

Joint Stock Company "Academy of Logistics and Transport"



APPROVE
US ALT decision dated
April 27, 2023 (Protocol №8)
President-Rector
Amirgalieva S.N.

EDUCATIONAL PROGRAM

Name: 6B07140-«Cybersecurity of digital systems»

Level of training: Bachelor's degree

Code and classification of training areas: 6B071-«Engineering and Engineering»

Code and group of educational programs: B063-«Electrical Engineering and automation»

Date of registration in the Registry: 04.08.2023

Registration number: 6B07100083

Almaty, 2023

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1. СВЕДЕНИЯ О РАССМОТРЕНИИ, СОГЛАСОВАНИИ И УТВЕРЖДЕНИИ ПРОГРАММЫ, РАЗРАБОТЧИКАХ И ЭКСПЕРТАХ

РАЗРАБОТАНО:

Ассоциированный профессор АЛит, PhD


(подпись)

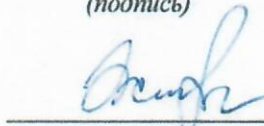
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Оразбаев К.Ж.

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Зікірбай Қ.Е.

РЕЦЕНЗЕНТ:

Ассистент-профессор кафедры
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(подпись)

Болшибаева А.К.

REVIEWED AND RECOMMENDED

Meeting of the Department
«Automation and Control»
Protocol № 7 dated 27.03.2023



(signature)

Sansyzbay K.M.

Meeting of the COC of the UMB Institute
«Automation and Telecommunications»
Protocol № 5 of 20.04.2024



(signature)

Toygozhinova A.Zh.

UMS ALT meeting
Protocol № 5 of 20.04.2023



(signature)

Zharmagambetova M.S.

APPROVED by the decision of the ALT Academic Council of 27.04.2023 (Protocol № 8)

INTRODUCED for the first time.

2. REGULATORY REFERENCES

The educational program is developed on the basis of the following normative legal acts and professional standards:

1. The Law of the Republic of Kazakhstan «On Education» dated July 27, 2007 № 319-III (with amendments and additions as of January 08, 2021).

2. The National Qualifications Framework approved by the Protocol of March 16, 2016 by the Republican Tripartite Commission on Social Partnership and Regulation of Social and Labor Relations.

3. The sectoral qualifications framework of the field of Education, approved by the Minutes of the meeting of the sectoral Commission of the Ministry of Education and Science of the Republic of Kazakhstan on social partnership and regulation of social and labor relations in the field of education and science dated November 27, 2019 № 3.

4. The State mandatory standard of Higher Education (Annex 7 to the Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 31, 2018 № 604 with amendments and additions as of May 05, 2020).

5. Qualification directory of positions of managers, specialists and other employees, approved by the Order of the Minister of Labor and Social Protection of the Population of the Republic of Kazakhstan dated December 30, 2020 № 553.

6. Rules for organizing the educational process on credit technology of training, approved by the Order of the Minister of the Ministry of Education and Science of the Republic of Kazakhstan No. 152 dated 20.04.2011. (with additions and amendments dated October 12, 2018 № 563).

7. Classifier of training areas with higher and postgraduate education, approved by the Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 13, 2018 No. 569 (with amendments and additions as of June 05, 2020).

8. The algorithm of inclusion and exclusion of educational programs in the Register of educational programs of higher and postgraduate education, approved by the Order of the Minister of Education and Science of the Republic of Kazakhstan dated December 4, 2018 № 665 (with additions and amendments as of December 22, 2020).

9. RI-ALT-33 «Regulations on the procedure for developing an educational program of higher and postgraduate education»

10. Professional standard «Maintenance of signaling devices, centralization and blocking of railway stations and crossings», NCE RK «Atameken», approved by Order № 256 dated 20.12.2019.

11. Professional standard «Maintenance of devices, mechanized and automated sorting slides», NCE RK «Atameken», approved by Order № 256 dated 20.12.2019.

12. Professional standard «Dispatcher's manual for maintenance and repair of railway automation, telemechanics and communication devices», NCE RK «Atameken», approved by Order № 256 dated 20.12.2019.

13. Professional standard «Maintenance of devices for detecting the heating of the axle box and remote-control information system», NCE RK «Atameken», approved by Order № 256 dated 20.12.2019.

14. Professional standard «Maintenance and repair of alarm equipment, centralization and blocking in the repair and technological section», NCE RK «Atameken», approved by Order № 256 dated 20.12.2019.

3. PASSPORT OF THE EDUCATIONAL PROGRAM

№	Field name	Note
1	Registration number	6B07100083
2	Code and classification of the field of education	6B07 Engineering, manufacturing and construction industries
3	Code and classification of training areas	6B071 Engineering and Engineering
4	Code and group of educational programs	B063 Electrical engineering and Automation
5	Name of the educational program	6B07140 – Cybersecurity of digital systems
6	Type of OP	New
7	The goal justifies	Training of highly qualified cybersecurity specialists capable of ensuring the security of both hardware and software of digital automated systems
8	ISCED level	6
9	The level of the NRK	6
10	ORC Level	6
11	Distinctive features of the OP	Her
	Partner University (SOP)	
	Partner University (DDOP)	
12	Form of training	Full - time
13	Language of instruction	Kazakh, Russian
14	Volume of loans	240
15	Academic degree awarded	Bachelor of Engineering and Technology in the educational program «6B07140 – Cybersecurity of digital systems»
16	Availability of an appendix to the license for the direction of training	is available
17	Availability of OP accreditation	-
	Name of the accreditation body	-
	Validity period of accreditation	-

4. THE GRADUATE'S COMPETENCE MODEL

Objectives of the educational program:

1. Formation of a person capable of self-improvement and professional growth with diverse humanitarian and natural science knowledge and interests.
2. Formation of the ability to critically rethink the accumulated experience, change, if necessary, the profile of their professional activities, awareness of the social significance of their future profession, having a high motivation to perform professional activities.
3. Formation of the ability to find a compromise between various requirements (cost, quality, security and deadlines) in long-term and short-term planning and to make optimal decisions in the field of cybersecurity of digital systems.
4. Formation of the ability to generalize, analyze, perceive information, set goals and choose ways to achieve it.
5. Assistance in the formation of graduate readiness: to give an idea of the types of malicious software, methods of its penetration into the system, as well as tactics, methods and procedures used by cybercriminals.
6. Develop skills to use basic technologies, processes and procedures to protect all components of the network infrastructure and develop interest in cybersecurity as a field of professional activity.
7. To teach the basic methods of protecting confidentiality, ensuring integrity and high availability using technologies, products and procedures, as well as to develop intellectual and practical skills, independently acquire and apply the knowledge gained in practice.

Learning outcomes:

- LO1 – To explain the basic mathematical and physical processes in the calculations of electronic circuits of digital electronics, electrodynamics and electrical engineering for solving and describing various practical problems in elements and devices of automation and telemechanics systems.
- LO2 – To understand the basics of economic entrepreneurship, the structure and functions of the legal, anti-corruption culture, the importance of principles in the field of labor protection, ensuring the safety of life.
- LO3 – Describe the principles and methods of programming, modeling the operation of digital devices and systems.
- LO4 – Apply the skills of operating system administration, building computer networks and exchanging information using various Internet services.
- LO5 – To manage the security of information systems and data protection using software and hardware information protection tools.
- LO6 – To develop and use a regulatory framework for information security and cybersecurity of objects and systems of railway automation and telemechanics.
- LO7 – To develop rationalization proposals, circuit solutions, electronic technical documentation and implement an electronic document management system in the alarm and communication facilities.
- LO8 – To organize reliable, trouble-free and safe operation of power supply devices of digital systems of railway automation and telemechanics.
- LO9 – Apply the skills of ideological, civil and moral positions based on the possession of information and communication technologies to build communication programs, including in a foreign language, with a focus on a healthy lifestyle.
- LO10 – Apply the skills of modeling and programming of automated process control systems.

Field of professional activity: public and private enterprises and organizations that develop, implement and use organizational, hardware and software methods and means of protecting information systems in all spheres of human activity that operate with critical information.

Objects of professional activity: the objects of the bachelor's professional activity are: organization and technology of information protection; cryptography; security of info communication systems; organization of information protection of automated control systems; organization and design of database protection; organization of complex information protection.

Functions of professional activity:

- ensuring secure data exchange in computer networks, detection and elimination of vulnerabilities in the information infrastructure;
- forecasting, prevention, tracking and blocking the actions of intruders.

The list of specialist positions: Software developer in the field of cybersecurity; Information security Architect; Security Consultant; Information Security Analyst; Ethical hacker; Computer criminologist; Director of Information Security; Pentester; Administrator of security systems; Bug Hunter.

Professional certificates obtained at the end of training:

- CCNA Routing and Switching: An Introduction to Networks;
- CCNA Routing and Switching: Basics of Routing and Switching.

Requirements for the previous level of education: general secondary, technical and vocational, post-secondary, higher education (bachelor's degree).

In the course of training, students undergo various types of professional practice:

- educational;
- production;
- pre-graduation.

Educational practice.

During the internship, students should get an idea of the role of transport equipment in the country's economy, the variety of vehicles, the importance of mechanization and automation in increasing labor productivity, as well as an idea of the main technological processes of operation, maintenance and repair of transport equipment and technology of transport enterprises.

Production practice.

During the period of practical training, the student receives certain practical knowledge, skills and abilities according to the chosen educational program.

The objectives of the internship are: deepening and consolidation of theoretical knowledge gained in the course of training; obtaining skills for the practical use of professional knowledge gained during theoretical training; training in skills for solving practical and managerial tasks; familiarity with the specifics of the bachelor's professional activity in a particular production; formation of a professional position of a specialist, style of behavior, mastering professional ethics.

The objectives of industrial practice are to consolidate, deepen and systematize the knowledge gained during the study of theoretical basic and profile disciplines at a particular enterprise or organization and to acquire initial practical experience.

Pre-graduate practice.

The content of the pre-graduate practice is determined by the topic of the thesis (project). During the pre-graduate practice, the student collects factual material about the production (professional) activities of the enterprise (organization) and uses it in the development of the graduation project (work). The practice involves working out a given problem (the topic of the thesis) on the materials of the activities of a particular enterprise (organization) with the student's independent formulation of conclusions, suggestions, recommendations, etc. In the course of practice, the student must demonstrate his knowledge and skills of a specialist, organizational skills, decision-making skills, performance discipline, responsibility, initiative.

The final certification is carried out in the form of writing and defending a thesis (project) or preparing and passing a comprehensive exam. The purpose of the final certification is to evaluate the learning outcomes and the acquired competencies achieved upon completion of the study of the educational program of higher education.

The thesis (project) aims to identify and evaluate the analytical and research abilities of the graduate and is a generalization of the results of the student's independent study of an urgent problem in the field of his chosen specialty. The program of the comprehensive exam reflects the integrated knowledge and key competencies that meet the requirements of the labor market in accordance with the educational program of higher education.

5. MATRIX OF CORRELATION OF LEARNING OUTCOMES ACCORDING TO THE EDUCATIONAL PROGRAM WITH ACADEMIC DISCIPLINES/MODULES

№	Name of the discipline	Number of credits	Matrix of correlation of learning outcomes according to the educational program with academic disciplines									
			LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Cultural studies	2										+
2	History of Kazakhstan	5										+
3	Physical Culture	8										+
4	Sociology	2										+
5	Kazakh (Russian) language1	5										+
6	Foreign language1	5										+
7	Kazakh (Russian) language2	5										+
8	Information and communication technologies	5										+
9	Foreign language2	5										+
10	Psychology	2										+
11	Political Science	2										+
12	Philosophy	5										+
13	Methods of scientific research	5								+		
	Fundamentals of Economics and Entrepreneurship			+								
	Fundamentals of law and anti-corruption culture			+								
	Ecology and life safety			+								
14	Engineering Mathematics	9	+									
15	Applied Physics	9	+									
16	Fundamentals of computer modeling	6			+							
17	Object-oriented programming	6			+							
18	Operating system security	9				+	+					
19	Fundamentals of Electrical engineering	6	+									
20	Educational practice	2	+	+	+	+	+	+	+	+	+	+
21	Web Security	6				+	+					
22	Theory of automatic control	6	+									
23	Digital electronics	6	+									
24	Digital devices and microprocessors	6	+									
25	Fundamentals of information security	6					+	+				
26	Introduction to Cybersecurity	6					+					
27	Computer and industrial networks	6				+						
28	Wireless network technologies and network security	6				+						
29	Basics of Cloud Computing	6				+						
30	Operating systems	6				+						
31	Databases Database	6				+						
32	Management Systems	6				+						
33	Safety of automation and telemechanics devices and systems	6					+	+				
34	Information security in the context of automated control systems in railway transport	6					+	+				
35	Cybersecurity of the digital railway	9					+	+				
36	Regulatory framework for cybersecurity in the field of SSB	9						+				
37	Production practice 1	3	+	+	+	+	+	+	+	+	+	+
38	Cybersecurity of electronic technical documentation of railway automation and telemechanics	6							+			

39	Functional safety and reliability theory	6									+		
40	Cybersecurity of operational dispatch control systems	9							+				
41	Electronic document management systems, alarm systems and communications	6									+		
42	Production practice 2	4	+	+	+	+	+	+	+	+	+	+	+
43	Operational basics of automation and telemechanics	9	+										
44	Railway automation devices	9	+										
45	Managerial Economics (Minor)	3		+									
46	Time Management (Minor)	3										+	
47	Introduction to MongoDB (Minor)	3					+						
48	Machine Learning A-Z: Python & R in Data Science (Minor)	3				+							
49	Cyber threats and cyber attacks in uninterruptible power supply systems	6										+	
50	Cybersecurity of digital power supply installations	6										+	
51	Controller Programming (Minor)	3				+							
52	Simulation in AnyLogic environment (Minor)	3				+							
53	Theories and methods of examination of circuit solutions of JAT	6										+	
54	Examination of innovation proposals in the field of SCB	6										+	
55	Pre-graduate practice	3	+	+	+	+	+	+	+	+	+	+	+
56	Writing and defending a thesis project (work)	12	+	+	+	+	+	+	+	+	+	+	+

6. STRUCTURE OF THE BACHELOR'S DEGREE PROGRAM

№ п/п	Name of cycles of disciplines	General labor intensity	
		in academic hours	in academic hours
1	Cycle of general education disciplines (general education disciplines)	1680	56
1)	Required Component	1530	51
	History of Kazakhstan	150	5
	Philosophy	150	5
	Foreign language	300	10
	Kazakh (Russian) language	300	10
	Information and Communication Technologies	150	5
	Module of socio-political knowledge (sociology, political science, cultural studies, psychology)	240	8
	Physical Culture	240	8
2)	University component and (or) elective component	150	5
2	Cycle of basic and profile disciplines (basic disciplines, profile disciplines)	at least 5280	at least 176
1)	University component and (or) elective component		
2)	Professional practice		
3	Additional types of training (ATT)		
1)	Selectable Component		
4	Final certification	at least 240	at least 8
	Total	at least 7200	at least 240

3.2.	Component of choice:		900	30		0	900	150	120	30	48	552	0	0	0	0	12	3	9	6	0	0		
3.2.1.	23-08-B-KV-EOAT	Mobile telecommunications																						
	23-40-B-KV-YZha	railway automation devices	270	9	5		270	45	15	30	8	172					9						AC	
3.2.2.	23-40-KV-TMESRZHAT	Theories and methods of examination of circuit solutions of JAT	180	6	8		180	30	30		8	112									6		AC	
	23-40-KV-ERPSCB	Expertise of innovation proposals in the field of SCB																						
3.2.3.	23-40-KV-KKSBP	Cyber threats and cyber attacks in uninterruptible power supply systems	180	6	7		180	30	30		8	112									6		AC	
	23-40-KV-KSEU	Cybersecurity of digital power supply installations																						
Minor Program 1 "Digital Competencies"																								
3.2.4.	23-0-B-KV-UE	Managerial Economics	90	3	5		90	15	15		8	52					3						TLM	
3.2.5.	23-0-B-KV-Vmngo	Introduction to MongoDB	90	3	6		90	15	15		8	52						3					ICT	
3.2.6.	23-0-B-20-PK	Controller programming	90	3	7		90	15	15		8	52									3		AC	
Minor program 2 "System administrator of information and communication systems"																								
3.2.4.	23-0-B-KV-T-M	Time -management	90	3	5		90	15	15		8	52					3						TLM	
3.2.5.	23-0-B-KV-MLA-Z	Machine Learning A-Z: Python & R in Data Science	90	3	6		90	15	15		8	52							3				ICT	
3.2.6.	23-0-B-20-IMCAL	Simulation modeling in AnyLogic environment	90	3	7		90	15	15		8	52									3		AC	
TOTAL for the PD cycle:			2480	82	0	0	2460	345	315	90	96	1434	0	0	0	0	12	24	24	18	4			
TOTAL FOR THE THEORETICAL COURSE OF STUDY (TKO):			6990	233	0	0	6990	960	928	330	336	4196	30	30	30	31	30	30	30	18	4			
4.	23-0-B-VK-IA	FINAL CERTIFICATION	240	8																			8	AC
TOTAL FOR THE ENTIRE PERIOD OF STUDY:			7230	241									30	30	30	31	30	30	30	18	12			
5. ADDITIONAL TYPES OF TRAINING (DVO):																								
5.1.	23-0-B-DVO-V	Volunteering	30	1	1		30		10		8	12	1										AC	
5.2.	23-0-B-DVO-FG	Financial literacy	90	3	4		90	15	15		8	52					3						TLM	

AGREED:

Vice-Rector for AA Moff Zharmagambetova M.S.

Director of the DAPQ JLP Lipskaya M.A.

DEVELOPED BY:

Director of the Institute "AT" Heif Toigozhinova A.T.

Head of the Department of "AC" Samf Sansyzbay K.M.

8. CATALOG OF DISCIPLINES OF THE UNIVERSITY COMPONENT

SALES PROGRAM

6B07140 – Cybersecurity of Digital Systems

Year of admission: 2023

Term of study: 4 years

Level of education: undergraduate degree

Module	Cycle	Component	Discipline name	General labor intensity		Semester	Training results	Brief description of the discipline	Prerequisites	Post-details
				In academic hours	In academic loans					
1	2	3	4	5	6	7	8	9	10	11
Module 1 - General Competencies	BD	UC	Engineering mathematics	270	9	1	LO1	Mastering the mathematical apparatus for solving theoretical and applied problems of a specific profile, obtaining an idea of mathematical modeling and interpretation of the obtained solutions. Issues of linear algebra, analytical geometry, mathematical analysis, differential equations, series theory are considered.	School Component Disciplines	Applied physics
	BD	UC	Applied physics	270	9	2	LO1	The formation of students' skills, skills when using fundamental laws, theories of classical and modern physics, as well as methods of physical research, thinking, scientific worldview, with independent cognitive activity, be able to simulate physical situations using computer technologies and the idea of the modern natural science picture of the world.	Engineering mathematics	Digital electronics
	BD	UC	Fundamentals of computer modeling	180	6	3	LO3	Forms theoretical and practical knowledge, skills and skills in the field of computer modeling of various kinds of processes (physical, technological, economic, etc.), the ability to use tools (packages of application programs) using tools and methods of three-dimensional visualization to solve applied engineering, technical and economic problems, planning and carrying out work on projects of bridges of tunnels and subways.	information and communication technologies	object-oriented programming
Module 2 - Information and Communication Competencies	BD	UC	object-oriented programming	180	6	4	LO3	The discipline studies the phenomena of electromagnetic induction, electromagnetic vibrations and waves, the laws of optics, the basic principles of quantum mechanics, physics and elements of atomic nucleus physics. Structure of atomic nuclei. Nuclear forces. Alpha-beta and gamma patterns. The course reflects the present state of modern physics and combines macroscopic and microscopic approaches.	Fundamentals of computer modeling	Web safety
	BD	UC	Operating System Security	270	9	4	LO4, LO5	The discipline is aimed at studying the security of the operating system. The course studies the security of Linux and Windows operating systems, focusing on the development of authorization systems and a thorough study of the operation of network protocols and services. Students are learning how to prevent malicious access	Basics of Information Security	Web safety

										to hosts and endpoint data, and how to investigate endpoint vulnerabilities and attacks.						Digital electronics	Automatic control theory
	BD	UC	Fundamentals of Electrical Engineering	180	6	4	LO1			The discipline is aimed at studying the basic laws and methods of calculating electric and magnetic circuits, electrostatic and electric fields. The main equations and methods of calculating DC, single-phase sinusoidal current, three-phase electrical circuits, practical skills of collecting electrical circuits and experimental determination of current, voltage, power in electrical circuits are considered.	Digital electronics	Automatic control theory					
	BD	UC	Web safety	180	6	5	LO4, LO5			The discipline is aimed at studying detailed analysis of network resources, software, web resources for vulnerabilities, their exploitation and further elimination. Also, students will get acquainted with the most common attack scenarios. Students will learn about the main stages of penetration testing, the use of modern tools to analyze the security of an information system or application, as well as the classification of vulnerabilities and methods of eliminating them.	Operating System Security	Digital Rail Cybersecurity					
	BD	UC	Automatic control theory	180	6	5	LO1			The discipline is aimed at mastering the basic concepts of the theory of automatic control and regulation, methods of linear and nonlinear systems with differential equations, transfer functions, time and frequency characteristics of typical dynamic links, structural schemes, the concept of system stability, studies of system stability using the criteria of Hurwitz, Mikhailov, Nyquist and Popov.	Fundamentals of Electrical Engineering	Introduction to MongoDB					
	BD	UC	Training practice	60	2	4	LO1-LO10			The organization of educational practice is aimed at ensuring that bachelors are familiarized with the main areas, objects, areas of professional activity and profiles of training and securing theoretical material.	Research methods	Operational basis of automation and telematics					
	PD	UC	Digital Rail Cybersecurity	270	9	6	LO5, LO6			The discipline is aimed at studying the main methods of ensuring information security when suppressing the radio channel in complex systems for interval regulation of train traffic based on the use of radio communications, methods of ensuring security when an on-board intelligent locomotive safety system can interfere with the algorithm, as well as when distorting the algorithm of the microprocessor systems of railway automation and telematics.	Web safety	Cybersecurity of electronic technical documentation of railway automation and telematics					
	PD	UC	Cybersecurity regulatory framework in the field of SCB	270	9	6	LO6			The discipline is aimed at studying the foundations of regulatory legal acts in the field of information protection issued by bodies of various branches of government, ministries, departments, as well as studying automated control systems for technological processes and technical means of railway transport, basic requirements for the functional and information security of the software of the LAT systems.	database management systems	Cybersecurity of electronic technical documentation of railway automation and telematics					
	PD	UC	Cybersecurity of electronic technical documentation of railway automation and telematics	180	6	7	LO7			The discipline is aimed at studying the issues of ensuring cybersecurity of technical documentation of railway automation and telematics, which are becoming more and more relevant in connection with the introduction of paperless electronic document management technologies based on AWS-VTD. An analysis of possible options for cyber attacks and methods of protection against them is being carried out.	Digital Rail Cybersecurity	Functional Safety and Reliability Theory					
	PD	UC	Functional Safety and Reliability Theory	180	6	8	LO8			The discipline is aimed at studying the foundations of functional safety and the theory of reliability of devices and systems of railway automation and telematics, studying methods for assessing reliability and reliability indicators of devices and systems.	Cybersecurity of electronic technical documentation of railway automation and telematics	Pre-diploma practice, final certification					

Module 3 - Profile Competencies

	PD	UC	Cybersecurity of operational dispatch control systems	270	9	8	LO6	<p>The discipline is aimed at studying the principles of ensuring information security in the systems of dispatching centralization, methods of organizing the safe transmission of telecontrol signals and television signaling when organizing the movement of trains on the site. The main protective functions of the computer systems of the dispatching centralization are considered - ASDC, Neman, Dialogue.</p> <p>The discipline is aimed at studying the characteristics and structure of the electronic document management system in the signaling and communication sector, the advantages and features of use, the requirements for electronic document management systems, as well as users for the components of the electronic document management system.</p> <p>The main tasks of production practice are: consolidation of theoretical knowledge and practical skills according to the selected educational program in production conditions, acquisition of organizational experience, obtaining a working specialty, formation of practical skills and competencies in the process of mastering the bachelor's program. Industrial practice for students is an important component of the educational process, allowing you to navigate the labor market and find yourself in the future profession.</p>	Cyber threats and cyber attacks in uninterruptible power systems	Pre-diploma practice, final certification
	PD	UC	Electronic document management systems of alarm and communication facilities	180	6	8	LO7	<p>The main tasks of production practice are: consolidation of theoretical knowledge and practical skills according to the selected educational program in production conditions, acquisition of organizational experience, obtaining a working specialty, formation of practical skills and competencies in the process of mastering the bachelor's program. Industrial practice for students is an important component of the educational process, allowing you to navigate the labor market and find yourself in the future profession.</p>	Cybersecurity of electronic technical documentation of railway automation and telemechanics	Pre-diploma practice, final certification
	PD	UC	Production Practice 1	90	3	6	LO1-LO10	<p>The main tasks of production practice are: consolidation of theoretical knowledge and practical skills according to the selected educational program in production conditions, acquisition of organizational experience, obtaining a working specialty, formation of practical skills and competencies in the process of mastering the bachelor's program. Industrial practice for students is an important component of the educational process, allowing you to navigate the labor market and find yourself in the future profession.</p>	Operational basis of automation and telemechanics	Production Practice 2
	PD	UC	Production Practice 2	120	4	8	LO1-LO10	<p>The purpose of the pre-graduate practice for bachelors is to ensure the relationship between the theoretical knowledge gained when assimilating the chosen educational program and practical activities. The objectives of the pre-diploma practice are to consolidate and deepen the theoretical knowledge gained by students during the training process, collect information for writing final qualification work, study best practices at the enterprise, as well as gain experience of independent work.</p>	Production Practice	final assessment

9. SELECT COMPONENT DISCIPLINE CATALOGUE

SALES PROGRAM

6B07140 – Cybersecurity of Digital Systems

Level of education: undergraduate degree Term of study: 4 years Year of admission: 2023

Module	Cycle	Component	Discipline name	General labor intensity		Semester	Training results	Brief description of the discipline	Prerequisites	Post-details	Department
				in academic hours	in academic loans						
Module 1 - General Competencies	2	3	4	5	6	7	8	9	10	11	12
	GED	EC	Fundamentals of Law and Anti-Corruption Culture				LO2	Increasing the social and individual legal awareness and legal culture of students, as well as the formation of a system of knowledge and civic position to counter corruption as an anti-social phenomenon. As a result of studying the course, students must master the fundamental concepts of law, the constitutional structure of state power of the Republic of Kazakhstan, the rights and freedoms of citizens enshrined in the Constitution, the mechanism and protection of the legitimate interests of a person in case of violation.	Sociology, Political Science, Psychology, Cultural Studies, History of Kazakhstan	final assessment	SHDaPE
	GED	EC	Fundamentals of Economics and Entrepreneurship	150	5	3	LO2	The formation of analytical thinking skills on economic issues, be able to independently draw conclusions on the basis of the material studied, navigate in any economic situations, apply theoretical economic knowledge in practical activities, and realize their abilities, both in the personal and professional direction.	Sociology, Political Science, Psychology, Cultural Studies, History of Kazakhstan	final assessment	LTM
Module 2 - Environmental Competencies	GED	EC	Research methods				LO7	Students obtain theoretical and applied knowledge on the methods of scientific research of problems in the studied field, train specialists with skills in cognitive activity in the field of science, form deep ideas about the content of scientific activity, its methods and forms of knowledge.	Sociology, Political Science, Psychology, Cultural Studies, History of Kazakhstan	final assessment	SHDaPE
	GED	EC	Ecology and Life Safety				LO2	Study of basic environmental concepts, environmental problems and approaches to their solution, sources and types of environmental pollution by enterprises, principles for normalizing the quality of atmospheric air and water, basic provisions of legislation in various fields, natural and man-made emergencies, their causes, methods of prevention and protection.	Ecology and Life Safety	final assessment	AREaLC
Module 3 - Economic and	BD	EC	Management Economics	90	3	5	LO2	The formation of a conceptual apparatus and the development of skills in economic analysis using modern	Fundamentals of Economics and Entrepreneurship	final assessment	LTM

Management Competencies	(Minor)							models and patterns of economic science, consideration of economic problems and tasks facing the head of the company. The study of this discipline will allow students to gain and develop knowledge in the field of analytical research of the economic, technological and technical parameters of the enterprise, as well as will allow them to master the skills of applying special methods of economic justification of management decisions and assessing their consequences.			
	Time Management (Minor)							Formation of common ideas among students about the essence and types of time management, principles and methods of time resource management for more successful implementation of professional activities.	Fundamentals of Economics and Entrepreneurship	final assessment	LTM
Module 4 - Profile Competencies	Operational basis of automation and telemechanics							Familiarization of students with railway automation and telemechanics systems, their use in the transportation process to ensure the safety of train traffic; efficiency of used systems for different types of roads at different traffic intensity. Within the framework of the discipline, visiting classes to the branch of the department and guest lectures of top managers are provided.	Fundamentals of Electrical Engineering	Cybersecurity regulatory framework in the field of SCB	AC
	Railway automation devices	PD	EC		270	9	5	The discipline is aimed at studying the purpose, classification and principle of operation of devices and systems of railway automation and telemechanics, the main characteristics and procedures of maintenance of devices and systems of alarm, centralization and blocking are described.	Fundamentals of Electrical Engineering	Cybersecurity regulatory framework in the field of SCB	AC
	Theories and methods of LRV expertise of LRV circuit solutions							The discipline is aimed at studying the principles of development and updating of standard materials for the design of devices and systems of railway automation and telemechanics, operating manuals for relay and microprocessor systems. Methods of detection of failures and faults in the alarm and communication facilities according to typical circuit solutions of automation and telemechanics are considered.	Cybersecurity of electronic technical documentation of railway automation and telemechanics	final assessment	AC
	Expertise of rationalization proposals in the field of SCB	PD	EC		180	6	8	The discipline is aimed at the formation of professional knowledge about rationalization activities in the field of signaling, centralization and blocking. Study of the principle and procedure for organizing rationalization activities, submitting, considering, using, determining the effectiveness of the rationalization proposal. Technologies for evaluating the effectiveness of circuit solutions to improve the operation of automation and telemechanics devices are being considered.	Cybersecurity of electronic technical documentation of railway automation and telemechanics	final assessment	AC
Cyber threats and cyber attacks in uninterruptible power systems	PD	EC		180	6	7		The discipline is aimed at studying the basics of cyber threats and cyber attacks in power supply systems of microprocessor devices of alarm systems, centralization and blocking of railway automation and telemechanics. Methods of providing diagnostics and remote monitoring of power supply devices of microprocessor systems by logging and	Digital Rail Cybersecurity	Functional Safety and Reliability Theory	AC

									archiving are considered. The discipline is aimed at studying the main methods of ensuring information security when using uninterruptible power supplies of microprocessor systems of railway automation and telemechanics - Eiblock-950, MPTs-2, MPC-1, etc. The main methods of ensuring guaranteed power supply of LAT devices are considered.	Digital Rail Cybersecurity	Functional Safety and Reliability Theory	AC
									The discipline is aimed at studying the main concepts, methods and means of building and using databases in management systems, acquiring the necessary competencies for designing the logical structure of the database, selecting DBMS, organizing interfaces for working with the database and preparing reporting forms.	Computer and Industrial Networks/Wireless Networking and Network Security	Introduction to MongoDB (Minor)/Machine Learning A-Z: Python & R in Data Science (Minor)	AC
									The course focuses on the concepts required to develop and implement a database management system. The course explores a variety of modern data models, data security and integrity, and parallel computing techniques.	Computer and Industrial Networks/Wireless Networking and Network Security	Introduction to MongoDB (Minor)/Machine Learning A-Z: Python & R in Data Science (Minor)	AC
									The discipline is aimed at studying the hardware, principles of construction and administration of computer and industrial networks, standardization of network solutions, formation of skills in configuring network devices, configuration, layout and installation of network components in local and global networks.	Digital Electronics/Digital Devices and Microprocessors	Database/Database Management Systems	AC
									The discipline is aimed at studying methods for designing wireless corporate networks, technologies for building high-performance channels of wide area networks, configuring complex network switching devices and methods for ensuring the security of wireless networks using software, hardware and software.	Digital Electronics/Digital Devices and Microprocessors	Database/Database Management Systems	AC
									The discipline is aimed at studying the theoretical foundations and methods of information protection, the mathematical structure of secret systems, considering the mathematical representation of information, methods for analyzing information characteristics and redundancy of language systems, theoretical foundations for correcting and restoring information characteristics of arbitrary texts, building information protection systems, mastering the main methods and means of information protection.	information and communication technologies	Operating System Security	AC
									The discipline is aimed at forming a system of knowledge among students in the field of cybersecurity fundamentals, studying the types and sources of threats, the main information security requirements when organizing remote services in organizations.	information and communication technologies	Operating System Security	AC
									The discipline is aimed at studying the architecture of "cloud" technologies, designing "cloud" services, as well as gaining application development skills for the main existing "cloud" platforms. The main characteristics of "cloud" technologies, methods of assessment of	information and communication technologies	object-oriented programming	AC
Cybersecurity of Digital Power Plants								180	6	5	LO8	
database	EC	BD						180	6	5	LO4	
database management systems								180	6	4	LO4	
Computer and industrial networks	EC	BD						180	6	4	LO4	
Wireless Networking and Network Security								180	6	3	LO5, LO6	
Basics of Information Security	EC	BD						180	6	3	LO5	
Introduction to cybersecurity								180	6	3	LO4	
Cloud Computing Fundamentals	EC	BD						180	6	3	LO4	

							advantages and risks connected with use of "cloud" calculations are considered.					information and communication technologies	object-oriented programming	AC	
							The discipline is aimed at studying the main devices and components of operating systems, acquaintance with the implementation of processes, planning algorithms, memory and file system management, mastering the methods of configuring operating systems and developing system software.	LO4				information and communication technologies	Computer and Industrial Networks/Wireless Networking and Network Security	AC	
							Formation of students' idea of digital electronics, the basics of digital circuitry, the principles of operation and design of digital devices. The course discusses the main methods of describing and synthesizing logic circuits, modern means of developing digital devices.					information and communication technologies	Computer and Industrial Networks/Wireless Networking and Network Security	AC	
							It is focused on the study of the theoretical and practical foundations of the functioning of digital devices and microprocessors in order to create circuit diagrams of communication devices and infocommunication technology. Within the framework of the discipline, interactive training methods, calculation and analytical method, case task method are used.	LO1	3	6	180	information and communication technologies	Computer and Industrial Networks/Wireless Networking and Network Security	AC	
							The discipline is aimed at studying the main methods of ensuring the reliability of devices and systems of automation and telemechanics. The principles of operation of various systems for regulating the movement of trains, communication devices, the procedure for using devices in normal conditions of their operation and ensuring the safety of train movement in case of violation of the normal operation of signaling, centralization and blocking devices are considered.	LO5, LO6	7	6	180	Digital Rail Cybersecurity	Cybersecurity of operational dispatch control systems	AC	
							The discipline is aimed at the formation of professional knowledge in the field of building an integrated system for protecting digital, automated railway transport systems, studying modern trends in international, domestic standards in the field of information security of APCS.	LO5, LO6				Digital Rail Cybersecurity	Cybersecurity of operational dispatch control systems	AC	
							Building the ability of students to process large amounts of data (MongoDB) for professional tasks, effectively apply methods, technologies and tools for analyzing big data in professional activities. The methods of active training are applied - group work.	LO4				Databases/Database Management Systems	Controller Programming (Minor)/Simulation in AnyLogic (Minor)	AC	
							The discipline is aimed at studying machine learning methods using Python. The main libraries and tools are considered, such as packages - Jupyter Notebook, NumPy, SciPy, matplotlib, libraries - seikit-learn, pandas, mglearn.	LO3	6	3	90	Databases/Database Management Systems	Controller Programming (Minor)/Simulation in AnyLogic (Minor)	AC	
							The discipline is aimed at studying the main characteristics of programmable logic controllers, the hardware complex of modules, the peculiarities of choosing and developing a configuration, as well as their network structures. The software development tool environment and the basics of their recording, the solution of automation applications based on PLC are discussed.	LO3	7	3	90	Introduction to MongoDB (Minor)/ Machine Learning A-Z: Python & R in Data Science (Minor)	Theories and methods of expertise of LRW circuit solutions	AC	

			Simulation in AnyLogic (Minor)		LO3	<p>The discipline is aimed at studying the methods of simulation modeling and their features in modeling transport processes. The main capabilities and tools of simulation modeling, various models of discrete-event and dynamic systems, models of optimization experiment in AnyLogic environment are considered.</p>	Introduction to MongoDB (Minor)/ Machine Learning A-Z: Python & R in Data Science (Minor)	Theories and methods of expertise of LRW circuit solutions	AC
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ЭКСПЕРТНОЕ ЗАКЛЮЧЕНИЕ
на образовательную программу
6B07140 – Кибербезопасность цифровых систем

Представленная образовательная программа – 6B07140 – Кибербезопасность цифровых систем, разработанная кафедрой «Автоматизация и управление» Академии логистики и транспорта ориентирована на подготовку высококвалифицированных кадров в области кибербезопасности цифровых систем, способных грамотно эксплуатировать, обслуживать и внедрять в производство безопасных систем и комплексов.

Среди актуальных тенденций современного образования можно выделить ряд направлений, ориентированных на развитие технического мышления и творчества. Кроме того, потребность рынка труда в специалистах технического профиля и повышенные требования в области образовательных компетентностей выдвигают актуальную задачу обучения основам кибербезопасности систем. Таким образом, можно отметить, что образовательная программа имеет яркую практическую направленность и актуальность.

Образовательная программа включает обязательные, базовые и профильные дисциплины, учебную, производственную и преддипломную практики, а также оформление и защиту дипломной работы. Необходимо отметить, что на прохождение всех видов практик выделены достаточный объем кредитов для закрепления теоретических знаний.

Программа во всех дисциплинах предусматривает помимо лекций, практические и лабораторные занятия, что подтверждает практическую направленность программы. Логика преподаваемых дисциплин определена изучением пререквизитов. Преемственность в изучении дисциплин является естественной необходимостью. При планировании дисциплин соблюдается последовательность во времени.

Ожидаемые результаты обучения сформулированы четко и лаконично. Все ожидаемые результаты освоения образовательной программы в полной мере должны поспособствовать развитию у обучающихся технического и профессионального мышления.

На основании анализа, считаю, что содержание образовательной программы 6B07140 – Кибербезопасность цифровых систем соответствует требованиям Государственного общеобязательного стандарта высшего образования и может быть рекомендована к реализации в образовательном процессе Академии логистики и транспорта.

Эксперт ОП:
Менеджер функционального направления
по развитию и внедрению железнодорожной
автоматики филиала АО «НК «КТЖ»
– «Дирекция автоматизации и цифровизации»



К.Ж. Оразбаев

ЭКСПЕРТНОЕ ЗАКЛЮЧЕНИЕ
на образовательную программу
6B07140 – Кибербезопасность цифровых систем, группы образовательных
программ B063 – **Электротехника и автоматизация**, направления
подготовки 6B071 – **Инженерия и инженерное дело**

Кафедрой «Автоматизация и управление» Акционерного общества «Академия логистики и транспорта» были представлены на экспертизу документы образовательной программы 6B07140 – «Кибербезопасность цифровых систем» (далее ОП): учебный план, рабочие программы дисциплин, каталог элективных дисциплин, материалы, обеспечивающие качество подготовки обучающихся, а также программы учебной, производственной, преддипломной практик по направлению подготовки B063 – «Электротехника и автоматизация», обеспечивающие реализацию соответствующей образовательной программы высшего образования.

Рецензируемая ОП отвечает основным требованиям стандарта. Объем программы бакалавриата составляет 240 кредитов вне зависимости от формы обучения, применяемых образовательных технологий, реализации программы бакалавриата по индивидуальному учебному плану, в том числе ускоренному.

Рассматриваемую ОП отличает насыщенный учебный план, сочетание дисциплин по теории и практике кибербезопасности и киберзащиты, возможность освоения технологии программирования. Качество содержательной составляющей учебного плана не вызывает сомнений. Структура плана в целом логична и последовательна.

С целью реализации компетентностного подхода при подготовке обучающихся, ОП предполагает широкое использование в учебном процессе контактной работы и интерактивных форм обучения, которые в сочетании с внеаудиторной работой позволяют сформировать и развить профессиональные навыки.

Оценка рабочих программ учебных дисциплин позволяет сделать вывод о высоком их качестве и достаточном уровне методического обеспечения.

К составлению программы был привлечен преподавательский состав, имеющий ученую степень и практический опыт работы. Преимуществом программы следует считать учет требований работодателей при формировании дисциплин, которые по своему содержанию позволяют обеспечить компетенции выпускников.

Требования к содержанию, обновлению, реализации компетентностного подхода ОП и созданию условий для всестороннего развития личности в целом выполнены.

Начальник отдела по инновационным
технологиям, ТОО «Корпорация Сайман»



Қ.Е. Зікірбай

РЕЦЕНЗИЯ НА ОБРАЗОВАТЕЛЬНУЮ ПРОГРАММУ 6B07140 – КИБЕРБЕЗОПАСНОСТЬ ЦИФРОВЫХ СИСТЕМ

Рецензируемая образовательная программа для подготовки бакалавров 6B07140 – Кибербезопасность цифровых систем разработана на кафедре «Автоматизация и управление» Академии логистики и транспорта.

Известно, что одним из направлений инновационного развития экономики является кибербезопасность и киберзащищенность информации. Кибербезопасность повышает конкурентоспособность и продуктивность промышленных предприятий.

Данная образовательная программа рассчитана на 4 года обучения. Хотелось бы отметить то обстоятельство, что программа опирается на компетентностный подход и предусматривает формирование навыков, позволяющих решать задачи не только профессионального развития, но и личностного становления.

В программе указаны область, объекты и виды профессиональной деятельности выпускника. Дана подробная характеристика производственно-технологической деятельности будущего выпускника бакалавра.

Результаты освоения образовательной программы определены четко и выражаются компетенциями, которые должны сформироваться у выпускника после ее окончания.

Предположительные результаты обучения в областях знаний и понимания, инженерного анализа, проектирования, исследования и оценки, инженерной практики и социальных компетенций, отражены в целях программы. Будущие выпускники должны обладать знаниями в области естественных наук и математики, а также научно-исследовательских и управленческих навыков. Кроме того, цели программы предвидят навыки системного мышления и навыки технологии проектирования, а также подготовку выпускников на протяжении всей жизни.

Учебный план составлен в соответствии с выбранными приоритетными направлениями, которые соответствуют основным направлениям Государственной программы индустриально-инновационного развития Республики Казахстан на 2020-2025 годы.

Резюмируя вышеизложенное, считаю, что образовательная программа 6B07140 – Кибербезопасность цифровых систем группы образовательных программ В063 – Электротехника и автоматизация соответствует требованиям подготовки высококвалифицированных специалистов в области автоматизации и роботизации и рекомендуется для внедрения в учебный процесс.

PhD доктор, ассистент-профессор кафедры
«Компьютерная инженерия» АО «МУИТ»

А.К. Болшибаева



Уважаемый Қанибек Мұратбекұлы!

Руководство «Алматинской дистанции сигнализации и связи филиала АО «НК «ҚТЖ» - «Алматинское отделение магистральной сети»» в лице начальника ШЧ-33 Куаншпаева Маната Нартаевича ознакомилось с содержанием образовательной программы 6В07140 – «Кибербезопасность цифровых систем» и внесло следующие рекомендации:

- включить в содержание образовательной программы дисциплины: с IT технологиями;
 - увеличить количество часов, выделяемых на проведение части лабораторных и практических занятий на базах работодателей с целью формирования определенных видов профессиональных компетенций;
 - актуализировать содержание образовательных программ путем включения в цикл базовых и профилирующих модулей дисциплины, отражающие современные инновационные технологии в транспортной сфере в области автоматике и телемеханики. Предлагается включить следующие дисциплины «Кибербезопасность цифровой железной дороги», «Цифровая электроника»; «Беспроводные сетевые технологий и безопасность сети», «Информационная безопасность в разрезе АСУТП на железнодорожном транспорте»;
 - увеличить количество часов, выделяемых на проведение производственных практик;
- включить дисциплины:
- с IT компетенциями;
 - касающиеся организации производства и охраны труда;
 - экономического и управленческого характера;
 - с программным обеспечением;
 - графики ППР и т.д..

Работодатель



дата, печать

Академия логистики и транспорта

Выписка из ПРОТОКОЛА № 7 заседания кафедры «Автоматизация и управление»

г. Алматы

«27» марта 2023 г.

Председатель: Сансызбай Қ.М.

Секретарь: Сагитжанова М.Ж.

Присутствовали: директор института «Автоматизация и телекоммуникации», ассоц. профессор АЛит Тойгожинова А.Ж; заведующий кафедрой «Автоматизация и управление», ассоц. профессор АЛит Сансызбай Қ.М.; **академический – ассоциированный профессор:** Ведерников Б.М., **ассоциированный профессор:** Сулейменова Г.А.; **ассоциированный профессор АЛит:** Шульц В.А.; **ассистент-профессор:** Даутов Е.К.; **сениор-лекторы:** Шукаманов Ж.Е., Касымова А.Е., Спабекова М.Ж., Садвакасова Ж.Д.; **ассистент-преподаватели:** Сагмединов Д.Б., Тасболатова Л.Т., Сагитжанова М.Ж., Тулемисов Т.Т.

Представители с производства:

Батырханов М.Ш. - главный менеджер функционального направления по развитию и внедрению железнодорожной автоматики, Департамента по стратегическому развитию систем ЖАТ/SCADA, АО «НК «КТЖ» – «Дирекция автоматизации и цифровизации»;

Оразбаев К.Ж. - Менеджер функционального направления по развитию и внедрению железнодорожной автоматики филиала АО «НК «КТЖ» – «Дирекция автоматизации и цифровизации»;

Зікірбай Қ.Е. - Начальник отдела по инновационным технологиям, ТОО «Корпорация Сайман».

Обучающиеся:

Мендешканова Д. - студенческий директор института «Автоматизация и телекоммуникации», гр. АУ-19-2.

ПОВЕСТКА ДНЯ

3. Обсуждение по вопросу разработки образовательных программ «Информационные системы на транспорте» и «Информационная безопасность автоматизированных систем»

ПО ДАННОМУ ВОПРОСУ ВЫСТУПИЛ: заведующий кафедрой «Автоматизация и управление» - Сансызбай Қ.М., который предложил обсудить планируемую к разработке образовательную программу: «Кибербезопасность цифровых систем».

Среди актуальных тенденций современного образования можно выделить ряд направлений, ориентированных на развитие технического мышления и творчества. Кроме того, потребность рынка труда в специалистах технического профиля и повышенные требования в области образовательных компетентностей выдвигают актуальную задачу обучения основам кибербезопасности систем. Таким образом, можно отметить, что образовательная программа имеет яркую практическую направленность и актуальность. В связи с этим предлагается разработать новую образовательную программу по направлению подготовки 6В071 – Инженерия и инженерное дело.

ПО ДАННОМУ ВОПРОСУ ВЫСТУПИЛ: главный менеджер функционального направления по развитию и внедрению железнодорожной автоматики, Департамента по стратегическому развитию систем ЖАТ/SCADA, АО «НК «КТЖ» – «Дирекция

автоматизации и цифровизации» - **Батырханов М.Ш.**, который поддержал идею создания образовательной программы «Кибербезопасность цифровых систем» именно в области железнодорожной автоматики и телемеханики. Он отметил, что в настоящее время в рамках Государственной программы «Цифровой Казахстан» на сети железных дорог Республики Казахстан активно начали внедрять современные микропроцессорные системы ЖАТ, техническое обслуживание которых должна также сопровождаться с защитой информации и предотвратить кибератаки. В связи с этим подготовка кадров в области сигнализации, централизации и блокировки и кибербезопасности в настоящее время очень актуальна. **Батырханов М.Ш.** предложил внести при разработке учебного плана образовательной программы «Кибербезопасность цифровых систем» такие дисциплины как: «Веб-безопасность», «Информационная безопасность в разрезе АСУТП на железнодорожном транспорте» и «Кибербезопасность цифровой железной дороги».

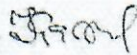
ПО ДАННОМУ ВОПРОСУ ВЫСТУПИЛ: менеджер функционального направления по развитию и внедрению железнодорожной автоматики филиала АО «НК «КТЖ» – «Дирекция автоматизации и цифровизации» - **Оразбаев К.Ж.**, который также поддержал мнение **Батырханова М.Ш.** и добавил, что подготовка кадров в области кибербезопасности систем железнодорожной автоматики и телемеханики является актуальной в области сигнализации, централизации и блокировки. **Оразбаев К.Ж.** предложил включить в учебный план образовательной программы, такие дисциплины как: «Нормативная база по кибербезопасности в области СЦБ», «Кибербезопасность электронной технической документации железнодорожной автоматики и телемеханики», «Экспертиза рационализаторских предложения в области СЦБ».

ПО ДАННОМУ ВОПРОСУ ВЫСТУПИЛ: начальник отдела по инновационным технологиям, ТОО «Корпорация Сайман» - **Зікірбай Қ.Е.** Он также поддержал разработку образовательной программы «Кибербезопасность цифровых систем» и предусмотреть в учебном плане дисциплины такие как: «Кибербезопасность цифровых электропитающих установок», «Кибербезопасность систем оперативно-диспетчерского управления».

ПОСТАНОВИЛИ:

Продолжить целенаправленную работу по разработке образовательной программы: «Кибербезопасность цифровых систем» и включения его в Реестр ОП к 2023-2024 учебному году.

Председатель



Сансызбай Қ.М.

Секретарь



Сағитжанова М.Ж.

АО «АКАДЕМИЯ ЛОГИСТИКИ И ТРАНСПОРТА»
ВЫПИСКА из протокола № 5

заседания Комиссии по обеспечению качества - Учебно-методического бюро
института «Автоматизация и телекоммуникации»

г. Алматы

«20» апреля 2023 года

Председатель: Тойгожинова А.Ж.

Секретарь: Абиева М.С.

Присутствовали: ассоциированный профессор АЛит, директор института Тойгожинова А.Ж – председатель КОК-УМБИ; лектор кафедры «РТ» Абиева М.С. – секретарь; senior-лектор кафедры «ИКТ», зам.директора по учебно-методической работе ИАТ Нурланбек А.Д.; senior-лектор кафедры «ИКТ», зам.директора по воспитательной работе Ақтайлақова Д.А.; зав. кафедрой «АУ» - PhD, ассоциированный профессор АЛит Сансызбай К.М.; Заведующий кафедрой «ИКТ» - PhD, ассистент-профессор Касымова Д.Т.; Заведующий кафедрой «Энергетика» - PhD, ассистент-профессор Егзекова А.Т.; ассоциированный профессор кафедры «АУ» Шульц В.А.; senior-лектор кафедры «ИКТ» Кусамбаева Н.Ш.; senior-лектор кафедры «Э» Карасаева Ә.Р.; Начальник отдела инфраструктуры РЦУП-2 филиала АО «НК «КТЖ» - «Алматинское отделение магистральной сети» Сарсенбеков Б.С.; Начальник ТУМС филиала АО «Алматытранстелеком» Мырзабаев А.А.; Начальник Алматинской дистанции сигнализации и связи ШЧ-33 филиала АО «НК «КТЖ» Куаншбаев М.Н.; студенческий декан ИАТ Мендешканова Дарина; магистрант группы МН-ЭЭ-21-1к Сеитбек Е.Е.

Отсутствовали: отсутствующих нет
Явочный лист прилагается.

ПОВЕСТКА ДНЯ:

9 Разное

9.7 Обсуждение разработки образовательных программ «Информационные системы на транспорте» и «Информационная безопасность автоматизированных систем»

СЛУШАЛИ: заведующий кафедрой «Автоматизация и управление» - Сансызбай К.М.- который предложил обсудить планируемую к разработке образовательную программу: «Кибербезопасность цифровых систем».

Среди актуальных тенденций современного образования можно выделить ряд направлений, ориентированных на развитие технического мышления и творчества. Кроме того, потребность рынка труда в специалистах технического профиля и повышенные требования в области образовательных компетентностей выдвигают актуальную задачу обучения основам кибербезопасности систем. Таким образом, можно отметить, что образовательная программа имеет яркую практическую направленность и актуальность. В связи с этим предлагается разработать новую образовательную программу по направлению подготовки 6В071 – Инженерия и инженерное дело.

ПО ДАННОМУ ВОПРОСУ ВЫСТУПИЛА: директор ИАТ Тойгожинова А.Ж., которая поддержала идею создания образовательной программы «Кибербезопасность цифровых систем» именно в области железнодорожной автоматики и телемеханики и добавила, что подготовка кадров в области кибербезопасности систем железнодорожной автоматики и телемеханики является актуальной в области сигнализации, централизации и блокировки.

ПОСТАНОВИЛИ:

Продолжить целенаправленную работу по разработке образовательной программы: «Кибербезопасность цифровых систем» и включения его в Реестр ОП к 2023-2024 учебному году.

Председатель КОК-УМБ ИАТ

Тойгожинова А.Ж.

Секретарь КОК-УМБ ИАТ

Абиева М.С.

14. APPROVAL SHEET

Educational programs
 Name: 6B07140 – Cybersecurity of digital systems
 Level of training: Bachelor's degree

№	Full Name	Position	Signature	Date
1	Тоиромжидов А. Н.	зав. кафедрой информ. систем	[Signature]	02.05.23
2	Кеменов Р. Т.	зав. кафедрой информ. систем	[Signature]	02.05.23
3	Таммушев М. Т.	зав. кафедрой информ. систем	[Signature]	02.05.23
4	Саманов Р. М.	зав. кафедрой информ. систем	[Signature]	02.05.23
5	Мухомедов Д. Р.	зав. кафедрой информ. систем	[Signature]	02.05.23
6	Бундурдыев Ж. Н.	зав. кафедрой информ. систем	[Signature]	
7	Абдурашидов А. С.	зав. кафедрой информ. систем	[Signature]	02.05.23
8	Мухомедов Б. Т.	зав. кафедрой информ. систем	[Signature]	02.05.23
9	Султанов А. П.	зав. кафедрой информ. систем	[Signature]	02.05.23
10	Мухомедов Э. О.	зав. кафедрой информ. систем	[Signature]	02.05.23

15. CHANGES REGISTRATION SHEET

№	Section, paragraph of the document	Section, paragraph of the document)	Number and date of notification	The change has been made	
				Date	Surname and initials, signature, position