hours.
5. Rest time.
6. Annual and additional holidays.
7. Concept of salary and principles of its differentiation.
8. Peculiarities of payment of health care workers in case of deviation from normal working conditions.
9. Labor discipline. Internal work schedule.
10. Responsibility for violation of labor discipline.
11. Material liability of employees for damage caused to the institution.
12. The Law of Ukraine "On Labor Protection".
13. The main legislative acts on labor protection.

14. The right of citizens to labor protection when concluding an employment contract.
15. Citizens' rights to labor protection while working at the enterprise.
16. Insurance of employees against accidents and occupational diseases, accidents at work.
17. Employees' rights to benefits and compensation for working in harmful working conditions.
18. Obligations of the owner to provide safe and sound working conditions.
19. Indemnification by the owner of damages to employees in case of damage to their health.
20. Duties of the employee regarding the implementation of regulatory acts on labor protection.
21. Training and testing of knowledge on labor protection.
22. Instruction on labor protection. Instructions on labor protection.
23. Supervision and control over compliance with labor protection requirements.
24. Operational control over occupational health and safety.
25. Causes of electric shock.
26. Effect of electric current on the human body.
27. Safety measures during operation of electrical equipment. Personal protective equipment.
28. First aid in case of electric shock.
29. Safety rules when working with electrical appliances, electromagnetic and laser installations.
30. Operating rules and safety techniques when working on steam sterilizers and autoclaves.
31. Admission of personnel to work on autoclaves.
32. Operating rules and safety techniques when working with cylinders filled with medical gas.
33. Types of gas cylinders, their classification.
34. Safety rules when working with oxygen cylinders.
35. Safety requirements when working with household gas and gas appliances.
36. First aid in case of gas poisoning.
37. Safety rules when working with potent substances.
38. Safety rules when working with poisonous substances.
39. Admission of personnel to work with poisonous and narcotic substances.
40. Personal protective equipment when working with HIV-infected patients.
41. Requirements for safety equipment and industrial sanitation during work in a physiotherapy office.
42. Safety rules during electroprocedures.
43. Safety rules during thermal procedures.
44. Safety rules during inhalation.
45. Safety rules during water and mud procedures.
46. Admission of personnel to work in a physiotherapy office.
47. Requirements for safety equipment and industrial sanitation for the premises of the operating room.
48. Requirements for overalls, special footwear and personal protective equipment for operating room workers.
49. Requirements for safety equipment during work in the operating room.
50. Safety techniques when working with flammable and explosive substances.
51. Safety and industrial sanitation requirements in the X-ray room.
52. Personal protective equipment for X-ray room workers.
53. Admission of personnel of the X-ray room to work.
54. Safety and industrial sanitation requirements for the premises of infectious and anti-tuberculosis hospitals.
55. Safety rules during work in infectious and anti-tuberculosis hospitals.
56. Safety rules when working with infected material.
57. Special clothing, special shoes, personal protective equipment for employees of infectious and anti-tuberculosis hospitals.
58. Admission to work of employees of infectious and anti-tuberculosis hospitals.
59. Labor protection of employees of psychiatric institutions.

60. Investigation and registration of accidents, occupational diseases and accidents at work. Acts on forms H-1, H-5.
61. Causes of fires in medical institutions.
62. Classification of fires.
63. Fire safety requirements in LPU.
64. Features of fire safety in premises with a large crowd of people.
65. Fire safety rules during operation of electric lighting and heating devices in healthcare institutions.
66. Fire prevention regime of the territory.
67. Organization of people's safety in case of fire.
68. Actions of a nurse during a fire.
69. Responsibility for the state of fire safety of medical institutions (hospital, polyclinic, FAP).
70. Evacuation plan.
71. Primary means of extinguishing fire.
72. Characteristics of the environment.
73. Characteristics of the production environment.
74. Harmful factors of the production environment.
75. Sources of pollution of the industrial environment.
76. Classification of harmful and dangerous factors.
77. Personal protective equipment for employees.
78. Microclimate of working conditions.
79. Methods and means of assessing microclimatic working conditions.
80. Natural disasters, their main types.
81. Characteristics of meteorological, topological, tectonic disasters.
82. Classification of natural disasters by categories.
83. Industrial accidents and disasters, their classification.
84. The main impacting factors during accidents and disasters, their parameters and consequences of impact on workers.
85. Actions of the population in case of accidents at work, where emergency response systems are used.
86. Actions of the population in case of accidents at nuclear power plants.
87. Assessment of the situation during emergency situations.
88. Notification of the population in emergency situations.
89. Principle of action, structure and use of personal protective equipment: gas masks GP-5, GP-7, respirators.
90. Medical means of individual protection: individual first-aid kit (AI-2), individual anti-chemical package (IPP-8), individual dressing package (PPI).
91. Respiratory protective equipment.
92. Skin protection products.
93. Engineering protection of the population: storage facilities, anti-radiation shelters, the simplest and quickly built structures.
94. Evacuation of the population from affected areas.
95. Evacuation of the population in case of accidents at chemically hazardous facilities.
96. Evacuation of the population in case of accidents at nuclear power plants.
97. Forces and means necessary during the rescue of the population in case of accidents.
98. Special and sanitary treatment of the affected.
99. Partial sanitation, complete; decontamination, degassing, disinfection.
100. Disinfection of clothes, shoes, water, food.

12. Recommended literature

Basic

1. The Labour Code.
2. The procedure for investigating and keeping records of accidents, occupational diseases and accidents at work. Approved by Resolution No. 1112 of the Cabinet of Ministers of Ukraine dated August 25, 2004.
3. Regulations on the medical testination of employees of certain categories. Approved by Order No. 45 of the Ministry of Health dated 31.03.94.
4. Regulations on the development of occupational health and safety instructions. Approved by the order of the State Supervision of Labor and Employment dated January 29, 1998 No. 9.
5. Bedrii Y.D., Dzhigerey V.S., Kidasiuk A.I. and others. Life safety: Education. manual. — Lviv: 1997. — 275 p.
6. Hogitashvili H.G., Lapin V.M. Basics of labor protection: Education. guide.— Lviv: Novy svit-2000, 2004. — 232 p.
7. Zharkov G.N. Occupational safety - K .: Vishcha school. Head publishing house. - 1988. - 279 p.
8. Kochin I.V., Chernyakov G.O., Sydorenko P.I. etc. Occupational health and safety of life activities of the population in emergency situations / Ed. I.V. Cochin — K.: Zdrovya, 2005 — 432 p.
9. Lapin V.M. Safety of human activities: Education. manual. — 3rd ed., pp. — K.: T-vo "Znannia", KOO. 2000. — 186 p.
10. Handbook on labor protection of health workers / Comp. K. N. Valyav. — M.: Medicine, 1972.
11. A standard provision on the procedure for conducting training and testing knowledge on occupational health and safety issues. — K.: Cabinet of Ministers of Ukraine, 2005. Approved by the Order of the State Committee of Ukraine for Supervision of Labor Protection dated January 26, 2005 No. 15.

Additional

1. Legislation of Ukraine on labor protection. In 3 volumes — K., 1995.
2. Occupational hygiene: Textbook / Yu.I. Kundiyev, O.P. Yavorovskiy, A.M. Shevchenko and others; under the editorship Acad. National Academy of Sciences of Ukraine, National Academy of Sciences of Ukraine, prof. Yu.I. Kundieva, member of staff National Academy of Sciences of Ukraine prof. O.P. Yavorovsky - K.: VSV "Medicine", 2011. - 904 p.
3. Health and safety of medical workers. Study guide / Ed. V.F. Moskalenko, O.P. Yavorovsky - K.: "Medytsyna", 2011. - 176 p.
4. "Hygienic classification of work according to indicators of harmfulness and dangerous factors of the production environment, difficulty and tension of the labor process", approved by the order of the Ministry of Health of Ukraine No. 248 dated 04/08/2014.

12. Information resources

<http://iomp.org>(International Organization of Medical Physics)

<https://aapm.org/default.asp>(Website of the American Association of Physicists in Medicine)

<https://aapm.onlinelibrary.wiley.com/journal/24734209>(Journal "Medical Physics")

<https://efomp.org>(Website of the European Federation of Medical Physicists)