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**MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN  
FEDERATION**

**Federal State Autonomous Educational Institution of Higher Education  
"Moscow Polytechnic University"**

APPROVE

Vice-President

for International Affairs

/Yu.D. Davydova/

" 16 " 2023



**WORKING PROGRAM OF THE DISCIPLINE**

**"Life safety and military training"**

**(Module 1. First Aid and Emergency Response,  
Module 2. Basic Military Training)**

Field of study

**38.03.02 Management**

Educational program (profile)

**"Business Process Management"**

Qualification (degree)

**Bachelor**

Form of study

**Half-time**

Moscow 2023

**Разработчик(и):**

Зав. каф. «Экологическая безопасность технических систем»,  
д.т.н., проф.



/М.В. Графкина/

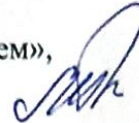
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## 1. Goals, objectives and planned learning outcomes in the discipline

The main goals of mastering the discipline "Life safety and military training" include the following:

The objectives of the development of module 1 "First Aid and Emergency Response":

- the formation of a general idea among students about the inseparable unity of effective professional activity with the requirements for the safety and security of a person. The implementation of these requirements guarantees the preservation of the working capacity and health of a person, prepares him for action in extreme conditions.

The main tasks of mastering module 1 "First Aid and Emergency Response" should include:

- formation of basic knowledge about the existing threats to the environment, its negative factors;

- study of behavior patterns in situations that threaten human life and health;

- use of modern methods of preventing hazards;

- formation of skills in providing first aid and ensuring human safety;

- study of the rules and regulations for ensuring the safety of human life.

The objectives of the development of module 2 "Basic Military Training":

- the formation in students of the knowledge, skills and abilities necessary for the formation of students of educational institutions of higher education as citizens capable and ready to perform military duty and duty to protect their homeland in accordance with the legislation of the Russian Federation.

The main tasks of mastering the module "Basic Military Training" include:

- the formation of students' understanding of the main provisions of the military doctrine of the Russian Federation, as well as the basics of military development and the structure of the Armed Forces of the Russian Federation (RF Armed Forces);

- the formation of high social consciousness and military duty among students;

- education of discipline, high moral and psychological qualities of the personality of a citizen - a patriot;

- development of basic knowledge and formation of key skills of military affairs;

- disclosure of the specifics of the activities of various categories of servicemen of the RF Armed Forces;

- familiarization with regulatory documents in the field of ensuring the defense of the state and military service;

- the formation of drill smartness, respect for military rituals and traditions, military uniforms;

- study and adoption of the rules of military courtesy;

- mastering the knowledge of the statutory norms and rules of conduct for military personnel.

Training in the discipline "Life safety and military training" is aimed at developing the following competencies among students:

| Code and name of competencies  | Competence achievement indicators  |
|--|--|
| UK-8. Able to create and maintain safe living conditions in everyday life and in professional activities to preserve the natural environment, ensure the sustainable development of society, including in the event of a threat and the occurrence of emergencies and military conflicts | IUK-8.1. Analyzes and identifies the factors of harmful influence on the life of the elements of the environment (technical means, technological processes, materials, buildings and structures, natural and social phenomena), as well as dangerous and harmful factors in the framework of the activities carried out<br>IUK-8.2. Understands the importance of maintaining safe working and living conditions, preserving the natural |

|  |   |
|--|---|
|  | environment to ensure the sustainable development of society, including when there is a threat of dangerous or emergency situations and military conflicts<br>IUK-8.3.Explains the rules of conduct in the event of emergencies of natural and man-made origin and military conflicts, describes ways to participate in recovery activities |
|--|---|

## 2. The place of discipline in the structure of the educational program

The discipline "Life safety and military training" is one of the academic disciplines of the mandatory part of Block 1 "Disciplines (modules)" and is included in the educational program for the preparation of bachelors in all areas of training for all forms of education.

## 3. Structure and content of the discipline

The total labor intensity of module 1 "First Aid and Emergency Response" is 1 credit(s) unit(s) (36 hours).

The total labor intensity of module 2 "Basic Military Training" is 1 credit unit, i.e. 36 academic hours.

### 3.1 Types of educational work and labor intensity

#### 3.1.1. Half-time education

##### Module 1. "First Aid and Emergency Response"

| No. p / p | Type of study work                | Number of hours | Semesters |  |
|-----------|-----------------------------------|-----------------|-----------|--|
|           |                                   |                 | 4         |  |
| <b>1</b>  | <b>Auditory lessons</b>           | <b>12</b>       | 12        |  |
|           | Including:                        |                 |           |  |
| 1.1       | Lectures                          | 4               | 4         |  |
| 1.2       | Seminars/practical classes        | 4               | 4         |  |
| 1.3       | Laboratory studies                | 4               | 4         |  |
| <b>2</b>  | <b>Independent work</b>           | <b>24</b>       | 24        |  |
| <b>3</b>  | <b>Intermediate certification</b> |                 |           |  |
|           | Pass/Differential Pass/Exam       | <b>pass</b>     | pass      |  |
|           | <b>Total</b>                      | <b>36</b>       | 36        |  |

##### Module 2. "Basic Military Training"

| No. p / p | Type of study work                | Quantity hours | Semesters |  |
|-----------|-----------------------------------|----------------|-----------|--|
|           |                                   |                | 4         |  |
| <b>1</b>  | <b>Auditory lessons</b>           | <b>8</b>       | 8         |  |
|           | Including:                        |                |           |  |
| 1.1       | Lectures                          | 4              | 4         |  |
| 1.2       | Seminars/practical classes        | 4              | 4         |  |
| 1.3       | Laboratory studies                | -              | -         |  |
| <b>2</b>  | <b>Independent work</b>           | <b>28</b>      | 28        |  |
| <b>3</b>  | <b>Intermediate certification</b> |                |           |  |
|           | Pass/Differential Pass/Exam       | <b>pass</b>    | pass      |  |

|  |              |           |    |  |
|--|--------------|-----------|----|--|
|  | <b>Total</b> | <b>36</b> | 36 |  |
|--|--------------|-----------|----|--|

### 3.2 Thematic plan for studying the discipline

(according to the forms of education)

#### 3.2.1. Half-time education

| No<br>·<br>p/p | Sections/topics<br>disciplines   | Labor intensity, hour |                |                                |                        |                       | Independent<br>work |
|----------------|--|-----------------------|----------------|--------------------------------|------------------------|-----------------------|---------------------|
|                |  | Total                 | Classroom work |                                |                        |                       |                     |
|                |  |                       | Lectures       | Seminar/<br>practical training | Laborator<br>y studies | Practical<br>training |                     |
| 1              | Module 1. First Aid and Emergency Response   |                       |                |                                |                        |                       |                     |
| 1.1            | Topic 1.Introduction. Man and technosphere.  | 6.5                   | 0.5            |                                |                        |                       | 3                   |
| 1.2            | Topic 2Psychophysiological and ergonomic bases of safety.  |                       |                |                                |                        |                       | 3                   |
| 1.3            | Topic 3. Identification of harmful and dangerous environmental factors   | 10                    | 1              | 2                              | 4                      |                       | 3                   |
| 1.4            | Topic 4. Impact on humans of harmful and dangerous environmental factors. Protection of humans and the environment from harmful and dangerous factors of natural, anthropogenic and technogenic origin | 9                     | 2              | 2                              | 2                      |                       | 3                   |
| 1.5            | Topic 5. Providing comfortable conditions for human life and activities  | 5                     | 1              | 2                              |                        |                       | 2                   |
| 1.6            | Topic 6. Emergency situations and methods of protection in the conditions of their implementation  | 3                     | 1              |                                |                        |                       | 2                   |
| 1.7            | Topic 7. Life safety management  | 2.5                   | 0.5            |                                |                        |                       | 2                   |
|                | <b>Total</b>   | 36                    | 6              | 6                              | 6                      |                       | 18                  |
| 2              | Module 2: Basic Military Training  |                       |                |                                |                        |                       |                     |
| 2.1            | Topic 1. General military regulations of the Armed Forces of the Russian Federation  | 6                     | 1              | 2                              |                        |                       | 3                   |
| 2.2            | Topic 2. Fundamentals of tactics of combined arms units  | 6                     | 1              | 2                              |                        |                       | 3                   |
| 2.3            | Topic 3. Radiation, chemical and biological protection   | 6                     | 1              | 2                              |                        |                       | 3                   |
| 2.4            | Topic 4. Military topography   | 6                     | 1              | 2                              |                        |                       | 3                   |
| 2.5            | Topic 5. Fundamentals of medical support   | 6                     | 1              | 2                              |                        |                       | 3                   |
| 2.6            | Topic 6. Legal training and military-  | 6                     | 1              | 2                              |                        |                       | 3                   |

|  |                    |           |          |           |  |           |
|--|--------------------|-----------|----------|-----------|--|-----------|
|  | political training |           |          |           |  |           |
|  | <b>Total</b>       | <b>36</b> | <b>6</b> | <b>12</b> |  | <b>18</b> |

### 3.3 The content of the discipline

#### Module 1. Life safety

##### Topic 1. Introduction. Man and the technosphere

Basic concepts and definitions.

Characteristic states of the system "man - habitat": industrial, urban, domestic, natural environment. Human interaction with the environment, the basis of optimal interaction: comfort, minimization of negative impacts, sustainable development of the system.

Compliance of living conditions with the physiological, physical and mental capabilities of a person. Fundamentals of optimization of habitat parameters (microclimate parameters, illumination, noise, vibration, etc.). Criteria for assessing the impact of discomfort, their significance. Axiom about the potential impact in the system "man – environment". Criteria for assessing the negative impact: the number of injured and dead, reduced life expectancy, material damage and their significance. International cooperation in the field of life safety.

##### Topic 2. Psychophysiological and ergonomic foundations of safety

The main psychological causes of mistakes and the creation of dangerous situations. Engineering psychology. Factors affecting the reliability of the actions of operators. Types of labor activity: physical and mental labor, forms of physical and mental labor, creative labor. Classification of working conditions according to the severity and intensity of the labor process. Classification of working conditions according to the factors of the working environment. Ergonomic safety fundamentals. The "man-machine-environment" system. Anthropometric, sensorimotor, energy, biomechanical and psychophysiological compatibility of man and machine. Workplace organization. Mode of work and rest, the main ways to reduce fatigue and monotony.

##### Topic 3. Identification of harmful and dangerous environmental factors

Classification of negative factors of natural, anthropogenic and man-made origin. Harmful and dangerous negative factors. Systems of perception and compensation by the human body of harmful environmental factors. Maximum permissible levels of hazardous and harmful factors - the main types and principles of establishment. Parameters, characteristics of the main harmful and dangerous factors of the human environment, the main components of the technosphere and their sources.

##### Topic 4. Impact on humans of harmful and dangerous environmental factors. Protection of humans and the environment from harmful and dangerous factors of natural, anthropogenic and technogenic origin

The impact of the main negative factors on a person and their maximum permissible levels.

Basic principles of protection from dangers. Systems and methods for protecting man and the environment from the main types of dangerous and harmful effects of natural, anthropogenic and man-made origin. Methods of protection against harmful substances, physical fields, information flows, hazards of biological and psychological origin. General characteristics and classification of protective equipment. Methods of control and monitoring of dangerous and harmful factors. Basic principles and stages of control and forecasting. Methods for determining the zones of action of negative factors and their levels.

Protection against industrial vibrations. Basic concepts and definitions. Physical characteristics of vibrations. Causes and sources of vibrations. The effect of vibrations on the human body. Hygienic and technical regulation of vibrations (GOST 12.2.012). Methods and means of protection against vibration (influence on the source on the excitation source, vibration damping, dynamic vibration damping, passive and active vibration isolation). Vibration protection equipment. Measurement of vibration parameters.

Protection against industrial noise, infra- and ultrasound. Basic concepts and definitions. Physical characteristics of noise. Noise sources and their classification (GOST 121.1.029). Effects of noise on the human body. Graph of human perception of acoustic sounds. Regulation of noise at workplaces (GOST 12.1.003). Methods and means of protection against industrial noise (sound insulation and sound absorption, noise suppressors). Methods and means of protection against infra- and ultrasound. Noise characteristics of machines. Acoustic calculation.

Protection against EM fields and IR radiation, laser radiation, ionizing radiation. The impact of electromagnetic radiation on humans. Rationing, basic characteristics, protection against EM fields, IR radiation, laser and ionizing radiation.

Fundamentals of electrical safety. Basic concepts and definitions. Factors affecting the outcome of electric shock. The action of electric current on the human body. Classification of premises for electrical safety. The phenomenon of current flowing into the ground. Touch voltage. Step tension.

Analysis of electrical networks and electric shock in various networks. Protective grounding, grounding, protective shutdown. Static electricity, its effect on a person. Lightning protection.

Safety of production equipment. Ergonomic requirements for technology. Accounting for safety requirements in the preparation of production. Protective, warning means, blocking and signaling devices, remote control systems. Operational safety of automated and robotic production. Safety in emergency situations. Tests, verification of compliance of equipment with safety requirements. Surveys and testing of compressors, cranes and hoists, gas supply systems, heating, ventilation, pressure systems. ergonomic requirements. Increased safety through functional diagnostics of machines and systems.

Fire safety. Basic concepts and definitions. Dangerous and harmful factors of fires and explosions. The reasons for their occurrence. Fire prevention. Fire forecasting. Analysis of the conditions for the cessation of combustion. Fire extinguishers. Their characteristics and scope. Means of notification and signaling about the fire.

#### **Topic 5. Providing comfortable conditions for human life and activities**

The relationship of living conditions with health and productivity. Comfortable (optimal) living conditions. Climatic, air, light, acoustic and psychological environment, the influence of the environment on well-being, health and human performance. Psychophysiological and ergonomic conditions of organization and labor safety. Principles, methods and means of organizing comfortable living conditions.

Improving the air environment in industrial premises. Basic concepts and definitions: working area, meteorological conditions and their defining parameters. The impact of microclimate parameters on humans. Analysis of heat balance conditions. Rationing of microclimate parameters (GOST 12.1.005). Air pollution of the working area and the impact on the human body. Rationing of the content of harmful substances in the air of the working area. Organization of air exchange in industrial premises. Ventilation system, requirements for ventilation systems. Determination of the required amount of air for general and local ventilation. Air conditioning.

Heating of industrial premises.

Industrial lighting. Basic concepts and definitions. Basic lighting quantities and units of their measurement. Classification of lighting systems. Requirements for industrial lighting. Electrical light sources and lighting fixtures. Rationing of artificial and natural lighting (SNiP 23-05-95). Means of individual protection of organs of vision. Methods of calculation.

#### **Topic 6. Emergency situations and methods of protection in the conditions of their implementation**

Basic concepts and definitions, classification of emergency situations and objects of the economy according to potential danger. Phases of development of emergency situations. Affecting factors of sources of man-caused emergencies. Classification of natural disasters (natural disasters), man-made accidents. Characteristics of damaging factors of natural emergencies. Technogenic accidents - their features and damaging factors. Emergencies of peacetime and wartime and their



damaging factors. Types of weapons of mass destruction, their features and consequences of their use. Terrorism and terrorist activities. Methods for forecasting and assessing the situation in emergency situations. Stability of the functioning of economic objects in emergency situations. Principles and methods of increasing the stability of the functioning of objects in emergency situations. Fundamentals of organizing the protection of the population and personnel in peacetime and wartime, methods of protection, protective structures, their classification. Organization of evacuation of the population and personnel from emergency zones. Medical care activities. Personal protective equipment and the procedure for their use. Fundamentals of the organization of emergency rescue operations.

### **Topic 7. Life safety management**

Legislative and regulatory legal framework for the management of life safety. Systems of legislative and regulatory legal acts regulating issues of environmental, industrial, industrial safety and safety in emergency situations, civil defense. Characteristics of the main legislative and regulatory legal acts: purpose, objects of regulation and main provisions. Economic bases of safety management. Modern market methods of economic regulation of various aspects of security: positive and negative methods of stimulating security. The concept of economic damage, its components and methodological approaches to assessment. Liability for violation of environmental, industrial and production safety requirements. Risk insurance: environmental insurance, liability insurance of owners of hazardous production facilities, occupational risk insurance, social insurance. Basic concepts, functions, tasks and principles of risk insurance. State safety management bodies: safety management, supervision and control bodies, their main functions, rights and obligations, structure. RSChS and civil defense system.

Corporate management in the field of environmental safety, working conditions and health of workers: main tasks, principles and management systems (environmental management, management of labor safety and health of workers).

### **Module 2: Fundamentals of military training**

#### **Topic 1. General military regulations of the Armed Forces of the Russian Federation**

General military charters of the Armed Forces of the Russian Federation, their main requirements and content.

Structure, requirements and main content of general military regulations.

The rights of military personnel. General duties of military personnel. Military ranks. Unity of command. Chiefs and subordinates. Seniors and juniors. Order and order. The order of return and the execution of the order. Military courtesy and military discipline of military personnel.

Internal order and daily attire.

Accommodation of military personnel. Time management and internal order. The daily outfit of the company, its purpose, composition. Orderly, on duty in the company. Divorce of the daily outfit.

General provisions of the Charter of the garrison and guard service.

General provisions of the Charter of the garrison and guard service. Responsibilities of a breeder, sentry.

#### **Topic 2. Fundamentals of tactics of combined arms units**

Armed Forces of the Russian Federation, their composition and tasks. Tactical and technical characteristics (TTX) of the main types of weapons and equipment of the RF Armed Forces.

Fundamentals of combined arms combat.

The essence of modern combined arms combat, its characteristics and types. Methods of conducting modern combined arms combat and means of armed struggle.

Fundamentals of engineering support.

Goals and main tasks of engineering support of units and subdivisions. Purpose, classification of engineering ammunition, engineering barriers and their characteristics. Field fortifications: trench, trench, communications, shelters, shelters.

Organization of military units and divisions, weapons, military equipment of a potential enemy.

### **Topic 3. Radiation, chemical and biological protection**

Nuclear, chemical, biological, incendiary weapons.

Nuclear weapon. means of their application. The damaging factors of a nuclear explosion and their impact on the human body, weapons, equipment and fortifications. Chemical weapon. Poisonous substances (OS), their purpose, classification and impact on the human body. Combat states, means of application, signs of the use of OV, their resistance on the ground. Biological weapons. The main types and damaging effect. Means of application, external signs of application. Incendiary weapon. The damaging effects of incendiary weapons on personnel, weapons and military equipment, means and methods of protection against it.

Radiation, chemical and biological protection.

Purpose, tasks and activities of the RCB protection. Special treatment measures: degassing, decontamination, disinfection, sanitization. Purposes and procedure for partial and complete special processing. Technical means and devices for radiation, chemical and biological protection.

Personal protective equipment and the procedure for their use. Fitting and technical verification of personal protective equipment.

### **Topic 4. Military topography**

The terrain as an element of the combat situation. Measurements and orientation on the ground without a map, movement along azimuths.

The terrain as an element of the combat situation. Ways of orientation on the ground without a map. Methods for measuring distances. Movement in azimuths.

Topic 5. Fundamentals of medical support

Medical support for troops (forces), first aid for wounds, injuries and special cases.

Medical support - as a type of comprehensive support for troops. Duties and equipment of officials of the medical service of the tactical level in combat. General rules for self-help and mutual assistance. First aid for wounds and injuries. First aid in case of damage by toxic substances, bacteriological agents. The content of the first aid event.

### **Topic 6. Legal training and military-political training**

Military doctrine of the Russian Federation. Legislation of the Russian Federation on military service.

Basic provisions of the Military Doctrine of the Russian Federation. Legal basis of military duty and military service. The concept of military service, its types and their characteristics. Obligations of citizens in military registration.

Russia in the modern world. The main directions of the socio-economic, political and military-technical development of the country.

New trends and features of the development of modern international relations. The place and role of Russia in a multipolar world. The main directions of the socio-economic, political and military-technical development of the Russian Federation.

Goals, tasks, directions and forms of military-political work in the unit, the requirements of the governing documents.

## **3.4 Topics of seminars / practical and laboratory classes**

### **3.4.1. Seminars/practical classes**

#### **Module 1. Life safety**

Topic 3. Identification of harmful and dangerous environmental factors

Topic 4. Impact on humans of harmful and dangerous environmental factors. Protection of humans and the environment from harmful and dangerous factors of natural, anthropogenic and technogenic origin

Topic 5. Providing comfortable conditions for human life and activities

### **Module 2: Fundamentals of military training**

Topic 1. General military regulations of the Armed Forces of the Russian Federation

Topic 2. Fundamentals of tactics of combined arms units

Topic 3. Radiation, chemical and biological protection

Topic 4. Military topography

Topic 5. Fundamentals of medical support

Topic 6. Legal training and military-political training

3.4.2. Laboratory studies

### **Module 1. Life safety**

Topic 3. Identification of harmful and dangerous environmental factors

Laboratory work 1. Research and calculation of artificial and natural lighting

Lab 2: Investigating meteorological conditions in the workplace

Topic 4. Impact on humans of harmful and dangerous environmental factors. Protection of humans and the environment from harmful and dangerous factors of natural, anthropogenic and technogenic origin

Lab 3: Noise protection in the workplace

## **3.5 Topics of course projects (term papers)**

Not provided.

## **4. Educational, methodological and information support**

### **4.1 Regulatory documents and GOSTs**

1. SanPiN 2.1.3684-21 "Sanitary and epidemiological requirements for the maintenance of the territories of urban and rural settlements, for water bodies, drinking water and drinking water supply, atmospheric air, soils, residential premises, operation of industrial, public premises, organization and implementation of sanitary anti-epidemic (preventive) measures.

URL: [https://www.rospotrebnadzor.ru/files/news/SP2.1.3684-21\\_territorii.pdf](https://www.rospotrebnadzor.ru/files/news/SP2.1.3684-21_territorii.pdf)

### **4.2 Main literature**

1. Life safety: textbook [Electronic resource]. - M.: "Dashkov and Co", 2015. - 453 p.

URL: <http://www.knigafund.ru/books/211914>

### **4.3 Additional literature**

1. Aizman R.I., Shirshova V.M., Shulenina N.S. Fundamentals of life safety: a tutorial. [Electronic resource] / R.I. Aizman, V.M. Shirshova, N.S. Shulenin. - Siberian University Publishing House, 2010. - 256 p.

URL: <http://www.knigafund.ru/books/178627>

#### 4.4 Electronic educational resources

1. EOR "Life safety"

URL:<https://online.mospolytech.ru/course/view.php?id=2254>

#### 4.5 Licensed and Free Software

Not provided.

#### 4.6 Modern professional databases and information reference systems

1. Consultant Plus

URL:<https://www.consultant.ru/>

2. Information network "Techexpert"

URL:<https://cntd.ru/>

### 5. Logistics

Lectures are held in university-wide classrooms, where films, slides or handouts are provided. Laboratory work is carried out in specialized classrooms, where laboratory facilities and equipment are located (Av-5213, Av-5207).

|   | Laboratory work                                     | Laboratory equipment  |
|---|---|---|
| 1 | Study of meteorological conditions in the workplace | Laboratory setup with instruments. Aspiration psychrometer MV-4M, anemometer electronic with a vane sensor, air parameters meter "Meteoscope" |
| 2 | Research and calculation of artificial lighting     | Laboratory stand "Efficiency and quality of lighting" BZH1M2, Combined device "TKA-PKM" Pulsemeter + Luxmeter                                 |
| 3 | Noise measurement in workplaces                     | Sound level meter VShV-003.   |

### 6. Guidelines

#### 6.1 Methodological recommendations for the teacher on the organization of training

The main requirement for the teaching of the discipline is a creative, problem-dialogue approach, which makes it possible to increase students' interest in the content of the educational material.

The main form of studying and consolidating knowledge in this discipline is lecture, laboratory and practical. The teacher should consistently read a series of lectures to students, during which they should focus on the key points of a specific theoretical material, as well as organize practical classes in such a way as to activate students' thinking, stimulate their independent extraction of the necessary information from various sources, a comparative analysis of solution methods, comparison of the obtained results, formulation and argumentation of one's own views on many controversial issues.

Lectures form the basis of training sessions in the discipline. In the process of teaching students, various types of training sessions (classroom and extracurricular) are used: lectures, seminars, laboratory work, consultations, etc. At the first lesson in this academic discipline, it is

necessary to familiarize students with the order of its study, to reveal the place and role of the discipline in the system of sciences, its practical significance, to bring the requirements of the department to the students, to answer questions.

When preparing for lectures on the course "Life Safety", it is necessary to think over a plan for its conduct, the content of the introductory, main and final parts of the lecture, to familiarize yourself with the latest educational and methodological literature, publications in periodicals on the topic of the lecture, to determine the means of logistical support for the lecture. and the order of their use during the lecture. Clarify the plan for conducting a practical lesson on the topic of the lecture.

During the lecture, the teacher should name the topic, educational questions, familiarize students with the list of basic and additional literature on the topic of the lesson.

In the introductory part of the lecture, justify the place and role of the topic under study in the academic discipline, reveal its practical significance. If not the first lecture is read, then it is necessary to link its topic with the previous one, without violating the logic of the presentation of the educational material. The lecture should begin only with a clear indication of its nature, topic and the range of those issues that will be considered in its course.

In the main part of the lecture, the content of educational issues should be disclosed, students' attention should be focused on the main categories, phenomena and processes, and the features of their course. To reveal the essence and content of various points of view and scientific approaches to the explanation of certain phenomena and processes. It is necessary to substantiate one's own position on controversial theoretical issues. Give examples. Ask rhetorical questions in the course of the presentation of the lecture material and give answers to them yourself. This contributes to the activation of the mental activity of students, increasing their attention and interest in the material of the lecture, its content. The teacher should guide the work of students in taking notes of lecture material, emphasizing the need to reflect the main provisions of the topic being studied in the notes, emphasizing the categorical apparatus.

In the final part of the lecture, it is necessary to formulate general conclusions on the topic, revealing the content of all the questions posed in the lecture. Announce the plan of the next seminar or laboratory session, give brief recommendations on how to prepare students for a seminar or laboratory work. Determine the place and time of consultation for students who wish to make presentations and abstracts at the seminar on topical issues of the topic under discussion.

The purpose of practical and laboratory classes is to ensure control over the assimilation of educational material by students, the expansion and deepening of the knowledge gained by them in lectures and in the course of independent work. Increasing the effectiveness of practical classes is achieved by creating a creative environment that encourages students to express their own views and opinions on the issues under discussion, the desire of students to work at the blackboard when solving problems.

After each lecture, laboratory and practical session, make an appropriate entry in the student attendance registers, find out from the leaders of the study groups the reasons for the absence of students in the classroom. Conduct group and individual consultations of students on issues that arise for students in the course of their preparation for the current and intermediate certification in the academic discipline, recommend educational and other materials, as well as reference literature.

The grade is set by the teacher and announced after the answer.

The teacher who takes the test or exam is personally responsible for the correctness of the assessment.

## **6.2 Guidelines for students on mastering the discipline**

The student's work is aimed at:

- study of theoretical material, preparation to practical exercises, laboratory studies and the implementation of practical work and laboratory work.

- preparation and execution of testing using the educational portal
- writing and defense and an abstract on the proposed topic

Independent work of students is the most important link in the educational process, without the proper organization of which the student cannot be a highly qualified graduate.

The student must remember that self-study should begin from the first semester and be carried out regularly. It is very important to make every effort, willpower, to force yourself to work with full load from the first day.

You should not postpone work also because of a non-working mood or lack of inspiration. You have to create the mood yourself. Understanding the need to do work, knowing the goal, understanding the prospects have a positive effect on mood.

Each student must plan his own independent work, based on his abilities and priorities. This stimulates the performance of work, creates a more relaxed environment, which ultimately has a positive effect on the assimilation of the material.

It is important to take into account the circumstances of your work more fully, to understand what is most important at this stage, what sequence of work to choose in order to do it better and with the least expenditure of time and energy.

For fruitful work, the environment and the organization of the workplace are of no small importance. It is necessary to ensure that the place of work is as permanent as possible. Working in a familiar place makes it more fruitful. The productivity of work depends on the correct alternation of work and rest. Therefore, every hour or two should take a break for 10-15 minutes. It is better to devote days off to outdoor activities, sports, outdoor walks, etc. Even switching from one type of mental work to another can serve as an active holiday.

The student must remember that independent work with the book plays an important role in the learning process. Learning how to work with a book is the most important task of a student. Without this skill, it will be extremely difficult to study the program material, and a lot of time will be spent irrationally. Working with a book consists of the ability to select the necessary books, understand them, take notes, choose the main thing, learn and apply in practice.

## **7. Evaluation fund**

### **7.1 Methods for monitoring and evaluating learning outcomes**

Before the date of the intermediate certification, the student must complete all the work provided for by this work program of the discipline. The list of mandatory works and the reporting form are presented in the table.

The list of compulsory works performed during the semester in the discipline "Life Safety"

| Type of work     | Form of reporting and current control  |
|------------------|--|
| Laboratory works | Prepared reports (journal) of laboratory work provided for by the work program of the discipline with the mark of the teacher "passed" if all the work has been completed and completed. |
| Essay            | Submit one essay on the chosen topic with the teacher's assessment "passed" if one essay is presented in the form of a presentation and on paper.  |
| Testing          | The teacher's assessment is "passed" if the test result on the scale (Appendix B) is more than 41%.  |

## 7.2 Scale and criteria for evaluating learning outcomes

### 7.2.1. Essay grading scale

| Evaluation scale | Description  |
|------------------|--|
| Great            | All the requirements for writing and defending the abstract are met: the problem is identified and its relevance is justified, a brief analysis of various points of view on the problem under consideration is made and one's own position is logically stated, conclusions are formulated, the topic is fully disclosed, the volume is maintained, the requirements for external design are met, the correct answers are given for additional questions. |
| Fine             | The main requirements for the abstract and its defense are met, but there are some shortcomings. In particular, there are inaccuracies in the presentation of the material; there is no logical sequence in judgments; the volume of the abstract is not maintained; there are omissions in the design; incomplete answers were given to additional questions during the defense.  |
| Satisfactorily   | There are significant deviations from the requirements for referencing. In particular, the topic is covered only partially; Factual errors were made in the content of the abstract or when answering additional questions; no output during protection.   |
| Unsatisfactory   | The topic of the abstract is not disclosed, a significant misunderstanding of the problem is revealed.   |

### 7.2.2. Test grading scale

The test result is evaluated on a percentage scale.

| Grade          | Number of correct answers   |
|----------------|-----------------------------|
| Great          | from 81% to 100%            |
| Fine           | from 61% to 80%             |
| Satisfactorily | from 41% to 60%             |
| Unsatisfactory | 40% or less correct answers |

### 7.2.2. Description of indicators and criteria for assessing competencies formed on the basis of the results of mastering the discipline (module), description of assessment scales.

An indicator of competency assessment at various stages of their formation is the achievement by students of the planned learning outcomes in the discipline (module).

| Index  | Not credited  | credited   |
|--|---|--|
| <b>know:</b> factors of harmful influence on the life of the elements of the environment (technical means, technological | The student demonstrates the complete absence or insufficient compliance of the following | The student demonstrates full compliance with the following knowledge: factors of harmful influence on the life of the elements of the environment |

|   |   |   |
|---|---|---|
| processes, materials, buildings and structures, natural and social phenomena), as well as dangerous and harmful factors in the framework of the activities carried out  | knowledge: factors of a harmful effect on the life of the elements of the environment (technical means, technological processes, materials, buildings and structures, natural and social phenomena), as well as dangerous and harmful factors in the framework of the activities carried out. | (technical means, technological processes, materials, buildings and structures, natural and social phenomena), as well as dangerous and harmful factors in the framework of the activities carried out, freely operates with the acquired knowledge.  |
| <b>be able to:</b> apply methods of maintaining safe working and living conditions, preserving the natural environment to ensure the sustainable development of society, including in the event of a threat of dangerous or emergency situations and military conflicts | The student does not know how or insufficiently knows how to apply the methods of maintaining safe working and living conditions, preserving the natural environment to ensure the sustainable development of society, including when there is a threat of dangerous or emergency situations. | The student demonstrates full compliance with the following skills: apply methods for maintaining safe working and living conditions, preserving the natural environment to ensure the sustainable development of society, including in the event of a threat of dangerous or emergency situations. |
| <b>own:</b><br>- the skills of explaining the rules of conduct in the event of emergencies of natural and man-made origin and military conflicts, describing ways to participate in recovery activities   | The student does not possess or insufficiently possesses the skills to explain the rules of conduct in the event of emergencies of natural and man-made origin and military conflicts, and to describe ways to participate in recovery activities.  | The student fully owns the skills of explaining the rules of conduct in the event of emergencies of natural and man-made origin and military conflicts, describing ways to participate in recovery activities.  |

### 7.3 Evaluation tools

#### 7.3.1. Current control

##### 7.3.1.1. Topics of essays on the discipline "Life safety and military training"

1. Subject, purpose and tasks of life safety.
2. Axioms about the potential danger of the technosphere.
3. Basic concepts and risk classification. Acceptable risk.
4. Principles, methods and means of ensuring security.



5. Protection when working with pressure vessels.
6. Characteristics of the main forms of human activity. Reliability of a person as a link in a complex technical system.
7. Working environment and working conditions. Dangerous and harmful production factors. Classification.
8. Industrial injuries, the main causes of industrial injuries.
9. Investigation and accounting of accidents. Quantitative characteristics of traumatism.
10. Air pollution of the working area of the production facility. The influence of harmful substances on the human body.
- eleven. Rationing of the content of harmful substances in the air of the production room. Classification of harmful substances.
12. Microclimate parameters and their influence on the human body. Normalization of microclimate parameters.
13. Heat exchange of man with the environment.
14. Methods of protection from sources of radiant heat.
15. Definition and types of ventilation. Requirements for the ventilation system.
16. Types of natural ventilation. essence of aeration. Aeration calculation.
17. Determination of air flow during aeration. Advantages and disadvantages of aeration.
18. Types of mechanical ventilation. Scheme.
19. local ventilation.
20. Methods for calculating the amount of air in general ventilation.
21. Heating and air conditioning.
22. Tasks and classification of industrial lighting. Requirements for the lighting system.
23. Lighting characteristics of lighting. Regulation of artificial lighting.
24. Types of lamps. Their characteristics and functions.
25. Methods for calculating artificial lighting.
26. Types of natural industrial lighting. Methods of calculation.
27. Noise. The main characteristics of noise.
28. Noise classification (GOST 12.1.003). Effect of noise on the human body.
29. Noise regulation.
- thirty. Methods and means of protection against noise.
31. Methods of sound insulation and sound absorption.
32. Sources of infra- and ultrasound. Protection methods.
33. Definition of vibration. Sources and causes of vibration. Vibration classification (GOST 12.1.012).
34. Physical characteristics of vibration.
35. The effect of vibration on the human body. Technical and hygienic regulation of vibration (GOST 12.1.012).
36. Vibration protection methods.
37. Methods of vibration damping and vibration isolation.
38. Types of effects of electric current on the human body. Types of electrical injuries.
39. Factors affecting the outcome of human electric shock. Help a person who is under the influence of current.
40. The main causes of human injury by electric current at work. Classification of industrial premises according to the degree of danger of electric shock.
41. Phenomena when electric current flows into the ground. Distribution of potential on the surface of the earth.
42. Touch voltage. Step tension.
43. Types of electrical networks. Analysis of electric shock in electrical networks.
44. Methods of protection against electric shock.

45. Protective ground. Types of grounding devices. Rationing of the resistance of grounding devices in electrical networks.
46. Protective nulling. Safety shutdown.
47. Protection against infrared and ultraviolet radiation.
48. Protection when working with lasers.
49. Protection against electromagnetic radiation.
50. Fire prevention. Measures taken to prevent fire in enterprises.
51. Combustion process. Factors necessary for the combustion process.
52. Categories of enterprises by fire hazard. Fire resistance and fire resistance of structures.
53. Fire-fighting measures that are carried out during the design of an industrial facility.
54. Fire extinguishing agents. Fire extinguishers.
55. Fire alarm.
56. Types and indicators of emergency situations.
57. General information about the means of destruction in military operations.
58. Stability of the functioning of economic objects in emergency situations.
59. The main ways to protect the population in emergency situations.
60. Elimination of the consequences of emergency situations.
61. Life safety management. State and public supervision of the state of labor protection.
62. Organization of labor safety at work.
63. System of labor safety standards.
64. Organization of attestation of workplaces in terms of working conditions.
65. The cost of protective measures for labor safety.

### **7.3.1.2. An example of test tasks:**

1. According to the definition "Life safety is the science of comfortable and safe interaction of a person with ....":
  - a) technosphere;
  - b) production environment;
  - c) household environment;
  - d) nature.
2. By definition, "Security is the state of the object of protection, in which the impact on it of all flows of matter, energy and information does not exceed .....":
  - a) limit values;
  - b) the maximum allowable values;
  - c) minimum allowable values;
  - d) known values.
3. According to the definition of "Emergency Situation (ES) - a state in which, as a result of the occurrence of a source of an emergency at an object, a certain territory or water area, and the activities of people, there is a threat to their life and health, damage to the property of the population, the national economy and the environment environment":
  - a) optimal living conditions;
  - b) normal living conditions;
  - c) minimum living conditions;
  - d) normal living conditions.

### **7.3.2. Intermediate certification**

#### **7.3.2.1. Questions for the test on the module "First Aid and Emergency Response":**

1. Subject, purpose and tasks of life safety.
2. Axioms about the potential danger of the technosphere.
3. Basic concepts and risk classification. Acceptable risk.
4. Principles, methods and means of ensuring security.
5. Protection when working with pressure vessels.
6. Characteristics of the main forms of human activity. Reliability of a person as a link in a complex technical system.
7. Working environment and working conditions. Dangerous and harmful production factors. Classification.
8. Industrial injuries, the main causes of industrial injuries.
9. Investigation and accounting of accidents. Quantitative characteristics of traumatism.
10. Air pollution of the working area of the production facility. The influence of harmful substances on the human body.
- eleven. Rationing of the content of harmful substances in the air of the production room. Classification of harmful substances.
12. Microclimate parameters and their influence on the human body. Normalization of microclimate parameters.
13. Heat exchange of man with the environment.
14. Methods of protection from sources of radiant heat.
15. Definition and types of ventilation. Requirements for the ventilation system.
16. Types of natural ventilation. essence of aeration. Aeration calculation.
17. Determination of air flow during aeration. Advantages and disadvantages of aeration.
18. Types of mechanical ventilation. Scheme.
19. local ventilation.
20. Methods for calculating the amount of air in general ventilation.
21. Heating and air conditioning.
22. Tasks and classification of industrial lighting. Requirements for the lighting system.
23. Lighting characteristics of lighting. Regulation of artificial lighting.
24. Types of lamps. Their characteristics and functions.
25. Methods for calculating artificial lighting.
26. Types of natural industrial lighting. Methods of calculation.
27. Noise. The main characteristics of noise.
28. Noise classification (GOST 12.1.003). Effect of noise on the human body.
29. Noise regulation.
- thirty. Methods and means of protection against noise.
31. Methods of sound insulation and sound absorption.
32. Sources of infra- and ultrasound. Protection methods.
33. Definition of vibration. Sources and causes of vibration. Vibration classification (GOST 12.1.012).
34. Physical characteristics of vibration.
35. The effect of vibration on the human body. Technical and hygienic regulation of vibration (GOST 12.1.012).
36. Vibration protection methods.
37. Methods of vibration damping and vibration isolation.
38. Types of effects of electric current on the human body. Types of electrical injuries.
39. Factors affecting the outcome of human electric shock. Help a person who is under the influence of current.
40. The main causes of human injury by electric current at work. Classification of industrial premises according to the degree of danger of electric shock.

41. Phenomena when electric current flows into the ground. Distribution of potential on the surface of the earth.
42. Touch voltage. Step tension.
43. Types of electrical networks. Analysis of electric shock in electrical networks.
44. Methods of protection against electric shock.
45. Protective ground. Types of grounding devices. Rationing of the resistance of grounding devices in electrical networks.
46. Protective nulling. Safety shutdown.
47. Protection against infrared and ultraviolet radiation.
48. Protection when working with lasers.
49. Protection against electromagnetic radiation.
50. Fire prevention. Measures taken to prevent fire in enterprises.
51. combustion process. Factors necessary for the combustion process.
52. Categories of enterprises by fire hazard. Fire resistance and fire resistance of structures.
53. Fire-fighting measures that are carried out during the design of an industrial facility.
54. Fire extinguishing agents. Fire extinguishers.
55. Fire alarm.
56. Types and indicators of emergency situations.
57. General information about the means of destruction in military operations.
58. Stability of the functioning of economic objects in emergency situations.
59. The main ways to protect the population in emergency situations.
60. Elimination of the consequences of emergency situations.
61. Life safety management. State and public supervision of the state of labor protection.
62. Organization of labor safety at work.
63. System of labor safety standards.
64. Organization of attestation of workplaces in terms of working conditions.
65. The cost of protective measures for labor safety.

### **7.3.2.2. Question for the test on the module "Basic Military Training"**

1. General military charters of the Armed Forces of the Russian Federation, their main requirements and content.
2. The rights of military personnel. General duties of military personnel.
3. Military ranks. Unity of command. Chiefs and subordinates. Seniors and juniors. Order and order.
4. The order of return and the execution of the order. Military courtesy and military discipline of military personnel.
5. Internal order and daily attire.
6. Accommodation of military personnel. Time management and internal order. The daily outfit of the company, its purpose, composition.
7. Orderly, on duty in the company. Divorce of the daily outfit.
8. Fundamentals of tactics of combined arms units
9. Armed Forces of the Russian Federation, their composition and tasks. Tactical and technical characteristics (TTX) of the main types of weapons and equipment of the RF Armed Forces.
10. Tactical and technical characteristics of the main models of weapons and equipment of the RF Armed Forces.
11. Fundamentals of combined arms combat.
12. The essence of modern combined arms combat, its characteristics and types. Methods of conducting modern combined arms combat and means of armed struggle.

13. Fundamentals of engineering support.
14. Goals and main tasks of engineering support of units and subdivisions. Purpose, classification of engineering ammunition, engineering barriers and their characteristics. Field fortifications: trench, trench, communications, shelters, shelters.
15. Organization of military units and divisions, weapons, military equipment of a potential enemy.
16. Nuclear, chemical, biological, incendiary weapons.
17. Nuclear weapon. means of their application. The damaging factors of a nuclear explosion and their impact on the human body, weapons, equipment and fortifications.
18. Chemical weapon. Poisonous substances (OS), their purpose, classification and impact on the human body. Combat states, means of application, signs of the use of OV, their resistance on the ground.
19. Biological weapons. The main types and damaging effect. Means of application, external signs of application. Incendiary weapon. The damaging effects of incendiary weapons on personnel, weapons and military equipment, means and methods of protection against it.
20. Purpose, tasks and activities of the RCB protection. Special treatment measures: degassing, decontamination, disinfection, sanitization. Purposes and procedure for partial and complete special processing. Technical means and devices for radiation, chemical and biological protection.
21. Personal protective equipment and the procedure for their use. Fitting and technical verification of personal protective equipment.
22. The terrain as an element of the combat situation. Measurements and orientation on the ground without a map, movement along azimuths.
23. The terrain as an element of the combat situation. Ways of orientation on the ground without a map. Methods for measuring distances. Movement in azimuths.
24. Topographic maps and their reading, preparation for work. Determination of the coordinates of objects and target designation on the map.
25. Geometric essence, classification and purpose of topographic maps. Determination of geographical and rectangular coordinates of objects on the map. Target designation on the map.
26. Medical support for troops (forces), first aid for wounds, injuries and special cases.
27. Medical support - as a type of comprehensive support for troops. Duties and equipment of officials of the medical service of the tactical level in combat.
28. General rules for self-help and mutual assistance. First aid for wounds and injuries.
29. First aid in case of damage by toxic substances, bacteriological agents. The content of the first aid event.
30. Military-political training
31. Russia in the modern world. The main directions of the socio-economic, political and military-technical development of the country.
32. New trends and features of the development of modern international relations. The place and role of Russia in a multipolar world. The main directions of the socio-economic, political and military-technical development of the Russian Federation.
33. Goals, tasks, directions and forms of military-political work in the unit, the requirements of the governing documents.
34. Military doctrine of the Russian Federation. Legislation of the Russian Federation on military service.
35. Basic provisions of the Military Doctrine of the Russian Federation. Legal basis of military duty and military service. The concept of military service, its types and their characteristics. Obligations of citizens in military registration.