



EDUCATIONAL PROGRAM

6B11 - Services

(Code and classification of the field of education)

6B112 - Occupational health and safety

(Code and classification of the direction of training)

1020

(Code in the International Standard Classification of Education)

B094 - Sanitary and preventive measures

(Code and classification of the educational program group)

6B11201 - Safety and Environmental Protection

(Code and name of the educational program)

Bachelor

(Level of preparation)

Semey

Educational program

6B11 – Services

(Code and classification of the field of education)

6B112 - Hygiene and labor protection at work

(Code and classification of the direction of training)

1020

(Code in the International Standard Classification of Education)

B094 - Sanitary and preventive measures

(Code and classification of the educational program group)

6B11201 - Safety and Environmental Protection

(Code and name of the educational program)

(Level of preparation)

PREFACE

Developed

The educational program 6B11201 - Safety and Environmental Protection in the direction of preparation 6B112 - Hygiene and labor protection at work on the basis of the State Compulsory Standards of Higher and Postgraduate Education approved by the Order of the Ministry of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 No 2 (as amended by the order) was developed by the Academic Committee dated 20.02.2023 No 66).

| Members of the Academic Committee | Full name | Academic degree, academic title, position |
|-----------------------------------|--------------------|---|
| Head of the Academic Committee | Kasymov Askar | Dean of the Research School of Physical and Chemical Sciences |
| Educational program manager | Bakirova Laila | Lecturer of the Department of Chemistry and Ecology |
| Member of the AC | Kabysheva Zhanar | Acting Director Head of the Department of Chemical and Ecology |
| Member of the AC | Skripnikova Lyubov | Associate Professor of the Department of Chemical and Ecology |
| Member of the AC | Zaripov Rustam | Head of Fire Safety LLP |
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Reviewing

| Full name of the reviewer | Position, place of work |
|---------------------------|--|
| Zhanbayev Bolat | Deputy Head of the branch of the Abai Department of Territorial Use of the State Institution |
| Samtirov Ardak | Chief specialist of the ESD of Semey |

Reviewed

at the meeting of the Commission on Academic Quality Faculty of Engineering and Technology Protocol No.3 «15» 01. 2024.

at the meeting of the Commission on Academic Quality of the Research School of Physical and Chemical Sciences Recommended for approval by the Academic Council of the University Protocol No1. «06» 06.2024.

Approved

at a meeting of the University Academic Council by protocol No. 6/1 of January 19, 2024.

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1.Introduction

1.1.General data

Training of specialists in ensuring safety in emergency situations of natural and man-made nature at industrial enterprises and institutions of all forms of ownership under the educational program "6B11201 Life safety and environmental protection "is implemented by the Department of "Chemical and ecology" Research School of Physical and Chemical Sciences, of the Shakarim University in Semey. The educational program is developed taking into account the needs of the regional labor market, the requirements of regulatory documents of the Ministry of education and science of the Republic of Kazakhstan and is a system of documents for organizing the educational process.

When implementing the educational program, it is planned to use artificial intelligence tools in the educational process, thereby developing digital competencies among students in a rapidly changing technological environment.

The educational program provides for the education of a student with special educational needs in the conditions of a higher educational institution, as well as his socialization and integration into society.

1.2.Completion criteria

The main criterion for the completion of the educational process for the preparation of bachelors is the mastering by students of at least 205 credits of theoretical training, as well as at least 27 credits of practical training, 8 credits of final certification.

A total of 240 credits.

1.3.Typical study duration: 4 years.

2.PASSPORT OF THE EDUCATIONAL PROGRAM

| | |
|---|---|
| 2.1.EP purpose | Training of specialists, on the basis of the advanced achievements of world and domestic science, allowing to form bachelors of high professional level in the field of services that fully meet the social expectations of society regarding its intellectual, personal and behavioral qualities, abilities for productive professional activity in modern society, development of creative potential, initiative and innovation for the transition to the second stage of higher professional education (master s degree), possessing basic knowledge and professional skills in the field of life safety, labor protection and environmental protection to ensure industrial and environmental safety of Kazakhstan. |
| 2.2.Map of the training profile within the educational program | |
| Code and classification of the field of education | 6B11 - Services |
| Code and classification of the direction of training | 6B112 - Hygiene and labor protection at work |
| Code in the International Standard Classification of Education | 1020 |
| Code and classification of the educational program group | B094 - Sanitary and preventive measures |
| Code and name of the educational program | 6B11201 - Safety and Environmental Protection |
| 2.3.Distinctive features of the OP (double degree/joint, OVPO-partner, Double major, innovative) | - |
| 2.4.Qualification characteristics of the graduate | |
| Degree awarded / qualification | Bachelor`s degree in the field of services in the educational program |
| Name of professional standard | Professional standard: «Occupational Safety and Health» |
| Atlas of new professions | Absent |
| Regional standard | Absent |
| Name of the profession / list of positions of a specialist | Expert in the analysis of factors of working conditions, Engineer for occupational safety and health, in occupational safety at work, fire safety inspector, in the organizations of the Ministry of Emergencies |
| OQF qualification level (industry qualification framework) | 6 |
| Area of professional activity | sphere of material production, branches: all branches of the economy, including the military-industrial complex, industry, agriculture and utilities, production and consumption. Non-industrial sphere, branches: state bodies in the field of life safety, environmental protection(OS), protection in emergency situations (ES), environmental services. |
| Object of professional activity | Enterprises and organizations engaged in the operation of technological systems, networks and protection in emergencies, determining the safety of life and allowing t fire, radiation, chemical other hazards; research and design industry institutes; |

| | |
|--------------------------------|--|
| | secondary technical educational institutions. |
| Types of professional activity | Production and technological; organizational and managerial; design; experimental and research. |
| 2.5. Graduate Model | <p>The scope of the graduate`s professional activity includes ensuring human safety, creating a favorable environment for human life and activity, eliminating situations of a natural and man-made nature, preserving human life and health, the environment using modern technical means, methods of control and forecasting.</p> <p>The graduate must have the following professional competencies in accordance with the objectives of professional activity and the objectives of the educational program:</p> <ul style="list-style-type: none"> • master the methods of rationalization of life activities aimed at reducing the anthropogenic impact on the natural environment and ensuring the safety of the individual and society; • own and apply the main regulatory and legal documents in the field of occupational safety and health; • carry out measures to prevent occupational injuries and occupational diseases, comply with safety regulations and regulations, monitor environmental and fire safety of production processes; • use knowledge on the organization of labor protection, the environment to minimize negative environmental consequences and ensure safety in emergencies at economic facilities; • master the basics of safe human interaction with the environment and the basics of protection from negative factors in dangerous situations; • simulate and predict the development of emergencies, identify hazards, assess the negative impacts of the habitat; • apply the principles of preparation and execution of preventive, rescue and recovery operations in relation to natural emergencies of varying severity at the level of the region, district, city, enterprise. |

3. Modules and content of the educational program

Module 1. Fundamentals of social and humanitarian knowledge

Brief description of the module content

This module reveals such aspects as: socio-cultural, economic-legal, environmental knowledge, communication skills, the use of information technology taking into account modern trends in the development of society.

Module disciplines

Foreign language

Kazakh(Russian) language (1)

Bases of economics, law and ecological knowledge

Physical Culture

Foreign language

History of Kazakhstan

Kazakh(Russian) language (2)

The module of socio-political knowledge (sociology, political science, cultural studies, psychology)

Physical Culture

Physical Culture

World of Abai

Information and communication technology

Physical Culture

Philosophy

Module 2. Natural Science

Brief description of the module content

Applies in practice modern methods of physical and mathematical analysis and modeling, theoretical and experimental research to solve applied engineering problems. Uses the theoretical foundations of the fundamental sections of chemistry in solving professional problems.

Module disciplines

Mathematics

Physics

Chemistry

Module 3. Professionally-oriented

Brief description of the module content

Carries out professionally oriented activities in the field of life safety and environmental protection.

Module disciplines

Introduction to the profession

Natural disasters

Educational practice

Safety of vital functions

Methods and tools for monitoring and measuring

Methods of scientific research in life safety

Doxologia

Regulatory standards in the protection of the environment

Basics of protection from the dangers

The modern world of dangers

Physiology and psychology of work

Ecological safety of the environment

Environmental safety of Kazakhstan

Ecology of Kazakhstan

Module 4. Industrial-safe

Brief description of the module content

Applies in practice industrially safe methods, measures and means that exclude the effects of hazardous and harmful production factors and industrial pollution on workers and the environment.

Module disciplines

Basis of Biochemistry

Fire safety

Theory of combustion and explosion

Rescue case

Manufacturing Practice I

Facilities in extreme conditions

Building construction

Recovery technology and recycling of waste production and consumption

Disposal, disposal and disposal of industrial waste

Recovery, recycling and disposal of consumer waste

Engineering ecology

Innovative technologies to protect the environment

The reliability of technical systems and risk management

The organization and management of rescue in emergency situations

Basics of marketing and management in environmental engineering

Production sanitation

Industrial Ventilation

Protection against negative factors in the technosphere

Physical factors in the workplace

Security rescue operations in emergency situations

Safety rescue

Examination of working conditions on production and the environment

Module 5. Engineering

Brief description of the module content

Evaluates and predicts the possible and negative impact of engineering and technical complexes, technological equipment, develops and improves risk management methods for the life and health of employees, as well as carries out technical and safe work to create conditions for life safety, labor protection and emergency protection.

Module disciplines

Logistical and logistical support

Methods and means of protection in emergency situations

Rescue equipment and basic machine

Safety engineering and technology

Safety of technological processes and equipment

Manufacturing Practice II

Ergonomics of production processes

Security engineering systems and networks

Process safety

Foundations of PA management and safety systems of Hermetic

Module 6. Radiation - chemical

Brief description of the module content

Analyzes, predicts and regulates the radiation and chemical state of the work area and the environment.

Module disciplines

Environmental pollution
Environmental management and geo-ecology
Fundamentals of chemical, biological and radiation safety
Radiation, chemical and biological protection
Fundamentals of radiation safety
Industrial toxicology

Module 7. The technique is safe

Brief description of the module content

To master the methods, forms and techniques of tactics of rescue operations and liquidation of consequences in an emergency, as well as methods of providing first medical and pre-medical care and to put into practice knowledge on providing emergency medical care to those affected in an emergency.

Module disciplines

Examination of fire and explosion hazard of production
Fire safety industry
Porownywanina industrial and civil objects
Material and technical support of first aid
Emergency Medicine
Rescue work carried out in an emergency
Tactics of rescue and elimination of consequences of emergency situations
Organization of first aid in emergency situations
Organization of rescue operations

Module 8. Fundamentals of production processes

Brief description of the module content

Applies knowledge of the basics of conducting production processes in practice and protects the labor rights of employees performing labor functions in adverse conditions, as well as the population from the possible consequences of emergencies, accidents and catastrophes.

Module disciplines

Government regulation of environmental quality
Specially protected natural territories
Modern ecological environmental problems
Occupational Safety and Health
Technical regulation of industrial safety
Externship practice
Production practice III

Final examination

Brief description of the module content

Writing and defending a graduation project or preparing and passing a comprehensive exam.

Module disciplines

Diploma project
Comprehensive exam

**4. Summary table on the scope of the educational program
«6B11201 - Safety and Environmental Protection»**

| Name of discipline | Cycle/ Component | Term | Number of credits | Total hours | Lec | SPL | LC | IWST | IWS | Knowledge control form |
|--|---------------------|------|----------------------|----------------|-----|-----|----|------|-----|----------------------------|
| Module 1. Fundamentals of social and humanitarian knowledge | | | | | | | | | | |
| Foreign language | GER/CC | 1 | 5 | 150 | | 45 | | 35 | 70 | Examination |
| Kazakh(Russian) language (1) | GER/CC | 1 | 5 | 150 | | 45 | | 35 | 70 | Examination |
| Bases of economics, law and ecological knowledge | GER/US | 1 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Physical Culture | GER/CC | 1 | 2 | 60 | | 60 | | | | Differentiated attestation |
| Foreign language | GER/CC | 2 | 5 | 150 | | 45 | | 35 | 70 | Examination |
| History of Kazakhstan | GER/CC | 2 | 5 | 150 | 30 | 15 | | 35 | 70 | Qualification examination |
| Kazakh(Russian) language (2) | GER/CC | 2 | 5 | 150 | | 45 | | 35 | 70 | Examination |
| The module of socio-political knowledge (sociology, political science, cultural studies, psychology) | GER/CC | 2 | 8 | 240 | 30 | 45 | | 55 | 110 | Examination |
| Physical Culture | GER/CC | 2 | 2 | 60 | | 60 | | | | Differentiated attestation |
| Physical Culture | GER/CC | 3 | 2 | 60 | | 60 | | | | Differentiated attestation |
| World of Abai | BS/US | 3 | 3 | 90 | 15 | 15 | | 20 | 40 | Examination |
| Information and communication technology | GER/CC | 4 | 5 | 150 | 15 | 15 | 15 | 35 | 70 | Examination |
| Physical Culture | GER/CC | 4 | 2 | 60 | | 60 | | | | Differentiated attestation |
| Philosophy | GER/CC | 5 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Module 2. Natural Science | | | | | | | | | | |
| Mathematics | BS/US | 1 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Physics | BS/US | 1 | 3 | 90 | 15 | 15 | | 20 | 40 | Examination |
| Chemistry | BS/US | 3 | 5 | 150 | 15 | 15 | 15 | 35 | 70 | Examination |
| Module 3. Professionally-oriented | | | | | | | | | | |
| Introduction to the profession | BS/US | 1 | 3 | 90 | 15 | 15 | | 20 | 40 | Examination |
| Natural disasters | BS/US | 2 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Educational practice | BS/US | 2 | 2 | 60 | | | | | | Total mark on practice |
| Safety of vital functions | BS/US | 3 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Methods and tools for monitoring and measuring | BS/CCh | 3 | 3 | 90 | 15 | 15 | | 20 | 40 | Examination |
| Methods of scientific research in life safety | BS/CCh | 3 | 3 | 90 | 15 | 15 | | 20 | 40 | Examination |
| Doxologia | BS/CCh | 3 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |

| | | | | | | | | | | |
|---|--------|---|---|-----|----|----|--|----|----|------------------------|
| Regulatory standards in the protection of the environment | BS/CCh | 3 | 3 | 90 | 15 | 15 | | 20 | 40 | Examination |
| Basics of protection from the dangers | BS/CCh | 3 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| The modern world of dangers | BS/CCh | 3 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Physiology and psychology of work | BS/US | 6 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Ecological safety of the environment | AS/CCh | 6 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Environmental safety of Kazakhstan | AS/CCh | 6 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Ecology of Kazakhstan | AS/CCh | 6 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Module 4. Industrial-safe | | | | | | | | | | |
| Basis of Biochymistry | BS/CCh | 3 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Fire safety | BS/CCh | 3 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Theory of combustion and explosion | BS/CCh | 3 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Rescue case | BS/CCh | 4 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Manufacturing Practice I | BS/US | 4 | 5 | 150 | | | | | | Total mark on practice |
| Facilities in extreme conditions | BS/CCh | 4 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Building construction | BS/CCh | 4 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Recovery technology and recycling of waste production and consumption | BS/CCh | 4 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Disposal, disposal and disposal of industrial waste | BS/CCh | 4 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Recovery, recycling and disposal of consumer waste | BS/CCh | 4 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Engineering ecology | BS/CCh | 5 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Innovative technologies to protect the environment | BS/CCh | 5 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| The reliability of technical systems and risk management | BS/CCh | 5 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| The organization and management of rescue in emergency situations | BS/CCh | 5 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Basics of marketing and management in environmental engineering | BS/CCh | 5 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Production sanitation | BS/CCh | 5 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Industrial Ventilation | BS/CCh | 5 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Protection against negative factors in the technosphere | BS/CCh | 5 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Physical factors in the workplace | BS/CCh | 5 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Security rescue operations in emergency situations | BS/CCh | 6 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Safety rescue | BS/CCh | 6 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Examination of working conditions on production and the environment | BS/CCh | 6 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Module 5. Engineering | | | | | | | | | | |
| Logistical and logistical support | AS/CCh | 5 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Methods and means of protection in emergency situations | AS/CCh | 5 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Rescue equipment and basic machine | AS/CCh | 5 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |

| | | | | | | | | | | |
|---|--------|---|----|-----|----|----|----|----|----|------------------------|
| Safety engineering and technology | BS/CCh | 6 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Safety of technological processes and equipment | BS/CCh | 6 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Manufacturing Practice II | BS/US | 6 | 5 | 150 | | | | | | Total mark on practice |
| Ergonomics of production processes | BS/CCh | 6 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Security engineering systems and networks | AS/CCh | 7 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Process safety | AS/CCh | 7 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Foundations of PA management and safety systems of Hermetic | AS/CCh | 7 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Module 6. Radiation - chemical | | | | | | | | | | |
| Environmental pollution | BS/US | 4 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Environmental management and geo-ecology | BS/US | 4 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Fundamentals of chemical, biological and radiation safety | AS/CCh | 6 | 5 | 150 | 15 | | 30 | 35 | 70 | Examination |
| Radiation, chemical and biological protection | AS/CCh | 6 | 5 | 150 | 15 | | 30 | 35 | 70 | Examination |
| Fundamentals of radiation safety | AS/CCh | 6 | 5 | 150 | 15 | | 30 | 35 | 70 | Examination |
| Industrial toxicology | AS/US | 7 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Module 7. The technique is safe | | | | | | | | | | |
| Examination of fire and explosion hazard of production | BS/CCh | 7 | 5 | 150 | 30 | 15 | | 35 | 70 | Examination |
| Fire safety industry | BS/CCh | 7 | 5 | 150 | 30 | 15 | | 35 | 70 | Examination |
| Porownywanian industrial and civil objects | BS/CCh | 7 | 5 | 150 | 30 | 15 | | 35 | 70 | Examination |
| Material and technical support of first aid | AS/CCh | 7 | 6 | 180 | 30 | 30 | | 40 | 80 | Examination |
| Emergency Medicine | AS/CCh | 7 | 6 | 180 | 30 | 30 | | 40 | 80 | Examination |
| Rescue work carried out in an emergency | AS/CCh | 7 | 5 | 150 | 30 | 15 | | 35 | 70 | Examination |
| Tactics of rescue and elimination of consequences of emergency situations | AS/CCh | 7 | 5 | 150 | 30 | 15 | | 35 | 70 | Examination |
| Organization of first aid in emergency situations | AS/CCh | 7 | 6 | 180 | 30 | 30 | | 40 | 80 | Examination |
| Organization of rescue operations | AS/CCh | 7 | 5 | 150 | 30 | 15 | | 35 | 70 | Examination |
| Module 8. Fundamentals of production processes | | | | | | | | | | |
| Government regulation of environmental quality | BS/CCh | 5 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Specially protected natural territories | BS/CCh | 5 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Modern ecological environmental problems | BS/CCh | 5 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Occupational Safety and Health | AS/US | 7 | 6 | 180 | 30 | 30 | | 40 | 80 | Examination |
| Technical regulation of industrial safety | AS/US | 7 | 5 | 150 | 15 | 30 | | 35 | 70 | Examination |
| Externship practice | AS/CCh | 8 | 15 | 450 | | | | | | Total mark on practice |
| Production practice III | AS/CCh | 8 | 15 | 450 | | | | | | Total mark on practice |
| Final examination | | | | | | | | | | |

| | | | | | | | | | | |
|--------------------|--|---|---|-----|--|--|--|--|--|--|
| Diploma project | | 8 | 8 | 240 | | | | | | |
| Comprehensive exam | | 8 | 8 | 240 | | | | | | |

NON -PROFIT LIMITED COMPANY «SHAKARIM UNIVERSITY OF SEMEY

EDUCATIONAL PROGRAM DEVELOPMENT PLAN

6B11201 «Life safety and environmental protection»
for 2024 - 2028

Semey 2024

Content

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1. Passport of the Development Plan of the Bachelor's degree 6B11201 «Life safety and environmental protection»

| | | |
|---|------------------------------------|--|
| 1 | The basis for the development | Development program of the Non -Profit Limited Company «Shakarim University of Semey» for 2023-2029 Work plan of the Research School of Physical and Chemical Sciences Strategic development plan of the Department ««Chemical and Ecology» |
| 2 | Terms of implementation | 2024-2028 years |
| 3 | Expected results of implementation | Improving the educational program 6B11201 «Life safety and environmental protection» in accordance with the mission and strategies of the university, preparing a bachelor's degree that meets the requirements of employers and the modern labor market |

2. Analytical justification of the EP

2.1 Information about the educational program

The educational program has been developed in accordance with the National Qualifications Framework and Professional Standards, according to the Dublin Descriptors and the European Qualifications Framework. The typical period of mastering the bachelor's degree program is 4 years.

The main criterion for the completion of the educational process is the development of at least 240 credits, with the award of a Bachelor's degree in the field of services under the educational program 6B11201 «Life safety and environmental protection»

2.2 Information about students

| Academic year The basis of training | 2024-2025 academic year | 2025-2026 academic year | 2026-2027 academic year | 2027-2028 academic year |
|--|----------------------------|----------------------------|----------------------------|----------------------------|
| Grant | 10 | 10 | 10 | 10 |
| Contract | 5 | 5 | 5 | 5 |
| Total | 15 | 15 | 15 | 15 |

2.3 Internal and external conditions for the development of EP

For the preparation of bachelors, the department has classrooms, technical training facilities, visual and demonstration materials.

When implementing OP 6B11201 «Life safety and environmental protection», the classroom fund of the department and the university is used. Video projectors and interactive whiteboards are used for lectures and practical classes. The department is

equipped with various equipment for conducting interactive lectures, which are available to all students, including remote technology using the portal <https://ais.semgu.kz> / <https://ais.semgu.kz/>.

The number of classrooms completely covers the entire contingent of the department and ensures continuity in accordance with the schedule of the educational process.

The sanitary condition of classrooms, laboratories and offices complies with the required regulatory documents. A passport has been drawn up for each audience with an indication of seats, the amount of inventory, as well as the occupied area.

The provision of educational programs with educational and methodological complexes of disciplines is 100%. The acquisition of new educational and scientific literature in accordance with the educational program 6B11201 «Life safety and environmental protection» is carried out annually. The Kazakhstan Automated Library and Information System has been introduced in the scientific library, which is used to automate library and bibliographic processes for the acquisition and accounting of library funds and information and library services.

The department widely attracts highly qualified specialists from leading enterprises and organizations of the region to improve the practical skills of students during their internship. In order to organize this kind of work, the Shakarim University of Semey concluded Memoranda of Cooperation for 5 years with:

- RSU «Emergency Management of the city of Semey» Department of Emergency Situations of the East Kazakhstan Region of the Ministry of Emergency Situations of the Republic of Kazakhstan (2021)
- Ministry of Emergency Situations of the Republic of Kazakhstan «Abai Territorial Operational Management» branch of the State Institution «Kazselezashchita» (2022)

The department on an ongoing basis ensures communication with graduates and generates data on career growth. Graduates of the educational program are employed in various fields. According to the Association of Graduates of the Faculty of Engineering and Technology, employment is represented by profession in large organizations and educational institutions: The Ministry of Emergency Situations of the Republic of Kazakhstan «Abai Territorial Operational Management» branch of the State Institution «Kazselezashchita»; RSU «Emergency Management of the city of Semey» Emergency Department of the East Kazakhstan EMERCOM of the Republic of Kazakhstan; RSU «Rescue and rescue work» Emergency department of the Abai region; Auezovsky police department of Semey; State Administration «Control Department of the Abai region»; Alina Group LLP; Vostokenergo LLP (Occupational Safety and Health engineer); Semey Ormany MOTR RMM, branch of Tau-Dala; «Shulbinskaya HPP NPP» LLP. The published information about the employment of young specialists is confirmed by certificates from the place of work.

For the organization of dual training, the department concluded contracts with the educational institutions of the RSU «Emergency Management of the city of Semey» of the Emergency Department of the Ministry of Emergency Situations of the Republic of Kazakhstan and LLP «Fire Safety» of the city of Semey.

Within the framework of foreign cooperation, mass training seminars were held in 2021 among students and teaching staff of the department under the program «Basic life support» conducted by Professor of the Polish University Tomasz Zalewski. Following the results of the work, certificates of PSS and a group of students who participated in practical trainings were awarded

In 2022, the head of the Department Sabitova A.N. and senior lecturer Bakirov L.S. took International advanced training courses under the RITA program – «Changes in the region» on the basis of the Higher University of Economics (Bydgoszcz, Poland). The received certificates gave teachers the opportunity to conduct training seminars among teaching staff, AUP, university students (600 students). According to the results of the implementation of the RITA program – «Changes in the region», a joint publication of a scientific article in the Web of Science and Scopus database is planned

2.4 Information about teaching staff implementing the educational program

| № | Indicators | units of measurement | 2024-2025 academic year | 2025-2026 academic year | 2026-2027 academic year | 2027-2028 academic year |
|----------|--|-----------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| 1 | The share of teaching staff with an academic degree in EP | % | 10 | 10 | 20 | 20 |
| 2 | Including the share of teaching staff with a degree in the general education disciplines cycle | % | 10 | 10 | 20 | 20 |

2.5 Characteristics of the achievements of the EP

The achievements of the educational program include the preparation of bachelor's degrees and conducting scientific research on the basis of contracts concluded with specialized organizations.

For the development of practical skills of students, relevant contracts have been concluded with practice bases, in accordance with the form of a standard contract for the organization of professional practice. The bases of practices are organizations that correspond to the profile of the educational program 6B11201 «Life safety and environmental protection».

| The cipher and the name of the educational program | Practice bases | Term of the contract |
|--|--|--|
| 6B11201 «Life safety and environmental protection» | RSU «Emergency Department of Semey City Emergency Situations Department of the Abay Region Ministry of Emergency Situations of the Republic of Kazakhstan» | 27.02.2024 – 01.09.2029 Memorandum of Cooperation |
| | Ministry of Emergency Situations of the Republic of Kazakhstan «Abai Territorial Operational Department" branch of the State Institution "Kazselezaschita» | 17.10.2022 – 01.09.2027, No.406 |
| | RSU «Emergency Department of the city of Semey Emergency Situations Department of the Abay region Ministry of Emergency Situations of the Republic of Kazakhstan | 26.11.2021 – 18.10.2026, No.181 |
| | RSU «National Nuclear Center of the Republic of Kazakhstan» | 10.08.2022 – 10.08.2027, No.531 |
| | JSC «Semey Engineering» | 09.01.2023 – 09.01.2026, No.1 |
| | LLP «Semey kurylys materialdary» Semey, Abay region | 04.09.2023 – 31.12.2028, No.2215 |
| | JSC «Aluminum of Kazakhstan» | 16.02.2024 –16.02.2025, No.PD/AOK/23-0134 |

3. The main objectives of the EP development plan

| № | Main tasks | Deadlines for implementation | Events |
|---|---|------------------------------|--|
| 1 | Improvement and improvement of conditions for obtaining a full-fledged, high-quality professional | The entire training period | Development of measures to improve educational services and develop professional |

| | education | | skills |
|---|--|----------------------------|---|
| 2 | Involvement of employers/stakeholders in the process of improving the educational program for determining the professional competencies of a graduate, preparation of educational and methodological support for disciplines proposed by employers | The entire training period | Annual review and updating of the content of the educational program based on the recommendations of employers |
| 3 | Expansion of relations with partners in order to implement dual education and the publication of educational and methodological literature | The entire training period | Development of measures for the implementation of dual education and the publication of educational and methodological literature |
| 4 | Creation of prerequisites for independent research activity of the student within the framework of research at all stages of training | The entire training period | Conducting scientific events (conferences, seminars, round tables) Preparation participation of students in Olympiads |
| 5 | Involvement of employers in the selection of topics in the writing of theses, the execution of theses by order of employers | The entire training period | Formation of a list of relevant and significant topics, taking into account the proposals of employers |
| 6 | Improving the educational, methodological and logistical support of the educational program | The entire training period | Increase in the volume of available educational and methodological literature in the state language, creation of specialized classrooms |

4. Risk analysis of EP

The graduating Department of Chemical Technology and Ecology, when implementing the educational program 6B11201 «Life safety and Environmental protection», takes certain measures to reduce the potential risks presented in the table.

| № | Name of risks | Measures to eliminate |
|---|--|--|
| 1 | Decrease in the number of students enrolled in the educational program | Introduction of more effective forms of career guidance in urban and inter-district schools of the Abai region with the involvement of students; Instagram facebook, Facebook, etc.). Maintaining the contingent (psychological support of students during the training period, individualization of training, motivation to continue training, etc.). Improving the effectiveness of PR services (media appearances, publications on instagram, facebook) |
| 2 | Insufficient level of language knowledge for the introduction of trilingual education | Organization of English language courses among students of 1-3 courses. Taking educational courses on the Coursera platform among students of 2-3 courses in the state and Russian languages in order to gain new knowledge on the basis of the largest universities in the World. |
| 3 | Decrease in the level of employment | analysis of the labor market and the demand for specialists; formation of a positive image of the educational program (through the release of highly qualified specialists, the introduction of research results) |
| 4 | Insufficient development of external and internal academic mobility of students and teaching staff | Organization of external academic mobility of teaching staff of the department on the basis of NAO «S. Amanzholov VCU», NAO «D. Serikbayev EKSTU» |

5. Action plan for the development of the educational program

| № | Criteria | Expected results | units of measurement | 2024- | 2025- | 2026- | 2027- | 2028 |
|--|----------|------------------|----------------------|-------|-------|-------|-------|------|
| | | | | 2025 | 2026 | 2027 | 2028 | |
| Direction 1. Educational and methodological support | | | | | | | | |

| | | | | | | | |
|--------------|---|---|-------|-------|-------|-------|-------|
| 1.1 | Updating the educational program based on professional standards, taking into account the recommendations of employers | Conducting an examination of the Educational program 6B11201 «Life safety and environmental protection» in order to improve the practice orientation and development of professional competencies of graduates | fact. | fact. | fact. | fact. | fact. |
| 1.2 | Monitoring and updating catalogs of elective disciplines in accordance with the development of key and professional competencies, the demands of the labor market | Improving the quality of the content of educational programs by including elective courses aimed at developing key and professional competencies of graduates in accordance with the demands of the labor market. | fact. | fact. | fact. | fact. | fact. |
| 1.3 | Introduction of modern learning technologies into the educational process, contributing to the development of cognitive activity, communicative ability of students | Improving the quality of teaching academic disciplines, taking into account the novelty and variety of forms of work that contribute to the development of cognitive activity. | fact. | fact. | fact. | fact. | fact. |
| 1.3.1 | Introduction of mass open online courses (MOOCs) into the educational process according to the educational program 6B11201 «Life safety and environmental protection» | Introduction of disciplines into the educational process Improving the quality of teaching academic disciplines, taking into account the novelty and diversity of forms of work that contribute to the development of cognitive activity. | unit | 1 | 1 | 1 | 1 |
| 1.4 | Involvement of social partners and employers in the development, examination of the implementation of educational programs | Improving the quality of educational programs implemented taking into account market demands and recommendations of employers | unit | 3 | 3 | 3 | 3 |

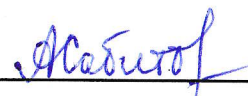
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|-------------|---|---|------------------|---|---|---|---|
| 1.5 | Development and implementation of elective courses in English | Introduction of disciplines in English into the educational process | unit | - | - | - | - |
| 1.6 | Conducting seminars and round tables on the application of innovative technologies in the educational process | Introduction of innovative technologies in the educational process | unit | 2 | 2 | 2 | 2 |
| 1.7 | Publication of educational, methodical and scientific literature on the implemented educational program | Improvement of educational and methodological support in the disciplines of the implemented educational programs | unit | 2 | 2 | 2 | 2 |
| 1.8 | Conclusion of contracts with foreign and domestic partner universities in order to develop academic exchange of students of all levels and teaching staff | Creation of a database of foreign and domestic partner universities for the development of academic exchange of students of all levels and teaching staff | unit | 1 | 1 | 1 | 1 |
| 1.9 | Inviting students from partner universities to study for a semester, short-term internships, internships and others | Development of international recognition of educational programs, implementation of academic mobility programs for students | number of people | 1 | 1 | 1 | 1 |
| 1.10 | Participation of teaching staff and students in international academic exchange programs | Development of international cooperation with foreign universities implementing educational programs in the field of Life safety and environmental protection | number of people | - | - | - | - |
| 1.11 | Development of outgoing academic mobility of teaching staff and students in the direction of Life safety and environmental protection | Improvement of the educational program based on the use of the experience of implementing such programs in leading foreign universities | number of people | 1 | 1 | 1 | 1 |

Direction 2. Teaching staff

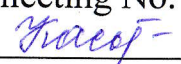
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|--|---|---|------------------|----|----|----|----|
| 2.1 | Professional development and training of scientific and pedagogical personnel for the implementation of educational programs once every 5 years | The share of teaching staff who have passed advanced training at the national and international level is at least 20% | number of people | 2 | 2 | 2 | 2 |
| 2.2 | Advanced training, retraining, internships of teaching staff at the international level | Completion of at least 2 teachers of the advanced training program, retraining, internships of teaching staff at the international level | number of people | 1 | 1 | 1 | 1 |
| 2.3 | Promotion of publications of the works of teaching staff in international publications indexed by the Web of Science and Scopus databases | Increase in the share of teaching staff who have published the results of scientific research in publications indexed by the Web of Science and Scopus databases – at least 30% of the total number of teaching staff | % | 10 | 10 | 10 | 10 |
| 2.4 | Involvement of practical specialists in teaching and scientific activities | Participation in the implementation of educational programs of practitioners (at least 20% of specialists) | % | 10 | 10 | 10 | 10 |
| Direction 3. Internationalization of educational programs | | | | | | | |
| 3.1 | Conclusion of agreements on international cooperation with foreign universities | Implementation of joint projects, preparation of scientific publications with foreign partners, creation of bases for scientific internships of students | unit | - | 1 | - | 1 |
| 3.2 | Attracting foreign students to study under the educational program 6B11201 «Life safety and environmental protection» | Increasing the number of foreign students | number of people | - | - | - | - |

| | | | | | | | |
|--|---|---|-------|-------|-------|-------|-------|
| 3.3 | Organization of joint scientific and practical events with international partners | Improving the efficiency of scientific and methodological activities of teaching staff, exchange of experience with foreign partners | unit | - | 1 | - | 1 |
| 3.4 | Invitation of foreign specialists to give lectures and consultations on master's projects and dissertations | Improvement of the content component of educational programs based on the introduction of the experience of foreign specialists in the implementation of educational programs | unit | - | - | - | - |
| 3.5 | Expansion of cooperation with Leading foreign scientific and educational organizations in order to attract the most qualified foreign specialists to the implementation of educational programs | Formation of key and professional competencies in accordance with the practice of leading universities | unit | - | - | - | - |
| Direction 4. Logistics and digitalization | | | | | | | |
| 4.1 | Step-by-step equipment of classrooms with technical training tools (projectors, panels, interactive and multimedia whiteboards, multifunction devices, webcam, projector screen, etc.) | Equipping classrooms assigned to the department with technical training tools (projectors, panels, interactive and multimedia whiteboards, multifunction devices, webcam, projector screen, etc.) | unit | 2 | 2 | 2 | 2 |
| 4.2 | Automation of the educational process (testing, session management, student contingent movement, dean's office, department, teaching staff workload, schedule, library, syllabuses) | Information management based on the automation of the educational process (testing, session management, student body movement, dean's office, department, teaching staff workload, schedule, library, syllabuses) | fact. | fact. | fact. | fact. | fact. |


| | | | | | | | |
|-----|--|--|------|----|----|----|----|
| 4.3 | Replenishment of the full-text database of research results of teaching staff and students, teaching staff (articles, monographs and others) | Increase in the number of results of scientific works of scientists, research of teaching staff and students, teaching staff (articles, monographs and others) | unit | 1 | 1 | 1 | 1 |
| 4.4 | Expansion of the fund of scientific and educational literature, including on electronic media for implemented educational programs | Ensuring the implementation of educational programs based on modern educational and information resources, including on electronic media | unit | 1 | 1 | 1 | 1 |
| 4.5 | Monitoring the content and improvement of the faculty's website | Formation of the faculty's website on various aspects of the implementation of educational programs. | % | 80 | 85 | 90 | 90 |

Head of the Department  Sabitova A.N.

REVIEWED

at the meeting of the Commission on Academic Quality
of the Research School of Physical and Chemical Sciences
Protocol of the meeting No. 1 dated 06.06.2024
Chairman  Kassymova Zh.S.

AGREED

Dean  Kasymov A.B.
06.06.2024