

**MINISTRY OF HEALTH OF UKRAINE
KHARKIV NATIONAL MEDICAL UNIVERSITY
DEPARTMENT OF HYGIENE AND ECOLOGY No. 2**

**Methodical Materials
on the Course Unit
"Occupational Safety in the Field of Medicine"
For 5th-year students
On specialty 7.12010005 "Dentistry"**

Student _____

Faculty _____

Group _____

Kharkiv - 2019

Approved by the Academic Council of Kharkiv National Medical University.

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Plagiarism is the most difficult part of academic dishonesty for students' understanding [1].

Plagiarism – problems concerning unjustified behaviour of individuals as to illegal using objects of intellectual property [2], that is why copying and distribution of a part or the whole issue in any form is possible only with the authors' permission

1. lib.chdu.edu.ua/pdf/naukpraci/pedagogika/2002/20-7-3.pdf
2. <http://journals.uran.ua/index.php/2225-6407/article/view/16031>

The form of students' knowledge assessment. The form of final knowledge control is credit. The final control of assimilation of the discipline is carried out upon completion during the last lesson on the discipline.

The mark on the discipline is defined as the sum of marks of the current educational activity (in points), which are given at each lesson for the corresponding topic and the number of points for the individual tasks performed by the student. In order to account the discipline, the student must fulfill the requirements of the curriculum and receive a score of not less than 60% of the maximum amount for the current activity (for a 200-point scale - not less than 120 points).

Independent work of students, which is envisaged in the topic along with the classroom work, is evaluated during the current control of the topic at the corresponding lesson.

When assessing student's mastering of each topic and during final lesson, the student is given a mark according to the national 4-point scale.

The final mark for current progress is defined as an average arithmetical of national marks for each lesson, expressed in round numbers to 2 points after comma and recalculated in multi-point scale.

Recounting of an average mark for current activity in multi-point scale.

Recounting of an average mark for current activity in multi-point scale (for disciplines, which are finished with a credit)

4-point scale	200-point scale	4-point scale	200-point scale	4-point scale	200-point scale
5	200	4.22-4,23	169	3.45-3,46	138
4.97-4,99	199	4.19-4,21	168	3.42-3,44	137
4.95-4,96	198	4.17-4,18	167	3.4-3,41	136
4.92-4,94	197	4.14-4,16	166	3.37-3,39	135
4.9-4,91	196	4.12-4,13	165	3.35-3,36	134
4.87-4,89	195	4.09-4,11	164	3.32-3,34	133
4.85-4,86	194	4.07-4,08	163	3.3-3,31	132
4.82-4,84	193	4.04-4,06	162	3.27-3,29	131
4.8-4,81	192	4.02-4,03	161	3.25-3,26	130
4.77-4,79	191	3.99-4,01	160	3.22-3,24	129
4.75-4,76	190	3.97-3,98	159	3.2-3,21	128
4.72-4,74	189	3.94-3,96	158	3.17-3,19	127
4.7-4,71	188	3.92-3,93	157	3.15-3,16	126
4.67-4,69	187	3.89-3,91	156	3.12-3,14	125
4.65-4,66	186	3.87-3,88	155	3.1-3,11	124
4.62-4,64	185	3.84-3,86	154	3.07-3,09	123
4.6-4,61	184	3.82-3,83	153	3.05-3,06	122
4.57-4,59	183	3.79-3,81	152	3.02-3,04	121
4.54-4,56	182	3.77-3,78	151	3-3,01	120
4.52-4,53	181	3.74-3,76	150	Under 3	Not enough
4.5-4,51	180	3.72-3,73	149		
4.47-4,49	179	3.7-3,71	148		
4.45-4,46	178	3.67-3,69	147		
4.42-4,44	177	3.65-3,66	146		
4.4-4,41	176	3.62-3,64	145		
4.37-4,39	175	3.6-3,61	144		
4.35-4,36	174	3.57-3,59	143		
4.32-4,34	173	3.55-3,56	142		
4.3-4,31	172	3.52-3,54	141		
4,27-4,29	171	3.5-3,51	140		
4.24-4,26	170	3.47-3,49	139		

Credit. Number of topics of practical lessons does not stipulate a separate lesson for taking credit.

The results of taking credit are assessed by 2-point traditional scale: "passed", "failed".

To study the educational discipline, 90 hours are given, 3.0 ECTS credits.

Basic requirements of safety measures
« The Instruction on Safety of Life Activity»
For employees and students who work and study at the University
(approved by order of the Rector of KhNMU No. 412, 2008)

1. Instructing on safety of life activity is conducted by the teacher of the group before the beginning of the academic year.
2. Classes with students and post-graduates students are conducted on the basis of the internal regulations of the University and its rector's orders.
3. Very often accidents are caused by students' violations of the established rules of behaviour and regulations. In this connection, one should:
 - be attentive when moving on the territory of the University;
 - study the location of the premises and their exits;
 - keep to the right at oncoming movement;
 - not run on the territory of the University;
 - not stand and go under any cargo which moves, as well as in places of possible fall of various subjects;
 - in class, be attentive, not engaged in unauthorized activities and not distract his/her associates.

It is FORBIDDEN for students of the University:

- to switch on and off (except for emergencies) machines and mechanisms, whose operating was not charged by the head of works;
- to taste and smell chemical substances;
- to lean or climb out of the windows of premises;

It is necessary to maintain cleanliness and carry out requirements of personal hygiene on the territory of the University, in its laboratories, lecture halls, sanitary and personal service premises.

CONTENT

Basic requirements of safety measures

Section 1: General issues of occupational safety.

Subject 1: Legal and organizational fundamentals of occupational safety.

Section 2: Special issues of occupational safety in the field of medicine.

Subject 2: Hygienic characteristic of labour conditions of medical workers.

Subject 3: Accidents and damages in medical-preventive establishments, their investigation and registration.

Subject 4: Hygiene and occupational safety in medical establishments.

Subject 5: Fundamentals of industrial safety of medical workers.

Theoretical questions

Practical skills

Recommended literature

Section 1.
General issues of occupational safety

Subject No. 1. Legal and organizational fundamentals of occupational safety

Date " ____ " _____ 20__;

Name, year, group _____

Urgency and motivational characteristics. Mastering the skills of working with normative and legal documentation is an indispensable element of safety in the professional activity of a doctor.

Learning objective:

To master the skills of working with the State system of normative and technical documents (NTD), to study the structure of normative documents taking into account the legal inter-subordination of the Constitution, the Laws, State Standards of Ukraine, including the Occupational Safety Standards System (OSSS), regulatory acts on occupational safety, State Sanitary Norms and Rules, Building Norms and Rules (BN&R), orders and methodical instructions in the field of occupational safety in accordance with the current legislation and normative-legal acts.

As a result of studying the subject, the student should:

Know:

1. The structure of the NTD system in Ukraine.
2. General principles of legal mutual subordination of four levels of NTD.
3. Values of building norms and industrial microclimate in the field of occupational safety.

Be able to:

1. Select the necessary NTD when solving a specific life situation.
2. Assess the existence of legal action of NTD in Ukraine.
3. Use State Standards and other normative documents when solving the set tasks, to draw conclusions on the results of these tasks.

Questions for self-training:

1. NTD and their classification.
2. The Constitution of Ukraine, its importance in the formation of the NTD system.
3. Reasons and characteristics of legal responsibility in accordance with the current system of NTD of Ukraine.
4. State standards of Ukraine, their importance in the NTD system.
5. Building Norms and Rules, their significance in the system of NTD of Ukraine.
6. Sanitary Norms and Rules in the system of NTD of Ukraine.
7. Normative and legal acts on occupational safety in the system of NTD of Ukraine.
8. Orders in the system of NTD of Ukraine.

Tasks for self-training:

At home, the student should prepare answers to theoretical questions and define the following concepts:

Term	Definition
Occupational Safety	
NTD	
State Standard	
Sanitary Norms and Rules	

Building Norms and Rules	
Social dialogue	

Class work - at the lesson, the student gets acquainted with the structure and purpose of various types of normative and technical documentation of Ukraine.

Solve situational tasks.

Task No. 1.

At the international level, specialized establishments are occupied with problems of occupational safety. List them.

- 1) _____
- 2) _____
- 3) _____
- 4) _____

Task No. 2.

Name the main acts of legislation on problems of occupational safety.

- 1) _____
- 2) _____
- 3) _____
- 4) _____

Task No. 3.

Name kinds of responsibility for non-observance of legislation on occupational safety and point out, according to what normative document.

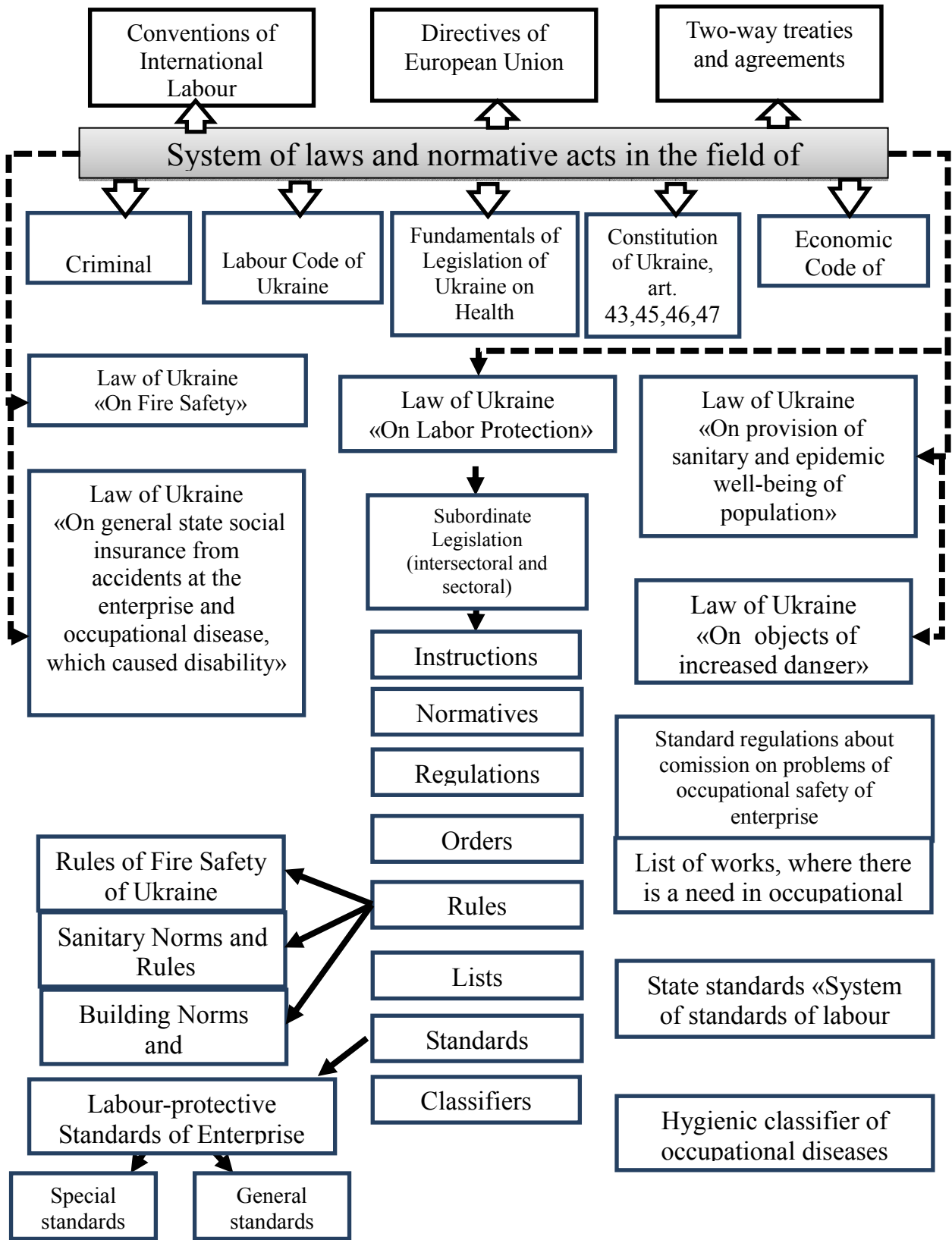
Task No. 4.

What kinds of instructions are carried out at the workplace? According to what normative document?

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____

Initial and final test control - tests of the open base.

**Graphologic structure of system of normative acts
in the field of occupational safety**



Recommended literature

Basic:

1. Occupational Health and Safety for Healthcare Workers: study guide / O. P. Yavvorovskyi, V. I. Zenkina et al.- 3rd edition. – Kyiv : AUS Medicine Publishing, 2018. – 120 p.
2. Гігієна та охорона праці медичних працівників. Навчальний посібник / За ред. В.Ф. Москаленка, О.П. Яворовського. – К.: «Медицина», 2009. – 176 с.
3. Гігієна праці: Підручник / Ю.І. Кундієв, О.П. Яворовський, А.М. Шевченко та ін.; за ред. акад. НАН України, НАМН України, проф. Ю.І. Кундієва, чл-кор. НАМН України проф. О.П. Яворовського. – К.: ВСВ “Медицина”, 2011. – 904 с.
4. Охорона праці у фармацевтичній галузі: Навчальний посібник / О.В.Жуковіна, О.І.Зайцев, О.І.Жуковін, Г.А.Грецька. - К.: Медицина, 2009. – 432 с.
5. Охорона праці в медицині і фармації/ В.М.Мороз, І.В.Сергета,Н.М.Фещук, М.П.Олійник. – Вінниця: Нова книга, 2005. – 544 с.
6. Закон України «Про охорону праці».
7. ДСТУ 2293-99 «Охорона праці. Терміни та визначення основних понять.»

Additional:

1. Constitution of Ukraine dated June 28, 1996 - К. 1996.
1. Конституція України від 28 червня 1996 р. – К. 1996.
2. Основи Законодавства України про охорону здоров'я від 19 листопада 1992 року // Відомості Верховної Ради України. – 1993. - № 4. - С. 19.
3. Кодекс законів про працю України. Закон № 322-VIII від 10.12.71.
4. Закон України «Про забезпечення санітарного та епідемічного благополуччя населення» від 24 лютого 1994 року // Відомості Верховної Ради України. – 1994. – № 27. – С. 217.

Teacher's signature _____

Section 2.

Special issues of occupational safety in the field of medicine

Subject No. 2. Hygienic characteristic of labour conditions of medical workers.

Date " ____ " _____ 20__;

Name, year, group _____

Urgency and motivational characteristics. The work of medical workers in modern conditions belongs to one of the most complex, intensive and responsible activities. Separate professional groups of medical workers in their daily activities have their own specific working conditions that can cause morbidity, including occupational, lead to the development of fatigue and overfatigue, loss of capacity for work. In order to prevent the negative influence of working conditions on health and capacity for work, it is necessary to observe safety regulations.

Learning objective:

1. To master the classification of harmful and dangerous production factors.
2. To get acquainted with the peculiarities of working conditions and the health state of doctors of different specialties.
3. To get acquainted with the main methods and criteria for sanitary-hygienic assessment of working conditions of medical workers.
4. To learn the classes of working conditions by indices of weight, intensity, harmfulness and danger of work.
5. To learn the notion about the certification of work places on working conditions.

As a result of studying the topic, the student should:

Know:

1. Harmful and dangerous production factors accompanying the work of medical workers and the peculiarities of their influence on the health of doctors of different specialties.
2. The main provisions of the order of the Ministry of Health of Ukraine "On the approval of the hygienic classification of labor by indices of harmfulness and hazard factors of the working environment, the weight and intensity of the labor process."

3. Personal protective equipment of doctors of different specialties.

Be able to:

1. Apply the requirements of legislative and normative documents for the introduction of methods of occupational safety of workers in the field of medicine.
2. Reveal harmful and dangerous factors at the workplace of doctors of different specialties and give their hygienic assessment.

Questions for self-training:

1. To get acquainted with the legislative and normative documents on labor protection of medical workers.
2. To learn the order of the Ministry of Health of Ukraine "About the approval of the hygienic classification of labor by indices of harmfulness and danger of factors of the working environment, weight and intensity of the labor process."

Tasks for self-training:

At home, the student should:

-prepare answers to theoretical questions:

1. The production environment. Classification of harmful and dangerous factors.
2. Hygienic features of working conditions and health state of doctors of different specialties.
3. The concept of weight, intensity, harmfulness and danger of work.
4. Purpose, main tasks and content of the certification of workplaces on working conditions.
5. Measures to prevent occupational and occupation-stipulated diseases of health care workers.

- define the following concepts:

Term	Definition
Certification of the workplace	
Occupational disease	
Personal protective equipment	

Class work - solve the situational task:

Situational task.

Give a comprehensive hygienic assessment of the labor conditions of the medical worker in accordance with the card of labor conditions obtained during the certification of his workplace.

During the chronometry observation of the working day of a dentist at the oral and maxillofacial surgery department of a multi-profile hospital in the cold period of the year, it was established that the working day consists of two main activities, namely: work in the operating room and examination of patients. Operational work takes 40-65% of the official working time. During operative interventions and examination of patients, the working posture is forced, standing in a tilted position up to 30° during 63% of the time of shift. The slopes of the trunk over 30°, 117 times per shift. Hands are forward and are in the hanging position (without support). Length of concentration is 85% of the shift duration. Breaks for rest and food intake are often absent, work in the night shift - 3 times a month. Night duty occurs immediately after the day's duty. After the night duty, the doctor remains in the department to continue his work. The noise level in the operating room is 73 dBA. During operations, the excess of the MPC of substances for inhalation anesthesia (II class of danger) was found to be 2.6 times in the air of the working area and the microorganisms of the 3-4th class of danger were found. The air temperature in the operating room is 26° C, air velocity is 0.2 m / s, the relative humidity was 64%. Category of visual works by State Building Norms B.2.5-28-2006 "Natural and artificial illumination" - high-precision.

Task No. 1.

Name all parameters of microclimate.

- 1) _____
- 2) _____
- 3) _____
- 4) _____

Task No. 2

What requirements are made to rational illumination? According to what normative document?

Task No. 3.

List the kinds of radiation, which medical workers can contact:

Specialty	Kind of radiation	Organs and systems
Exodontist (dentist-surgeon)		
Dentist-therapist		
Dentist-orthopedist		
Dentist-orthodontist		
Dentist-impantologist		
Children's dentist		

Task No. 3.

List the kinds of protection used for medical workers, give their complete characteristic.

- 1) _____

- 2) _____

Task No. 4.

Give a complete characteristic of the term "static electricity" and name the main causes of occurrence of static electricity. _____

Initial and final test control - tests of the open base.

Recommended literature

Basic:

1. Occupational Health and Safety for Healthcare Workers: study guide / O. P. Yavvorovskyi, V. I. Zenkina et al.- 3rd edition. – Kyiv : AUS Medicine Publishing, 2018. – 120 p.
2. Гігієна праці: Підручник /Ю.І. Кундієв, О.П. Яворовський, А.М. Шевченко та ін.; за ред. акад. НАН України, НАМН України, проф. Ю.І. Кундієва, чл-кор. НАМН України проф. О.П.Яворовського.- К.: ВСВ "Медицина", 2011.- 904 с.

3. Гігієна та охорона праці медичних працівників. Навчальний посібник / За ред. В.Ф. Москаленка, О.П. Яворовського. – К.: «Медицина», 2009. – 176 с.
4. Тарасюк В. С. Охорона праці в лікувально-профілактичних закладах. Безпека життєдіяльності: підручник / В. С. Тарасюк, Г. Б. Кучанська, - 2-е вид., переробл. та допов. – К, 2013. – С.126-231.
5. Гігієнічна класифікація праці за показниками шкідливості та небезпечності факторів виробничого середовища, важкості та напруженості трудового процесу. ГН 3.3.5-3.3.8; 6.6.1-083-2001 р.

Additional:

1. Law of Ukraine "On Labor Protection "
2. Постанова Кабінету Міністрів України №442 від 01.08.92 «Про порядок проведення атестації робочих місць за умовами праці».
3. GSTU - ONSAS18001-2006 "The system of management of safety occupational hygiene. Requirements ".

Teacher's signature _____

Section 2.

Special issues of occupational safety in the field of medicine

Subject No. 3. Accidents and damages in medical-preventive establishments, their investigation and registration

Date " ____ " _____ 20__;

Name, year, group _____

Urgency and motivational characteristics. The intensive development of science and technology, the achievements of which are used in medical practice, lead to constant risk for workers and are associated with acute occupational diseases, poisonings, burns, electric shock, injuries as a result of accidents, fires, exposure to infected blood, sputum, etc. The future doctor should be able to assess and adjust his own working conditions, and in damages and accidents - provide first aid to the injured people and inform the heads of the departments.

Learning objective

1. Forming future specialists' knowledge, skills and competencies in the investigation of damages and accidents at medical establishments and organization of measures for prevention of accidents, injuries and occupational diseases.
2. Acquaintance with the main provisions of Law of Ukraine No. 36 dated 01.07.93 and changes introduced in accordance with Law "On Collective Agreements" dated 16.10.2012.

As a result of studying the subject, the student should:

Know:

1. The list of the main damages and accidents that may arise at medical-preventive establishments, the procedure for their investigation and registration.
2. Samples of documents that should be necessarily filled in the investigation of damages, occupational diseases and accidents at medical-preventive establishments (Act on the accident at work in the form of FN-1, Expedited report about presentation of an injured person with reference to an accident at work, Act of Investigation of the damage (accident) that occurred according to F-N-5; notification of the consequences of an accident related to production, Notification of occupational disease (poisoning), Form P-3, Act of Investigation of occupational disease (poisoning), form P-4).

Be able to:

1. Carry out investigation of damages and accidents, use appropriate regulatory and instructive documentation.
2. To recommend and implement measures to prevent damages and accidents, diseases and poisonings, assess their effectiveness.
3. Correctly draw up the necessary documents for the investigation of accidents, occupational diseases and poisonings.

Questions for self-training

1. Measures for prevention of accidents, occupational diseases, damages, injuries among medical workers.
2. Collective and labor agreement as a reflection of the legislation on occupational safety.
3. Social Insurance Fund for Industrial Accidents and Occupational Diseases.
4. Requirements for personal protective equipment and work clothes for medical workers.
5. General safety requirements for technologic equipment and processes at medical-preventive establishments. Safety when operating equipment under pressure and cryogenic equipment.
6. Electrical safety. Conditions under which a person can have electrical shock.
7. Fire prevention in the design and maintaining medical-preventive establishments and medical equipment.

Tasks for self-training:

At home, the student should prepare answers to theoretical questions and define the following concepts:

Term	Definition
Accident	
Catastrophe	
Critical objects (systems)	
Work-related accident (production accident)	
Non-production accident	
Chronic occupational disease	

Class work - solve the situational tasks:

Situational task No. 1.

The regional hospital, on request, took an ambulance at its disposal. During the delivery of patients, an accident happened, as a result of which only a doctor of the regional hospital suffered. Is this a work-related accident? What organization should investigate this case? By what form should the statement of investigation of this case be made?

Situational task No. 2.

A hospital attendant of the psychiatric hospital received the brain concussion while taking care of an aggressive mentally ill patient. Is this case considered an accident? The order of the registration of this case. Is the case under investigation and what form is used to draw up a statement in case of investigation?

Situational task No. 3.

The medical sister Polishchuk Iryna Ivanivna, born 27.04.1985, applied to the traumatology department of the communal health care establishment "Kharkiv City Clinical Hospital No. 26" (head doctor Tereschenko O.T.), living at the address: Kharkiv, 23 August str, b.15, fl.7. The patient complains of pain and swelling in the joint of the right leg that appeared on 15.11.2017 after falling in the therapeutic department of the KPPD "Kharkiv City Clinic No. 10", located in Kharkiv, Pushkinska st, 11/13, where she works. Make an emergency message by the form. At what time and what address should you send an urgent message?

Task No. 1

If the accident is defined by the commission as work-related, the statement should be drawn up by the form and in number: _____

Task No. 2

Who and in what period of time establishes a commission for investigation of the accident occurred with a worker of a medical establishment? _____

Task No. 3

During what period of time does the commission on investigation of the accident carry out the investigation? During what period of time is special investigation of accidents carried out?

Task No. 4

The commission on investigation of the accident consists of:

- 1) _____
- 2) _____
- 3) _____
- 4) _____

Appendix 1
to Procedure of
Investigation

(name of medical-

preventive establishment,

Initials and name of manager)

URGENT NOTIFICATION
about application of the victim concerning
an accident at the enterprise

1. Name and surname of the victim

2. Age (complete years) _____

3. Place of residence

4. Name and location of the enterprise, where the victim works

5. Preliminary diagnosis _____

6. Date of: injury (disease, poisoning) ____ ____ 20__
diagnosis ____ ____ 20__
hospitalization ____ ____ 20__

7. Place of
hospitalization _____

(name of medical- preventive establishment)

8. Dangerous or harmful production factor, which caused injury
(disease, poisoning)

9. Date and time of reporting primary information ____ ____
20__ ____ hour ____ min.

(post of the person who
sent notification)

(signature)

(initials and
name)

(post of the person who
received notification)

(signature)

(initials and
name)

Initial and final test control - open base tests

Recommended literature

Basic:

1. Occupational Health and Safety for Healthcare Workers: study guide / O. P. Yavvorovskyi, V. I. Zenkina et al.- 3rd edition. – Kyiv : AUS Medicine Publishing, 2018. – 120 p.
2. Гігієнічна класифікація праці за показниками шкідливості та небезпечності факторів виробничого середовища, важкості та напруженості трудового процесу. ГН 3.3.5-3.3.8; 6.6.1-083-2001 р.

Additional:

1. Law of Ukraine "On Labor Protection "
2. Постанова Кабінету Міністрів України №1232 від 30.11.11 «Деякі питання розслідування та обліку нещасних випадків, професійних захворювань і аварій на виробництві»
3. Постанова Кабінету Міністрів України №270 від 22.03.2001 «Про затвердження Порядку розслідування та обліку нещасних випадків невиробничого характеру»
4. Постанова Кабінету Міністрів України №1662 від 08.11.11 «Про затвердження Переліку професійних захворювань».
5. Закон України “Про пожежну безпеку”.
6. ГОСТ 12.1.004-91 ССБТ “Пожарная безопасность. Общие требования”
7. ГОСТ 12.1.030-81 ССБТ “Электробезопасность. Защитное заземление, зануление”.

Teacher's signature _____

Section 2.

Special issues of occupational safety in the field of medicine

Subject No. 4. Hygiene and occupational safety in medical establishments

Date " ____ " _____ 20__;

Name, year, group _____

Urgency and motivational characteristics. Hygiene and occupational safety in stomatological medical establishments are related to the fact that medical personnel are affected by physical, chemical, biological, social and architectural-and-planning factors, which are the cause of occupational and occupation-dependent diseases of medical personnel, including infectious ones.

Learning objective

1. To strengthen students' knowledge of hygienic requirements for the location, planning and sanitary-antiepidemic regimen of medical-preventive establishments of stomatological type on the basis of studying normative documents.
2. To get acquainted with the main hazards of the working environment and professional injuries, and diseases of medical workers of stomatological type, safety requirements during their work.
3. To get acquainted with the influence of industrial hazards on the organism of working dentists, their legislative, organizational, preventive, epidemic and technical measures for occupational safety and prevention of occupational diseases.

As a result of studying the topic, the student should:

Know:

1. Sanitary and hygienic requirements for planning, maintaining and sanitary-antiepidemic regimen of medical-preventive establishments of stomatological type.
2. Safety requirements during operation of basic medical equipment.
3. Measures to decrease physical and nervous-psychic exertion of medical workers of stomatological type.
4. Scientific organization of labor (industrial engineering) in dental establishments.

Be able to:

1. Reveal and assess the location and zoning of the territory of medical-preventive establishments by construction drawings of the situational and general plans, designed taking into account the objects located around the ground area and the "wind rose".

2. Determine and assess, according to plans and sections of buildings, compliance with hygiene standards for the area, cubic capacity, and sanitary accomplishment of medical offices.
3. Reveal the main factors of the working environment and the labor process, which can adversely affect workers, reveal and assess the features of its influence on the body.
4. Substantiate and introduce improving sanitary-hygienic and sanitary-antiepidemic measures of safe working conditions.

Questions for self-training:

1. Hygienic importance of the internal planning of buildings of medical establishments and dental offices for ensuring occupational hygiene and safety.
2. Personal hygiene of patients and medical personnel in the health care system and provision of favorable working conditions and prevention of nosocomial infections and occupational diseases.
3. Articles of the Constitution of Ukraine on occupational safety.
4. Sanitary legislation in the field of occupational safety. The Labor Code, its main components.
5. "Hygienic classification of labor by indices of harmfulness and danger of factors of the working environment, the weight and intensity of the labor process," approved by Order of Ministry of Health of Ukraine No. 248 dated 08/04/2014.
6. Physical production hazards, their classification, importance in occupational pathology.
7. Chemical production hazards, their classification, importance in occupational pathology.
8. Biological production hazards, their classification, importance in occupational pathology.
9. Psychophysiological production hazards, their classification, importance in occupational pathology.
10. Methods and means of prevention of occupational pathology and occupational safety at work.

Tasks for self-training:

At home, the student should prepare answers to theoretical questions and define the following concepts:

Term	Definition
General plan of the project	
" Wind rose "	
Microclimate	
Room of psychological unloading	
Scientific organization of labor (industrial engineering)	
Personal protective equipment	

Class work - solve the situational tasks:

Situational task No. 1.

When determining the microclimate parameters in winter, in the dentist's office, it is revealed that the air temperature is 17 °C, the relative air humidity is 75%, and the air velocity is 0.5 m/s. In the air sample, mercury vapors and mercury amalgams exceed the maximum allowable concentrations by 1.5 times. At the same time, the CO₂ concentration is 0.15%, the oxidability is 10 mg O₂ /m³, the microbial number is 4500 CFU /m³, hemolytic streptococcus is 70 CFU/m³ (CFU – colony-forming unit). Assess the labor conditions, work out measures to prevent the harmful effects of revealed factors in accordance with conclusion.

Optimal parameters of microclimate, MPC of mercury vapor and indices of cleanliness of premises in MPE

Value	Normative value for cold and transition season	Conclusion
Air temperature, °C	20 – 22	
Relative air humidity,%	45 – 30	
Speed of air movement, m/s	Up to 0.2	
Maximum single concentration of mercury vapor, mg/m ³	Up to 0.01	

CO ₂ concentration, %	Up to 0.07	
Oxidability, mg O ₂ /m ³	Up to 4	
Total microbial count, CFU /m ³	Up to 2000	
Hemolytic Streptococcus, CFU /m ³	Up to 10	

Conclusion:

Situational task No. 2.

In the office of the dentist-therapist, there are four armchairs, which are placed in two rows parallel to the light-bearing wall. Each workplace has a universal dental unit.
Assess the appropriateness of seats, the adequacy of equipment.

Optimal values of microclimate at workplaces of industrial premises (State Sanitary Norms for microclimate of industrial premises 3.3.6.042-99)

Period of the year	Category of works by level of energy expenditure, Wt	Air temperature, ° C	Relative humidity of air, %	Air velocity, m/s
Cold period of the year	Light Ia (up to 139)	22-24	60-40	0.1
	Light Ib (140-174)	21-23	60-40	0.1
	Average weight IIa (175-232)	19-21	60-40	0.2
	Average weight IIb (233-290)	17-19	60-40	0.2
	Heavy III (over 290)	16-18	60-40	0.3
Warm period of the year	Light Ia (up to 139)	23-25	60-40	0.1
	Light Ib (140-174)	22-24	60-40	0.2
	Average weight IIa (175-232)	21-23	60-40	0.3
	Average weight IIb (233-290)	20-22	60-40	0.3
	Heavy III (over 290)	18-20	60-40	0.4

Task No. 1

Point out maximum norms of lifting and moving weights by women, name the normative document.

Task No. 2

By degree of danger, lasers are divided into 4 classes. Name them and give a characteristic for each one.

Initial and final test control - tests of the open base

Recommended literature

Basic:

1. Occupational Health and Safety for Healthcare Workers: study guide / O. P. Yavvorovskyi, V. I. Zenkina et al.- 3rd edition. – Kyiv : AUS Medicine Publishing, 2018. – 120 p.
2. Профілактична медицина. Загальна гігієна з основами екології. Підручник / Даценко І.І., Габолич Р.Д. – К.: Здоров'я, 2004. – С. 493 – 511.
3. Комунальна гігієна / Гончарук Є.Г., Бардов В.Г., Гаркавий С.І., Яворовський О.П. – К.: Здоров'я, 2003. – С. 615 – 657.
4. Гігієна праці: Підручник / Ю.І. Кундієв, О.П. Яворовський, А.М. Шевченко та ін.; за ред. акад. НАН України, НАМН України, проф. Ю.І. Кундієва, чл-кор. НАМН України проф. О.П.Яворовського. – К.: ВСВ “Медицина”, 2011. – 904 с.
5. Гігієна та охорона праці медичних працівників. Навчальний посібник / За ред. В.Ф. Москаленка, О.П. Яворовського. – К.: «Медицина», 2009. – 176 с.
6. Тарасюк В. С. Охорона праці в лікувально-профілактичних закладах. Безпека життєдіяльності: підручник / В. С. Тарасюк, Г. Б. Кучанська, - 2-е вид., переробл. та допов. – К, 2013. – С.126-231.
7. Гігієнічна класифікація праці за показниками шкідливості та небезпечності факторів виробничого середовища, важкості та напруженості трудового процесу. ГН 3.3.5-3.3.8; 6.6.1-083-2001 р.

Additional:

1. The Constitution of Ukraine dated June 28, 1996 - К. 1996.
2. Основи Законодавства України про охорону здоров'я від 19 листопада 1992 року // Відомості Верховної Ради України. – 1993. – № 4. – С. 19.
3. Закон України "Про забезпечення санітарного та епідемічного благополуччя" від 24 лютого 1994 року // Відомості Верховної Ради України. – 1994. – № 27. – С. 217.
4. Закон України «Про захист населення від інфекційних хвороб», від 6 квітня 2000 року // Голос України. – 2000. – 16 травня.
5. ГОСТ ССБТ 12.1.005-88. «Общие санитарно-гигиенические требования к воздуху рабочей зоны».
6. ДСН 3.3.6.037-99. Державні санітарні норми мікроклімату виробничих приміщень.
7. ДСН 3.3.6.037-99. Державні санітарні норми виробничого шуму, ультразвуку та інфразвуку.
8. Державні санітарні норми загальної та локальної вібрації.
9. ДБН В.2.2-10-01 “Проектування закладів охорони здоров'я”.
10. ДБН В.2.5 – 28 – 2006 «Інженерне обладнання будинків і споруд. Природне та штучне освітлення».

Teacher's signature _____

Section 2.

**Special issues of occupational safety in the field of medicine
Subject No. 5. Fundamentals of industrial safety of medical workers.**

Date " ____ " _____ 20__;

Name, year, group _____

Urgency and motivational characteristics. The industrial safety of medical workers is a guarantee of preserving the health of the doctor and patient, a prerequisite for prevention of accidents, damages and injuries.

Learning objective

1. To form the students' knowledge on the safety requirements of technological equipment and technological processes of medical-preventive establishments.
2. To get acquainted with the concept of electrical safety and the safety requirements for the operation of electrical equipment at medical-preventive establishments.
3. To study the fundamentals of fire safety, basic means and measures to ensure fire safety of the establishment.

As a result of studying the subject, the student should:

Know:

1. General safety requirements for technological equipment.
2. The requirements for electrical safety and the operation of electrical equipment.
3. General requirements of fire safety for objects of protection for various purposes at different stages of the technological cycle.

4. NTD currently in use, connected with the requirements of fire safety, electrical safety and operation of electrical equipment for various purposes.

Be able to:

1. Determine the main factors of the working environment and the labor process, which can adversely affect workers, reveal and assess the signs of its influence on the body.
2. Substantiate and implement improving sanitary-hygienic measures for safe working conditions.

Questions for self-training

1. Electrical safety. Classification of the room by the degree of danger of electric shock. Conditions of electric shock. Safe operation of electrical installations: electrical protective equipment and measures.
2. State Fire Supervision. Fire prevention in the design and maintenance of medical-preventive establishments and medical equipment.
3. Indicators of explosive and fire hazard properties of materials and substances. Categories of premises by explosion hazard. Classification of explosive and fire hazardous premises and areas. Fire resistance of building structures and materials.
4. Main means and measures to ensure fire safety of the establishment. Fire alarm. Fire-fighting equipment.
5. Personnel actions in case of fire. Safe evacuation of personnel. Ensuring and monitoring of fire safety at work sites. Learning the rules of fire safety of workers of medical-preventive establishments.
6. Types of instruction. The order of instructions for employees. Instructions on safety for students and medical workers.
7. Safety requirements for the operation of the basic medical equipment.

Tasks for self-training

At home, the student should prepare answers to theoretical questions and define the following concepts:

Term	Definition
Fire safety system	
Electrical Safety	
Traumatism	

Class work - solve the situational task and record its solution.

Situational task No. 1

There was a fire in the ward for an unidentified cause: curtains, bedding, and clothes on the patient of this ward fired. How should duty medical staff work?

Situational task No. 2

What should the dentist do in case of affection of nurse by electric current?

Situational task No. 3

In one of the offices of the dental clinic a fire arose due to a short circuit of electric current. At this time, there were 12 patients and 12 employees in 8 rooms and the living room. The clinic is located at the first floor of a residential building. The dentist was the first who drew attention to the fire.

What are the main measures to be taken by the dentist, and, in the future, the head of clinic in this case?

Task No. 1

The successful extinguishing of fires is possible due to the correct choice of type of fire extinguisher. Give the classification of fire extinguishers by the principle of the device, and also point out, in which cases each type of fire extinguisher is used.

- 1) _____
- 2) _____
- 3) _____
- 4) _____

Task No. 2

Depending on the type of affection, electric strokes are divided into four degrees:

- 1) _____
- 2) _____
- 3) _____
- 4) _____

Task No.3

According to the degree of danger of human lesion by electric current, industrial premises are divided into three categories. List them and describe each category

- _____
- _____
- _____

Initial and final test control - Tests of open base

Recommended literature

Basic:

1. Occupational Health and Safety for Healthcare Workers: study guide / O. P. Yavvorovskyi, V. I. Zenkina et al.- 3rd edition. – Kyiv : AUS Medicine Publishing, 2018. – 120 p.
2. Гігієна та охорона праці медичних працівників. Навчальний посібник / За ред. В.Ф. Москаленка, О.П. Яворовського. – К.: «Медицина», 2009. – 176 с.
3. Тарасюк В. С. Охорона праці в лікувально-профілактичних закладах. Безпека життєдіяльності: підручник / В. С. Тарасюк, Г. Б. Кучанська, - 2-е вид., переробл. та допов. – К, 2013. – С.126-231.
4. Охорона праці в медичній галузі: Навч.-метод.посібник для мед.ВНЗ IV р.а.- 2-ге вид., випр..Рекомендовано МОН/ Яворовський О.П., Веремей М.І., Зенкіна В.І. та ін.- К., 2017. – 208 с.
5. ГОСТ 12.1.004-91 ССБТ “Пожарная безопасность. Общие требования”.
6. ГОСТ 12.1.030-81 ССБТ “Электробезопасность. Защитное заземление, зануление”.

Additional:

1. Закон України “Про страхові тарифи на загальнообов’язкове державне соціальне страхування від нещасного випадку на виробництві та професійного захворювання, які спричинили втрату працездатності”.
2. Основи законодавства України про охорону здоров’я.
3. Закон України “Про пожежну безпеку”.
4. Закон України “Про об’єкти підвищеної небезпеки”.
5. Постанова Кабінету Міністрів України “Порядок розслідування та ведення обліку нещасних випадків, професійних захворювань і аварій на виробництві” № 1232 від 30 листопада 2011 року.
6. Наказ МОЗ України № 268 від 30.09.94 “Про службу охорони праці системи Міністерства охорони здоров’я України”.
7. Наказ Держнаглядохоронпраці України № 15 від 26.01.05 “Типове положення про порядок проведення навчання і перевірки знань з питань охорони праці”.
8. Наказ Держнаглядохоронпраці України № 15 від 26.01.05 “Перелік робіт з підвищеною небезпекою”.
9. ДБН В 2.2-10-01 “Проектування закладів охорони здоров’я”.
10. ГОСТ 12.1.010-76 ССБТ “Взрывоопасность. Общие требования”.
11. ГОСТ 12.1.044-89 ССБТ “Пожаровзрывоопасность веществ и материалов”.

Teacher’s signature _____

List of questions to credit in discipline "Occupational safety in the field of medicine"

Theoretical questions

Section 1. General issues of occupational safety.

1. Basic terms and definitions in the field of occupational safety: occupational safety, working conditions, harmful production factor, hazardous production factor, safe working conditions, workplace, safety, etc.
2. Subjects and objects of occupational safety.
3. The current state of occupational safety in Ukraine and abroad.
4. General issues of occupational safety in medicine.
5. The legal basis for occupational safety (the Constitution of Ukraine, the Labor Code, the Law of Ukraine "About occupational safety").
6. Normative and legal acts on occupational safety: definition, basic requirements and characteristics. Structure of regulatory and legal acts on occupational safety. Register of regulatory and legal acts on occupational safety.
7. National standards of Ukraine on occupational safety. Occupational safety standards system (OSSS). Sanitary, construction norms, other national documents on occupational safety.
8. Acts on occupational safety, operating in the organization, their composition and structure. Instructions for occupational safety. Development and approval of occupational safety legislation in force in the organization.
9. Responsibility of officials and employees for violation of legislation on occupational safety.
10. Social partnership as a principle of legislative and regulatory framework for occupational safety. Social dialogue in the European Union.
11. International standards of social responsibility. Standard SA 8000 "Social responsibility". International Standard ISO 26000 "Guidelines for Social Responsibility".
12. Legislative basis of the EU on occupational safety issues. EU Occupational Safety and Health Directives. Framework Directive 89/391 / EU "On the introduction of measures to improve the safety and health of workers."
13. Elements of the OSH management system, international standard OHSAS 18001: 2007.
14. Labor standards of the International Labor Organization. ILO Conventions and Recommendations. ILO core conventions on occupational safety and health.
15. International cooperation in the field of occupational safety. The main areas of cooperation. United Nations. World Health Organization. International Atomic Energy Agency. The International Labour Organization. European Union. Commonwealth of Independent States.
16. Occupational safety as an obligatory component of social responsibility.

Section 2.

Special issues of occupational safety in the field of medicine.

1. Hygienic requirements for the design and construction of medical-preventive establishments.
2. Safety requirements during the operation of the main medical equipment.
3. Measures to reduce the physical and neuro-psycho overstrain of medical workers. Scientific organization of labor at medical-preventive establishments. Rational organization of the workplace and furniture. The main ways to prevent the development of fatigue.
4. Measures to reduce the adverse effect of physical factors on the body of medical workers. Requirements for the microclimate.
5. Measures to reduce the adverse effects of noise, vibration, ultrasound.
6. Requirements for the production illumination of workplaces of medical personnel.
7. Requirements for ultraviolet radiation, electromagnetic fields of radio frequencies and laser radiation at workplaces of medical personnel.
8. Requirements for video terminals and personal computers.
9. Requirements for ionizing radiation in the work of medical and pharmaceutical personnel.
10. Measures to reduce the adverse effects of chemical factors on the body of health care workers. Ways of preventing air pollution in the work area by harmful chemicals.
11. Measures to prevent the harmful effects of biological factors. Sanitary-hygienic and anti-epidemic regimens of the hospital. Prevention of nosocomial infections as a component of occupational safety in medicine.
12. Hygienic and health education.
13. Requirements for personal protective equipment and work clothes for medical personnel.
14. Organization of air exchange in the premises of MPE, ventilation.
15. Occupational safety of medical personnel in certain structural subdivisions of MPE (operating unit, radiodiagnostic units, physiotherapy rooms, pathological anatomical departments, morgues, etc.), the main regulatory documents that regulate these issues.
16. Fundamentals of the organization of occupational safety of personnel in the pharmaceutical industry.
17. Standards of working time for the personnel of establishments and organizations of health protection.
18. Occupational safety in higher medical educational establishments.

19. Guarantees of employees' rights to occupational safety, benefits and compensation for hard and harmful working conditions. Responsibilities of personnel to comply with the requirements of regulatory and legal acts on occupational safety.
20. Occupational safety for women, minors, people of older age groups and persons with disabilities, the main regulatory documents that regulate these issues.
21. Medical examinations of health care workers. The main provisions of Order of the Ministry of Health of Ukraine No. 246 dated May 21, 2007 "On approval of the Order of medical examinations of the workers of certain categories".
22. Prevention of nosocomial infections as a component of health protection.
23. The concept of dangerous infectious diseases.
24. HIV and AIDS in the practice of a doctor. Possible ways of getting biological material from HIV-infected persons into the body of medical personnel. The concept of a "production accident" and an emergency appeal to the AIDS Center / Institute for Infectious Diseases.
25. The main provisions of Law of Ukraine "On the counteraction of spreading of diseases, caused with human immunodeficiency virus (HIV), legal and social protection of people, who live with HIV" and Law of Ukraine "On the approval of the general State target social program of counteraction to HIV-infection / AIDS for 2014 -2018 "No. 1708-VII dated October, 20, 2014.
26. The main provisions of the Orders of the Ministry of Health of Ukraine No. 955 dated 05.11.2013. "The procedure for carrying out the post-contact prophylaxis of HIV-infection in workers when fulfilling professional duties," No. 148 dated March 17, 2015 "About approval of the Order of confirmation of connection HIV-infection when fulfilling professional duties by workers", No. 955 dated 05.11.2013" About approval of normative legal acts of protection from contagion with HIV-infection when fulfilling professional duties "and others.
27. Viral hepatitis, their potential danger to health care workers. Prevention of infection with hepatitis viruses and immunoprophylaxis in contact with biological materials of patients with hepatitis.
28. Decree of the Cabinet of Ministers of Ukraine No. 637 dated April 29, 1313 "On approval of the state target and social program of prevention, diagnostics and treatment of chronic hepatitis for the period until 2016."
29. Tuberculosis and its prevalence in Ukraine and in the world. Potential occupational hazards for health care workers.
30. Measures to prevent the infection of health care workers with tuberculosis. Laws of Ukraine "About counteraction of tuberculosis infection", "About confirmation of general State target social program of counteraction to tuberculosis infection for 2012 - 2016 ".
31. Colors, safety signs and signal markings.
32. General safety requirements for technological equipment and processes at MPE. Safety during the operation of pressure systems and cryogenic equipment.
33. Electrical safety. Classification of premises by the degree of danger of electric shock.
34. Conditions of electric shock. Safe operation of electrical installations: electrical protective equipment and measures.
35. Fundamentals of fire safety. State Fire Supervision. Fire prevention in the design and maintenance of MPE and operation of medical equipment.
36. Indicators of explosive and fire hazard properties of materials and substances. Categories of premises for explosion and fire hazard. Classification of explosive and fire hazardous premises and areas. Refractoriness of building structures and materials.
37. The main means and measures to ensure fire safety of the establishment. Fire alarm. Fire-fighting equipment.
38. Personnel actions in the case of a fire. Ensuring the safe evacuation of personnel. Providing and monitoring the state of fire safety at production establishment. Training in the fire safety of MPE workers.

Practical skills

1. Apply the requirements of legislative and regulatory documents for the introduction of methods and means of the occupational safety system working at medical establishments.
2. Apply the basic forms of organization and management of occupational safety of medical workers.
3. Reveal harmful and dangerous factors of the working environment at the workplace of medical workers and give their hygienic assessment.
4. Assess the organization of the workplace, furniture, medical equipment at MPE.
5. Forecast the possibility of occurrence of occupational, occupation-dependent diseases, accidents, emergency situations.
6. Carry out attestation of workplaces according to working conditions by indicators of weight, intensity, harmfulness and danger of the production process.
7. Substantiate and work out a plan of measures to improve the working conditions of medical workers and monitor their effectiveness.
8. Monitor compliance with the rules of personal hygiene and the use of personal protective equipment for medical workers.
9. Carry out the investigation and registration of accidents, acute and chronic occupational diseases, cases of injuries in the field of medicine.
10. Organize fire and electrical safety measures.
11. Work out safety guidelines for health care workers.
12. Carry out training and examination of knowledge on occupational safety.

List of literature

Basic literature:

1. Occupational Health and Safety for Healthcare Workers: study guide / O. P. Yavvorovskiy, V. I. Zenkina et al.- 3rd edition. – Kyiv : AUS Medicine Publishing, 2018. – 120 p.
1. Безпека життєдіяльності, основи охорони праці: навч.-метод. посіб. / О. П. Яворовський, В. М. Шевцова, В. І. Зенкіна та ін.; за заг. ред.. О. П. Яворовського. – К.: ВСВ «Медицина», 2015. – 288 с.
2. Безпека життєдіяльності, основи охорони праці: навч.-метод. посіб. / упор.: О. П. Яворовський, В. М. Шевцова, Г. А. Шкурко та ін.- Черкаси: видавець Чабаненко Ю. А., 2012. – 232 с.
3. Гігієна праці: Підручник / Ю. І. Кундієв, О. П. Яворовський, А. М. Шевченко та ін.; за ред. акад. НАН України, НАМН України, проф. Ю. І. Кундієва, чл-кор. НАМН України проф. О. П. Яворовського. – К.: ВСВ «Медицина», 2011. – 904 с.

Additional literature:

1. Закон України «Про захист населення від інфекційних хвороб», від 6 квітня 2000 року // Голос України. – 2000. – 16 травня.
2. Постанова Кабінету Міністрів України “Порядок розслідування та ведення обліку нещасних випадків, професійних захворювань і аварій на виробництві” № 1232 від 30 листопада 2011 року.
3. Постанова Кабінету Міністрів України №1662 від 08.11.2000 “Про затвердження переліку професійних захворювань”.
4. Постанова Кабінету Міністрів України № 270 від 22.03.2001 «Про затвердження Порядку розслідування та обліку нещасних випадків невиробничого характеру».
5. Постанова Кабінету Міністрів України № 442 від 1.08.1992 “Про Порядок проведення атестації робочих місць за умовами праці”.
6. Постанова КМУ № 955 від 05.11.2013 «Про затвердження нормативно-правових актів щодо захисту від зараження ВІЛ-інфекцією з виконанням працівником своїх професійних обов’язків».
7. Постанова КМУ № 148 від 17.03.2015 «Про затвердження Порядку підтвердження зв’язку зараження ВІЛ-інфекцією з виконанням працівником своїх професійних обов’язків».
8. Постанова КМУ від 16.10.1998 № 1642 «Про затвердження Порядку та умов обов’язкового страхування медичних працівників та інших осіб на випадок інфікування вірусом імунодефіциту людини».
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