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METHODICAL INSTRUCTIONS FOR THE INDEPENDENT WORK OF STUDENTS IN THE DISCIPLINE "SAFETY OF VITAL ACTIVITY"

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Methodical instructions for independent work of students in the **discipline "Safety of vital activity"**/ Yamborko P.V. - Ulyanovsk, UlSU, 2020.

The manual is prepared in accordance with the working program of the discipline "Safety of vital activity". The structure includes guidelines for each topic studied according to the plan of extracurricular independent work. The methodical manual is intended for specialties 31.05.01 - General medicine, 31.05.02 - Pediatrics, 33.05.01 - Pharmacy.

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Explanatory note

The guidelines are intended to organize the independent work of students during extracurricular time in the study discipline " Safety of vital activity."

The goal of discipline: teaching students the rules of conduct, basic ways of protection and actions in emergency and extreme situations, learning about the theoretical basics of life safety.

Discipline tasks:

To educate students about the sources and main characteristics of the hazardous and harmful factors in the production environment;

To teach protection against natural and artificial hazards;

To train the basic rules of staff in emergency situations;

Encourage students to strive for a healthy and active lifestyle.

In order to master the "Safety of Life" discipline, the student must have the following input knowledge, skills, skills and competences:

Knowledge of basic professional concepts and definitions in general biology, human physiology and ecology;

The ability to use the basic provisions and methods of human sciences

The ability to analyse major environmental problems and processes

Ownership of the overall impact of the production environment on humans.

The independent work of students, provided by the curriculum in the amount of at least 50% of the total number of hours, should correspond to a deeper assimilation of the course, form the skills of research work and guide students to the ability to apply theoretical knowledge in practice.

Self-work on this discipline consists of the following modules:

Preparing for writing abstracts and passing testing;

Thepreparation of students for the exam in this discipline.

In preparation for laboratory sessions and control activities, it is recommended to follow textbooks and tutorials, including information received from INTERNET.

Self-employed tasks require additional study and analysis of the material in question in the amount of scheduled hours.

Self-employed jobs can be framed as a table showing a specific type of self-work:

The study of the educational material (according to the outlines of lectures in the study and scientific literature) and the preparation of laboratory classes;

Search and review of scientific publications and electronic sources of information;

Students are encouraged to organize their own work on topics and prepare for practical activities:

Read the content of the theme.

Read the lecture material, and you need to get a general idea of the issues.

Read the textbook paragraphs pertaining to the topic.

Go to a thorough study of the material, assimilate theoretical provisions and conclusions, and it is necessary to write down the main provisions of the topic (formulations, definitions, terms, reproduce individual diagrams and drawings from the textbook and the outline of lectures).

Topic 1:" Introduction"

The purpose of the class: Learning the introductory definitions of safety of life.

Class tasks:

1.alone from learning theoretical material on the topic.

2. Prepare an oral report on current sources of danger.

In the study of the educational material on the topic used materials of the lecture and additional materials on the choice of the student

When studying this topic it is necessary to have an idea of water concepts of safety of life, the structure of dangers of modern habitat.

Topic 2: «Professional harms of the production environment»

The aim of the class is to study the main harmful and dangerous production factors

Class tasks:

1. To study the classification of harmful and hazardous production factors;

2. Prepare material under the "working conditions" section.

To work out the classification of forms of work.

4. Prepare an oral report on the characteristics and classification of mental work.

Prepare an abstract for one of the topics proposed in the class. The topic is agreed with the teacher.

Writing a referral study requires self-reliance and creativity. The main purpose of the work is to disclose one of the topics proposed by the teacher or chosen by the student himself, in consultation with the teacher. When writing the abstract, educational and scientific literature is used and necessarily supported by materials from scientific articles of journals, which are available on the sites of scientific databases, search engines.

The purpose and objectives of the abstracts should be strictly consistent with the given subject.

Requirements for the content of abstracts: is performed within the competences of the specialty (direction) of graduates.

Rules of registration of abstracts: Font 14, all fields, volume 2 смof 10-40 pages, necessarily the presence of a completed front page, a list of notations, content, a list of used literature.

The abstract must be delivered and protected according to the students' independent work schedule.

The abstract includes the following structural elements: - front page; Content Introduction; Literature review; Conclusion; The bibliographic list; Apps.

The title page. The title page indicates the name of the higher education institution, the faculty, the department on which the assignment was issued, the theme, the name and initials of the student, the degree and the academic rank, the name and initials of the scientific leader, the city and the year of execution Work.

Content. The content contains the names of all sections and subsections of the work, each of which is printed with a new line. At the end of the line, you put the number of the page on which this column is printed in the text. Page numbers are printed near the right field, all at the same distance from the edge of the page. Note that the titles of the sections and subsections in the title should accurately correspond to the titles of the text.

Introduction. The first section of referral work is the introduction. The introduction substantiates the relevance of the topic in question, the way of development at the present stage, the existing problems and ways to solve them. Thissection should not exceed 1.5 to 3 pages of typewritten text.

Literature review. The review of scientific literature on the topic illustrates the author's ability to creatively analyze available data, highlight the main thing and determine ways to find literature on specific issues.

Conclusion. The work should be finished so that the reader can quickly understand the substance of the issue without reading the main text. In conclusion, the author outlines the essence of the work, formulates brief conclusions on the presented material and gives his own point of view on the problems presented in the work. The conclusions should be clear and informative.

A list of used literature. It is issued in accordance with existing requirements in accordance with the GOST.

Application. If necessary. The protection of the abstract is carried out according to the schedule of the educational process. To protect the abstract, the student prepares presentation materials, designed in the form of a sequence of slides, shown on screens for the audience of listeners. The abstracts are made in accordance with the general requirements for the construction, presentation and registration of text documents of educational and scientific activities and are handed over to the teacher according to the schedule of independent work.

Learning on topics:

1. Occupational harms of the production environment
2. Manufacturing environment. Definition and characterization
3. Dangerous and harmful factors. Definition and characterization
4. Classification of production(professional) harmfuls.
5. Classification of basic forms of work
6. Classification of dangerous and harmful factors.
7. Classification of forms of work.
8. Classification of mental labor. Recommendations to improve working conditions.

Subjects of abstracts:

1. Training as a form of work.
2. Characteristics of mental work.
3. Characteristics of the doctor's work as a form of work.

Topic 3: "The physiological foundations of labor”

The aim of the class is to study the impact of the work process on functional indicators, to study the general measures of prevention of fatigue.

Class tasks:

1. Examine signs of fatigue;
2. To conduct a differential diagnosis between conditions of fatigue and overwork.
3. Know the main ways to prevent fatigue

Learning on topics:
The impact of the work process on the basic systems of the body.
Ways to reduce fatigue in the workplace.

Subjects of abstracts:
1. Ways to relieve fatigue during training activities.
2. Prevention of fatigue in health care workers.
3. Diagnosis of fatigue and overwork.

Topic 4: Ergonomics

The purpose of the class is to study the general issues of human adaptation to the production environment.

Class tasks:
1. To study the purpose and objectives of the discipline of "ergonomics."
2. Study economic indicators.
3. Explore the main interactions in the human-machine system.
4. Get a general idea of the production aesthetics.

Learning on topics:
Psychological ergonomic indicators.
Hygiene ergonomic indicators.
Biomechanics in ergonomics.
Anthropometry in ergonomics.

Subjects of abstracts:
1. Ergonomics in the professional activities of a doctor.
2. Manufacturing aesthetics in medicine.

Topic 5: "The concept of emergencies"

The purpose of the class is to study the theoretical provisions of emergencies (emergencies).

Class tasks:
1. To study the causes of emergency.
2. Identify the main stages of emergency.
3. Know differential diagnosis of emergencies and extreme situations.
To study the concept and classification of catastrophes.
To explore general civil defence issues.

Learning on topics:

The human factor as the cause of the emergency. Circumstances leading to an emergency. The concept of an extreme situation. Accidents, concept and classification. Civil defense tasks. The health consequences of an emergency.

Subjects of abstracts:

1. Classification of the emergency of peaceful and wartime.
2. Medical units involved in the elimination of the health consequences of an emergency.

Topic 6: "Protecting staff in emergency situations. Sustainability of the organization"

The purpose of the class is to familiarize ourselves with the main measures to protect the staff of the facility and the sustainability of the organization during the emergency.

Class tasks:

1. To studythe environmental protection measures of the object.
2. To study the ora stage of emergency.
3. Consider the main activities on the life support of the affected and evacuated population.

Learning on topics:

Sustainability of organizations.

Criteria for assessing sustainability.

Identify the most likely emergencies.

Assess the sustainability of an organization's work in the event of a chemical emergency.

Assessment of the sustainability of the organization's work in the face of radioactive contamination.

Limits of psycho-emotional sustainability of production staff.

Subjects of abstracts:

1. Time to adapt to the emergency and the stage of adaptation.
2. Psycho-emotional resilience of society in the emergency and measures to increase it.
3. "Disaster Syndrome." Characteristics and prevention measures.
4. The limit of management sustainability. Activities to make the organization more resilient.
5. Assessing the organization's core sustain ability efforts.

Topic 7: Definition of Emergency Risk

The purpose of the class is to study the theoretical issues of emergency risk assessment

Class tasks:

1. To study theoretical provisions on the risks of emergency.
2. Learn about the concept of acceptable risk.
3. To study general and additional measures to reduce the risks of *emergency.*

Learning on topics:

The notion of risk. The concept of acceptable (acceptable) risk.

Individual and social risk. Calculating the risk. Methodical approaches to risk definition (engineering, model, expert, sociological). Causes of accidents and injuries in Russia. The human factor as a cause of emergency and injury.

Subjects of abstracts:

1. Technological accidentsand disasters.
2. Economic losses from emergencies.
3. Solving the tasks of THE BJD to reduce the risk of emergency.

Topic 8: "Fire safety"

The purpose of the class is to learn about the surrounding information about fires.

Occupation tasks

1. Separate the concepts of fire and burning;
2. Know the burning conditions
3. To explore common fire safety issues.
4. Understand the process of extinguishing fires.

Learning on topics:

Fire. Definition. Burning. Definition and classification. The rate of fire spread in different types of combustion.

Subjects of abstracts:

1. Essential fire extinguishants and substances.
2. Fire safety rules in production and administrative buildings.
3. Modern fire protection systems.
4. Natural fires.

Topic 9: Biological Emergency

The purpose of the class is to study general information about biological emergencies.

Occupation tasks

1. Know the definition and give a brief description of the terms "Epidemic" and "Pandemic."
2. Have an idea of the classification of infectious diseases.
3. Have a general understanding of animal infectiousdiseases.

Subjects of abstracts:

1. Epizootic hearth. Definition. Characteristic.
2. Forms of the epizootic process. Sporadia. Epizootia. Panzootia. Comparative characteristic.
3. Epiphytomy and pancetotomy. Plant susceptibility to phytopathogenic.
4. Medical and preventive work on biological emergencies

Topic 10: General First Aid Issues

The aim of the class is to learn the theoretical basis of first aid.

Occupation tasks

1. Know the first aid algorithm.

Learn the basics of CPR.

3. Understand first aid tactics in the main defeats.

Learning on topics:

The method of CPR. Requirements for CPR.

An international CPR scheme. First aid for bleeding. First aid for burns. First aid for frostbite and general cooling. First aid for fractures.

Subjects of abstracts:

The concept of first aid. Different from other types of aid.

2. First aid tactics for suspected spinal injury.

3. Requirements for first aid under the Order of the Ministry of Health and Social Development No. 477n of May 4, 2012

Application 1

Discipline questions

1	The sources of danger in the modern world and their characteristics.
2	The essence of the BJD problem. The object of the study of life safety.
3	Dangerous and harmful factors of natural and man-made origin.
4	The subject of studying the safety of life. Methodical blocks of the discipline "Safety of life."
5	Occupational harms of the production environment
6	Manufacturing environment. Definition and characterization
7	Dangerous and harmful factors. Definition and characterization
8	Classification of production (professional) harmful. Definition and characterization
9	Classification of basic forms of work
10	Classification of dangerous and harmful factors.
11	Classification of forms of work.
12	Classification of mental labor. Recommendations to improve working conditions.
13	Physiological basics of labor.
14	A common characteristic of physiological changes in the body during work.
15	Changes in the respiratory system at work. Change in the cardiovascular system at work.
16	Biochemical changes in blood at work. Changes to water-salt exchange at work. Changes in the work of the central committee.
17	The impact of labor on the state of internal organs. Effect of mental work on physiological parameters
18	Prevention of fatigue
19	Fatigue and overwork
20	Signs of fatigue. The mechanism of fatigue
21	Symptoms of fatigue. Prevention of fatigue. The main areas.
22	Active rest as a prevention option. Psychological discharge as an element of fatigue prevention.
23	Measures to prevent fatigue
24	Adapting the production environment to the capabilities of the human body
25	Ergonomics. Definition. A brief description.
26	The essence of ergonomics and connection with other sciences. Ergonomic indicators.
27	Hygiene ergonomic indicators.
28	Anthropometric ergonomic indicators.
29	Physiological ergonomic indicators.
30	Psychological ergonomic sindicators
31	Application and accounting of ergonomic requirements. Aesthetics of the sphere of work
32	Planning aesthetics. Construction and design aesthetics.
33	Technological aesthetics. Technical aesthetics
34	The concept of emergencies
35	Prevention and emergency response (emergency) as one of the pressing problems of our time.
36	The main causes of emergency
37	Circumstances that contribute to the occurrence of emergency.
38	Periods (stage) of emergency development.

39	The concept, the functions of civil defense
40	The notion of emergencies. The concept of extreme situations
41	The notion of an accident. The difference between emergencies and extreme situations.
42	Catastrophes, definition, species. natural disasters.
43	Civil Defense Troops. Characteristic.
44	Implementation of measures to protect the personnel of the facility in case of a threat and emergency
45	The emergency commission's response to the threat of an emergency.
46	The actions of the Chairman of the Emergency Situations Committee in obtaining information about the emergency.
47	Action plan to prevent and eliminate emergencies. Characteristic
48	The first stage: taking emergency measures to protect staff, prevent the development of emergencies.
49	Emergency measures to protect the staff of the facility. Additional emergency protections for staff. Requirements for work related to saving people.
50	Emergency communication. Characteristics and tools
51	The second stage of emergency action. The main activities on the life support of the affected and evacuated population.
52	Sustainability of organizations. Sustainability assessment criteria.
53	Identify the most likely emergencies. Assessing the sustainability of an organization's work in the event of a chemical emergency
54	Assessment of the sustainability of the organization's work in the face of radioactive contamination.
55	Limits of psycho-emotional sustainability of production staff.
56	The time of adaptation and the stage of adaptation of the body in emergency.
57	Psycho-emotional resilience of society in the emergency and measures to increase it
58	"Disaster Syndrome." Characteristics and prevention measures.
59	The limit of management sustainability. Activities to make the organization more resilient.
60	Assessing key measures to improve the sustainability of your organization
61	Determining the risk of an emergency. The notion of risk. The concept of acceptable (acceptable) risk.
62	Perception of public risk and danger when considering acceptable risk. Acceptable risk. Definition.
63	Individual and social risk. Calculating the risk.
64	Methodical approaches to risk definition (engineering, model, expert, sociological).
65	Causes of accidents and injuries in Russia. The human factor as the cause of accidents and injuries. Features.
66	Technological causes of accidents and disasters. Economic losses from emergencies. Solving the tasks of THE BJD to reduce the risk of emergency.
67	Fire safety. Summary.
68	Summary of fires. Fire. Definition
69	Burning. Definition and classification.
70	The speed at which flames spread in different types of combustion
71	Burning conditions. Complete and incomplete burning
72	Self-ignition. Definition and characterization
73	Detonation, definition and characteristic
74	Liquid classes by flash temperature.

75	Dust and dust mixtures of combustiblesubstances. Definition and characterization.
76	Fire and explosive objects. Definition and classification.
77	Classification of building materials on fire safety
78	Fire prevention. Definition and characterization.
79	The process of extinguishing fires. Definition and characterization.
80	Basic fire extinguishing agents and substances.
81	Fire safety rules in production and administrative buildings.
82	Modern fire protection systems. Definition and classification.
83	Natural fires. Definition and classification.
84	Causes and conditions of forest fires. Classification. The rate at which grass-roots and riding fires spread.
85	Wildfires. Conditions of combustion intensity. The speed of fire spread. Classification of forest fires by area covered by fire.
86	Biological emergencies. Epidemic. Definition. Characteristic. Pandemic.
87	The concept of first aid. Differences from other types of care
88	First aid algorithm.
89	The concept of CPR. CPR methodology
90	Requirements for CPR.
91	International CPR scheme
92	First aid for bleeding
93	First aid for burns
94	First aid for frostbite and general cooling.
95	First aid for fractures
96	First aid tactics for suspected spinal injury.
97	Requirements for the volume of first aid according to the Order of the Ministry of Health and Social Development No. 477n of May 4, 2012

Application 2

Tests **for the current control and control of the self-employed students**

Job No.	Test (test job)
1	The technosphere is: (a) A region of the biosphere that has been transformed by humans in the past to best meet their material and socio-economic needs b) the region of the city or industrial zone, production or household environment. c) All options are correct
2	The main purpose of life safety as a science: (a) Protecting humans in the technosphere from the negative effects of anthropogenic an natural origin and achieving comfortable living conditions b) Improving the quality of health and safety Improving operational safety
3	Define *the*concept ofsafety: (a) It is a state of protection for vital individual interests from internal and externa threats; b) It is a state of protection of vital interests of the individual, society and the state fron internal and external threats; (c) It is a state of protection of vital interests of the individual, society and the stat from external threats; d) It is a state of protection of vital interests of the individual and society from internal threats.
4	What is the purpose of occupational safety: Providing security; b) occupational health; Ensuring reliability; ensuring operational safety.
5	Define *health:* (a) It is an objective state and a subjective sense of complete physical, psychologica and social comfort; b) this is an objective state of man; c) It is a subjective state of the person; d) this is an objective state and a subjective sense of complete physical, psychological, social, economic, military, political and state comfort.
6	On the totality of what main, conventionally united groups of factors depends on huma health: Genetic features, environmental environment, lifestyle, health care b) genetic characteristics, environmental environment, economic sphere, socia environment, lifestyle; (c) Heredity, environmental environment, manufacturing, social environment, lifestyle; d) psychological features, environmental environment, production, social environment, lifestyle.
7	Which of the indicators is considered one of the most objective indicators of health: Lifestyle; b) manufacturing; Life expectancy; d) Fertility.
8	Define the concept *of a dangerous production factor:* (a) It is a productive factor whose impact on an employee can lead to injury; b) This is a productive factor whose impact on an employee can lead to his illness; (c) This is a productive factor whose impact on an employee may lead to his dismissal; d) This is a productive factor whose impact on an employee can lead to a change in th working conditions of the employee.

9	Define the concept of *injury:* (a) It is a violation of the biological integrity of the body; b) It is a violation of a person's way of life; c) It is a violation of human comfort; d) changing the social environment.
10	Define the concept *of a harmful production factor:* (a) It is a productive factor whose impact on an employee can lead to injury; b) This is a productive factor whose impact on an employee can lead to his illness; (c) This is a productive factor whose impact on an employee may lead to his dismissal; d) This is a productive factor whose impact on an employee can lead to a change in the working conditions of the employee.
11	Define the concept of *working conditions:* A combination of factors in the work environment and work process that affec human performance and health; b) factors in the production environment that affect human performance; (c) Work-life factors that affect human health; a combination of factors in the work environment and work process that affec human performance.
12.	How production factors are classified by nature: (a) Physical, chemical, biological, psychophysiological; b) physical, chemical, biological; c) physical, chemical, biological, psychological; d) physical, chemical, psychophysiological, environmental.
13.	Which of the following does not apply to the reasons for the poor health and safety: (a) Psychological and legal nihilism in security matters; b) incompetence and a low level of culture in security matters; (c) Investigation of workplace accidents and occupational diseases; d) Lack of economically motivating motives and mechanisms to address safet issues.
14.	What is the main principle of public health and safety policy: (a) The principle of providing workers with personal and collective protection preventive measures, etc.; B) The principle of prioritizing the preservation of the life and health o employees; The principle of compensation for hard work and work in hazardous or hazardou working conditions; The principle of coordination in the areas of occupational health, the environmen and other economic and social activities.
15.	Define the notion *of an accident:* (a) This is a case of exposure to a hazardous work factor in the performance o work responsibilities or job tasks of the manager of work; b) This is a case of exposure to a hazardous working factor in the performance o work responsibilities or job tasks of the manager of work; (c) An employee's case caused by harmful working conditions; d) A case of employee overwork.
16.	Define the concept of *occupational disease:* (a) It is a disease caused by harmful working conditions; b) This disease is caused by the effects of hazardous working conditions; (c) It is a disease caused by the effects of harsh working conditions; d) It is a disease caused by hereditary factors.
17.	*Acute occupational disease* is a disease that has arisen during: One shift work shift; b) 2 x workingshifts;

	c) 3 x workingshifts; d) more than 3 x working shifts.
18.	*Chronic occupational disease* is a disease that arose after: A single impact of harmful production factors; b) Two-fold exposure to hazardous production factors; (c) Three-fold exposure to hazardous production factors; d) multiple exposure to harmful production factors.
19.	What is the harmful factor of the environment is *the lack of light:* (a) The chemical factor; B) The labor factor; The physical factor; d) Psychological factor.
20.	What is the harmful factor of the environment include *emotional loads:* (a) The physical factor; b) The labour process factor that characterizes the severity of physical labour; (c) Biological factor; d) The labour market factor that characterizes labour tensions.
21	What is the harmful factor of the environment is the static load: (a) The physical factor; b) The labour process factor that characterizes the severity of physical labour; (c) Biological factor; d) The labour market factor that characterizes labour tensions.
22	Which of the following relates to the physical factor: Enzymes b) pathogens; (c) Physical dynamic load; d) ultrasound.
23	Which of the following relates to the chemical factor: (a) Fibrogenic aerosols; b) vitamins; (c) Drugs containing living cells and spores of microorganisms; d) Smart loads
24	Which of the following relates to biological factors: Electric and magnetic fields; b) hormones; c) Microorganisms are produced; d) Sensory loads
25	Which of the following relates to the factors of the work process that characterize the severity of physical labor: Vibration; b) antibiotics; c) Protein preparations; d) The mass of the cargo being moved.

Cranderandand and scales aboutzntoand:

Evaluation criteria - correct answers to the questions posed;
The estimation is the percentage of correct answers to questions;
Assessment scale - 4 levels of competency assessment have been highlighted:
High - more than 80% of correct answers;
60 to 80% of correct answers;
Threshold - 50 to 60% of correct answers;
critical - less than 50% of correct answers.

Application 3

List of recommended literature

Basic literature:

1.Akimov VA, Safety of life. Safety in natural and man-made emergencies: Study. allowance / V.A. Akimov, Y.L. Vorobyov, M.I. Faleyev, etc. - M. : Abris, 2012. - 592 s. - ISBN 978-5-4372-0049-0 - Access mode: http://www.studentlibrary.ru/book/ISBN9785437200490.html
2.Sturgeon G.V., Safety of Life: tutorial. - M.: Book World, 2011. - 232 s. - ISBN 978-5-8041-0546-5 - Access mode: http://www.studentlibrary.ru/book/ISBN9785804105465.html
3.Sychev Y.N., Safety of Life in Emergency Situations : studies. allowance / Y.N.Sychev. - M. : Finance and statistics, 2014. - 224 s. - ISBN 978-5-279-03180-1 - Access mode: http://www.studentlibrary.ru/book/ISBN9785279031801.html

Additional literature:

1.Safety of life : intelligent dictionary of terms / G.V. Tyaunov, A. A. Volkov, E. E. Baryshev , etc. The electron. text data. Ekaterinburg: Ural Federal University, EBS ASV, 2015. - 236 c. - 978-5-7996-1404-1. Access mode: http://www.iprbookshop.ru/68223.html
2.Galeyev I.S., Safety of Life "Electronic Resource" : Collection of legislation and legal documents / Galeyev I.S., Sviatova N.V., Mustaev R.S., Sitdikova A.A. - Kazan : Izd-in Kazan. Un-ta, 2011. - 261 p. - ISBN -- - Access mode: http://www.studentlibrary.ru/book/KFU0005.html