

**Ministry of Science and Higher Education of the Republic of Kazakhstan
NPJSC «Korkyt Ata Kyzylorda University»**



GRADUATE MODEL

**Master's degree in the educational program
"7M11202 - Life safety and environmental protection (Technosphere safety)"**

Kyzylorda, 2025

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INTRODUCTION

The graduate model of Korkyt Ata KSU is a comprehensive image of the result of studying at the university at all levels of education. The graduate model is recommended for use in the development of educational programs. The formation of a modern graduate model that meets the needs of all interested parties is the main strategic goal of Korkyt Ata KSU and is provided with the necessary resources for the educational process, including personnel, educational, methodological, informational and logistical support.

The model of competencies for the implementation of the Main directions of the Bologna process is designed to answer the question of what professional tasks a specialist of a certain degree (position), a certain profile should solve. The University is systematically improving the targeted personnel policy and the material and technical base of the university to ensure the quality of training of a sought-after graduate master in the scientific or professional field.

1. Description OF the Educational program

Master of Science in the field of services in the educational program 7M11202 - Life safety and environmental protection (Technosphere safety). Technical, environmental and economic efficiency in the implementation of measures to ensure the safety of life and environmental protection; control of the operation of environmental protection and labor protection and emergency rescue equipment, compliance with norms, rules of labor protection, emergency protection and environmental protection, production processes and equipment, emergency rescue, management training personnel, specialists in the field of equipment regulation, elimination of consequences of industrial disasters and environmental disasters. As well as organizations of higher and postgraduate education, research and design organizations. Professional activities include-design,-production and technological,-service and operational,-organizational and managerial,-installation and commissioning,-calculation and design services.

2. THE CONSTITUENT COMPONENTS IN THE FORMATION OF THE GRADUATE MODEL OF THE EDUCATIONAL PROGRAM

The main components of forming a graduate model of an educational program include information about the goals and objectives, objects of the educational program, types and directions of professional activity, models of specialist competencies, including descriptors, type of competencies in accordance with the educational program and the results of the educational program.

2.1 Objectives of the Educational Program:

Training of specialists in a specific scientific or professional field who are able to solve professional problems in various working conditions in accordance with the requirements of employers and state standards and have high qualifications for universities, competitiveness and the ability to lead research work with team management.

2.2 Tasks of the Educational Program:

- training of qualified personnel corresponding to the tasks of the innovative economy of the country;
- creating conditions for the development of science and innovation, attracting young people to the formation of new ideas; - increasing the contribution to the development of national unity, national culture and a harmonious personality.

- The basis for the development of a development plan for the OP is the improvement and effective implementation of educational programs of the specialty. The strategy and tactics of the OP development plan have been developed in accordance with the educational policy of the Republic of Kazakhstan, the main purpose of which is to train highly qualified personnel meeting the needs of the state and interested parties.

2.3 General and professional competencies

- have an idea: about the role of science and education in public life, about modern trends in the development of scientific knowledge, about current methodological and philosophical problems of natural (social, humanitarian, economic) sciences;
- know: methodology of scientific knowledge, principles and structure of organization of scientific activities;
- be able to: use the knowledge gained for scientific research, analyze existing concepts, theories and approaches to the analysis of processes and phenomena, integrate knowledge, obtained within the framework of different disciplines to solve research problems in new unfamiliar conditions, think creatively and be creative about solving new problems and situations, fluent in a foreign language at a professional level, summarize the results of research and analytical work in the form of a dissertation, scientific article, report, etc.;
- have skills: research activities, solving standard scientific problems, using modern

Professional:

GC1

Philosophy synthesizes and summarizes the results of practical and spiritual development of the world, the socio-cultural development of public life, possible strategies and ways of identifying and finding cultural identity.

GC2

The undergraduate will have spelling, lexical and grammatical competence.

GC3

Knowledge about the role of the education system, purpose, content, methods, principles of education, didactics of the school, forms of education, credit technology system, features of educational work in the school, the basics of the teacher's culture, get acquainted with information at various stages of development of the child, analyze its pedagogical features; acquire skills of mastering the requirements for the student's personality.

GC4

It forms the basis of psychological knowledge about the development of personality, knowledge of the laws and mechanisms of development of the human psyche, develop skills in analyzing the psychological characteristics of social communication

PC1

Mastering by masters of theoretical foundations and practical skills in data processing and modeling of an experiment using modern capabilities of computer application programs. Planning and processing data of multifactorial experiments and compiling scientific reports and dissertations, writing articles in scientific journals.

PC1

Theoretical and practical training of master's students in the field of scientific research and inventive creativity. Methods for solving scientific problems, methodology of theoretical and experimental research; Processing of measurement results and error assessment; Formulation of the conclusions of the scientific study; Preparation of a report, report or article based on the results of a scientific study; Preparation of applications for the proposed inventions; Conclusion of empirical dependencies based on experimental data; Planning and management of research activities.

PC2

Taking into account the features of technical systems, forming ideas about the theory of their reliability, viability and safety, monitoring working conditions and environmental protection, technical risk assessment of hazardous production facilities and environmental protection, mastering the risk analysis

methodology, methods for assessing the reliability, viability, safety of technical systems and the formation of skills to maintain their performance.

PC4

The general principles of system analysis and modeling of complex processes make it possible to proceed to the study of their particularities that are characteristic of the occurrence of incidents in the technosphere.

PC4

Construction of a useful analytical model of the phenomenon or process under study based on a finite sample set of experimental data.

PC5

One of the most important problems of mankind is the problem of preserving the environment and the transition of society to sustainable development.

PC6

Modern approaches to assessing the quality of atmospheric air and water bodies based on various generalizing and integral indicators. Assessment of economic damage from anthropogenic environmental pollution and the system of payments for environmental pollution and environmental management.

PC7

Elimination, neutralization and disposal of industrial waste-the basic concepts of pollution, sources, types, classification. Methods of utilization of industrial waste and pollution. Collection, transportation, storage and disposal of waste. Legal, environmental and economic aspects of waste and pollution disposal. Sources, types, classification. Warehousing and burial.

PC8

Prior to the beginning of works on prevention of an emergency situation with workers it is necessary to carry out target instructing. Employees should be trained in techniques of performance of rescue and other emergency operations, as well as equip with the necessary personal protective equipment (e.g. special clothes, shoes, self contained breathing devices for work in the area of the smoke or gas)

PC8

Hardware, software (functions and tools), mathematical software, in-machine software, source data, etc. Operations carried out using information systems data entry and editing, data management, data query and analysis, data visualization. Spatial data in information systems can be presented in the form of interactive maps. Reports on the state of objects can be constructed in the form of graphs, diagrams, three-dimensional images. The capabilities of information systems can be used in a wide variety of management activities related to security.

PC9

Formation of the ability to carry out pedagogical activities in universities, design the educational process and conduct certain types of training using innovative educational technologies.

PC11

The purpose of the discipline is the formation of readiness to reduce the consequences of the danger of fires, the number of victims and the reduction of the amount of damage caused, the prevention of major accidents and fires and training in fire safety measures at work and their prevention.

PC11

In the course of studying this discipline, the master's student expands and deepens parts of the following competencies the ability to take part in the design of professional activity objects in accordance with the technical task and regulatory and technical documentation, observing various technical, energy-efficient and environmental requirements, and the ability to justify design decisions.

PC12

The purpose of the discipline forms the readiness to investigate an accident with an employee who is on the territory of production and is working, an employee admitted to another production to perform a production task, eliminate the consequences of an accident.

PC13

The purpose of the discipline is to provide undergraduates with theoretical foundations and practical skills for processing experimental data using modern PC capabilities.

PC13

The purpose of the discipline forms readiness to implement a set of measures aimed at organizing the implementation of a set of measures for industrial safety, ensuring the safety and safe conduct of work,

protecting employees from negative factors of labor activity that can provide a system of occupational safety management in all spheres of activity and industries.

PC14

Security monitoring is an automated process for collecting and analyzing indicators of potential security threats, followed by sorting out these threats and taking appropriate actions. Security monitoring, sometimes referred to as “information security monitoring” or “security event monitoring,” is the collection and analysis of information to identify suspicious behavior or unauthorized changes to systems in a network and determine the types of behavior for which notifications and actions are required.

PC16

Acquiring experience in the study of an actual scientific problem, expanding professional knowledge gained during training, and developing practical skills in conducting independent scientific work. The practice is aimed at developing the skills of research, analysis and application of economic knowledge.

2.4 Matrix of correlation of learning outcomes of the educational program with the competencies being formed

Competence	ON1	ON2	ON3	ON4	ON5	ON6	ON7	ON8
ЖК1/ОК1/ГС1	+							
ЖК2/ОК2/ГС2	+							
ЖК3/ОК3/ГС3	+							
ЖК4/ОК4/ГС4	+							
КК1/ПК1/РС1		+	+					
КК2/ПК2/РС2		+						
КК3/ПК3/РС3				+				
КК4/ПК4/РС4				+				+
КК5/ПК5/РС5	+							
КК6/ПК6/РС6			+					
КК7/ПК7/РС7		+	+					
КК8/ПК8/РС8		+						
КК9/ПК9/РС9		+					+	
КК10/ПК10/РС10					+			
КК11/ПК11/РС11			+			+		
КК12/ПК12/РС12			+				+	
КК13/ПК13/РС13			+					
КК14/ПК14/РС14	+							
КК15/ПК15/РС15		+						
КК16/ПК16/РС16		+						
КК17/ПК17/РС17		+	+					
КК18/ПК18/РС18		+	+					
КК19/ПК19/РС19		+	+					
КК20/ПК20/РС20					+		+	
КК21/ПК21/РС21				+			+	
КК22/ПК22/РС22					+	+		
КК23/ПК23/РС23								+
КК24/ПК24/РС24								+

2.5. Personal qualities of a specialist in the educational program "Life safety and environmental protection (Technosphere safety)"

Upon completion of training, specialists ensure compliance with the norms, rules and norms of labor protection, emergency protection and environmental protection, regulation of production processes and equipment, emergency rescue operations and equipment, elimination of consequences of accidents, catastrophes and environmental disasters; analysis of the condition and quality indicators of objects of activity using modern methods and research tools carries out analysis of research dynamics; develops plans, programs and research methods; based on the

research results, predicts the consequences of decisions made; evaluates the technical and economic efficiency of decisions made; performs the functions of a teacher in the implementation of education; develops and learns to maintain operational documentation provided for by the rules of operation of equipment and organization.

After graduation, specialists can get a job as a chief engineer, head of the department, chief specialist, safety and labor protection engineer, lead engineer, senior foreman (production) site, head of the department of technical safety and labor protection, head of the laboratory, head of the wagon (laboratory), chief dispatcher, teacher, researcher.

CONCLUSIONS

This graduate model is the methodological basis for the implementation of the technology of the competence approach. It is also important to understand that the formation of these competencies of a graduate of the master's degree is provided on the basis of an organized and implemented educational process and research work in a certain way. As a graduate, he must be competitive. To prepare graduates in demand on the market, it is necessary to form a comprehensive portrait of him, a certain matrix of characteristics. From understanding the main advantages, characteristics, and competencies of graduates needed by employers, it is possible to move on to creating an effective modern university: the formation of educational programs, the creation of infrastructure, and the use of new learning formats.

Head of the educational program



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