

**JOINT STOSC COMPANY «ALT University»
NAMED AFTER MUKHAMEDZHAN TYNYSHBAYEV**



APPROVED
by decision of the ALT US from
"27" 03 2025 (Minutes №8)
Chairman of the Board-Rector
Zharmagambetova M.S.

EDUCATIONAL PROGRAM

**Name: 6B07348 – CONSTRUCTION OF HIGHWAYS AND
AIRFIELDS**

Level of training: bachelor's degree

**Code and classification of areas of study: 6B073-Architecture and
construction**

**Code and group of educational programs: B126–TRANSPORT
CONSTRUCTION**

Date of registration in the Register: 04.06.2025

Registration number: 6B07300216

Almaty, 2025

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1. INFORMATION ABOUT CONSIDERATION, APPROVAL AND APPROVAL OF THE PROGRAM, DEVELOPERS, EXPERTS AND REVIEWERS

1 DEVELOPED:		
<u>Associate Professor ALT</u> (job title)	(signature)	<u>Dyusengalieva T.M.</u> (FULL NAME)
<u>Apple Build Project LLP</u> <u>ch.engineer</u> (job title)	(signature)	<u>Kurmanbekov J.K.</u> (FULL NAME)
<u>Associate Professor</u> (job title)	(signature)	<u>Tursumbekova H.S.</u> (FULL NAME)
<u>Head of the Department of "ASI"</u> (job title)	(signature)	<u>Kulmanov K.S.</u> (FULL NAME)
<u>Associate Professor ALT</u> (job title)	(signature)	<u>Iteshbaeva A.A.</u> (FULL NAME)
2 EXPERTS:		
<u>Saulet-SKB LLP, Direktor</u> (job title)	(signature)	<u>Oshanov A.E.</u> (FULL NAME)
<u>«Kazakh Promtransportprojekt»</u> <u>LLP ch.engineer</u> (job title)	(signature)	<u>Musaev M.T.</u> (FULL NAME)
3 REVIEWER:		
<u>Associate professor of "TSiU"</u> <u>KazADI named after</u> <u>L. Goncharov</u> (job title)	(signature)	<u>Abiev B.A.</u> (FULL NAME)
4 REVIEWED AND RECOMMENDED:		
<u>AC meeting (department) «ASI»</u> <u>Protocol №7, «18» 02.2025z</u>	(signature)	<u>Kulmanov K.S</u> (FULL NAME)
<u>UMB meeting «TaC»</u> <u>Protocol №8, «17»03.2025z</u>	(signature)	<u>Abdreshov SH.A.</u> (FULL NAME)
<u>EMC meeting</u> <u>Protocol №4, «20»03.2025z</u>	(signature)	<u>Kojabergenova A.K.</u> (FULL NAME)

5 APPROVED by the decision of the Academic Council dated « 27 » 03 2025r. №8
6 UPDATED

2. NORMATIVE REFERENCES

The educational program has been developed on the basis of the following regulatory legal acts and professional standards:

1. The Law of the Republic of Kazakhstan "On Education" dated July 27, 2007 No. 319-III (with amendments and additions as of March 27, 2023).

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

3. The sectoral qualifications framework for the "highways" industry was approved by the Protocol Decision of the Sectoral Council for Professional Qualifications in the Field of Highways No. 3 dated September 20, 2024

4. The State mandatory Standard of Higher and Postgraduate Education ((Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 No. 2 (as amended by Order of the Acting Minister of Science and Higher Education of the Republic of Kazakhstan dated 04/22/2025 No. 200).

5. Qualification directory of positions of managers, specialists and other employees, approved by Order of the Minister of Labor and Social Protection of the Population of the Republic of Kazakhstan dated August 12, 2022 No. 309.

6. Rules for organizing the educational process on credit technology of education in organizations of higher and (or) postgraduate education, approved by Order of the Minister of the Ministry of Education and Science of the Republic of Kazakhstan No. 152 dated 04/20/2011. (as amended by the Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated 03/26/2025 No. 134).

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 for including and excluding educational programs in the Register of Educational Programs of Higher and Postgraduate Education, approved by Order of the Minister of Education and Science of the Republic of Kazakhstan dated December 4, 2018 No. 665 (with additions and amendments as of December 23, 2020 No. 536).

9. RI-ALT-33 "Regulation on the procedure for developing an educational program for higher and postgraduate education".

10. Atlas of new professions: "Technologist of road construction from recycled plastic".

3. PASSPORT OF THE EDUCATIONAL PROGRAM

№	Fieldname	Note
1	Registrationnumber	6B07300216
2	Code and classification of the field of education	6B07 Engineering, Manufacturing and construction industries
3	Code and classification of training areas	6B073Architecture and construction
4	Code and group of the educational program (OP)	B126 – Transport construction
5	Name of the educational program (OP)	6B07348 CONSTRUCTION OF HIGHWAYS AND AIRFIELDS
6	Type of educational program (OP)	New EP
7	The purpose of the educational program (OP)	Training of qualified personnel with professional competencies in the field of surveys, design, construction, operation, reconstruction and repair of highways and facilities in the automotive industry using innovative technologies.
8	Level according to the International Standard Classification of Education (ISCED)	6
9	National Qualification Framework (NQF) level	6
10	Level according to the Industry Qualification Framework (ORC)	6
11	Distinctive features of the educational program (OP)	No
	Partner university, joint educational program (SOP)	-
	Partner university, double-degree educational program (DDOP)	-
12	Formoftraining	Full-time
13	Languageofinstruction	Kazakh, Russian
14	Volumeofloans	240
15	Academicdegreeawarded	Bachelor of Engineering and Technology in the educational program "6B07348 – Construction of highways and airfields"
16	Availability of an appendix to the license for the direction of training	KZ87LAA00036465
17	Availability of educational program accreditation (OP)	Available
	Name of the accreditation body	NU "Independent Agency of accreditation and rating"
	Validityperiodofaccreditation	01.04.23 - 31.03.28

4. THE GRADUATE'S COMPETENCE MODEL

Objectives of the educational program:

1. Training in modern technologies: Introducing students to advanced digital tools and techniques, such as управления traffic management systems, intelligent transport systems(ITS), and automation of design and construction processes.
2. Developing Data Analysis skills: Teaching students how to collect, process, and analyze data from sensors and other sources to improve traffic management and safety.
3. Integrating sustainable development: Developing students ' understanding of the importance of sustainable development and ecology in the context of transport infrastructure, including the use of environmentally friendly technologies and materials.
4. Improving safety and efficiency: Training in techniques designed to increase road safety and optimize traffic flows through digital solutions.
5. Prepare for innovation: Encourage creative thinking and innovative approaches to solving transport infrastructure problems, including the use of new technologies such as artificial intelligence and the Internet of Things (IoT).
6. Practical application of knowledge: Providing students with opportunities to apply theoretical knowledge in practice through internships, projects, and industry collaborations.
7. Formation of highly qualified specialists who are able to adapt to the rapidly changing conditions and requirements of modern transport.

Learning outcomes:

LR1- Use theoretical and practical knowledge of physics, mathematics and chemistry in the study of basic and specialized disciplines to solve applied and construction problems to ensure quality education.

LR2-To study the basic principles and methods of mechanics, including construction, to evaluate the resistance of materials to solve practical problems in the design of transport facilities to ensure quality education.

LR3 - Apply the acquired knowledge to solve practical problems in the field of transport construction related to the assessment of soil properties, the design of drainage systems, and the accuracy of measurements on the Earth's surface to ensure quality education.

LR4 – Apply the knowledge of graphical and computer modeling and programming in the development of design estimates for transport facilities, improve the skills of using languages in the professional field to ensure quality education.

LR5- To use the acquired knowledge in the field of highway design, taking into account the historical cultural monuments of Kazakhstan and the universal laws of philosophy in all spheres of human activity, including transport construction, taking into account the principles of sustainable development.

LR6 – To assess the existing condition of the elements of highways and airfields from the standpoint of ensuring road safety in a sociological aspect, striving to minimize construction costs, taking into account the principles of sustainable development.

LR7- To use theoretical and practical knowledge in the field of design and construction of transport facilities and structures necessary to ensure safe and uninterrupted, high-speed traffic, taking into account the principles of sustainable development.

LR8-To use the principles and methods of highway construction technology, including minimizing the impact on ecosystems, the use of environmentally friendly materials and the introduction of technologies to protect the environment and preserve natural resources, taking into account the principles of sustainable development.

LR9 – To evaluate methods and methods for assessing the condition of the elements of operated highways, as well as the quality of these elements during new construction, data analysis and the application of international standards in the development of projects involving innovation and infrastructure development.

LR10 – Use the acquired knowledge to develop projects for the organization of construction production, including cultural and social aspects, understanding political decisions and psychological characteristics in the organization of the construction of highways and airfields, with the application of innovations and infrastructure development.

LR11 – Apply the skills of ideological, civic and economic positions based on the possession of information and communication technologies, taking into account the principles of artificial intelligence and time management methods, an inclusive environment, financial literacy and critical thinking, orientation towards a healthy lifestyle to ensure full-fledged social and professional activities.

Field of professional activity: Automobile and aviation transport: design, construction, maintenance and repair of highways and airfields

Objects of professional activity:

- local executive authorities in the field of road transport and their regional structures;

- organizations and enterprises of the transport industry in the field of design, construction, maintenance and repair of highways and airfields, the highway network of highways, city and village streets and access roads of industrial enterprises;
- organizations and enterprises in the field of manufacturing of building materials and structures for objects of the transport and communication complex.

Types of professional activity:

- production and technological;
- organizational and managerial;
- project.

Functions of professional activity:

- 1) Organization of manufacturing of building materials and structures for transport and communication facilities; organization of design, construction, maintenance and repair of highways and airfields; use of standard methods for calculating the reliability of structures of highways and airfields.
- 2) Management of production processes, analysis of the results of production activities; management of works on the implementation of design and construction works, maintenance and repair of highways and airfields; technical diagnostics of highways and airfields, the use of measuring instruments of road laboratories; analysis and evaluation of production and non-production costs or resources for high-quality design, construction, maintenance and repair of highways and airfields.
- 3) Development of new technologies, development of design and technological documentation using computer technology; calculation of strength and stability under various types of loading of highways and airfields, development of projects for new and reconstruction (modernization) of existing highways and airfields; selection of building materials for the manufacture of structures of highways and airfields, justification of technical solutions; development of technical specifications and technical conditions for projects of new and reconstruction (modernization) of existing highways and airfields, constructions of highways and airfields, technological processes of maintenance and repair of highways and airfields, means of technical diagnostics of highways and airfields using modern information technologies and computer programs; design of new constructions of highways and airfields, corresponding to the latest achievements of science and technology, safety requirements.

The list of specialist positions:

Head of the Capital Construction Department, head of the production (technical, production and technical) department, head of the site (workshop), head of the logistics Department, Head of the Safety and Labor Protection Department, Head of the regulatory research Laboratory for Labor, Head of the tool Department, head of the production laboratory (production control), head of the quality control department, head of the road laboratory, site master (road master), work producer (foreman), master of industrial training, foreman, project manager, project manager, lead engineer, design engineer, process engineer (technologist), repair engineer, inventory engineer of buildings and structures, metrology engineer, labor organization engineer, labor rationing engineer, safety and labor protection engineer, engineer for environmental protection (ecologist), laboratory engineer, engineer, chief specialist, leading specialist, specialist, design technician, site technician, process technician, inventory technician

of buildings and structures, metrology technician, labor technician, technician, laboratory technician, laboratory assistant

Professional certificates obtained at the end of training: Road worker, asphalt concrete worker.

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 1.

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 practical training 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 a bachelor's professional activity in a particular production; formation of a professional position of a specialist, a 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 2.

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 activity of a particular enterprise (organization) with the student's independent formulation of conclusions, suggestions, recommendations, etc. In the course of practice, the student must show his knowledge and skills of a specialist, organizational skills, decision-making skills, performance discipline, responsibility, initiative.

Final certification it 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 comprehensive exam program reflects 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

[illegible]

16	Engineering mathematics 1	5	+										
17	Engineering mathematics 2	5	+										
18	Construction Physics	5				+							
19	Construction chemicals	4											
Professional module													
20	Engineering geodesy	6			+								
21	Building materials	6			+								
22	Building structures	4	+										
23	Occupational safety and health	5					+						
Information Technology and Artificial Intelligence Module													
24	Engineering graphics and computer modeling	4			+								
25	Basics of Python programming	3						+					+
A practice-oriented module													
26	Professionally oriented foreign language	3					+						+
27	Educational practice (geodetic)	2											
The module of natural science competencies													
28	Theoretical mechanics	4	+	+									
29	Fundamentals of classical mechanics	4	+	+									
30	Resistance of materials	5	+	+									
31	Applied mechanics	5	+	+									
32	Construction mechanics	5	+	+									
33	Mechanics of structural strength	5	+	+									
Professional module													
34	Geology and mechanics of soils	5			+				+				
35	Geoinformation systems in geology	5			+				+				
36	Foundations and foundations	5			+				+				
37	Geotechnics in foundation engineering	5			+				+				
38	Hydraulics, hydrology, hydrometry	4			+				+				
39	Hydraulic engineering calculations and measurements	4			+				+				
The module of economic and managerial competencies													
40	Managerial economics	3				+							

41	Time management	3				+							
Professional module													
42	Designing of oil and gas pipeline systems	5					+		+				
43	Design of oil storage facilities	5					+		+				
44	Design of gas storage facilities	5						+			+		
A practice-oriented module													
45	Fundamentals of oil and gas business	5								+	+		
46	Oil and gas pipelines	5								+	+		
47	Oil and gas storage facilities	5									+		
48	Pumping and compressor stations in the oil and gas industry	5					+				+		
49	Maintenance and repair of oil and gas pipelines	6						+			+		
50	Maintenance and repair of oil and gas storage facilities	5						+	+				
51	Production practice 1												
52	Production practice 2/ Pre-graduate practice												
Information Technology and Artificial Intelligence Module													
53	Automated design of oil and gas facilities	4				+	+						
54	Automated design systems for oil and gas facilities	4				+						+	
Professional module		4				+			+				
55	Fundamentals of reliability of pipeline systems	4			+				+				
56	Technological reliability of main pipelines												
57	Machinery and equipment for the construction and repair of oil and gas facilities	5			+					+			
58	Machines and mechanisms in pipeline construction	5			+					+			
A practice-oriented module													
59	Technology of construction of oil and gas	5								+		+	

	facilities												
60	Technological processes of construction of oil and gas facilities	5								+		+	
61	Organization and planning of construction of transport facilities	5								+	+		
62	Organization of construction of production	5					+				+		
63	Diagnostics of oil and gas facilities	6								+	+		
64	Monitoring of the technical condition of oil and gas facilities	6								+	+		
The Infrastructure Program module / The module of the additional educational program													
65	Information modeling technology in architecture and construction	3				+	+						
66	Minor program 1	3				+		+					
67	Regulatory and technical documentation in the oil and gas industry	3					+				+		
68	Minor program 2	3					+		+				
69	Estimated pricing in architecture and construction	3					+	+					
70	Minor program 3	3						+					+
The module of personal competencies													
71	Service to society	1											
72	Business communications	1											
73	FINAL CERTIFICATION	8	+	+	+	+	+	+	+	+	+	+	+

6. STRUCTURE OF THE BACHELOR'S DEGREE PROGRAM

№ п/п	Name of cycles of disciplines	Total labor intensity	
		in academic hours	in academic credits
1	The cycle of general education disciplines (OOD)	1680	56
1)	is a mandatory component	1530	51
	History of Kazakhstan	150	5
	Philosophy	150	5
	Foreign language	300	10
	Kazakh (Russian) language	300	10
	Information and Communication Technologies (in English)	150	5
	Module of socio-political knowledge (sociology, political science, cultural studies, psychology)	240	8
	Physical Culture	240	8
2)	Component of choice	150	5
2	Cycle of basic disciplines (DB)	at least 5280	at least 176
1)	University component		
2)	Professional practice		
3	Cycle of profile disciplines (PD)		
1)	University component		
2)	Professional practice		
4	Additional types of training (DVO)		
1)	Component of choice		
5	Final certification		
1)	Writing and defending a thesis, graduation project, or preparing and passing a comprehensive exam	at least 240	at least 8
	Total	at least 7200	at least 240

7. CURRICULUM FOR THE ENTIRE PERIOD OF STUDY

ALT University named after Mukhamedzhan Tynyshpayev JSC

THE CURRICULUM

Form of study: full-time

The direction of training:

68073 – Architecture and construction

Group of educational programs:

8126 – Transport construction

Name of the educational institution:

6807348 – Construction of highways and bridges

Degree:

Bachelor of Engineering and Technology

APPROVED

By the decision of the Academic Council
JSC "ALT University named after M. Tynyshpayev"
on " 27 " maysa 2025 r. Протокол № 8

Chairman of the Academic Council

M. S. Zharmagambetova

Admission: 2025

№	The discipline code	Naming of cycles and disciplines	Total labor capacity		Form of control, trimester		The amount of study load, hours							Distribution by trimester									Securing a position at the department
			in academic hours	in academic credits	Exam	KF (KF)	Total hours	Contact information				IWS	1st course			2nd course			3rd course				
								lectures	practical	laboratory facilities	independent work		10 weeks	10 weeks	10 weeks	10 weeks	10 weeks	10 weeks	10 weeks	10 weeks	10 weeks		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
THE CYCLE OF GENERAL EDUCATION DISCIPLINES (GE-CY)																							
1.1	Required component:		1530	51	21		1530	90	440	0	168	842	6	6	13	13	6	7	0	0	0		
M1	The module of general education competencies																						
1.1.1	23-0-0-OK-K	History of Kazakhstan	130	5	4		130	20	20		8	102				5						CHOPN	
1.1.2	23-0-0-OK-Fd	Philosophy	150	5	5		150	20	20		8	102					5					CHOPN	
1.1.3	23-0-0-OK-FK	Physical Culture	240	8	1.2, 3.4		240		40	32	168	2	2	3	3							CHOPN	
M2	Language Competence Module																						
1.1.4	23-0-0-OK-FYa	Foreign language	300	10	1.2, 3.4, 5		300		200		40	60	2	2	2	2	2					LE	
1.1.5	23-0-0-OK-KUR(Ya)	Kazakh (Russian) language	300	10	1.2, 3.4, 5		300		100		40	100	2	2	2	2	2					LE	
M3	The module of socio-political competencies																						
1.1.6	23-0-0-OK-Soc	Sociology			4			5	10		8	37				2						CHOPN	
	23-0-0-OK-Kul	Cultural studies			5		240	5	10		8	37				2						CHOPN	
	23-0-0-OK-Pol	Political Science			5			5	10		8	37					2					CHOPN	
	23-0-0-OK-Psi	Psychology			5			5	10		8	37				2						CHOPN	
M4	Information Technology and Artificial Intelligence Module																						
1.1.7	23-0-0-OK-IT	Information and communication technologies	150	5	3		150	20	20		8	102			5							ICT	
1.2	Component of choice:		150	5	1		150	20	20	0	8	102	0	0	0	0	0	0	0	0	0	0	
M5	The module of economic and managerial competencies																						
1.2.1	23-0-0-KV-EU	Environmentally sustainable technologies																				CHOPN	
	23-0-0-KV-ZEP	Green economy and sustainable entrepreneurship																				CHOPN	
	23-0-0-KV-OFD	Fundamentals of financial literacy	150	5	5		150	20	20		8	102				5						CHOPN	
	23-0-0-KV-DI	Digital inclusion																				ICT	
	23-0-0-KV-CPAK	Basics of law and anti-corruption culture																				CHOPN	
2	TOTAL for the GE cycle:		1680	56	22		1680	100	440	0	176	844	6	6	13	13	11	7	0	0	0		
THE CYCLE OF BASIC AND PROFILE DISCIPLINES (DB, PO)																							
2.1	CYCLE OF BASIC DISCIPLINES (BC)																						
2.1.1	The university component:		1540	52	12		1540	100	200	40	165	895	14	18	8	4	0	3	0	5	0		
M6	The module of natural science competencies																						
2.1.1.1	23-0-0-VK-M1	Engineering Mathematics 1	150	5	1		150	10	20		15	105	5									GE	
2.1.1.2	23-0-0-VK-M2	Engineering Mathematics 2	150	5	2		150	10	20		15	105		5								GE	
2.1.1.3	23-0-0-VK-MF	Building Physics	150	5	1		150	10	10	10	15	105	5									GE	
2.1.1.4	23-0-0-VK-MKh	Construction chemicals	120	4	2		120	10	10	10	15	75		4								GE	
M7	Professional module																						
2.1.1.5	23-0-0-VK-Mgud	Engineering geodesy	180	6	3		180	10	20	10	15	125			5							Ti	
2.1.1.6	23-0-0-VK-MStek	Building materials	180	6	2		180	20	10	10	15	125		5								Aace	
2.1.1.7	23-0-0-VK-MK	Building structures	120	4	4		120	10	20		15	75			4							Aace	
2.1.1.8	23-0-0-VK-MTSDz	Occupational safety and health	150	5	5		150	10	20		15	105							5			AaceLi	
M8	Information Technology and Artificial Intelligence Module																						
2.1.1.9	23-0-0-VK-MGKM	Engineering graphics and computer modeling	120	4	1		120	10	20		15	75	4									Ti	
2.1.1.10	23-0-0-VK-MPP	Python programming basics	90	3	2		90		10		15	65		3								ICT	
M9	A practice-oriented module																						
2.1.1.11	23-0-0-VK-MDYa	Professionally oriented foreign language	90	3	6		90		40		15	35					3					LE	
2.1.1.12	23-0-0-VK-MPrp	Educational practice (practices)	60	2	3		60										3					Ti	
2.1.2	Component of choice:		930	31	7		930	70	100	30	185	625	4	5	5	5	5	3	4	0	0		
M10	The module of natural science competencies																						
2.1.2.1	23-0-0-KV-KV-TMak	Theoretical mechanics	120	4	1		120	10	20		15	75	4									Ti	
	23-0-0-KV-OKBch	Fundamentals of classical mechanics																					
2.1.2.2	23-0-0-KV-SMak	Resistance of materials	150	5	2		150	10	10	10	15	105		5								Ti	
	23-0-0-KV-PMak	Applied mechanics																					
2.1.2.3	23-0-0-KV-SMak	Construction mechanics	150	5	3		150	10	20		15	105			5							Ti	
	23-0-0-KV-MPS	Mechanics of structural strength																					
M11	Professional module																						
2.1.2.4	23-0-0-KV-MGD	Geology and Soil Mechanics	150	5	4		150	10	10	10	15	105			5							Aace	
	23-0-0-KV-MGD	Geoinformation systems in geology																					
2.1.2.5	23-0-0-KV-MF	Foundations and bases	150	5	5		150	10	20		15	105				5						Aace	
	23-0-0-KV-MF	Geotechnics in foundation engineering																					
2.1.2.6	23-0-0-KV-MGD	Geotechnics in foundation engineering	120	4	7		120	10	10	10	15	75						4				Aace	
	23-0-0-KV-MGD	Hydrotechnical calculations and measurements																					

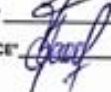
M9		The module of economic and managerial competencies																			
2.1.2.7.	23-0-B-KV-UE	Managerial Economics	90	3	6	0	90	10	10	15	55								3		LMT
	23-0-B-KV-TM	Time management																			
	TOTAL for the BD cycle:		2490	83	19	0	2490	170	300	70	270	1620	18	23	13	9	5	6	4	5	0
2.2.		PROFILE DISCIPLINES (PD):																			
2.2.1.	University component:		1680	56	11		1680	100	180	0	135	965	0	0	0	5	10	15	10	6	10
M7		Professional module																			
2.2.1.1.	23-0-B-KV-OPAD	Fundamentals of highway design	150	5	4		150	10	20	15	105					5					Aace
2.2.1.2.	23-0-B-KV-IPAD	Surveys and design of highways	150	5	5		150	10	20	15	105					5					Aace
2.2.1.3.	23-0-B-KV-RAD	Reconstruction of highways	150	5	6		150	10	20	15	105						5				Aace
M8		A practice-oriented module																			
2.2.1.4.	23-0-B-KV-TSADA1	Technology of construction of highways and airfields 1	150	5	5		150	10	20	15	105					5					Aace
2.2.1.5.	23-0-B-KV-TSADA2	Technology of construction of highways and airfields 2	150	5	6		150	10	20	15	105						5				Aace
2.2.1.6.	23-0-B-KV-AMA	Highways and airfields	150	5	7		150	10	20	15	105							5			Aace
2.2.1.7.	23-0-B-KV-IOAD	Engineering equipment of highways	150	5	7		150	10	20	15	105							5			Aace
2.2.1.8.	23-0-B-KV-EAD	Operation of highways and airfields	180	6	8		180	20	20	15	125								5		Aace
2.2.1.9.	23-0-B-KV-OURD	Road conditions and traffic safety	150	5	9		150	10	20	15	105									5	Aace
2.2.1.10.	23-0-B-KV-PPV1	Production practice 1	150	5	6		150												5		Aace
2.2.1.11.	23-0-B-KV-PPV2/PPV3	Production practice 2/ Pre-graduate practice	150	5	9		150													5	Aace
2.2.2.	Component of choice:		1110	37	9		1110	110	140	0	135	725	0	0	0	0	0	0	12	16	9
M4		Information Technology and Artificial Intelligence Module																			
2.2.2.1.	23-0-B-KV-APAD	Computer-aided design of highways	120	4	7		120	10	20	15	75								4		Aace
	23-0-B-KV-SAPAD	Automated highway design systems																			
M7		Professional module																			
2.2.2.2.	23-0-B-KV-MTAD	Bridges and tunnels on highways	120	4	8		120	10	20	15	75								4		Ti
	23-0-B-KV-ASAO	Artificial structures on highways																			
2.2.2.3.	23-0-B-KV-QSMD	Road construction machinery and equipment	120	4	8		120	20	10	15	75								4		Aace, La
	23-0-B-KV-EMADH	Machines and mechanisms in the automotive and road industry																			
M8		A practice-oriented module																			
2.2.2.4.	23-0-B-KV-OPSADA	Organization and planning of construction of highways and airfields	150	5	7		150	10	20	15	105							5			Aace
	23-0-B-KV-OSP	Organization of construction production																			
2.2.2.5.	23-0-B-KV-DAD	Diagnostics of highways	150	5	8		150	10	20	15	105								5		Aace
	23-0-B-KV-ODHd	Ensuring the life cycle of the road																			Aace
2.2.2.6.	23-0-B-KV-KKDSR	Quality control of road construction works	180	6	9		180	20	20	15	125									6	Aace
	23-0-B-KV-KKDA	Quality control of road assets																			
M9		The Infrastructure Program module / The module of the additional educational program																			
2.2.2.7.	23-0-B-KV-IMAS	Information Modeling technology in the field of architecture and construction	90	3	7		90	10	10	15	55								3		Aace, Ti
	23-0-B-KV-MN1	Minor program 1																			Aace, Ti
2.2.2.8.	23-0-B-KV-RTSADS	Regulatory and technical documentation in automobile and road construction and road management	90	3	8		90	10	10	15	55								3		Aace
	23-0-B-KV-MN2	Minor program 2																			Aace
2.2.2.9.	23-0-B-KV-SCAS	Estimated pricing in architecture and construction	90	3	9		90	10	10	15	55									3	Aace, Ti
	23-0-B-KV-MN3	Minor program 3																			Aace, Ti
	TOTAL for PD:		2790	93	20	0	2790	210	320	0	270	1690	0	0	0	5	10	15	22	22	19
	TOTAL for the CE cycle, PD:		6790	179	39	0	6790	380	620	70	640	3310	18	23	13	14	16	21	26	27	19
3.		ADDITIONAL TYPES OF EDUCATION (ATOE):																			
M10		The module of personal competencies																			
3.1.	23-0-B-KV-DVD-SO	Service to society	30	1	1		30		10	5	15	1									Aace
	23-0-B-KV-DVD-BK	Business communications																			
	TOTAL FOR THE THEORETICAL COURSE OF STUDY (TCOS):		6990	233	62	0	6990	480	1090	70	721	4269	25	29	26	27	26	28	26	27	19
4.	23-0-B-KV-IA	FINAL CERTIFICATION	240	8																8	Aace
	TOTAL FOR THE ENTIRE PERIOD OF STUDY:		7230	241	62	0	6990	480	1090	70	721	4269	25	29	26	27	26	28	26	27	27

AGREED

Acting Vice-Recteur for Academic Affairs:  Kojabergenova A.K.

DEVELOPED:

Director of the Institute "TI":  Abdreshov S.A.

Head of the Department "ACE":  Kulmanov K.S.

8.CATALOG OF DISCIPLINES OF THE UNIVERSITY COMPONENT

EDUCATIONAL PROGRAM 6B07348 – CONSTRUCTION OF HIGHWAYS AND AIRFIELDS

Education level: Bachelor's degree

Duration of study: 3 years Admission year: 2025

Цикл	Компонент	Наименование дисциплины	Общая трудоемкость		Семестр	Результаты обучения	Краткое описание дисциплины	Пререквизиты	Постреквизиты
			в академических часах	в академических кредитах					
2	3	4	5	6	7	8	9	10	11
BD	UC	Engineering Mathematics 1	150	5	1	PO1	The discipline "Engineering Mathematics 1" studies the basic concepts of higher mathematics and its applications. The course sections include elements of linear algebra and analytical geometry, an introduction to mathematical analysis, and differential calculus of functions of one and several variables. The purpose of the course is to master the mathematical apparatus for solving theoretical and applied problems of a specific profile, to gain an understanding of mathematical modeling, and to develop analytical and systems thinking, which makes it possible to effectively solve engineering problems. The discipline uses interactive teaching methods and performing computational and graphical work.	Mathematics Physics	Engineering Mathematics 2 Applied mechanics
BD	UC	Engineering Mathematics 2	150	5	1	PO1	The formation of students' mathematical knowledge and skills necessary for the study of related natural science disciplines, disciplines of the professional cycle and skills of mathematical modeling and research in professional activities. The course sections include integral calculus of functions of one and several variables, ordinary differential equations, and series theory. Special attention is paid to the application of mathematical methods to solve engineering problems.	Engineering Mathematics 1	Construction chemicals Building materials Engineering geodesy
BD	UC	Building Physics	150	5	1	PO4	Formation of knowledge, skills and competencies necessary for the development, design and operation of energy-efficient, comfortable and durable buildings and structures. Studies the physical processes and phenomena occurring in building structures and buildings, as well as their interaction with the environment, the basics of building and architectural acoustics, building climatology, lighting engineering, thermal engineering.	Engineering Mathematics 1	Strength of materials Construction mechanics Building structures

BD	UC	Construction chemicals	120	4	2	PO3	The formation of knowledge in the field of building chemistry is associated with the development of science and technology aimed at improving building materials and their application processes. Construction chemistry studies and develops chemical materials, additives and substances that affect the properties of building structures, ensuring their strength, durability, resistance to external influences and energy efficiency. An important part of the course is studying the environmental impact of building chemicals.	Engineering Mathematics 1 Building Physics	Construction mechanics Applied mechanics Building structures
PD	UC	Engineering geodesy	180	6	3	PO3	Forms professional competencies that determine the readiness and ability of the bachelor to use basic knowledge in the field of geodesy, allows you to make geodetic measurements related to the solution of typical construction tasks, a detailed layout of structures, to control the geometric shapes of the erected structure, perform executive surveying results of individual stages of construction and installation work, gives skills for the application of basic geodetic instruments for specific production conditions.	Engineering Mathematics 1 Engineering Mathematics 2 Building Physics Construction chemicals	Mechanics of structural strength Applied mechanics Foundations and bases
BD	UC	Building materials	180	6	2	PO1 PO8	Apply modern building materials, demonstrate the main indicators of quality, modern methods of production of building materials for the transport industry, the main laws and dependence on the physical and mechanical properties, production technology and conditions of formation, methods of finishing, mastering technological processes of construction production, production of building materials, products and structures on the artificial structures under construction.	Engineering Mathematics 1 Building Physics	Surveys and design of highways Reconstruction of highways Technology of construction of highways and airfields 1 Highways and airfields
BD	UC	Building structures	120	4	4	PO2 PO7	The discipline studies the design, analysis and application of various types of structures such as buildings, bridges and transport structures. It covers materials, mechanical properties and strength calculation methods. Knowledge in this area is necessary to create safe and sustainable facilities that meet modern standards and requirements.	Engineering Mathematics 1 Engineering Mathematics 2 Building Physics Construction chemicals Engineering geodesy Building materials	Foundations and bases Surveys and design of highways Technology of construction of highways and airfields 1 Technology of construction of highways and airfields 2
BD	UC	Occupational safety and health	150	5	8	PO8	The discipline studies the direction of students' formation of knowledge and skills necessary to ensure safe working and living conditions. The legal and organizational foundations of occupational safety, methods of occupational risk assessment and management, means of individual and collective protection, emergency prevention, as well as measures to prevent injuries and occupational diseases are studied. Special attention is paid to the creation of a safe working environment, compliance with labor protection standards and requirements, as well as the formation of a safety culture in professional activities.	Engineering Mathematics 1 Engineering Mathematics 2 Building Physics Construction chemicals Engineering geodesy Building materials Building structures	Road conditions and traffic safety Quality control of road assets
BD	UC	Engineering graphics and computer modeling	120	4	1	PO4	The course covers the principles of technical drawing and engineering graphics, as well as modern 3D modeling methods using specialized software, aimed at developing skills in designing and visualizing technical objects, creating digital models and diagrams, drafting, modeling structures, and	Engineering Mathematics 1 Engineering Mathematics 2	Resistance of materials Construction mechanics Hydrotechnical calculations and measurements

							analyzing their parameters for solving engineering problems.		Engineering equipment of highways
BD	UC	Python program basics	90	3	2	PO4	The discipline studies the syntax and semantics of the Python language, algorithmization and program design, program structuring and solving problems related to artificial intelligence, learns machine learning, data processing and intelligent system development methods, and analyzes the use of AI in various fields, forming professional competencies in programming and the basics of artificial intelligence.	Engineering Mathematics 1 Engineering Mathematics 2	Geoinformation systems in geology Hydrotechnical calculations and measurements Automated highway design systems
BD	UC	Professionally oriented foreign language	90	3	6	PO9	Formation and development of professional communicative competence in a foreign language necessary for professional activity, proficiency in a professional foreign language for written and oral information exchange, development of skills in reading and understanding professional literature on their specialty in a foreign language, development of the ability to express their thoughts orally and in writing in situations of professional and business communication.	Building materials Building structures Engineering geodesy Foreign language	Operation of highways and airfields Quality control of road construction works
PD	UC	Fundamentals of highway design	150	5	4	PO5 PO7	The program of the course "Fundamentals of Road Design" is aimed at studying the laws of interaction between a car and a road, the main elements of roads, the principles of choosing the direction of the route, designing longitudinal and transverse profiles, hydraulic calculations of artificial structures, designing and calculating road pavements, designing intersections and junctions from the standpoint of ensuring road safety.	Engineering Mathematics 1 Engineering Mathematics 2 Building Physics Construction chemicals	Surveys and design of highways Reconstruction of highways Technology of construction of highways and airfields 1 Technology of construction of highways and airfields 2 Operation of highways and airfields
PD	UC	Surveys and design of highways	150	5	5	PO5, PO7	The discipline "Road Surveys and Design" covers a wide range of issues in the field of engineering and geodetic, geological, economic and environmental surveys necessary to justify the choice of the direction of the highway route. In the course of the discipline, the laws of interaction between the car and the road, the main elements of roads, from the standpoint of ensuring road safety, the principles of laying the road route on the ground, designing longitudinal and transverse profiles, hydraulic calculations of artificial structures, designing and calculating road pavements, designing intersections and junctions are studied.	Engineering Mathematics 1 Engineering Mathematics 2 Building Physics Construction chemicals Engineering geodesy Resistance of materials Fundamentals of highway design Engineering graphics and computer modeling	Highways and airfields Engineering equipment of highways
PD	UC	Reconstruction of highways	150	5	6	PO6 PO9	The formation of skills and knowledge necessary for the preparation of projects for the reconstruction of highways, which contributes to the improvement of transport infrastructure and improve road safety and comfort. Examines the reasons why roads require reconstruction, including wear, damage, methods of engineering assessment of the condition of existing roads and	Engineering Mathematics 1 Engineering Mathematics 2 Building Physics Construction chemicals Engineering geodesy Resistance of materials	Highways and airfields Engineering equipment of highways

							their elements in order to determine the level of wear and reconstruction requirements.	Fundamentals of highway design Engineering graphics and computer modeling	Operation of highways and airfields Road conditions and traffic safet
PD	UC	Technology of construction of highways and airfields 1	150	5	5	PO8 PO9	The purpose of the discipline is to develop knowledge and skills in the field of technological processes in the construction of highways and airfields. The discipline program includes the study of processes at the stages of preparation, installation of bases and coatings, selection of materials, organization and control of construction work, taking into account technical requirements and climatic conditions.	Engineering Mathematics 1 Engineering Mathematics 2 Building Physics Construction chemicals Engineering geodesy Resistance of materials Fundamentals of highway design Engineering graphics and computer modeling	Technology of construction of highways and airfields 2 Operation of highways and airfields Road conditions and traffic safet
PD	UC	Technology of construction of highways and airfields 2	150	5	6	PO8 PO9	The purpose of the discipline is to master the full process of highway and airfield construction technology, taking into account the work of manufacturing enterprises in the road industry. The course program examines the production processes of road construction materials, the organization of construction work, interaction with industry enterprises, as well as the effective use of machinery and resources in road construction.	Engineering Mathematics 1 Engineering Mathematics 2 Building Physics Construction chemicals Engineering geodesy Resistance of materials Fundamentals of highway design Engineering graphics and computer modeling Technology of construction of highways and airfields 1	Highways and airfields Engineering equipment of highways Operation of highways and airfields Road conditions and traffic safet
PD	UC	Highways and airfields	150	5	7	PO6 PO7	Formation of skills in research, design of highways in difficult natural conditions, technical and economic assessment of variants of its elements, which allows choosing the most optimal solutions for given specific conditions, assigning the necessary measures and making competent engineering decisions in difficult conditions of designing a highway to ensure the strength and stability of the roadbed, pavement and other road structures.	Engineering Mathematics 1 Engineering Mathematics 2 Building Physics Construction chemicals Engineering geodesy Resistance of materials Fundamentals of highway design Engineering graphics and computer modeling Technology of construction of highways and airfields 1 Technology of construction of highways and airfields 2	Operation of highways and airfields Road conditions and traffic safet
PD	UC	Engineering equipment of highways	150	5	7	PO5 PO9	The purpose of the training course "Engineering equipment of highways" is to generate knowledge about technical means of traffic management that ensure safety, comfort and convenience for all participants in the traffic flow. As part of the course, students learn basic engineering equipment such as lighting, signs, barriers, traffic control systems, road markings and traffic lights in populated areas. Important attention is paid to modern technologies and innovations at the stage of development of	Engineering Mathematics 1 Engineering Mathematics 2 Building Physics Construction chemicals Engineering geodesy Resistance of materials Fundamentals of highway design	Operation of highways and airfields Road conditions and traffic safet

							design and estimate documentation, as well as environmental and sustainable development issues. Mastering this discipline allows future specialists to effectively solve problems related to the design and operation of roads, ensuring high standards of quality and safety of transport infrastructure.	Engineering graphics and computer modeling Technology of construction of highways and airfields 1 Technology of construction of highways and airfields 2	
PD	UC	Operation of highways and airfields	180	6	8	PO6 PO9	The purpose of the discipline is to develop skills in the field of operation of highways and airfields, taking into account the road infrastructure. Modern repair and maintenance technologies, monitoring systems, diagnostics of the condition of highway elements, organization of work to ensure traffic safety, as well as the effective use of technical and information resources are being studied.	Engineering Mathematics 1 Engineering Mathematics 2 Building Physics Construction chemicals Engineering geodesy Resistance of materials Fundamentals of highway design Engineering graphics and computer modeling Technology of construction of highways and airfields 1 Technology of construction of highways and airfields 2 Engineering equipment of highways	Road conditions and traffic safety
PD	UC	Road conditions and traffic safety	150	5	9	PO6 PO7	The purpose of the discipline is to prepare students to assess road conditions and develop measures to ensure traffic safety. The course is aimed at mastering the methods of analyzing the traffic situation, identifying potential hazards on the roads and developing solutions to improve safety for both drivers, pedestrians and cyclists.	Engineering Mathematics 1 Engineering Mathematics 2 Building Physics Construction chemicals Engineering geodesy Resistance of materials Fundamentals of highway design Engineering graphics and computer modeling Technology of construction of highways and airfields 1 Technology of construction of highways and airfields 2 Engineering equipment of highways Operation of highways and airfields	Quality control of road assets Estimated pricing in architecture and construction

9.CATALOG OF DISCIPLINES OF THE COMPONENT BY CHOICE

EDUCATIONAL PROGRAM 6B07348- Construction of highways and airfields

Education level: 2025

bachelor course Duration of study: 3 years

Cycle	Component	Name of the discipline	Total labor intensity		Term	Results of the study	Brief description of the discipline	Prerequisites	Post-requirements
			in academic hours	in academic credits					
1	2	3	4	5	6	7	8	9	10
ODD	SQ	Environmentally sustainable technologies	150	5	5	RO8	The discipline "Environmentally sustainable technologies" studies modern methods and innovative solutions aimed at minimizing the negative impact of human activities on the environment. The course examines the principles of sustainable development, energy-saving technologies, renewable energy sources, waste management strategies, and environmentally sound production processes.	Construction Materials, Geology and Soil Mechanics, Geographic Information Systems in Geology	Occupational Health and Safety, Highway Construction Technology 1, 2, Highways and Airfields
ODD	SQ	Green economy and sustainable entrepreneurship				RO10	The discipline "Green Economy and Sustainable Entrepreneurship" is devoted to the study of environmentally oriented economic models and business strategies aimed at sustainable development. The course examines the concepts of the green economy, ESG (Environmental, Social, Governance) approaches, circular economy, sustainable business models and their impact on global markets.	Construction Materials, Geology and Soil Mechanics, Geographic Information Systems in Geology	Occupational Health and Safety, Highway Construction Technology 1, 2, Highways and Airfields
ODD	SQ	Fundamental financial literacy				RO 11	The discipline is aimed at developing the ability to make informed financial decisions, plan income and expenditures, assess risks and effectively manage their resources in a market economy. It studies the basic knowledge in the sphere of finance and rational management of monetary resources, the concepts of	Engineering Mathematics 1.2, Construction Materials, Construction Structures	Final certification

							financial system, budget, banking products, crediting, savings, investments, insurance, taxation and protection against financial fraud are considered.		
ODD	SQ	Digital inclusion				RO11	The discipline "Digital Inclusion" is devoted to the study of the principles of ensuring equal access to digital technologies and information for all social groups, including people with disabilities. The course examines barriers to digital inequality, strategies for overcoming them, technologies for adapting the digital environment, and government initiatives to develop an inclusive digital society.	Building materials, Building structures, Geographic information systems in geology, Geology and soil mechanics, Information and communication technologies	Road reconstruction, Road construction technology, Road bridges and tunnels, Road structures, Automated road design
ODD	SQ	Basics of law and anti-corruption culture				RO11	The discipline outlines the fundamental concepts of law, the constitutional structure of the state power of the Republic of Kazakhstan, the rights and freedoms of citizens enshrined in the Constitution, the mechanism and protection of legitimate human interests in case of their violation. The discipline forms students' improvement of public and individual legal awareness and legal culture, as well as a system of knowledge and citizenship on combating corruption as an antisocial phenomenon.	History of Kazakhstan, Foreign language, Kazakh (Russian) language, Sociology, Culturology	Final certification
BD	EC	Theoretical mechanics	120	4	1	RO1, RO2	Formation of scientific engineering thinking. To familiarize with the basic concepts, laws and theorems that make it possible to compose equations describing the behavior of mechanical systems, the ability to record a specific phenomenon in mathematical form, the use of basic methods of mechanics in the study of	Engineering Mathematics 1.2, Construction Physics	Geology and soil mechanics, foundations and foundations, bridges and tunnels on

							motion and equilibrium of mechanical systems in the study of disciplines of the professional cycle.		highways
BD	EC	Fundamental sofclassical mechanics				RO1, RO2	The discipline aims to develop skills in solving problems and the ability to analyze and solve tasks in the field of statics and dynamics of rigid bodies and oscillatory motion, studying the main mathematical models used in theoretical mechanics, kinematic characteristics of the motion of material points and systems, solving statics problems using equilibrium conditions of force systems, and dynamics based on Newton's second law with the application of fundamental theorems of dynamics.	EngineeringMath ematics 1.2, ConstructionPhysi cs	Strength of materials, Applied mechanics, Structural mechanics, Strength mechanics of structures
BD	EC	Resistanceof materials	150	5	2	RO1, RO2	Formation of fundamental knowledge in the field of calculations of structural elements for strength, stiffness and stability, mastering the calculation and experimental foundations and practical methods of calculation of structures under the condition of reliability, durability, efficiency, considering the mechanical properties of structural materials and the ability to design by strength criteria correctly evaluating the limiting state, conducting verification and design calculations, using modern educational and information technology.	Fundamentals of classical mechanics, Theoretical mechanics	Structural mechanics, Mechanics of structural strength, Geology and soil mechanics, foundations and foundations, Geographic information systems in geology, Bridges and tunnels on highways
BD	EC	Appliedmec hanics				RO1, RO2	This discipline develops practical skills in applying the laws of theoretical mechanics and strength of materials to calculate the strength, stiffness, and stability of machine elements and engineering structures, as	Fundamentals of classical mechanics, Theoretical mechanics	Structural Mechanics, Strength Mechanics of Structures,

							well as to analyze their motion and interaction under various types of loads, with the aim of further designing reliable and efficient technical systems.		Geology and Soil Mechanics, Foundations and Foundations
BD	EC	Construction mechanics	150	5	3	RO1, RO2	Formation of skills in designing standard structures related to the choice of a design scheme, determining the most loaded structural elements and calculating internal forces and stresses. Studies methods for calculating forces in statically definable and indeterminate rod systems under the action of constant and temporary loads, determining displacement in rod systems to ensure the strength and reliability of structures in combination with high efficiency.	Fundamentals of Classical Mechanics, Theoretical Mechanics, Strength of Materials, Applied Mechanics,	Geology and soil mechanics, foundations and foundations, geoinformation systems in geology, bridges and tunnels on highways
BD	EC	Mechanics of structural strength				RO1, RO2	Formation of skills in the field of work analysis and calculation of structures made of various materials under various influences using modern computing equipment. Studies the features of the laws of stress and strain distribution in structural elements under various conditions of external load, principles and methods of static and dynamic calculation of engineering structures for strength, rigidity, stability.	Engineering graphics in computer modeling, basics of Python programming. Engineering surveying, Theoretical mechanics, Strength of materials, Structural mechanics, Structural strength mechanics	Soil Geology and Mechanics, Foundations and Foundations, Road Reconstruction, Road Construction Technology, Highways and Airfields, Road Bridges and Tunnels, Artificial Structures on Roads
BD	EC	Geology and Soil Mechanics	15	5	4	RO3, RO7	The discipline is aimed at developing professional competencies in the field of	Information and Communication	Road reconstruction,

		cs					engineering geology and soil mechanics to solve practical problems in assessing and analyzing the engineering and geological conditions of the construction of city streets and road infrastructure.	Technologies, Engineering Mathematics 1 and 2, Construction Physics, Construction Chemistry, Engineering Geodesy, Theoretical Mechanics, Strength of Materials, Structural Mechanics, Structural Strength Mechanics	Road construction technology, Highways and airfields, Road operation, Bridges and tunnels on roads, Artificial structures on roads
BD	EC	Geoinformation systems in geology				RO3	The discipline teaches the skills of engineering and geodetic calculations and methods of working with modern geodetic instruments to carry out marking work on the ground, control the production and quality of work performed at each stage of the construction process, and monitor geological and hydrogeological processes.	Information and Communication Technologies, Engineering Mathematics 1 and 2, Construction Physics, Engineering Geodesy, Construction Materials, Construction Structures, Theoretical Mechanics, Strength of Materials, Structural Mechanics	Road reconstruction, Road construction technology, Highways and airfields, Road operation, Bridges and tunnels on roads, Artificial structures on roads

BD	EC	Foundations and bases	150	5	5	RO3, RO7	Formation of knowledge about the basic laws of soil behavior under load, the theory of stress-strain state and their interaction with structures. Studies the main methods for determining the sediment of foundations, the stability of slopes and slopes, as well as the morphology, dynamics and regional features of the upper horizons of the Earth's crust (lithosphere) and their relationship with engineering structures	Engineering Graphics in Computer Modeling, Pylton Programming Basics, Engineering Surveying, Building Materials, Building Structures, Theoretical Mechanics, Strength of Materials, Structural Mechanics	Road reconstruction, Road construction technology, Highways and airfields, Road operation, Bridges and tunnels on roads, Artificial structures on roads
BD	EC	Geotechnical foundation engineering				RO3, RO7	The discipline considers the formation and development of areas of plastic deformation in a homogeneous base of a buried flexible strip foundation when it is loaded within the framework of a model of a mixed problem of the theory of elasticity and the theory of soil plasticity.	Engineering Graphics in Computer Modeling, Pylton Programming Basics, Engineering Surveying, Building Materials, Building Structures, Theoretical Mechanics, Strength of Materials, Structural	Road reconstruction, Road construction technology, Highways and airfields, Road operation, Bridges and tunnels on roads, Artificial structures on roads

								Mechanics	
BD	EC	Hydraulics, hydrology, hydrometry	120	4	7	RO3, RO7	The course of the discipline "Hydraulics, hydrology, hydrometry" includes the study of the movement and equilibrium of liquids, the laws and characteristics of their manifestation, water processes and modes of water flows, methods for determining water parameters. The theoretical set of knowledge is applicable in the design of transport structures, as well as in hydraulic engineering construction.	Foundations and foundations, Geotechnical engineering in foundation construction, Engineering surveying, Construction materials, Buildingstructures	
BD	EC	Hydrotechnical calculations and measurements				RO1, RO3	The discipline "Hydraulic calculations and measurements" studies methods for calculating water flow rates, head, filtration and stability of culverts in the design of transport structures. The course covers methods for measuring hydrological characteristics, analysis of field studies, modeling of processes in river beds, calculation of culverts and protective structures.	Foundations and foundations, Geotechnical engineering in foundation construction, Engineering surveying, Construction materials, Buildingstructures	Fundamentals of Highway Design, Surveying and Designing Highways, Reconstruction of Highways, Highway Construction Technology 1, 2, Bridges and Tunnels on Highways, Artificial Structures on Highways
BD	EC	Managerial Economics				RO4, RO11	Formation of the conceptual apparatus and development of skills of economic analysis using modern models and patterns of economic science, consideration of economic problems and challenges facing the head of the firm. The study of this discipline will allow students to obtain and	Fundamentals of financial literacy, Fundamentals of law and anti-corruption culture	Final certification

							develop knowledge in the field of analytical research of economic, technological and technical parameters of the enterprise, as well as allow you to master the skills of using special methods of economic justification of management decisions and assessment of their consequences.		
BD	EC	Time - management				RO10, RO11	The discipline studies a system of methods, tools and approaches that are aimed at effective time management in order to achieve set goals. The course is designed to improve skills in organizing and optimizing the use of working time, increasing productivity, reducing stress, planning, delegation, using tools and technologies, as well as knowing your time and energy rhythms in order to use your time effectively.	Fundamentals of financial literacy, Fundamentals of law and anti-corruption culture	Final certification
BD	EC	Computer-aided design of highways	120	4	7	RO4, RO5	The program of the course "Automated Road Design" considers the principles and methods of designing roads using specialized software products. Digital technologies of routing, terrain modeling, calculation of geometric and technical parameters of the road and design documentation are studied. The discipline includes the study of all stages of automation, work in CAD, the basics of 3D modeling and the integration of geodetic survey data.	Fundamentals of road design, Surveying and design of roads, Reconstruction of roads	Bridges and tunnels on highways, Artificial structures on highways
BD	EC	Automated highway design systems				RO4, RO10	The program of the discipline "Automated Road Design Systems" studies modern information technologies and software and their use for design of road elements and roadside infrastructure from the standpoint of road safety. The training material of the course includes a review of methods and tools for implementing design solutions, as	Fundamentals of road design, Surveying and design of roads, Reconstruction of roads	Bridges and tunnels on highways, Artificial structures on highways

							well as optimizing design processes using CAD systems.		
BD	EC	Bridges and tunnels on highways	120	4	8	RO4, RO7	Formation of skills in the calculation, design and operation of road bridges and tunnels. Studies the issues of designing objects of surface and underground infrastructure of the road industry in difficult hydrological and engineering-geological conditions, under seismic and man-made impacts on bridge crossings, tunnel crossings, the implementation of the most rational and effective design solutions for artificial structures on highways and internal arrangements of tunnel complexes.	Geology and Soil Mechanics, Foundations and Foundations, Road Reconstruction, Road Construction Technology, Highways and Airfields	Road conditions and traffic safety, Quality control of road construction works
BD	EC	Artificial structures on highways				RO3, RO7	The formation of artificial structures on highways, including the design, construction, and operation of bridges, tunnels, viaducts, and other elements that ensure the safety and efficiency of transportation, as well as enhance the durability of infrastructure.	Geology and Soil Mechanics, Foundations and Foundations, Road Reconstruction, Road Construction Technology, Highways and Airfields	Road conditions and traffic safety, Quality control of road construction works
BD	EC	Road construction machinery and equipment	120	4	3	RO3, RO8	To familiarize students with the nomenclature of modern road construction machines and mechanisms, equipment, traction means, a modern fleet of transport and construction machines, their purpose and principles of operation, optimization of operating modes under specified operating conditions to achieve maximum efficiency, to teach them to choose types of machines for the production of various types of work using interactive teaching methods.	Occupational Health and Safety, Engineering Geodesy, Construction Materials	Quality control of road construction materials, Quality control of road assets

BD	EC	Machines and mechanisms in the automotive and road industry				RO3, RO8	Formation of knowledge in the field of mechanization and automation of works on repair, construction and current maintenance of highways using road machines and mechanisms. The discipline studies machines and equipment for the extraction and processing of stone materials, for the preparation and transportation of asphalt concrete mixtures and work with bitumen, for the construction of road surfaces and airfields, complexes for the maintenance and repair of highways and airfields.	Occupational Health and Safety, Engineering Geodesy, Construction Materials	Quality control of road construction materials, Quality control of road assets
BD	EC	Organization and planning of construction of highways and airfields	150	5	7	RO10, RO8	Formation of students' knowledge and skills necessary for drawing up plans and schedules for construction work, effective management and coordination of construction projects in the field of transport infrastructure. Studies a wide range of aspects related to the effective management, planning and coordination of the construction of transport infrastructure, systems and methods of quality control of construction work.	Reconstruction of highways, Technology of construction of highways 1,2,	Road conditions and traffic safety, Quality control of road construction works, Quality control of road assets
BD	EC	Organization of construction production				RO10, RO8	The formation of students' professional skills on the basic principles and methods of organizing road works, organizational and technical training and calendar planning of road works, as well as gaining knowledge in the field of production and economic activities of enterprises when choosing rational options for organizational and planning solutions that ensure increased economic efficiency of production. Studies the principles and methods of project management, time control and planning, and resource allocation.	Reconstruction of highways, Technology of construction of highways 1,2,	Road conditions and traffic safety, Quality control of road construction works, Quality control of road assets

BD	EC	Diagnostics of highways	150	5	8	RO8, RO9	The course covers methods for diagnostics and quality control of road construction, including road condition analysis, damage diagnostics, the use of modern materials and technologies, and ensuring compliance with construction standards to guarantee reliability and durability.	Technology of construction of highways and airfields 1.2, Operation of highways	Road conditions and traffic safety, Quality control of road construction works, Quality control of road assets
BD	EC	Ensuring the life cycle of the road				RO5, RO9	The purpose of the discipline is to form knowledge about the comprehensive provision of the life cycle of a highway, taking into account the diagnosis of geometric and transport-operational qualities of a highway. The stages of design, construction, operation, repair and disposal of destroyed structures that cannot be repaired, methods for assessing the technical condition of road elements, the use of diagnostic equipment and engineering decisions based on the data obtained are studied.	Technology of construction of highways and airfields 1.2, Operation of highways	Road conditions and traffic safety, Quality control of road construction works, Quality control of road assets
BD	EC	Quality control of road construction works	180	6	9	RO8, RO9	The purpose of the discipline is to study quality control methods at various stages of road construction work. The course examines the principles of monitoring the compliance of construction processes and materials with regulatory requirements and standards, as well as methods for diagnosing and monitoring the condition of road construction facilities.	Road Diagnostics, Road Lifecycle Management, Bridges and Tunnels on Roads, Artificial Structures on Roads	Final certification
BD	EC	Quality control of road assets				RO8, RO9	The purpose of the discipline is to develop students' knowledge and skills in the field of assessment, monitoring and quality assurance of road assets, including methods of monitoring, diagnosing and managing their condition to improve safety, operational efficiency and prolong the service life of road infrastructure.	Road Diagnostics, Road Lifecycle Management, Bridges and Tunnels on Roads, Artificial Structures on Roads	Final certification

BD	EC	Information Modeling technology in the field of architecture and construction	90	3	7	RO4, RO5	The purpose of the course "Information Modeling Technology in Architecture and Construction" is to provide students with the basics of theoretical and practical knowledge and skills in the use of information modeling technologies (BIM) used in the design, construction and operation of buildings and transport facilities, as well as to improve the effectiveness of interaction between participants in the construction process.	Road Diagnostics, Road Lifecycle Management, Bridges and Tunnels on Roads, Artificial Structures on Roads	Final certification
BD	EC	Minor program 1				RO3, RO6	The first of the three disciplines, which allows you to form additional professional competencies in various subject areas.	Road Diagnostics, Road Lifecycle Management, Bridges and Tunnels on Roads, Artificial Structures on Roads	Final certification
BD	EC	Regulatory and technical documentation in automobile and road construction and road management	90	3	8	RO5, RO9	The purpose of the discipline "Regulatory and technical documentation in road construction and road facilities" is to form knowledge among students in the process of teaching about a set of regulatory and technical documents that determine the requirements for the design, construction, reconstruction and operation of roads. The discipline course covers the structure and content of regulatory documents. The program forms skills of competent application of regulatory and technical documentation in professional activities.	Fundamentals of Highway Design, Road Surveying and Design. Road Reconstruction	Final certification
BD	EC	Minor program 2				RO5, RO7	The second of the three disciplines, which allows you to form additional professional competencies in various subject areas.	Fundamentals of Highway Design, Road Surveying and Design. Road Reconstruction	Final certification

BD	EC	Estimated pricing in architecture and construction	90	3	9	RO5, RO6	The purpose of the course is to determine the volume, cost, and complexity of the upcoming work, as well as to monitor the completion of work and the consumption of materials. The means of cost estimation are the current estimated regulatory documents of the Republic of Kazakhstan, which contain information on labor costs, the time of use of machines, mechanisms, necessary materials, products and structures, both in quantitative and monetary measures, distributed by type of work	Organization and planning of construction of highways and airfields	Final certification
BD	EC	Minor program 3				RO6, RO11	The third of the three disciplines, which allows you to form additional professional competencies in various subject areas.	Organization and planning of construction of highways and airfields	Final certification

10. Expert opinions
on the educational program "6B07348 - Construction of highways and airfields"

In order to implement the educational program, it is carried out through the sequence of subjects studied, specific tasks and target indicators are defined. The close relationship between the disciplines is clearly traced, which is manifested through a comprehensive content that ensures the internal unity of the specialist training program.

The curriculum defines a list of all compulsory and optional subjects, their labor intensity, the sequence of training, types of classes and forms of control. It is important to study the environmental situation and the issues of ensuring safe working conditions at the enterprises of "Kazakh Industrial Transport Project" LLP.

Educational trajectories are prepared in accordance with the requirements of the transport and communication sphere and are provided for at the meeting of the department, the educational and methodological bureau of the academic committee.

The goal of the program is relevant, concise, and the option is formulated and combines learning outcomes. In the description of subjects, their goals and content are presented as indicators that reflect learning outcomes. Also, in the program based on the professional standard, the main labor functions are reflected in the competencies and learning outcomes. The types of contacts with employers are defined: invited lectures, lectures by leading top managers, the presence of branches of the department on the basis of organizations.

Thus, the educational program "6b07348 - construction of highways and airfields" fully meets the requirements of the State Educational Standard, in training, a clear sequence is observed, meets the requirements of the modern labor market and can be used in training personnel.

Expert
Chief engineer for the project
Kazakh Promtransproekt LLP



Musaev M.T.

EXPERT OPINIONS
on the educational program "6B07348 - Construction of Highways and Airfields"

The implementation of the educational program "6B07348 - Construction of Highways and Airfields" is carried out through a sequence of disciplines studied, with specific tasks and target indicators established. Interdisciplinary interaction is clearly traced, which is expressed in the integrated connection between the content of individual academic disciplines, through which the internal unity of the specialist training program is achieved.

The curriculum of the educational program defines the list of all mandatory and elective disciplines, the workload of each discipline in credits, the sequence of their study, types of training sessions, and forms of assessment. It is relevant to study environmental issues and ensure safe working conditions at enterprises of JSC KazDorNII. The educational trajectories have been developed in accordance with the requests of the transport and communication industry.

The goal of the educational program is relevant, formulated concisely, and integrates the learning outcomes. The description of the disciplines reflects their goals and content as indicators of achieving the learning outcomes under the given educational program. Also, in the educational program developed on the basis of the professional standard, the main labor functions are reflected in competencies and learning outcomes. Types of cooperation with employers are indicated: guest lectures, lectures by leading top managers, and the presence of departmental branches at the premises of organizations.

Thus, the educational program "6B07348 - Construction of Highways and Airfields" presented for expert review fully meets the requirements of the State Educational Standards, has a clear sequence in its development, meets the modern demands of the labor market, professional standards, and can be implemented for training personnel in the field of study.

Expert
Director of LLP "Saulat - SKB"



Oshanov A.E.

11.REVIEWER'S CONCLUSION

Review and Expert Opinions on the Educational Program

Review of the educational program for the field of study "6B07348 – Construction of Highways and Airfields"

The undergraduate educational program "6B07348 – Construction of Highways and Airfields" contains the following information: graduate qualification, form and duration of study, scope and characteristics of graduates' professional activities, and a complete list of competencies to be acquired by the graduate upon completion of the given program. The disciplines of the curriculum under review form the full range of general cultural and professional competencies provided by the State Educational Standards for the relevant types of activity. The curriculum of the educational program defines the list of all mandatory and elective disciplines, the workload of each discipline in credits, the sequence of their study, types of training sessions, and forms of assessment. The Catalogue of Elective Disciplines and the Catalogue of Intra-University Component fully reflect the continuity of the disciplines: Surveying and Design of Highways; Technology of Highway Construction; Operation of Highways; Diagnostics of Highways. The sequence of study of the disciplines has been observed; the disciplines necessary for production and technological processes are included.

The content of the syllabi of academic disciplines and internships allows us to conclude that it corresponds to the competence model of the graduate. The educational program provides for professional practical training of students in the form of internships. The content of the internship programs demonstrates their ability to form practical skills of students. The development of the educational program involved experienced faculty members, leading representatives of employers, and students, and their requirements were taken into account in the formation of the professional cycle disciplines.

Conclusion: In general, the reviewed educational program meets the main requirements of the State Educational Standards, the national qualifications framework, the sectoral qualifications framework, professional standards, and the Atlas of New Professions, and contributes to the formation of general cultural and professional competencies in the field of study "6B07348–Construction of Highways and Airfields."

**Reviewer Associate Professor,
Department "TSiU"KazADI
named after L.B.Goncharov**



Abiev B.A.

12.LETTERS OF RECOMMENDATION

Уважаемый (ая) Меруерт Советовна!

Руководство «АО КазДорНИИ» в лице Ерембаев О.М. ознакомилось с содержанием образовательной программы «6B07348 – Строительство автомобильных дорог и аэродромов» и внесло следующие рекомендации:

- включить в содержание образовательной программы дисциплины: с автомобильными дорогами,

- 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 транспортно-коммуникационной сфере. Предлагается включить следующие дисциплины Изыскание и проектирование автомобильных дорог;

Технология автомобильно-дорожного строительства; Эксплуатация автомобильных дорог, Реконструкция автомобильных дорог.

- увеличить количество часов, выделяемых на проведение производственных практик; включить дисциплины:

- изыскание и проектирование автомобильных дорог;

- технология автомобильно-дорожного строительства;

- эксплуатация автомобильных дорог;

- реконструкция автомобильных дорог.

Директор Алматинского филиала «АО КазДорНИИ»



Ерембаев О.М.

13. PROTOCOLS OF REVIEW AND APPROVAL

Academy of Logistics and Transport

PROTOCOL No. 7

Meetings

Des akademischen Ausschusses für das Bildungsprogramm und der führenden Lehrer des Lehrstuhls "Architektonisch-Bauingenieurwesen»

city of Almaty

"18"02. 2025 year

Chairman: Kulmanov K.S.

Secretary: Begezhanova G.S.

Attended by: Head of the Department of "ASI" Ph.D., Assoc.Professor Kulmanov K.S., Candidate of Technical Sciences, associate professors: Bondar I.S., Espayeva G.A., Tursumbekova H.S., Candidate of Technical Sciences, assistant. professors; Dyusengalieva T.M., Uteshbaeva A.A., Dzhaksenbaev E.K., Murzalina G.B., Dzhumagaliev T.K., senior lecturers; Zhigitbaeva B.E., Suleimenov I.T., Kalpenova Z.D., Karimova M.B.

Representatives from the production: Apple Build Project LLP, Chief engineer Kurmanbekov Zh.K., Director of the Almaty branch of KazdorNII Yerembaev U.M., Saulet-SKB LLP, Director Oshanov A.E., Kazakh Promtransproekt LLP, Chief engineer Musaev M.T.

AGENDA:

1. Consideration of the graduate's competence model
2. Consideration of the possibility of including disciplines in QED and RUP

MADE A SPEECH:

The head of the department, K.S. Kulmanov, proposed to consider the graduate's competence model at 3 levels of education: bachelor's degree, master's degree, doctoral degree.

PERFORMED:

Representative of employers: Yerembaev O.M. who proposed, due to the specifics of their organization, to reflect the following in the objects of professional activity: Modern innovative technologies in the transport and communication sphere

THE SPEAKER was:

Member of the department Tursumbekova H.S. who proposed to approve

After reviewing the graduate's competence model, it was proposed to approve this Model for 3 levels of education.

THEY DECIDED:

- provide a graduate's competence model for 3 levels of education: Bachelor's degree, Master's degree, doctoral degree for consideration and approval by the Council of the Institute of Transport and Construction.

On the second question

MADE BY: Head of the department K.S. Kulmanov with a proposal to hear representatives of employers and trainees on the inclusion of new disciplines in the CAD and RUP of admission in 2025.

MADE BY: representative of employers of «Apple Build Project» LLP, chief engineer Kurmanbekov Zh.K.

Organizations are interested in specialists with a good level of training and knowledge in the field of design and construction of highways. We are making proposals to include the following demanded disciplines in the RUP: Underground and aboveground tracks: innovations in bridge

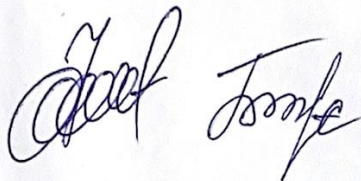
construction and tunneling"; Automation and mechanization in the construction of urban roads; Safety and innovation in urban infrastructure; Quality control of road construction works.

We consider it necessary to include the following disciplines in the RUP: Underground and aboveground tracks: innovations in bridge construction and tunneling; Automation and mechanization in the construction of urban roads; Safety and innovation in urban infrastructure; Quality control of road construction works.

THEY DECIDED:

1. Take the information into consideration;
2. Take into account the suggestions and recommendations of employers and students;
3. Consider the inclusion in the RUP of the following disciplines: Underground and aboveground tracks: innovations in bridge construction and tunneling"; Automation and mechanization in the construction of urban roads; Safety and innovation in urban infrastructure; Quality control of road construction works.

Chairman:
Secretary:

The image shows two handwritten signatures in blue ink. The signature on the left is more stylized and cursive, while the one on the right is also cursive but appears slightly more legible. They are positioned between the labels 'Chairman:' and 'Secretary:' and the printed names.

Kulmanov K.S.
Begezhanova G.S.

**MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF KAZAKHSTAN
JSC "ALT UNIVERSITY NAMED AFTER MUKHAMEDZHAN TYNYSHPAYEV"
INSTITUTE OF TRANSPORT AND CONSTRUCTION**

**EXTRACT from the Protocol No. 8
of the extraordinary meeting of the Educational and Methodological Bureau (UMB)
of the Institute of Transport and Construction
in Almaty on March 17, 2025.**

Chairman: Abdreshov S.A.

Secretary: Murzalina G.B.

Were present: Abdreshov Sh.A., Apple Build Project LLP, Chief engineer Kurmanbekov Zh.K., Director of the Almaty branch of KazdorNII Yerembaev U.M., Saulet-SKB LLP, Director Oshanov A.E., Kazakh Promtransproekt LLP, Chief engineer Musaev M.T., Murzalina G.B.
Students: Koishybai A.A.

AGENDA:

1. Discussion of new educational programs for the 2025-26 academic year.

On the issue

WE LISTENED TO: the director of ITiS, Sh.A. Abdreshov, who proposed to consider the following sections of educational programs for admission in 2025: the graduate's competence model and educational program passports, as well as work curricula, catalogs of the university component (CVK) and catalogs of elective disciplines (CED).

PERFORMED:

1) The head of the department, K.S. Kulmanov, who presented for consideration the sections of the new educational program "6b07348-construction of highways and airfields for admission in 2025: the graduate's competence model, the passport of the educational program, as well as the working curriculum, the catalog of the university component (CVK) and the catalog of elective disciplines (CED).

In connection with the opening of a new group of educational programs B126 – "Transport Construction", the materials submitted for consideration were developed. A meeting of the Academic Committee on Educational Programs and leading teachers of the department was held at the Department of Architectural and Construction Engineering with the involvement of representatives of employers and students to discuss the structure and content of the new educational program. Following the discussion, a positive decision was made to approve them.

The presented materials were developed with the participation of employers, students and graduates, taking into account the requirements of regulatory legal acts. The working curriculum and CED for admission in 2025 have been drawn up and agreed with employers.

THEY DECIDED:

1. To approve the presented new educational program "6b07348-construction of highways and airfields for admission in 2025, including the Graduate's Competence Model, QED, QVC, work curriculum and educational program passport.

2. Submit these documents for consideration and approval by the Academic Council of the Academy.

**Chairman of UMB ITiS
Secretary of UMB ITiS**



**Abdreshov S.A.
Murzalina G.B.**

No	Full name	Place of work/study	Post	Date of approval	Signature
	Овчинникова И.З.	ИГУ С	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ Б	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ В	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ Д	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ Е	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ Ж	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ З	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ И	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ К	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ Л	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ М	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ Н	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ О	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ П	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ Р	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ С	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ Т	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ У	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ Ф	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ Х	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ Ц	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ Ч	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ Ш	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ Щ	директор	18.02.2015 г.	[Signature]
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	Овчинникова И.З.	ИГУ Ь	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ Э	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ Ю	директор	18.02.2015 г.	[Signature]
	Овчинникова И.З.	ИГУ Я	директор	18.02.2015 г.	[Signature]

14. APPROVAL SHEET

No	Full name	Place of work/study	Post	Date of approval	Signature
	Байрашева Н.З.	ИТУ С	директор	18.02.2015 г.	[Signature]
	Дайраев К.Ж.	ИЛУ Б	директор	18.02.2015 г.	[Signature]
	Ташмуратова А.	ИХСТ	директор	18.02.2015 г.	[Signature]
	Абдурашимова У.	АЛТ University	Head of depart	18.02.2015 г.	[Signature]
	Ахматов Р.С.	ДУТ University	Head of Dept.	18.02.2015 г.	[Signature]
	Касымов Д.Т.	ИХТ University	Head of Depart	18.02.2015 г.	[Signature]
	Смаилова Б.И.	АЛТ University	Head of LE depart.	18.02.2015 г.	[Signature]
	Мусаева Р.Р.	АЛТ Универс.	зав. каф. ИУП	18.02.2015 г.	[Signature]
	Толибаев А.Э.	АЛТ Универс.	зав. кафедрой ИУП	18.02.2015 г.	[Signature]
	Каримжанов К.И.	каф. ИУ	зав. каф.	18.02.2015 г.	[Signature]
	Куменов К.С.	каф. ИСИ	зав. каф.	18.02.2015 г.	[Signature]
	Капарович Г.Б.	каф. ИСИ	зав. каф.	18.02.2015 г.	[Signature]

15. CHANGES REGISTRATION SHEET

№	Section, paragra ph of the docume nt	Type of change (replace, cancel, add)	Number and date of notification	Change made	
				Date	Surname and initials, signature, position