Non-commercial joint-stock company
« Kazakh National Agrarian Research University »

«AGREED»
Head of the state institution "Kazselezaschita" of the Ministry of Emergency Situations of the Republic of Kazakhstan
_____E.Sadyrbayev
«____»_____2024

«APPROVED»
Chairman of the Board – Rector
_____ A.Kurishbaev
«____»_____2024

EDUCATIONAL PROGRAM

6B11201 – «Social safety and environmental protection»

Awarded degree:Bachelor in services in the educational program
6B11201 – «Social safety and environmental protection»

Almaty 2024

Approved at the meeting of the Department «Agricultural machinery and mechanical engineering»
Protocol № 6, « 12 » 01 2024

Head of the department _____ Zh. Zhumagulov

Considered at meetings Academic committee of the Faculty of «Engineering - technical»
Protocol № 6, « 26 » 01 2024

Chairman of the AC of the faculty _____ U. Ibishev

Reviewed by the Educational Methodological Council of the University and recommended to the Academic Council
Protocol № 4, « 01 » 02 2024

Chairman of the EMS of the University _____ A. Abdyrov

The educational program was approved at the meeting of the Academic Council of KazNARU
Protocol № 9, « 01 » 03 2024

Developers:

Dean of the Faculty L. Aldibaeva

Head of department Zh. Zhumagulov

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Graduate of 2023 S. Andosov

Employers:

Head of the state institution "Kazselezaschita" of the Ministry of Emergency Situations of the Republic of Kazakhstan E.Sadyrbayev

Agreed:

Head of the Educational Program Design Office Zh. Kussainova

Application area

Designed for the implementation of the training of bachelors in the educational program (6B11201 – Vital Security and Environment Protection) in the NJSC «Kazakh National Research Agrarian University»

Regulations

«On Education» The Law of the Republic of Kazakhstan dated 27 July, 2007 No. 319-III;

Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 №2;

Classifier of training programs for personnel with higher and post-graduate education. Order of the Minister of Education and Science of the Republic of Kazakhstan of October 13, 2018 No. 569;

Standard Rules for the activities of educational organizations implementing educational programs of higher and (or) postgraduate education. Order of the Minister of Education and Science of the Republic of Kazakhstan of October 30, 2018 No. 595;

Rules of the organization of the educational process on credit technology of training. Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 12, 2018 No. 563;

Algorithm of inclusion and exclusion of educational programs in the Register of educational programs of higher and postgraduate education. Order of the Minister of Education and Science of the Republic of Kazakhstan No. 665 dated December 4, 2018;

Order No. 106 of the Minister of Science and Higher Education of the Republic of Kazakhstan dated October 12, 2022. Rules for keeping the register of educational programs, implemented by the organizations of higher and (or) postgraduate education, as well as the grounds for inclusion in the register of educational programs and exclusion from it.

Professional standard. Appendix No. 72 to the order of the Deputy Chairman of the Board of the National chamber of entrepreneurs of the Republic of Kazakhstan "Atameken" dated 11.12.2018 No. 339

Educational program 6B11201 - SocialSafety and Environmental Protection ”is supported by three professional standards:

Professional standard “Labor Protection”. Appendix No. 26 to the order of the Deputy Chairman of the Board of the National Chamber of Entrepreneurs of the Republic of Kazakhstan “Atemaken” dated 12/18/2019, No. 255.

Professional standard “Disaster recovery”. Appendix No. 16 to the order of the Deputy Chairman of the Management Board of the National Chamber of Entrepreneurs of the Republic of Kazakhstan “Atemeken” dated 12/27/2019, No. 2566.

Professional standard "Validation and verification of greenhouse gas emissions." Appendix No. 1 to the order of the Deputy Chairman of the Management Board of the National Chamber of Entrepreneurs of the Republic of Kazakhstan “Atemeken” dated December 30, 2019 No. 270.

1 Passport of the educational program

Code and classification of the field of education	6B11 Services
Code and classification of training areas	6B112 Hygiene and occupational safety
Code and name of the educational program	6B11201 – «Social safety and environmental protection»
Type of educational program	Active
The aim of the educational program	Training of in-demand specialists with relevant professional knowledge and practical skills at their levels, capable of making decisions to eliminate and prevent adverse situations.
ISCED level	6
NQR level	6
SQF level	6
Application number to the license on the direction of staff training	KZ89LAA00031870 05.08.2021 y. №006
Accreditation of the EP Name of the accreditation agency Validity of accreditation	Certificate №2020KK0279 KAZSEE 23.12.2020 -22.12.2025 y.
Awarded academic degree	Bachelor in services in the educational program 6B11201 – Social safety and environmental protection
Learning outcomes	Table 2
List of qualifications and positions	-safety and labor protection engineer -environmental Protection Engineer (ecologist) -expert on the analysis of factors of working conditions -head of safety and labor protection -the chief technical manager for safety and labor protection; -scientific researcher in research and design organizations in the field of occupational health and safety.
Field of professional activity	-organization of the service of industrial safety and labor protection of industrial enterprises, organizations and institutions; -monitoring the state of the environment, monitoring the harmful effects of emissions from technological processes of industrial enterprises and the agricultural sector on the environment; -organization of the civil protection service of industrial enterprises, institutions and organizations; -assessment of working conditions of workers in production facilities; -determining the level of potential hazard of industrial enterprises, technological processes and equipment for the development of a safety declaration: -monitoring the state of industrial safety and labor protection at industrial enterprises and agribusiness enterprises. -control of stability of economic objects in case of emergency.
Sphere and object of professional activity	-technological processes of all industrial enterprises, regardless of type of ownership; Agribusiness enterprises, farms; -institutions and organizations with more than 50

	employees; -Departments of the Emergency Committee of the Ministry of Internal Affairs of the Republic of Kazakhstan; Subdivisions of the Ministry of Labor and Social Protection of the Population of the Republic of Kazakhstan: -regional departments for emergency situations, ecology and labor protection; -district departments of ecology, emergency, labor protection and social protection; -educational institutions of technical and vocational education (colleges, universities); -Scientific research organizations (research institutes).
Functions of professional activity	-identification of production processes and work with potentially dangerous and harmful working conditions -organizational and technical support for the development and implementation of OSHMS -ensuring efficiency and continuous improvement of OSHMS -formation and accounting of harmful and dangerous production factors at workplaces -provision of optimal modes of work and rest; Normalization of sanitary and hygienic working conditions -managing the provision of collective protective equipment (VHC) and personal protective equipment (PPE) -examination of the causes and circumstances of violations of the industrial health of workers -justification of payment of compensation to workers employed in adverse working conditions - organization of medical, labor and social rehabilitation of injured workers -organizational and technical support for the development and implementation of OSHMS -Management of sanitary and epidemiological welfare (SEB) of the enterprise. -Participation and assessment of the quality of professional staff selection and management of professionally important qualities of safe behavior (SEC) of employees -organization and coordination of work on safety and labor protection in the structural divisions of the organization and the implementation of internal control on labor safety and protection; -Training, enhancing and maintaining a high level of competency of employees in OSH -managing the organization of optimal working and resting conditions, the normalization of sanitary and hygienic working conditions -management of ensuring the safety of production processes, equipment, tools, industrial equipment, buildings, structures and territories -management of factors of fire, industrial, energy and environmental safety -identification of factors and risk assessment

	-development and implementation of motivational technologies for employee involvement in OSHMS -conducting engineering and technical measures aimed at preventing possible spills of oil and oil products and (or) reducing the risk of their consequences -implementation of organizational and technical measures to combat accidental spills of oil and oil products in the sea -operative and technical guidance for the preparation of rescue teams -organization and verification and validation of greenhouse gas emissions in relevant sectors of the economy -management of the verification and validation process
Types of professional activity	**1. Estimated:** -assessment of technical, environmental and economic efficiency in the implementation of measures to ensure safety, hygiene and labor protection in the workplace; -controlling the operation of environmental and labor protection equipment and rescue equipment, observing the norms, rules and standards of labor protection, emergency protection and environmental protection governing production processes and equipment, rescue work and equipment, eliminating the consequences of accidents, disasters and environmental disasters; **2. Constructive:** -participation in the development of design documentation for ensuring safety, hygiene and labor protection at work, prevention and liquidation of natural and man-made emergencies; -development of technical documentation for metrology, standardization of control and measurement tools, their adjustment, verification and adjustment; -participation in the development and implementation of design and engineering documentation and programs in the field of safety in the technosphere and environment. **3. Information technology:** - prevention and prevention of emergency situations in enterprises; - formation and organization of specialized monitoring, rescue, labor protection services, their material and technical base; - mitigating the consequences of natural and man-made emergencies, and eliminating their consequences; - setting goals and forming tasks for current work and for the future; -compiling descriptions of the research, data preparation and reporting, surveys and scientific publications.
To be competent	- to possess the idea of natural and man-made processes, causing violation of the requirements of technosphere safety, environmental protection and protection in emergency situations; - Demonstrate fundamental knowledge of multifunctional human and human activity based on modern approaches to the requirements of occupational safety and security in

	the environment; - be able to apply the essence and social and social significance of their specialty, the main problems causing the professional activity of the bachelor. - be able to apply the main provisions of the Constitution of the Republic of Kazakhstan, legislative and regulatory and technical acts in the field of industrial safety, environmental protection and environmental management, protection in emergency situations; - in monitoring the rules of the basics of labor protection, industrial sanitation and occupational health, industrial ecology and sustainability of economic facilities in emergency situations, as well as radiation, chemical, biological, fire safety; - basic languages and basics of programming, typical software products focused on solving problems in the sphere of technospheric safety and habitat safety; - professionally carry out their production and social activities, set a goal and formulate tasks for current work and for the future, cooperate with colleagues and plan the work of small teams; - realize their potential to improve the educational level, scientific outlook, competence, qualifications, the acquisition of new knowledge and skills, improve the knowledge of Kazakh, Russian and foreign languages; - use information technology tools and computer equipment for searching, collecting, storing, processing and using information products; - in matters of legislative, regulatory and legal framework in the field of technospheric safety, safety in the environment; - in the organization, conduct and control of activities in the field of technospheric safety and security in the environment; - in matters of development and preparation of environmental and technical documentation, projects, programs, plans of enterprises, organizations; - in the field of experimental research; - in all aspects of professional activities related to industrial safety, environmental protection and protection in emergency situations.

2. Learning outcomes for LO

Codes	Learning outcomes
LO1	Memorize the basic foundations in the field of natural sciences, the structure and functions of legal, anti-corruption culture and academic honesty, environmental and economic culture, genres of academic writing.
LO2	Use in their activities the actions of economic laws, quote the rules of moral development based on the constitutional foundations of the state.
LO3	To be able to communicate reasonably and competently on a wide range of issues, when working in a team and in an international environment, communicate extremely communicatively, convincingly formulate one's position and focus on results.
LO4	Develop mathematical models, perform mathematical calculations and demonstrate mathematical knowledge and understanding in solving professional problems, integrate mathematical methods with information technology.
LO5	Explain the natural-scientific picture of the world through the unity of the basic concepts and laws of physics, chemistry, using the acquired knowledge and skills for the safe use of substances and materials in everyday life, agriculture and industry.
LO6	Apply knowledge and understanding to address issues of safety and reliability of operation of machinery and equipment, evaluate machinery and process equipment in terms of susceptibility to emergency situations.
LO7	Choose methods for identifying harmful and dangerous production factors and ways to protect workers from them, predict phenomena that are harmful to human health and the environment.
LO8	Apply the methodological basis for the selection of personnel on professional suitability and training in safe working methods, verify the knowledge of personnel on safety issues and the ability to develop safety instructions and rules.
LO 9	Plan the creation in the team of the psychology of safe thinking and a healthy moral and psychological climate using knowledge of the issues of social protection of workers.
LO10	Apply legal, organizational, technical and economic measures to improve working conditions, to solve educational, practical and professional problems and assess the state of jobs by managing the certification of production facilities for working conditions.
LO11	To teach the basics of radiation, chemical and biological, electrical and fire safety, identification of hazardous and harmful industrial factors, their measurement and methods of protection.
LO12	Monitor the state of parameters of the production and environment, formulate economically justified measures to improve working conditions, calculate damage from accidents, occupational diseases and industrial accidents.
LO13	Conduct experiments using modern instruments and equipment in the field of technosphere safety and environmental safety, necessary for declaring the safety of potentially dangerous objects.
LO14	Maintain the ability of physical and spiritual self-improvement, professional growth and professional mobility, confirm the desire to achieve new knowledge in the chosen specialty.

3. Content of the educational program

№ пп	MC/UC/CC	Code of Discipline	The name of the discipline that forms competencies	in academic credits	Volume of credits							Distribution of credits by courses and semesters								Department 1	form of control
					in academic hours	Classroom				Extracurricular		1 course		2 course		3 course		4 course			
						Lectures	Practice	Laboratory classes	Other (practice)	IWSL	IWS	1	2	3	4	5	6	7	8		
	GES	**Cycle of general education dis-ciplines**		**56**	**1680**	**84**	**616**			**260**	**720**	**22**	**20**	**12**	**2**					–	
		HL 01	**Module Humanities and language**	**30**	**900**	**30**	**260**			**160**	**450**	**15**	**10**	**5**							
1	CC	HOKS 1101	History of Kazakhstan	5	150	15	30			30	75	5								29	State exam
2	CC	KRL 1103	Kazakh (Russian) language	10	300		100			50	150	5	5							15	Exam
3	CC	FL 1102	Foreign language	10	300		100			50	150	5	5							14	Exam
4	CC	Phi 2106	Philosophy	5	150	15	30			30	75			5						29	Exam
		PC 02	**Module 2. Professional and communicative**	**10**	**300**	**30**	**70**			**50**	**150**	**5**		**5**							
5	CC	ICT 2107	Information and Communication Technologies	5	150	15	30			30	75			5							Exam
6	OC	FOSR 1127	Fundamentals of scientific research	5	150	15	30			30	75	5								3	Exam
		Ent 1126	Entrepreneurship																	2	
		LS 1125	Life safety																	17	
		Eco 1124	Ecology																		
		Eco 1123	Economy																		
		LAACC 1122	Law and anti-corruption culture																		
		SPKHL 03	**Module of socio-political knowledge and a healthy lifestyle**	**16**	**480**	**24**	**296**			**40**	**120**	**2**	**10**	**2**	**2**						
7	CC	SAPKMSS SCSP 1105	Social and political knowledge module (Social Studies,Political Studies,	8	240	24	56			40	120		8							29	Exam

			Cultural Studies, Psychology))																		
8	CC	PC 1104 1108 2111 2112	Physical culture	8	240		240					2	2	2	2					30	Exam
	CS	**Core subjects cycle**		**189**	**3870**	**345**	**645**	**75**	**70**	**690**	**1895**	**10**	**12**	**17**	**30**		**30**				
Module1. Natural Science Training				**21**	**630**	**60**	**75**	**60**		**120**	**300**	**10**	**5**	**6**							
9	UC	HM 1241	Higher Mathematics	5	150	15	35			25	75	5								9	Exam
10	UC	Phy 2233	Physics	6	180	15	15	30		30	90			6						9	Exam
11	UC	Che 1238	Chemistry	5	150	15	15	15		30	75	5								16	Exam
12	UC	MSATOS M 1263	Materials science and technology of structural materials	5	150	15	15	15		30	75		5								
Module 2. Introduction to the specialty				**17**	**510**	**45**	**90**		**20**	**90**	**265**		**7**	**5**	**5**						
12	OC	NDATFATC 1252	Natural disasters and the fight against their consequences	5	150	15	30			30	75		5							8	Exam
		DNP 1252	Dangerous natural processes																		
14	OC	SITT 2206	Safety in the technosphere	5	150	15	30			30	75			5						8	Exam
15	OC	SEAPOTP 2247	Social emergencies and protection of the population	5	150	15	30			30	75				5						
		SH 2251	Social hazards																		
16	UC	TP 1258	Training practice	2	60				20		40		2							8	Report
Module 3. General Engineering Training				**26**	**780**	**75**	**150**	**15**	**-**	**150**	**405**			**6**	**10**	**5**	**5**				
17	UC	CGWEB 2235	Computer graphics with engineering basics	6	180	15	45			30	90			6						7	Exam
18	UC	TAAM 2234	Theoretical and applied mechanics	5	150	15	15	15		30	90				5					7	Exam
19	OC	FOHAHE 2253	Fundamentals of hydraulics and heat engineering	5	150	15	30			30	75				5					7	Exam
		HDAHAM T 2253	Hydrogas dynamics and heat and mass transfer																		
20	OC	TACIE 2264	Transport and communication in emergencies	5	150	15	30			30	75					5					
		ERC 2264	Emergency rescue case																		
21	OC	SIPP 3250	Safety in power plants	5	150	15	30			30	75						5				
		FOES	Fundamentals of electrical																		

		3250	safety																		
Module 4. Special medical and legal training				**20**	**600**	**45**	**90**		**50**	**90**	**325**				**15**	**5**					
20	OC	DM 2254	Disaster medicine	5	150	15	30			30	75				5					8	Exam
		BFOLS 2254	Biomedical fundamentals of life safety																		
21	UC	LL 2212	Industrial sanitation and hygiene	5	150	15	30			30	75					5				8	Exam
22	OC	ERC 2264	Emergency rescue case	5	150	15	30			30	75				5					8	Exam
		TACIE 2264	Transport and communication in emergencies																		
23	UC	PP 2257	Production practice	5	150				50		100				5					8	Riport
Module 5. General agro-technical training				**10**	**300**	**30**	**60**			**60**	**150**					**5**	**5**				
24	UC	SOMAT 3239	Safety of machinery and technology	5	150	15	30			30	75						5			8	Exam
25	OC	REABV 3245	Rescue equipment and basic vehicles	5	150	15	30			30	75					5				9	Exam
		RTAER 3245	Rescue tactics and emergency response																		
Module 6. Prevention and Protection in Emergencies				**36**	**1050**	**90**	**180**		**50**	**180**	**450**					**10**	**20**				
26	OC	CAPPE 3242	Collective and personal protective equipment	5	150	15	30			30	75					5				8	Exam
		MATMOP 3242	Medical and technical means of protection																		
27	OC	FORCABS 3261	Fundamentals of Radiation, Chemical and Biological Safety	5	150	15	30			30	75					5				8	Exam
		FORS 3248	Fundamentals of radiation safety																		
28	UC	FS 3262	Fire safety	5	150	15	30			30	75						5			8	Exam
29	OC	FOEE 3249	Fundamentals of environmental engineering	5	150	15	30			30	75						5			8	Exam
		EPT 3249	Environmental protection technology																		
30	UC	MAMOCA MOTT 3240	Methods and means of control and monitoring of the technosphere	5	150	15	30			30	75						5			8	Exam

31	OC	TSM 4305	Technosphere safety Management	5	150	15	30			30	75							5			
		OHASMS 4305	Occupational health and safety management system																			
32	UC	PP 3260	Production practice	5	150				50		100						5				8	Report
	MS	**Major subjects cycle**		**55**	**1710**	**120**	**285**		**90**	**240**	**890**					**5**		**25**	**30**			
Module 7. General profile training				**15**	**300**	**30**	**60**		**40**	**60**	**150**					**5**		**10**				
33	UC	TROIS 4306	Technical regulation of industrial safety	5	150	15	30			30	75							5		8	Exam
34	OC	SSAC 4310	Security supervision and control	5	150	15	30			30	75							5		8	Exam
		SPOW 4310	Social protection of workers																		
35	OC	IS 3243	Industrial safety	5	150	15	30			30	75					**5**					
		AAEAIE 3244	Accidents and emergencies at industrial enterprises																		
Module 8. Vocational training				**15**	**450**	**45**	**120**			**90**	**225**							**15**			
36	OC	CANS 4311	Communication and notification systems	5	150	15	30			30	75							5		8	Exam
		PAAWCS 4311	Public address and wired communication systems																		
37	OC	EOW 4308	Ergonomics of work	5	150	15	30			30	75							5		8	Exam
		ETA 4308	Ergonomics and technical aesthetics																		
38	OC	OACOCD 4307	Organization and conduct of civil defense	5	150	15	30			30	75							5		8	Exam
		PAPMFES 4307	Protection and Personnel Management for Emergency Situations																		
Module 9. Engineering and Management Training				**22**	**720**	**45**	**105**		**50**	**90**	**355**								**22**			
39	UC	TSRARM 4304	Technical systems reliability and risk management	6	180	15	45			30	90								6	8	Exam
40	UC	EASM 4314	Economics and security management	5	150	15	30			30	75								5	8	Exam
41	OC	COPFFW C 4313	Certification of production facilities for working conditions	6	180	15	45			30	90								6	8	Exam
		CACOW 4313	Certification and certification of workplaces																		

42	UC	PP 4309	Professional practice	5	150				50		100								5	8	Report
Final examination				**8**	**240**				**80**		**160**								**8**		
43			Final assessment	8	240				80		160								8	8	
Total credits				**245**	**7260**	**549**	**1546**	**90**	**160**	**1190**	**3505**	**32**	**32**	**29**	**32**	**30**	**30**	**30**	**30**		

Notes:

Department number	ABBR	Наименование кафедры
1	IAAR	Accounting
2	IQAA	Management
3	Iправо	Law
4	WRlr	Water resources and land reclamation
5	MU	«Machine use» named after I.V. Sakharov
6	IAAR	Vocation training
7	MaDoAE	Mechanics and design of agricultural equipment
8	ATT	Agrarian technology and technology
9	ITmap	Information technology, mathematics and physics
10	ESaA	Energy Saving and Automation
11	LRaC	Land Resources and Cadastre
12	FraHg	Forest resources and hunting management
13	PPaQ	Plant Protection and Quarantine
14	FL	Foreign language
15	KaRL	Kazakh and Russian languages
16	SsaA	Soil science and agrochemistry
17	EC	Ecology
18	HaWG	Horticulture and walnut growing
19	AG	Agronomy
20	BS	Biological safety
21	CVM	Clinical Veterinary Medicine
22	OSaBR	Obstetrics, Surgery and Biotechnology Reproduction
23	MaNV	Microbiology and non-virology
24	VsEaH	Veterinary-sanitary examination and hygiene
25	FTaS	Food Technology and Safety
26	BPfaF	Beekeeping, poultry farming and fisheries
27	IAAR	Technology production products livestock
28	PMaBnAB	«Physiology, morphology and biochemistry» named after N.O. Bazanova
29	HKaCNK	The history of Kazakhstan and the culture of the peoples of Kazakhstan
30	Phys	Physical education and sport
31	MD	Military Department

4. Competence map of modules

Codes	Module	Educational competence	Learning outcomes
MC1	**Module. Humanities and language**	aimed at the formation of fundamental source and historiographic materials, as well as for the achievement of modern historical science of Kazakhstan; to determine the role of the history of Kazakhstan in the system of humanitarian knowledge; on revealing the specifics of the object and subject of history of Kazakhstan for the analysis of topical problems of the modern stage of development; on creation of scientifically grounded concept of history of Kazakhstan based on integral and objective coverage of the main stages of ethnogenesis of the Kazakh people, evolution of forms of statehood and civilization in the Great Steppe; on systematization of knowledge of the main events of the modern history of Kazakhstan.	- demonstrate knowledge and understanding of the main stages of development of the history of Kazakhstan - correlate the phenomena and events of the historical past with the general paradigm of world-historical development of human society through critical analysis; - possess the skills of analytical and axiological analysis in the study of historical processes and phenomena of modern Kazakhstan - be able to comprehend objectively and comprehensively the immanent features of the modern Kazakhstan model of development - to systematize and give a critical assessment of historical phenomena and processes in the history of Kazakhstan.
MC2		form a system of general competencies that ensure the socio-cultural development of the personality of the future specialist based on the formation of his ideological, civic and moral positions;	- to evaluate the surrounding reality on the basis of ideological positions, formed by the knowledge of the fundamentals of philosophy, which provide scientific understanding and study of the natural and social world by methods of scientific and philosophical knowledge; - to interpret the content and specific features of the mythological, religious and scientific worldview; - to give assessment to everything happening in the social and industrial spheres;
MC3		develop the ability to interpersonal social and professional communication in the state, Russian and foreign languages;	- implement the use of language and speech tools based on a system of grammatical knowledge; analyze information in accordance with the situation of communication; - to carry out the use of linguistic and speech means based on the system of grammatical knowledge; analyze information in accordance with the communication situation;
MC4	**Module. Professional and communicative**	The development of information literacy through the mastery and the use of modern information and communication technologies in all areas of life and work;	- evaluate the actvities and actions of communication participants. - to use in personal activities various types of information and communication technologies: Internet resources, cloud and mobile services for searching, storing, processing, protecting and distributing information;
MC5		Have an intolerant attitude toward corrupt behavior, respectful of legislation and law.	- analyze events and actions from the point of view of the area of legal regulation and be able to refer to the necessary regulatory acts; - to be guided in the current legislation;

			using the law, to protect their rights and interests, - to carry out professional activities on the basis of a developed legal awareness, legal thinking and legal culture; - to acquire a sufficient level of legal awareness; - be able to assess the facts and phenomena of professional activity from an ethical point of view; - apply moral rules and norms of behavior in specific life situations
MC6		Be competent to analyze and obtain information in accordance with the basic knowledge of the economy; use the basics of economic knowledge in various fields;able to apply this knowledge in solving situational and practical problems.	- to know the fundamental problems of the functioning of the economy, the mechanism of action and manifestation of economic laws, as well as the main features of the leading schools and areas of economic science; - to be aware of economic terms and categories, use them in their educational activities; - to understand and know the main events of the world and domestic economic history, the course of ongoing reforms in the light of the strategy "Kazakhstan - 2050", development trends in the field of modern business; - to distinguish and compare the behavior of market agents in different types of market structures; - to explain the interaction of economic agents in macroeconomic markets; - to compare the impact of macroeconomic policies in different countries; - to argue their own views on modern macroeconomic phenomena; - to use the knowledge gained in practice to assess the results of economic reforms in Kazakhstan
MC7		To be competent in the application of methods for the implementation of low-waste production and the assessment of the environmental efficiency of economic activity.	- know the contents of the basic terms in the field of ecology, environmental management; modern global and regional environmental problems and their solutions; - be able to apply environmental knowledge to solve and predict possible environmental problems; - apply methods for the implementation of low-waste production and assess the environmental performance of economic activity. - establish causal relationships between phenomena occurring in nature and society, - apply environmental knowledge to solve and predict possible environmental problems.
MC8		**Module 1. Science Training** To be competent in understanding the role of physical and mathematical knowledge for	- apply knowledge in mathematics, physics, descriptive geometry and drawing in solving various theoretical and practical problems in production.

		active work in environmental protection, rational environmental management, preservation and development of civilization, in graphic solution of technical problems; in the preparation and handling of technical and design documentation; in the use of GOSTS ESKD in the design of working drawings of parts, in professional communication in the state, Russian and English languages using modern multimedia tools and information and communication technologies, in writing and translating scientific texts	- quote and explain production tasks in the state, Russian and English languages. - to possess interpersonal communication skills, the methodology of communication in a multilingual and multicultural society of the Republic of Kazakhstan and communication in the international arena. - use the solution of typical mathematical problems for the development of measures for labor protection, apply physical and mathematical methods to solve practical production problems. - describe and explain the results of observations and experiments on occupational health and industrial safety.
MC9	**Module. Socio-political knowledge and a healthy lifestyle**	form the skills of self-development and education throughout life;	-to assess situations in various spheres of interpersonal, social and professional communication, taking into account the basic knowledge of sociology, political science, cultural studies and psychology; - to synthesize knowledge of these sciences as a modern product of integrative processes; - to use scientific methods and approaches of research of a specific science, as well as the entire socio-political cluster; - develop their own moral and civic position; - operate with the social, business, cultural, legal and ethical norms of Kazakhstan society; - demonstrate personal and professional competitiveness; - to put into practice knowledge in the field of social sciences and humanities, having international recognition; - to make a choice of methodology and analysis; - summarize the results of the study; - to synthesize new knowledge and present it in the form of humanitarian socially significant products;
MC10		form a personality capable of mobility in the modern world, critical thinking and physical self-improvement.	- to build a personal educational trajectory throughout life for self-development and career growth, focus on a healthy lifestyle to ensure full social and professional activities through methods and means of physical culture.
MC11	**Module 4. Special medical and legal training**	To be competent in legislative matters to ensure the normal working conditions of employees, to be able to analyze socially significant problems and processes, the ability to render the first medical aid in case of accidents at work, to be able to identify dangerous and harmful	- to define the concept of the organization of safe and harmless working conditions of workers. - make a message on the basics of labor law, methods of identifying hazards and hazards in the workplace. - discuss in a competent environment and consider in detail the basics creating safe and harmless working

		production factors, to calculate the parameters of collective protective equipment and -have personal protective equipment	conditions in enterprises; principles for designing occupational safety in enterprises. - to demonstrate knowledge of the legal basis of the emergency medicine service in emergency situations in peacetime, to carry out medical and sanitary measures in the aftermath of emergency situations. - calculate the conditions and modes of operation of the divisions of industrial enterprises and the equipment installed in them from the point of view of safety. - develop and implement measures to prevent industrial injuries and occupational diseases. - demonstrate an intolerant attitude towards corrupt behavior, respectful of law and law.
MC12	**Module 5. General agro-technical training**	To be competent in creating safe working conditions in the industry and the agricultural sector, to have an idea of standardization and certification to achieve these goals, to know the basics of agricultural technology and technology	- to define a specialist who carries out occupational health and labor protection in industry and the agricultural sector. - to formulate a distinctive basis for the technology of potentially hazardous industries, equipment and technological processes in the agricultural sector. - to classify hazardous and harmful properties of technological processes of the agricultural complex. - explore the results of the analysis and monitoring of environmental parameters. - demonstrate the ability to make decisions in the event of adverse factors and dangerous situations.
MC13	**Module 6. Prevention and Protection in Emergencies**	To be competent in calculating the risk of undesirable events in technical systems, including fires and explosions, to be able to manage risks, to know how to eliminate the consequences of undesirable events, while respecting the basic requirements of labor protection and safety	- to define the functional responsibilities of a specialist who is able to prevent and reduce damage from the occurring accidents and disasters - formulate a definition systems of preventive measures to reduce the hazards of emergencies, principles of personnel management and organization of material and technical supplies of emergency situations of peacetime and wartime. - explain the basics of the technology of large-scale production of mineral processing, characterized by the production of solid waste. - streamline general information about fire and explosion protection, the basics of fire protection of industrial and civilian objects.

			- explore the organizational basis for the implementation of measures to prevent and eliminate accidents, catastrophes and natural disasters. - modify the organizational structure of rescue units and services, their tasks and capabilities. - to classify dangerous and emergency situations of a social nature, to identify patterns of manifestation of emergency situations of a social nature. - draw up an action plan in case of a dangerous social situation.
		Professional competencies	**Learning outcomes**
		Possession of professional knowledge contributes to mastering the basics of project management and decision-making techniques that can minimize the consequences of negative environmental impacts and know the basic engineering methods of environmental protection.	
MC14	**Module 7. General profile training**	To be competent to be competent in matters of the danger of radioactive, biological and chemical substances, to know the maximum permissible doses and concentrations, to be able to apply effective protection, to be able to apply the requirements of technical regulations in professional activities, to be able to regulate industrial safety	- list the main objectives and principles of technical regulation of industrial safety. - to define the main industrial hazards and hazards of technological processes, recyclable materials and the resulting products. - apply the methods of examination of hazardous industrial facilities and the declaration of their safety. - use in professional activities provisions of technical regulations. - apply an effective labor protection management system that reduces the impact on working hazardous and harmful production factors. - develop a safety declaration of a hazardous production facility. - to investigate and take samples of air, soil and water in areas contaminated with radioactive substances, to make calculations of protective shields from various types of radiation, to conduct an analysis to assess the radiation situation in enterprises using radioactive sources.
MC15	**Module 8. Vocational training**	To be competent in assessing the workplaces of an industrial facility, certifying and declaring the safety of potentially hazardous facilities, being able to organize	- list the main responsibilities of a specialist responsible for assessing working conditions and production hazards, organizing civil defense services and mobilizing an industrial facility and an

		civilian protection of the facility, know the working conditions and the basics of the agricultural business	AIC facility. - development of methods for determining the reliability and risk of accidents at production facilities. - explain the principles of electrical equipment and power transmission. - explain the physical characteristics of sound waves and sound sources, the conditions for the propagation of acoustic waves in rooms. - apply regulatory documents in the field of occupational health to certify workplaces on working conditions. - choose a way to monitor compliance with safety measures, assess the adequacy and effectiveness of measures to prevent and eliminate emergencies at an industrial facility. - to illustrate with economic calculations the effectiveness of measures for the protection of labor and the environment in agricultural enterprises
MC16	**Module 9. Engineering and Management Training**	To be competent in the organization of labor protection at work, social protection of workers, to be able to prepare the population for action in emergency situations, to organize the protection of facilities for industrial and natural emergencies that can minimize the consequences of negative environmental impacts, know the basic engineering methods of environmental protection	- to formulate the peculiarities of training specialists in training trajectories: safety in the technosphere, environmental protection, protection in emergency situations and the organization of labor protection in agriculture. - to define the methodology for teaching the population, personnel of enterprises and officials to act in the event of an emergency. - make a list of regulatory documents on the organization of the civil defense object. - develop a plan for organizing the protection of production personnel and material and technical resources at chemical, radiation, explosion and fire hazardous enterprises. - streamline the evacuation scheme for workers, employees and their families. - provide examples of methods and techniques for training workers in agriculture and occupational safety. - Establish a procedure for the examination of regulatory legal acts. - to solve the problem of social protection in the event of a crisis. - draw up an action plan for the protection of AIC facilities from the effects of natural and man-made emergencies.

5. Summary table showing the amount of credits mastered by the modules of the educational program

Course of Study	Semester	The number of studied disciplines			Number of academic credits						Total in academic hours	Additional types of training military training	Amount	
		MC	UC	CC	Theoretical training	Educational practice	Internship	Undergraduate practice	Final examination	Total			Examination	Differential Test
I	**1**	4	2	1	30					31	900		7	
	2	4	2	1	28	2				31	900		6	1
II	**3**	3	2	1	30					30	900		6	
	4	1	1	4	25		5			30	900		5	1
III	**5**			5	30					30	900		5	
	6		1	5	26		5			30	900		5	1
IV	**7**		1	5	25		4			30	900		5	1
	8		1	2	12			4	12	30	900		2	1
Итого		**12**	**10**	**24**	**206**	**2**	**14**	**4**	**12**	**242**	**7200**		**41**	**5**

Application to the EP

Application 1

Practice base

№	Name of companies, enterprises, organizations	Contacts, phone, e-mail
1	LLP YerAn-EcoTrans	The Republic of Kazakhstan, 050014, Almaty, Ryskulova ave., 73a, office 8 Tel: +7 727 251 65 79 +7 727 251 65 80 bromelia85@mail.ru
1	LLP «Standard Group»	Almaty, Nazarbayev ave., 103, office 707. Number. 8 701 712 4827 e-mail: sapabek@sgl.kz
2	LLP «Trud i bezopasnost»	Almaty, 8 microdistrict, 2 84a number 303 94 14 e-mail: Ot_tb1@mail.ru
3	Republican Center for Advanced Studies on Emergencies	Almaty, Baizakov st. 300. e-mail:kursy@mail.ru No. 8(701 7737 2778
4	Корпус спасателей-волонтеров КЧС МВД РК	Almaty, Abay ave., 143, office 329 e-mail: 191@reskue.kz No: 8 727 270 11 91
5	LLP «Amiran-Agro»	Almaty region., Talgar district. number.:8(72774)42301,fax:8(727)3074822 e-mail: amiran_almaty@mail.ru
6	LLP «Baiserke-Agro»	Almaty region, Ili district, BaiserkeKonayev st, 1. Number.:87019916120, 87018813379 e-mail: bajserke-agro.all.biz
7	CE «Mamed»	Almaty region., Karasai districe. Number.:8(727)3728617, 87016664751 e-mail: kalit50@mail.ru
8	LLP SPC «Agricultural Engineering»	050005, Almaty, Raiymbek ave. 312, Number.:8(727)2479600; fax:8(727)2479607 e-mail: kazniimech@yandex.kz
9	TOO «Engineering innovation A-A»	0500000 Almaty,Dosmukhamedov st. 11/32 Number.:8(327)3174061; fax: 8(727)2380721 e-mail: isi-aa@mail.ru
10	TOO «Almaz-trans»	010000 Almaty, Radastovets st.120 Number.: 8(7272)961313

Appendix 2.2

Information about disciplines

№	Name of discipline	Brief description of discipline(30-50 words)	Number of loans	Formable competencies (codes)
The cycle of general education disciplines High school component / Optional component				
Mandatory component				
1	History of Kazakhstan (SE)	Introduction to the course "History of Kazakhstan". Socio-economic, political and cultural development of Kazakhstan in the late nineteenth - early twentieth century. The national movement in Kazakhstan at the beginning of the twentieth century. Kazakhstan in 1917 - 1920 The historical origins of the formation of Soviet Kazakhstan. Socio-economic transformations in Kazakhstan in the 20-30s of the twentieth century. National-state building, socio-political life and culture of Kazakhstan in the 20-30s. XX century Kazakhstan during the Great Patriotic War of 1941 - 1945 Kazakhstan in the postwar years (mid 40s - mid 60s). Kazakhstan in 1965 - 1991 State building of the Republic of Kazakhstan. Social and economic development of the Republic of Kazakhstan. Ethno-demographic processes and interethnic relations in the Republic of Kazakhstan. Socio-political life and domestic policy of the Republic of Kazakhstan. Kazakhstan in the world community. Cultural and spiritual-ideological processes in the Republic of Kazakhstan.	5	MC1, LO1, LO2, LO3
2	Philosophy	The concept of matter. Matter as a philosophical category. The subject of philosophy in the analysis of the phenomenon of consciousness. The concept of dialectics. Dialectics as a science. Dialectic tools. Forms and levels of knowledge. The subject of philosophy in the analysis of the social form of motion of matter. The essence of man and the meaning of his existence. Politics as a form of public	5	MC1, LO1, LO3, LO3

		consciousness. The origin and essence of global problems.		
3	Foreign language	Practical knowledge of foreign language skills: participation in conversations and negotiations of a professional nature, expression of an extensive register of communicative intentions (informing, explaining, clarifying, advising, arguing, instructing, illustrating, etc.); possession of all types of monologue utterances, including such as presentation, understanding of utterances and messages of a professional nature; mature knowledge of all types of reading original literature of various functional styles and genres; Ability to conduct business correspondence, prepare working documentation, abstracts, reports, reports, etc .; Ability to translate professional information from a foreign language into Russian and from Russian into a foreign language.	10	MC3, LO1, LO3
4	Kazakh (Russian) language	Systematization and deepening of knowledge in the field of spelling, grammar, punctuation; acquaintance of students with the stylistic varieties of the Russian language, in particular with the scientific style of speech and its features; development of students in-depth communicative competence based on the language of the specialty; teaching methods and techniques of structural-semantic and semantic analysis of a scientific text; teach to extract the necessary information from the text, describe it, summarize and interpret in order to use in the process of educational and professional communication; to teach the use of language knowledge to solve the problems of educational and professional communication; mastery of the cultural, scientific, technical, spiritual wealth of the Russian language.	10	MC3, LO1 LO3
5	Information and communication technologies (in English)	Information educational technologies: conceptual and terminological apparatus. History and modernity. Copyright. Problems of vocational training in high technology. The prospect and development trend of	5	MC4, LO3, LO5

		information educational technologies. The role of computer networks. Classification and purpose of software. Types of computer networks: local, regional and global. Basic concepts (TCP / IP protocol, client / server, providers). Connection to local and global networks. Classification of global network services. Educational services Internet. Search engines. Email. Real-time communication. Computer systems in telephony: classification, purpose, structure. Principles of data protection and access restrictions.		
6	The module of socio-political knowledge (sociology, political science, cultural science, psychology)	The module contains knowledge on sociology, citizenship and patriotism, on the ability to solve production problems using knowledge of sociology and psychology. Fundamentals of knowledge of psychology, political science and cultural science for the fulfillment of professional duties and duties of a citizen of the Republic of Kazakhstan.	8	MC2, LO1,LO2, LO3, LO5
University component				
1	Law and anti-corruption culture	Aesthetic concepts and categories, content and features of professional ethics in legal activity, possible ways (methods) of resolving moral conflicts in the professional activities of a lawyer, the essence of professional and moral deformation and ways to prevent and overcome it, features of the etiquette of a lawyer, its main norms and functions; ways to assess the facts and phenomena of professional activity from an ethical point of view, the application of moral rules and norms of behavior in specific life situations.	5	MC5, LO1, LO2, LO9
	Economics	The subject and method of economic theory. General concepts of economics. Economics: economy and science. The main stages in the development of economic science, the largest representatives and major schools. Features of the development of economic theory at the end of the XX-beginning of the XXI centuries. Two branches of economic theory: political economy and economics. The definition of the subject of economic theory in political economy and economics.		MC5, LO1,LO2, LO4

		The structure of economic science and the place in it of economic theory.		
	Ecology	Ecological safety. State environmental policy. Environmental and resource-saving legislation. Legal mechanisms of environmental protection (EIA, environmental impact assessment, environmental control, environmental audit, etc.). Scientific foundations of sustainable development, the contribution of domestic and foreign science to the formation of the ideology of sustainable development.		MC5, LO1,LO5, LO7
The cycle of basic disciplines High school component / Optional component				
University component				
8	Mathematics	Matrix concept, types of matrices, actions on matrices. Determinants of any order, properties of determinants, inverse matrix, matrix rank, elementary transformations. Step matrix, Gauss method of reduction to step form. The space of arithmetic vectors, linear dependence and independence, bases. Systems of linear equations. General concepts. Gauss solution to eliminate unknowns. The general theory of systems of linear equations: the condition of non-trivial compatibility of a homogeneous system, the fundamental system of solutions of a homogeneous system, its construction and structure of the general solution; heterogeneous systems, the structure of the general solution.	5	MC8, LO1, LO6
9	Physics	The purpose of teaching the discipline "Physics" is to form a modern understanding of the physical picture of the world among students, the skills of research, obtaining and processing experimental results, as well as the skills of modeling physical processes in solving specific problems; development of the student's creative abilities in order to master new high technology in their specialty. Having studied the course of physics, the student must master the fundamental concepts, laws and theories of the foundations of modern physics, the methods of physical research, master the methods of solving applied problems from	5	MC8, LO1, LO5, LO6

		various fields of physics.		
10	Chemistry	. The concept of a chemical element and its forms of existence: free atoms, simple and complex substances. The transformation of substances. The difference between chemical reactions and physical phenomena. The role of chemistry in human life. Hemophilia and hemophobia. Brief information from the history of the development of chemistry. The period of alchemy. The concept of the philosopher's stone. Chemistry in the 16th century The development of chemistry in Russia. The role of domestic scientists in the formation of chemical science is the work of M. V. Lomonosov, A. M. Butlerov, D. I. Mendeleev. Chemical symbolism. Signs of chemical elements and the origin of their names. Chemical formulas. Indices and Odds. Relative atomic and molecular masses. Calculation of the mass fraction of a chemical element by the formula of a substance. The periodic system of chemical elements DI Mendeleev, its structure: small and large periods, groups and subgroups (main and secondary). The periodic system as a reference manual for obtaining information on chemical elements.	6	MC8, LO1, LO5, LO6
11	Natural disasters	The discipline "Natural and disasters" forms students with specialty 6B073100 "Life Safety and AIA" solid knowledge about natural disasters, about methods for their prediction and modeling, their consequences, as well as the choice and definition of protective measures.	4	MC9, LO5, LO11, LO12
	Man-made accidents	Causes of man-made accidents. Accidents in hydraulic structures, in transport. Brief description of major accidents and disasters. Rescue and emergency emergency recovery operations in the liquidation of major accidents and disasters.		
12	Safety in the technosphere.	The structure of state safety management in the technosphere. State policy and principles of state safety management in the technosphere. Norms of international law in the field of safety activities.	4	MC9, LO1, LO5, LO7, LO11, LO12

		Interdepartmental Commission on labor protection of the republican executive body, as a subject of state safety management in the technosphere in the Republic of Kazakhstan.		
13	Social hazards	Social protection system, social security, social guarantees, social support, social insurance. General characteristics of the social protection system for workers, sources of social security law, the effect of regulations in time, in space and by category of employees, financial, legal and organizational basis for social protection of workers, the main mechanisms of social protection in case of social risks, etc.	6	MC8, LO1, LO2, LO3, LO8, LO9
	Anthropogenic sources of dangers	Conditions of human life (the internal environment of the human body), habits, social ecology, professional human activities, transport communications, the natural environment. Violation of the rules for the operation of technical systems and facilities, technical imperfection. Anthropogenic interference in the natural environment, man-made emergencies. Social risk. Social groups. Economic risk. Decreased quality of life. Increased production hazard		
14	Engineering graphics	Projection apparatus. Complex drawing (Monge diagram). Projection points. Octants. Additional projections. Axonometry formation, definitions, terms. Standard axonometry. Point in a perspective view. Modern technologies in the field of CAD. Computer graphics, geometric modeling and their tasks. AutoCad graphics package, features of construction. Menu structure, toolbars, command line, mouse use. The structure of the drawing file. 2D - modeling in graphic systems. Graphic solution to technical problems; Drafting and handling of technical and design documentation; The use of GOST GOST ESKD in the design of working drawings of parts.	6	MC10, LO4, LO5
Optional component				
15	Theoretical and	The structure of the elements of	6	MC10, LO1,

	applied mechanics.	mechanisms. Links of mechanisms. Classification of links. Kinematic pairs. The element of the kinematic pair. Classification of kinematic pairs. The number of degrees of freedom of a kinematic pair. Kinematic chains and their classification. The degree of mobility of the kinematic chain. Somov-Malyshev formula. Chebyshev formula. Mechanisms and their classification. Friction in kinematic pairs. Basic concepts. Types of friction. Friction force. Full rest friction force. The friction force of motion. The coefficient of friction of rest. Coefficient of friction of motion. Amonton-Coulomb Law. The angle of friction of rest. The angle of friction of the movement. Friction cone of rest. Friction cone of motion. Friction in lower kinematic pairs. Friction in a progressive pair on horizontal and inclined planes. Friction in a helical pair. Friction in a rotational pair. Rolling friction. A pair of rolling friction.		LO4, LO6
	Engineering mechanics.	Axioms of statics. The equilibrium of bodies under the action of converging forces. The equilibrium of bodies under the action of a flat system of forces. Balance of forces taking into account friction. The theory of forces and pairs in space. The moment of force about the axis. The balance of forces under the influence of spatial forces. The tasks of kinematics. The laws of motion of the point. Speed and acceleration of a point in various ways of setting motion. The plane motion of a solid. Speed determination using instant center of speed. Acceleration of body points in plane motion. Laws and problems of dynamics.		
16	Structural safety of vehicles	design features of vehicles; active safety; passive safety; post-accident safety; environmental safety; engineering calculations of means and devices for safety; regulations and best practices in this area. Analyze the design of vehicles and motor vehicles, as well as their components and assemblies from the standpoint of active, post-accident and fire safety; evaluate the	5	MC10, LO5

		effectiveness of the elements of the constructive safety of vehicles; in the knowledge of the fundamental laws of the constructive safety of vehicles, their application in solving specific problems of modern automotive technology.		
	Environmental safety in transport	The study of the main patterns of interaction in the system "Transport - Society - Environment" and the formation of ideas about environmental approaches to solving environmental problems in transport. study the requirements in the field of environmental protection (EP) for transport enterprises. Know the legal norms, legislative acts, environmental protection standards, the principles of scientific organization of work on environmental protection in transport, modern methods of cleaning exhaust gases and wastewater at transport enterprises. Obtain the skills of practical calculations to determine the impact on the environment of transport, various technological processes and installations, allowing to assess the state of the environment at the enterprise and plan measures to reduce the anthropogenic load on nature.		
17	Disaster medicine	Characteristics of natural disasters, industrial accidents and disasters, their impact on the population. The mechanism of the negative impact of emergency situations on humans; determination methods and regulatory levels of permissible negative effects on humans; methods for assessing the medical situation in emergency zones to be able to carry out calculations and mathematical modeling of the medical situation, organize the primary life support of the affected population in emergency zones, provide first aid to victims of emergency situations in peacetime and wartime.	6	MC11, LO7, LO8, LO11, LO12
	First Aid	General patterns of growth and development of the human organism. To create optimal working conditions and protect the body of a working person, it is necessary to know		

		the structure of a person and the physical processes taking place in it. Preservation of life and health is the most important human need. General acquaintance with the human body. A cell, its structure and chemical composition. Vital cell properties. The internal environment of the body. Tissues and organs. Organ system. Musculoskeletal system. General information about the skeleton. Skeleton, trunk, limbs. Skull. Bone joint. General information about the muscles.		
18	Labor law	Labor conditions - conditions of payment, labor standards, working hours and rest periods, the procedure for combining professions (positions), expanding service areas, fulfilling the duties of a temporarily absent employee, labor safety and protection, technical, working and living conditions, as well as other as agreed by the parties, working conditions.	6	MC11, LO1, LO2, LO3, LO8, LO9
	Regulatory and legal framework in the LS	Basic provisions of the laws of the Republic of Kazakhstan on BZD; interstate standards for Belarusian Railways; regulatory framework for life safety; basic rights and obligations of employees and the employer; public administration functions in the field of life safety; rights and obligations of state inspectors.		
19	Industrial hygiene and occupational health.	Fundamentals of industrial hygiene and occupational health as a whole. Organizational, methodological, regulatory and technical and legal foundations of industrial sanitation and occupational health. Identification of environmental hazards. Assessment of the severity and intensity of work. Efficiency and its dynamics. Organization of the labor process. Technical aesthetics. Features of the work of women and adolescents.	5	MC11, LO5, LO7, LO8, LO11, LO12
	Industrial Toxicology	Introduction to Industrial Toxicology. Goals, content and objectives of the course, its role in the training of specialists. Legislative acts of the Republic of Kazakhstan in the field of ensuring ecotoxicological, chemical and toxicological		

		safety. Organizational and theoretical foundations of ensuring ecotoxicological safety. Concepts and definitions. ecotoxic substances. Classification of ecotoxicological hazards in the human-habitat system. Acute and chronic poisoning. Long-term effects of toxic substances. Cumulative effects of toxic substances and types of cumulation. Maximum allowable levels of poisons and radioactive substances		
20	Fundamentals of safety and ecology in the agricultural sector	Negative factors inherent in the agricultural sector. An unstable environmental situation that adversely affects the activities of all sectors of the national economy, especially the agricultural sector. related to the class of maximum professional risk. The problems of life safety in the agro-industrial complex is an acute social problem. A high degree of injuries and occupational diseases leading to death in the agricultural sector. Requirements for sanitary standards and safety regulations. The growth rate of occupational morbidity and industrial injuries in the agricultural sector. Ensuring the safety of production and labor protection of workers and employees of the agricultural sector is one of the main problems of the national security of the country.	6	MC12, LO1,LO5, LO6, LO7, LO13
	The economic basis for ensuring industrial safety	The purpose of teaching the discipline "Fundamentals of electrical safety" is to form students' perceptions of the dangers of electric current. The effect of the electric eye on the human body, the path of the passage of current through the human body, the dependence of the severity of electric shock on environmental conditions is studied. Individual and collective protection against electric shock. Protective grounding and grounding.		
21	Potentially hazardous technologies and production	Potentially hazardous technologies Process safety assessment. Properties, extraction and processing of mineral raw materials for the purpose of its integrated use. Technologies and production processes of developing industries. Assessment of their safety,	6	MC12, LO5, LO6, LO11, LO13

		decision-making at the plant on the safety and environmental friendliness of technological schemes and calculations. Prevention of possible negative consequences of industrial accidents and disasters.		
	Safety Technique in AIC	Fundamentals of technologies of the main industries Introduction Subject "Fundamentals of technology of the main industries", its composition and content. The purpose and objectives of the discipline, its place in the system of training engineers to ensure occupational safety and livelihoods. The relationship of the course with science, applied and special subjects. Scientific and technological progress in the technology of the main industries and the role of domestic scientists and engineers in it.		
22	Collective and personal protective equipment	Classification of personal and collective protective equipment. Appointment of various classes of PPE. Organization of the provision of workers and the population of personal protective equipment. Personal respiratory protection (PPE). Filter gas masks. Isolating breathing apparatus. Industrial gas masks. Respirators Insulating skin protection products (suits). Skin filtering agents.	6	MC13, LO7, LO10, LO11, LO13
	Special clothing	Thermal balance, its effect on the well-being of a person. Heat transfer and heat transfer characteristics. Indicators of thermal state and categories of assessment. Microclimate in the clothing industry. Hygiene requirements for clothing. The main indicators of the physical and hygienic properties of textile materials. The basic principles of designing clothes for protection against the cold. Calculation of thermal resistance of household special clothing. The basic principles of designing clothes for protection against heat. Modeling the process of air exchange in the under-clothes space. The basic principles of designing special clothing. Methods of physiological and hygienic assessment of clothing.		

23	Fundamentals of radiation, chemical and biological safety	Radiation safety, types of radiation, protection against radiation, safety of chemical elements essential for the body. The safety of biological products necessary for the body. The values of biological poisons. Danger of spread of inorganic chemical toxic substances. Danger of spread of organic chemical toxic substances. Features of the receipt and distribution of chemical toxic substances. Features of the entry and distribution of biological toxic substances. Protection of water basins from pollution by toxic chemicals. Protection of the environment from biological and chemical poisons. The basics of antidote therapy for poisoning with biological poisons.	6	MC13, LO5, LO7, LO10, LO11, LO13
	Chemistry of waste	The complex nature of raw materials for the production of non-ferrous metals. Polymetallic raw materials, prospects and the possibility of its complex processing. Characteristics and nomenclature of the waste of the mineral resource complex, taking into account their use in economic sectors. Formation of technogenic deposits. Analysis of modern technologies for waste processing. The main types of industrial waste (slag, sludge, dust, intermediate products), their composition, quantity, directions of use and processing. Recovery from waste, processing and use of heavy non-ferrous metals.		
24	Fire safety	Fire and explosion protection and fire fighting methods. Automatic fire extinguishing equipment. Signaling. The peculiarity of extinguishing fires in the oil and gas industry. Fire resistance of building structures. Methods of increasing fire resistance. Life-threatening factors in case of fire and explosion. Fire and explosion of technological processes, buildings and structures. Limiting the spread of fires. Categorization of industries for explosive and fire hazard. Classification of buildings and structures from their method of use. Ways to increase the fire resistance of	5	MC13, LO5, LO6, LO7, LO8, LO11, LO12

		buildings and structures.		
	Organization of the fire service.	Features of the actions of the fire service units when dealing with massive fires. Extinguishing fires and conducting related emergency rescue operations in conditions of increased radiation. Psychological training and safety measures for extinguishing fires and conducting rescue operations. Peculiarities of the actions of forces and means of teaching staff at the elimination of foci of chemical contamination. Peculiarities of the actions of forces and means of teaching staff at the elimination of foci of chemical contamination.		
25	Emergency and rescue business.	Organizational basis for rescue operations during accidents at mining enterprises, oil and gas fields. Organization and technology of rescue operations to eliminate the consequences of accidents. Search and release of victims. Rescue work during the liquidation of natural emergencies. Security measures during rescue operations in the conditions of the destruction of buildings. The procedure for the use of forces and means of Civil Defense for emergency rescue operations. Engineering support of measures for the prevention and liquidation of emergency situations.	5	MC13, LO6, LO7, LO11, LO12, LO13
	Transport and communications in emergency situations	General information about rescue equipment and basic vehicles. Machine parts. General purpose mechanisms. Transporting and loading and unloading machines. Hoisting machines and mechanisms. Machines for earthworks. Manual machines. Fundamentals of the operation of rescue equipment and basic machines. General information about road transport. Car operation. Railway, water and air transport. The interaction of vehicles when performing rescue operations. Promising Communications		
26	Documentation and paperwork in the BZ	The discipline "Documentation and paperwork in the BZ" is intended for students of higher educational institutions studying in specialty 6B11201-БЖиЗОС. It	5	MC9, MC14, LO1, LO2 LO3, LO8, LO14

		contains the following basic materials. Documentation of administrative documents.		
	Protection and Personnel Management for Emergency Situations	Documentation of work with personnel. Organization of workflow. Registration of documents. Organization of control over the execution of documents. Organization of storage of documents. Transfer cases to the archive.		
The cycle of majors				
Optional component				
27	Technical regulation of industrial safety.	Legal basis of technical regulation of industrial safety. Main goals and principles of technical regulation. The structure of the state system of technical regulation. Competence of the authorized body in the field of technical regulation. Competence of a state body in the field of technical regulation. Gosstandart of the Republic of Kazakhstan and the basics of standardization. Fundamentals of metrology, classification and metrological characteristics of measuring instruments. Theoretical and organizational aspects of certification. Technical regulations: concept and essence. Application of technical regulations. The procedure for the development and adoption of technical regulations. Change and cancellation of technical regulations.	6	MC14, LO4, LO6, LO10, LO12, LO13
	Methods and means of control and measurement	Standardization documents and types of standards. Technical regulations, their status and application. Rules for standardization (PR) and recommendations for standardization (P). Technical conditions The structure of the system of state supervision and control. The main tasks of Gosstandart in the Republic of Kazakhstan. The main functions of the State Standard of the Republic of Kazakhstan. The structure of the territorial bodies of Gosstandart of the Republic of Kazakhstan. Scientific and technical information on industry standards published by the State Standard of the Republic of Kazakhstan. Measurement model and basic tenets of metrology.		

28	Reliability of technical systems and risk management	Basic concepts of reliability of technical systems, with classification of failures, quantitative indicators of reliability, laws used in reliability theory. Human reliability issues. The influence of climatic factors on reliability. Reliability criteria, selection of indicators, collection of information and methods of its processing. Reliability service organization, experimental assessment, risk theory and risk management.	6	MC14, LO4, LO6, LO10, LO12, LO13
	Reliability analysis of technical systems	The task of discipline, its place in the system of training engineers. Basic and additional literature. The main features of complex systems. Functioning system. The mathematical description of the processes of functioning. Management of technological systems. The essence of management processes. Governing body and control object A systematic approach to the analysis of objects of human activity. Conditions and means of solving the problem. The study of physical and technical systems. Systemic risk analysis .. Systematic approach to security. Traditional risk analysis system.		
29	Declaration of safety of production facilities	Legislative and legal framework for industrial safety of the Republic of Kazakhstan. Law of the Republic of Kazakhstan "On Civil Protection". Basic concepts. The regulatory framework for the development of the Declaration of security facility. The list of hazardous production facilities and their characteristics. Basic requirements for industrial safety. The largest industrial accidents in world practice. The role of climatic conditions and the location of enterprises on the occurrence and development of accidents.	5	MC15, LO4, LO6, LO10, LO12, LO13
	Organization of civil defense of the object	Structure of the Civil defense system of the object. Assessment of the possible situation in the organization during natural disasters, accidents, catastrophes. Organization of protection of production personnel and material and technical equipment at chemical, radiation, explosive and fire hazardous enterprises. Organization and		MC15, LO5, LO6, LO7, LO11, LO12, LO13

		implementation of dosimetric and chemical control, rescue and other urgent work to eliminate the consequences of natural disasters, accidents and catastrophes. Evacuation of workers, employees and their families. Protective structures available in organizations, their equipment. The procedure for the accumulation of personal protective equipment, the rules for their storage and issuance. The order and methods of warning and communication in organizations in the interests of emergency situations and civil defense.		
30	Ergonomics and technical aesthetics.	Problems of adaptation of the working environment to the capabilities of the human body. The system "man - a tool of labor - the working environment" and recommendations for its optimization. The role of ergonomics in the implementation of mechanization and automation of technological processes. Work safety technical aesthetics.	6	MC15, LO1, LO6, LO8, LO14
	Organization of the work of the rescue service	Priority emergency rescue and other urgent work to save people and material assets in the affected areas, prevent the further development of emergency situations, as well as participate in the elimination of accidents on utility networks. Search and rescue of people in the rubble, zones of destruction of buildings and structures. The provision of interaction with the personnel of the state fire service, emergency medical care, public order policing, emergency services of housing and communal services and other units involved in emergency response.		MC15, LO5, LO6, LO7, LO11, LO12, LO13
31	Certification of production facilities according to working conditions	Forms and methods of organizing work on accounting, evaluation, certification, rationalization and planning of jobs. Ensuring and developing the initiative of a creative, businesslike attitude to business. Regulation on certification of production facilities under working conditions. Identification of jobs requiring certification. Work environment options. Instruments and equipment for the evaluation of jobs.	5	MC15, LO6, LO7, LO10, LO12, LO13

		Calculation of the severity and monotony of labor. The composition of the commission on certification of jobs.		
	Elimination of the consequences of emergencies	Elimination of emergencies by forces and means of the territorial or departmental subsystems of the State Emergency Service, in the territory and facilities of which they arose. The scale of the emergency and the territorial authorities of the Ministry of Emergencies. The central body of the Republic of Kazakhstan in emergency situations. Disaster management and major industrial accidents. Volumes of engineering and rescue and emergency restoration work. The situation with a limited time and a possible threat of their repeated exposure, as well as the need for assistance to victims as soon as possible. Organization and sequence of implementation of SNAVR. Types of structures, types of work, the nature of the destruction, the availability of equipment. Preparedness of rescuers, time of year and day, weather conditions and other factors affecting the course of ATS.		MC15, LO5, LO6, LO7, LO11, LO12, LO13
32	OSH management system.	Principles for creating healthy and safe working conditions. Organizational and managerial methods in professional and social activities on labor protection. The role of trade unions in labor protection. Occupational safety control system. The current system of regulatory legal acts in the field of technosphere safety. The organizational foundations of the safety of various production processes in normal conditions and emergency situations. Requirements of the Labor Code of the ORC for a safety management system in the technosphere.	5	MC16, LO1, LO2, LO6, LO7, LO10, LO13
	Environmental engineering.	Basic concepts of environmental engineering. Objects, principles and methods of environmental engineering. Ecological systems. Types of pollution and environmental damage. Types of human intervention in the biosphere. The main environmental aspects of environmental engineering. Society and the environment.		MC15, LO1, LO4, LO7, LO12

		The interaction of production and the environment. Solving environmental problems in individual industries. Protection of air from pollution. Water protection. Protection of biological resources. Environmental protection during the storage of industrial waste. Soil protection from pollution.		
33	Social protection of workers.	Social protection system, social security, social guarantees, social support, social insurance. General characteristics of the social protection system for workers, sources of social security law, the effect of regulations in time, in space and by category of employees, financial, legal and organizational basis for social protection of workers, the main mechanisms of social protection in case of social risks, etc.	5	MC16, LO1, LO3, LO5, LO8, LO9, LO14
	Environmental impact assessment and environmental impact assessment	Methodological, legal and regulatory frameworks and principles of environmental impact assessment. Theoretical and legal basis for the development of EIA. Environmental impact assessment methods. Development of environmental protection measures. Examination of project documentation in the framework of the EIA.		MC16, LO1, LO4, LO7, LO12, LO14
34	Recruitment and training of personnel;	Activities for the training of personnel for new activities; work with a reserve of personnel (determination of needs, recruitment and promotion, the main areas of training and related activities); selection, training and advanced training of managers and persons working with staff; training and professional development of scientists and specialists; referral of personnel for training and advanced training taking into account future needs; work with graduates of schools and universities; special forms of retraining and advanced training of personnel.	7	MC16, LO2, LO8, LO9, LO14
	Organization and monitoring of environmental work.	Modeling of ecological and economic systems. Systems for obtaining basic information for monitoring systems. Regional systems of environmental and economic monitoring. Monitoring as a means of environmental management of the enterprise. Monitoring of projects and		MC16, LO1, LO4, LO7, LO12, LO13

		programs that implement market-based mechanisms for trading quotas. Observations of natural water pollution. Observation of soil pollution. Observations of air pollution. Monitoring of terrestrial ecosystems located in the zone of intense anthropogenic impact. The nature management structure at the enterprise.		
35	Physiology and psychology of labor	. The role of psychophysiological factors in the protection of labor activity. The physiological basis of labor. Physiology of the central nervous system. Consciousness and thinking. Work. The severity and stress of work. Fundamentals of physiology of work, fatigue and prevention. Methods and tools of the psychology of labor. Organizational development in the workforce. Labor collective. Psychology of personality and team. Management of the labor collective. The condition and nature of labor. Safety and accident prevention. The effect of stress on the functional systems of the organism and on labor activity. Extreme conditions of human activity in the process of work.	7	MC16, LO1, LO2, LO6, LO7, LO10, LO13
	Reclamation of disturbed lands	A set of actions aimed at restoring the national economic value of devastated soils, at restoring their productivity, at improving the conditions of the entire environment. The sequence of technical and biological reclamation of disturbed lands. Inventory, identification, accounting and mapping, determining the area and establishing the level of quality. Reclamation directions. Agricultural direction, recreational direction, water-economic direction, the creation of new agricultural land.		MC16, LO1, LO4, LO7, LO12, LO13