Joint Stock Company Academy of Logistics and Transport

APPROVE
US ALT decision dated
" 03 " 2023 (Protocol №13)
President-Rector
Amirgalieva S.N.

EDUCATIONAL PROGRAM

Name: "6B07322 - Construction of oil and gas facilities"

Level of training: bachelor's degree

Code and classification of areas of study: 6B073-Architecture and construction
Code and group of educational programs: B074 - Urban planning, construction work and civil engineering

Date of registration in the Register: 28.05.2021

Registration number: 6B07300165

Almaty, 2023

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

1 DEVELOPED BY:

Assistant Professor *(position)*	*(signature)*	Jeksenbaev E.K. (Full name)
Director of Scientific and Innovation Center LLP *(position)*	*(signature)*	Smashov N.Zh. *(Full name)*
Associate Professor *(position)*	*(signature)*	Ibragimov A.K. (Full name)
Associate Professor *(position)*	*(signature)*	Alimkulov M.M. (Full name)
Student gr.LT-21-1 *(position)*	*(signature)*	Amanzholov K. (Full name)

2 EXPERTS

Chief Technologist of JSC "Volkovgeologiya"	*(signature)*	Kudabaev B.A. (Full name)
Advisor to the Chairman of the Board of JSC "Volkovgeologiya" *(position)*	*(signature)*	Asanov N. S. (Full name)

3 REVIEWER:

Candidate of Technical Sciences, Professor, Dean of the School of Energy and Oil and Gas Power Engineering of KBTU JSC	*(signature)*	Ismailov A.A. (Full name)

4 REVIEWED AND RECOMMENDED:

Meeting of the AK (Department) "SI" *Protocol №6 "15" 03 2023 d)*	*(signature)*	Ismagulova S.O. (Full name)
Meeting of the COC-UMB "TI" *Protocol №7 "15" 03 2023 d)*	*(signature)*	T.O. Chigambayev (Full name)
EMC meeting *Protocol №10.03 29 2023 d)*	*(signature)*	Zharmagambetov M.S. (Full name)

5 APPROVED by the decision of the Academic Council of "30" 03 2023 G. No.13

6 UPDATED ON 04/28/2023

2. NORMATIVE REFERENCES

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

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

3.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.

4.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 No. 3.

5. State mandatory standard of higher and Postgraduate education (Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated February 20, 2023 No. 66).

6. 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.

7. Rules organization of the educational process on credit technology of education in organizations of higher and (or) postgraduate education, 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 April 04, 2023 No. 145).

8. Classifier of training areas with higher and postgraduate education, approved by 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).

9. 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 No. 665 (with additions and amendments as of December 23, 2020 No. 536).

10. RI-ALT-33 "Regulations on the procedure for development educational programs of higher and postgraduate education".

3. PASSPORT OF THE EDUCATIONAL PROGRAM

№	Field name	Note
1	Registration number	6B07300165
2	Code and classification of the field of education	*6B07 Инженерные, обрабатывающие и строительные отрасли*
3	Code and classification of training areas	*6B073–Архитектура и строительство*
4	Code and group of the educational program (OP)	*B074 - Градостроительство строительные работы и гражданское строительство*
5	Name of the educational program (OP)	"6B07322 - Construction of oil and gas facilities"
6	Type of educational program (OP)	New EP
7	The purpose of the educational program (OP)	Training of personnel with professional competencies for the oil and gas industry, which take into account the increasing requirements for the quality of specialists in the field of design, construction, maintenance and repair of oil and gas facilities.
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	Form of training	Full-time, full-time with the use of DOT
13	Language of instruction	Kazakh, Russian
14	Volume of loans	240
15	Academic degree awarded	*Bachelor of Engineering and Technology in the educational program "6B07322.B - Construction of oil and gas facilities"*
16	Availability of an application to the license for the direction of personnel training	*KZ12LAA00025205 (005)*
17	Availability of EP accreditation	
	Name of the accreditation body	
	Validity of accreditation	

4. THE GRADUATE'S COMPETENCE MODEL

The purpose of the educational program: Training of personnel in demand in the labor market for the road industry for the operation of transport facilities, with innovative and professional competencies and skills to solve current and production problems.

Objectives of the educational program:

1. Formation of a person capable of professional activity to participate in the survey and design of highways and airfields, in the organization of works on the production of road-building materials, in the organization of works on the construction of highways and airfields, in the operation of highways and airfields.
2. Formation of the ability to carry out work on the continuation of the route on the ground and the restoration of the route in accordance with the project documentation; to maintain and execute the documentation of the survey party.
3. Formation of the ability: to design a route plan, longitudinal and transverse road profiles; to make technical and economic comparisons; to use modern computer equipment; to use personal computers and programs for them for the design of highways and airfields; to draw up design documentation; to navigate the main stages of preparing the field for development.
4. Formation of the ability to: reasonably choose the working schemes of mining equipment; establish the technological sequence of preparation of asphalt concrete, cement concrete and other mixtures according to the schemes; build, maintain and repair highways and airfields, independently form tasks and determine ways to solve them within professional competence; work with regulatory documents, standard design and technological documentation; use modern information technology;
5. Assistance in the formation of a graduate's readiness to: assess and analyze the condition of highways, airfields and their structures; develop a technological sequence of processes for the maintenance of various types of coatings and elements of road and airfield construction; perform calculations of the need for snow removal machines from highways and airfields and the distribution of deicing materials on them; develop a technological sequence of processes.
6. Formation of graduates' readiness to determine the types of work to be accepted and assess the quality of repair and maintenance, highways and airfields.
7. Assistance in the formation of graduates' readiness for the economical and safe use of natural resources, energy and materials in the design, construction, survey and design of highways and airfields

Area of professional activity: Oil and gas industry:

Learning Outcomes

LO1- Demonstrate knowledge of mathematical and physical methods, measurement of electrical quantities during the operation of transport infrastructure facilities.

LO2 - To evaluate the stability, reliability and durability of transport structures based on the theorems and controls of the movement of the mechanical system, hypotheses and strength criteria.

LO3 - Classify building structures of pipes and passages for work in various geological conditions and soils, stable foundations and foundations with the selection of necessary building materials for their intended purpose and properties, knowing the basics of oil and gas business.

LO4 - To develop a project of topographic survey of the object using the basics of geodesy, geoinformatics, design of transport infrastructure and information and communication technologies with the addition of these skills in the process of practice for use during the design of transport facilities.

LO5 - To argue solutions to problems of labor protection and preservation of the ecosystem of the environment, in accordance with the legislative framework of the Republic of Kazakhstan and international requirements, using resource-saving technologies in the construction of transport facilities.

LO6 - To select data from theoretical economic knowledge for the development of new economic analysis using models and patterns of economic science, for structuring data and building interactive dashboards, models of technology VI, with the help of time resource management.

LO7 - To prepare technologies for the construction of oil and gas facilities of new and operated pipelines using modern methods and materials, with the organization and general layout of objects of transport facilities.

LO8 - To compare construction machines and equipment, their productivity, the availability of a fleet, for the mechanization and mechanization of pipeline construction during maintenance and repair of oil and gas storage facilities with the consolidation of theoretical knowledge during practice in the branches of the department.

LO9 - To justify geological survey work in the design of oil and gas pipeline systems, for further activities in the field of oil and gas transportation, construction of logistics systems, using scientific research methods, with the submission of documentation in the state, Russian and English languages (at the request of the customer) in compliance with the basics of law and anti-corruption legislation.

LO10 - To design modern oil and gas pipelines and oil and gas storage facilities, gas tanks and oil depots with the justification of the housing size devices, the design according to the volume of transportation and storage of oil and gas, accounting and prevention of loss of products and laying of pipelines.

LO11 - Manage socio-humanitarian, moral and physical processes for effective teamwork and leadership of a team of like-minded people, for the formation of corporate culture, for solving tasks in the field of maintenance and repair of oil and gas pipelines aimed at professional growth.

design, repair, maintenance of linear pipelines.

Objects of professional activity:

- local executive authorities in the oil and gas industry and their regional structures;
- organizations and enterprises of the oil and gas industry in the field of design, repair, maintenance of linear pipelines;
- 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;
- service and operational;
- project.

Functions of professional activity:
1) Organization of manufacturing materials and structures for transport and communication facilities; organization of design, maintenance and repair of linear pipelines; use of standard methods for calculating the reliability of linear pipeline structures.
2) Management of production processes, analysis of the results of production activities; management of works on the implementation of design and maintenance, repair of linear pipelines; technical diagnostics of oil and gas facilities, the use of measuring instruments; analysis and evaluation of production and non-production costs or resources for high-quality design, repair, maintenance of linear pipelines.
3) Development of new technologies, development of design and technological documentation using computer technology; calculation of strength and stability in various linear pipelines, development of projects for new and reconstruction (modernization) of existing linear pipelines; selection of materials for the manufacture of linear pipeline structures, justification of technical solutions; development of technical specifications and technical conditions for projects of new and reconstruction (modernization) of existing linear pipelines, linear pipeline structures, technological processes of maintenance and repair of linear pipelines, design of new linear pipeline structures 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, site foreman, construction foreman, 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, environmental engineer (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,

Professional certificates obtained at the end of training: Pipeline installer, welder**.**

Requirements for the previous level of education: Secondary education, post-secondary education, technical and vocational education, higher education.

In the course of training, students undergo various types of professional practice:
- educational;
- production;

- production (pre-graduate).

Educational practice (geodetic)

The organization of educational practice is aimed at providing bachelors with familiarization with the fields of professional activity and training profiles, with the ability of geodetic survey of the terrain, forward and reverse, leveling survey, reference to reference points, removal of points and elevations from the map, solving typical engineering and geodetic tasks, as well as departure to the branch of the department on the basis of LLP "Saulet SKB". The form of control is the protection of the report.

Production practice 1.

The main objectives of industrial practice are: consolidation of theoretical knowledge and practical skills in the chosen educational program in production conditions, acquisition of organizational work experience, obtaining a working specialty, formation of practical skills and competencies in the process of mastering the bachelor's program. It is conducted in the practice bases at enterprises according to this educational program. The form of control is the protection of the report.

Pre-graduate/industrial practice 2.

The purpose of the practice for bachelors is to ensure the relationship between the theoretical knowledge gained during the assimilation of the chosen educational program and practical activities. The objectives of this practice are to consolidate and deepen the theoretical knowledge gained by students in the learning process, to collect information for writing a final qualifying work, to study best practices at the enterprise, as well as to gain experience in independent research work, mastering various methods of scientific work. It is conducted in the practice bases at enterprises according to this educational program. The form of control is the protection of the report.

Final certification

The objectives of the thesis are to identify the degree of assimilation of the content of the educational program by the bachelor, to check his readiness for independent activity in the direction of the educational program, to consolidate and deepen practical work skills. It also provides for the passing of a comprehensive exam.

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

№	Наименование дисциплины	Кол-во кредитов	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10	LO11
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	History of Kazakhstan	5											+
2	Philosophy	5											+
3	Foreign language	10									+		
4	Kazakh (Russian) language	10									+		
5	Information and communication technologies	5				+							
Socio-political knowledge module		8											+
6	Sociology	2											+
7	Cultural studies	2											+
8	Political Science	2											+
9	Psychology	2											+
10	Physical Culture	8											+
11	Ecology and life safety	5					+						
12	Methods of scientific research	5									+		
13	Fundamentals of law and anti-corruption culture	5									+		
14	Fundamentals of Economics and Entrepreneurship	5						+					
15	Engineering Mathematics	9	+										
16	Applied Physics	9	+										
17	Fundamentals of computer modeling	6				+							
18	Building materials	6			+								
19	Geology, soil mechanics, foundations and foundations	6			+								
20	Building structures	6			+								
21	Labor protection	6					+						
22	Electrical engineering and the basics of electronics	6	+										
23	Educational practice (geodetic)	2				+							
24	Theoretical mechanics	6		+									
25	Engineering Mechanics 1	6		+									
26	Resistance of materials	6		+									
27	Engineering Mechanics 2	6		+									
28	Construction mechanics	6		+									
29	Engineering Mechanics 3	6		+									
30	Engineering geodesy	6				+							
31	Fundamentals of geoinformatics	6				+							
32	Fundamentals of design of transport facilities	6				+							
33	Introduction to the design of transport infrastructure	6				+							

	facilities												
34	Fundamentals of oil and gas business	9			+								
35	Mechanization of pipeline construction	6								+			
36	Machinery and equipment for construction and repair of oil and gas facilities	9								+			
37	Oil and gas pipelines	9										+	
38	Oil and gas storage facilities	6										+	
39	Designing of oil and gas pipeline systems	9									+		
40	Maintenance and repair of oil and gas pipelines	9											+
41	Maintenance and repair of oil and gas storage facilities	9								+			
42	Production practice 1									+			
43	Production practice 2									+			
44	Technology of construction of oil and gas facilities	6							+				
45	Pipeline construction technology	6							+				
46	Organization of construction of transport infrastructure facilities	6							+				
47	Organization and planning of construction of transport facilities	6							+				
48	Design of oil and gas storage facilities											+	
49	Design of oil depots and gas tanks	6										+	
50	Managerial Economics (Minor)	3						+					
51	Transport Logistics (Minor)	3									+		
52	Resource conservation in transport (Minor)	3					+						
53	Time Management (Minor)	3						+					
54	Digital diagnostics of construction objects	3								+			
55	Power BI Business Analytics (Minor)	3						+					
56	FINAL CERTIFICATION	8	+	+	+	+	+	+	+	+	+	+	+
57	Volunteering	1											
58	Financial literacy	3											

6. THE STRUCTURE OF THE EDUCATIONAL PROGRAM OF THE BACHELOR'S DEGREE

№ 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. WORKING CURRICULUM FOR THE ENTIRE PERIOD OF STUDY

JSC "Academy of Logistics and Transport"

CURRICULUM

APPROVED
By the decision of the AL T Academic Council
from "30" 03 2023 d. Protocol no. 13
Chairman of the Academic Council
S. N. Amirgalieva

Form of study: full-time

Training area:
6B073-Architecture and Construction

Group of educational programs:
B074-Urban planning, construction projects works and civil engineering

Duration of training: 4 years

Name of the educational program:
6B07322-Construction oil and gas facilities

Admission: 2023

Degree: *Bachelor of Engineering and Technology*

№	Disciple code	Name of cycles and disciplines	Total labor intensity		Form of control, semester		Amount of training load, contact hours						Distribution by semester									Assignment to the department
								Classroom settings			SRO		1st course		2nd course		3rd year		4th year			
			in academic hours	in academic credits	Exam	KP (KR)	Total hours	lectures	practical features	laboratory data	SROP	SRO	1 sem. 15 weeks	2 sem. 15 weeks	3 sem. 15 weeks	4 sem. 15 weeks	5 sem. 15 weeks	6 sem. 15 weeks	7 sem. 15 weeks	8 sem. 7 weeks	9 sem. 8 weeks	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1.	CYCLE OF GENERAL EDUCATION SUBJECTS (OED):																					
1.1.	Required component:		1530	51	13		1530	120	358	15	120	917	21	16	7	7	0	0	0	0	0	
1.1.1.	23-0-B-OK-IK	History of Kazakhstan	150	5	3		150	30	15		8	97			5							SRSiFV
1.1.2.	23-0-B-OK-Fil	Philosophy	150	5	4		150	30	15		8	97				5						SRSiFV
1.1.3.	23-0-B-OK-IYa	Foreign language	300	10	1,2		300		90		16	194	5	5								YAP
1.1.4.	23-0-B-OK-K(R)Ya	Kazakh (Russian) language	300	10	1,2		300		90		16	194	5	5								YAP
1.1.5.	23-0-B-OK-IKT	Information and communication technologies	150	5	1		150	30		15	8	97	5									ICTs
1.1.6.		Socio-political knowledge module:	240	8	1,2		240															
	23-0-B-OK-Sotz	Sociology						7	15		8	30		4								SRSiFV
	23-0-B-OK-Kul	Cultural Studies						8	15		8	29										SRSiFV
	23-0-B-OK-Pol	Political Science						7	15		8	30	4									SRSiFV
	23-0-B-OK-Psi	Psychology						8	15		8	29										SRSiFV
1.1.7.	23-0-B-OK-FK	Physical Culture	240	8	1,2, 3,4		240		88		32	120	2	2	2	2						SRSiFV
1.2.	Component of your choice:		150	5	1	0	150	30	15	0	8	97	0	0	5	0	0	0	0	0	0	
		Module of a component for choosing a DSO:																				
1.2.1.	23-0-B-KV-EBGD	Ecology and life safety	150	5	3		150	30	15		8	97			5							ATSIBZHD
	23-0-B-KV-MNI	Methods of scientific research																				SRSiFV
	23-0-B-KV-OEiP	Fundamentals of economics and entrepreneurship																				LMT
	23-0-KV-OPAK	Fundamentals of law and anti-corruption culture																				SRSiFV
	TOTAL for the OOD cycle:		1680	56	14	0	1680	150	373	15	128	1014	21	16	12	7	0	0	0	0	0	
2.	CYCLE OF BASIC DISCIPLINES (DB):																					
2.1.	University component:		1680	56	9		1680	270	195	75	64	1016	9	15	6	2	6	12	6	0	0	
2.1.1.	23-0-B-VK-IM	Engineering Mathematics	270	9	2		270	45	45		8	172		9								OI
2.1.2.	23-0-B-VK-PF	Applied Physics	270	9	1		270	45	30	15	8	172	9									OI
2.1.3.	23-0-B-VK-OKM	Fundamentals of computer modeling	180	6	2		180	30	30		8	112		6								ICTs
2.1.4.	23-0-B-VK-StrMat	Building materials	180	6	3		180	30	15	15	8	112			6							Si
2.1.5.	23-0-B-VK-GMGOF	Geology, soil mechanics, foundations and foundations	180	6	5		180	30	15	15	8	112					6					Si
2.1.6.	23-0-B-VK-SK	Building structures	180	6	6		180	30	30		8	112						6				Si
2.1.7.	23-0-B-VK-EOE	Electrical engineering and basic electronics	180	6	6		180	30	15	15	8	112						6				E
2.1.8.	23-0-B-VK-OT	Labor protection	180	6	7		180	30	15	15	8	112							6			ATSIBZHD
2.1.9.	23-0-B-VK-UPr(g)	Training practice *(geodesic)*	60	2	4		60									2						Si
2.2.	Component of your choice:		1080	36	6		1080	150	150	60	48	672	0	0	12	12	12	0	0	0	0	
2.2.1.	23-0-B-VK/KV-TMeh	Theoretical mechanics	180	6	3		180	30	30		8	112			6							Si
	23-0-B-KV-IMeh1	Engineering mechanics 1																				
2.2.2.	23-0-B-KV-SMat	Material resistance	180	6	4		180	15	30	15	8	112				6						Si
	23-0-B-KV-IMeh2	Engineering mechanics 2																				

2.2.3.	23-0-B-KV-SMeh	Construction mechanics	180	6	5		180	30	30		8	112					6					si
	23-0-B-KV-IMeh3	Engineering mechanics 3																				
2.2.4.	23-0-B-KV-IGeod	Engineering geodesy	180	6	3		180	30	15	15	8	112			6							si
	23-0-B-KV-OGi	Fundamentals of geoinformatics																				
2.2.5.	23-0-B-KV-OPTS	Basics of designing transport structures	180	6	4		180	15	15	30	8	112				6						si
	23-0-B-KV-VPOTIs	Introduction to the design of transport infrastructure facilities																				
2.2.6.	23-22-B-KV-MOSRNGS	Machinery and equipment for construction and repair of oil and gas facilities	180	6	5		180	30	30		8	112					6					ATSIBZHD
	23-22-B-KV-MTpS	Mechanization of pipeline construction																				
	TOTAL by DB cycle:		2760	92	15	0	2760	420	345	135	112	1688	9	15	18	14	18	12	6	0	0	
3.	CYCLE OF PROFILE DISCIPLINES (PD):																					
3.1.	University component:		1740	58	8		1740	255	255	0	48	972	0	0	0	9	9	9	18	9	4	
3.1.1.	23-22-IN-VK-ONGD	Fundamentals of oil and gas business	270	9	4		270	45	45		8	172				9						si
3.1.2.	23-22-B-VK-NGp	Oil and gas pipelines	270	9	5		270	45	45		8	172					9					si
3.1.3.	23-22-B-VK-GHh	Oil and gas storage facilities	180	6	6		180	30	30		8	112						6				si
3.1.4.	23-22-IN-VK-PNGS	Design of oil and gas pipeline systems	270	9	7		270	45	45		8	172							9			si
3.1.5.	23-22-B-VK-TORNGp	Maintenance and repair of oil and gas pipelines	270	9	7		270	45	45		8	172							9			si
3.1.6.	23-22-B-VK-TORNGh	Maintenance and repair of oil and gas storage facilities	270	9	8		270	45	45		8	172								9		si
3.1.7.	23-0-B-VK-PPr1	Production practice 1	90	3	6		90											3				si
3.1.8.	23-0-B-VK-PPr2	Production practice 2	120	4	9		120														4	si
3.2.	Component of your choice:		810	27	6	0	810	135	135	0	48	492	0	0	0	0	3	9	9	6	0	
3.2.1.	23-22-B-KV-TSNGS	Technology of construction of oil and gas facilities	180	6	6		180	30	30		8	112						6				si
	23-22-B-KV-TTpS	Pipeline construction technology																				
3.2.2.	23-0-B-KV-OSOTIs	Organization of construction of transport infrastructure facilities	180	6	7		180	30	30		8	112							6			si
	23-0-B-KV-OPSTS	Organization and planning of construction of transport structures																				
3.2.3.	23-22-B-KV-PNhGh	Design of oil and gas storage facilities	180	6	8		180	30	30		8	112								6		si
	23-22-B-KV-PNbGg	Design of tank farms and gas tanks																				
Minor program 1 "Resource Management"																						
3.2.4.	23-0-B-UE	Managerial economics	90	3	5		90	15	15		8	52					3					LMT
3.2.5.	23-0-B-TL	Transport logistics	90	3	6		90	15	15		8	52						3				LMT
3.2.6.	23-0-B-RT	Resource saving in transport	90	3	7		90	15	15		8	52							3			ps
Minor program 2 "Digital competencies"																						
3.2.4.	23-0-B-TM	Time management	90	3	5		90	15	15		8	52					3					LMT
3.2.5.	23-0-B-TsDOS	Digital diagnostics of construction sites	90	3	6		90	15	15		8	52						3				si
3.2.6.	23-0-B-BAPBI	Power BI Business Intelligence	90	3	7		90	15	15		8	52							3			ICTs
	TOTAL for the PD cycle:		2550	85	14	0	2550	390	390	0	96	1464	0	0	0	9	12	18	27	15	4	
	TOTAL FOR THE THEORETICAL COURSE OF STUDY (MSW):		6990	233	43	0	6990	960	1108	150	336	4166	30	31	30	30	30	30	33	15	4	
4.	23-0-B-VK-IA	FINAL CERTIFICATION	240	8																	8	si
	TOTAL FOR THE ENTIRE TRAINING PERIOD:		7230	241									30	31	30	30	30	30	33	15	12	
5.	ADDITIONAL TYPES OF TRAINING (DVE):																					
5.1.	23-0-B-DVO-V	Volunteering	30	1	1		30		10		8	12	1									si
5.2.	23-0-B-DVO-FG	Financial literacy	90	3	3		90	15	15		8	52			3							LMT

AGREED:

Vice-Rector for AD _____ Zharmagambetova M. S.

DAPC Director _____ Lipskaya M. A.

DEVELOPED BY:

Director of the TI Institute _____ Chigambaev T. O.

Head of the Department "SI" _____ Ismagulova S. O.

8.CATALOG OF DISCIPLINES OF THE UNIVERSITY COMPONENT
EDUCATIONAL PROGRAM
"6B07322 – Construction of oil and gas facilities"
Education level: Bachelor's degree Duration of study: 4 years Admission year: 2023

Cycle	Component	Name of the discipline	Total labor intensity		Term	Learning outcomes	Brief description of the discipline	Prerequisites	Post-requirements
			academic hours	academic hours					
1	2	3	4	5	6	7	8	9	10
DB	VK	Engineering Mathematics	270	9	2		Mastering the mathematical apparatus for solving theoretical and applied problems of a specific profile, getting an idea of mathematical modeling and interpretation of the solutions obtained. The questions of linear algebra, analytical geometry, mathematical analysis, differential equations, series theory are considered. Calculation and graphic work is performed within the discipline. Methods of active learning – teamwork, "brainstorming".	Basic school knowledge in mathematics	Applied Physics
DB	VK	Applied Physics	270	9	1		Formation of students' skills and abilities when using fundamental laws, theories of classical and modern physics, as well as methods of physical research, thinking, scientific worldview, with independent cognitive activity, to be able to model physical situations using computer technology and ideas about the modern natural science picture of the world. Calculation and graphic work is performed within the discipline. Laboratory work is performed on the Coursera platform. Methods of active learning – teamwork, "brainstorming".	Basic school knowledge in mathematics	Engineering mathematics, Fundamentals of computer modeling.
DB	VK	Fundamentals of computer modeling	180	6	2		Competencies are formed on the purpose of modeling tools, technical and software tools, as well as in the development of object models for various purposes, as well as programming languages Python, Java, etc.	Basic school knowledge in mathematics	Fundamentals of transport ecology, Labor protection

							Within the framework of the discipline, interactive teaching methods, computational and analytical method, case-task method, game methods are used		
DB	VK	Building materials	180	6	3		Forms basic knowledge about the types of building materials, methods of their production, properties and applications of various building materials, familiarization with standard methods of testing building materials and determining their properties, standardization of requirements for building materials depending on the conditions of their use. Within the framework of the discipline, interactive teaching methods, case studies, and discussion are used.	Ecology and life safety. Fundamentals of transport ecology	Geology and mechanics of soils, foundations and foundations
DB	VK	Geology, soil mechanics, foundations and foundations	180	6	5		To form the necessary set of knowledge about engineering-geological processes and phenomena, properties of soils, defects arising from the joint work of soils, foundations and foundations, stressed conditions of the soils of the foundations, principles of the work of structures on modern field and laboratory installations and devices, to solve geotechnical problems, about the general laws and principles of the construction of structures. Guest lectures, calculation and analytical method are used.	Engineering Mathematics, Applied Physics	Engineering mechanics 1,2,3,Resistance of materials
DB	VK	Building structures	180	6	7		Forms basic knowledge of calculation and construction of load-bearing structures using computer technologies (Excel, AutoCAD, Revit). Also, to teach how to choose the right materials, the shape of sections, the design scheme of the structure, based on the purpose and purpose of operation, to develop constructive solutions for newly erected or reinforced transport structures. Within the framework of the discipline, interactive teaching methods, the computational and graphical method are used.	Engineering Mathematics, Applied Physics	Engineering mechanics, Labor protection, Maintenance and repair of oil and gas storage facilities, Design of tank farms and gas tanks, Design of oil and gas storage facilities
		Electrical	180	6	6		Studies electrical circuits of direct, alternating and three-	Engineering	Engineering

DB	VK	engineering and the basics of electronics					phase currents, the principle of operation, purpose and rules of operation of a transformer and electrical machines, methods of measuring electrical quantities, the use of semiconductor diodes in rectification circuits and logic elements. As a result of studying the discipline, students should be able to apply the basic laws and ratios of electrical circuits, read electrical and electronic circuits, understand the purpose of the main components of electrical equipment and electronic circuits, evaluate the accuracy of measurement tools and results, and carry out verification of electrical measuring devices. Within the framework of the discipline, interactive teaching methods, computational and analytical method, and the method of case tasks are used.	Mathematics, Applied Physics	mechanics, Labor protection, Maintenance and repair of oil and gas storage facilities, Design of tank farms and gas tanks, Design of oil and gas storage facilities
DB	VK	Labor protection	180	6	7		Training of specialists on the theoretical and practical foundations of safety, harmlessness and facilitation of working conditions at its maximum productivity, on the legislative and regulatory framework in the field of labor protection. Teaching methods - analysis of specific situations (case-study), group discussions.	Engineering Mathematics, Applied Physics,Theoretical Mechanics, Building Materials	Engineering mechanics 1,2,3, Geology and mechanics of soils, Design of oil depots and gas tanks, Design of oil and gas storage facilities.
DB	VK	Educational practice (geodetic)	60	2	4		Educational practice (geodesic) The organization of educational practice is aimed at providing bachelors with familiarization with the fields of professional activity and training profiles, with the ability to geodetic survey of the terrain, forward and reverse, leveling survey, reference to reference points, removal of points and elevations from the map, solving typical engineering and geodetic tasks.	Engineering Mathematics, Applied Physics, Fundamentals of computer modeling, Building materials, Geology, soil mechanics, foundations and foundations.	Production practice 1, Production practice 2.

PD	VK	Fundamentals of oil and gas business	270	9	4		Studies the basics of oil and gas business, search, exploration and development of oil and gas facilities, collection, storage and transportation of hydrocarbons, injection of surface and underground water, well maintenance and repair, oil and gas geology, well construction, design, development and operation of oil and gas fields. Students will use this data in the design, construction and operation of oil and gas pipelines. The form of assessment is an oral exam.	Engineering geodesy, Fundamentals of Geoinformatics, Fundamentals of Design of transport structures	Oil and gas pipelines, Oil and gas storage facilities, Design of oil and gas pipeline systems, Maintenance and repair of oil and gas pipelines, Maintenance and repair of oil and gas storage facilities.
PD	VK	Oil and gas pipelines	270	9	5		Requirements for the structures of oil and gas pipelines, the procedure for laying linear pipes and structures, supports for pipelines, regulations for connecting pipes to each other, the construction of main oil and gas pipelines, methods of hydraulic and technological calculation of the object when transferring oil and gas, pressure characteristics of the oil pipeline and pumping stations, features of temperature conditions in pipelines. Guest lectures by specialists are provided.	Fundamentals of oil and gas business, Fundamentals of design of transport facilities Introduction to the design of transport infrastructure facilities	Oil and gas storage facilities, Design of oil and gas pipeline systems, Maintenance and repair of oil and gas pipelines, Maintenance and repair of oil and gas storage facilities.
		Oil and gas storage facilities	180	6	6		Studies the basics of work and rules for storing oil and gas in tanks, preventing the loss of products during operation, the draft master plan for the construction of oil and gas storage facilities, tank designs, provisions for checking the dimensions of the tank body for stability, measuring and accounting of oil and gas products, laying	Fundamentals of oil and gas business, Machinery and equipment for construction	Design of oil and gas pipeline systems, Maintenance and repair of oil and gas

PD	VK						pipelines for tanks, water pipes for fire extinguishing. Interactive teaching methods are used in the study.	and repair of oil and gas facilities,Mechanization of pipeline construction, Oil and gas Pipelines	pipelines, Maintenance and repair of oil and gas storage facilities.
PD	VK	Designing of oil and gas pipeline systems	270	9	7		Mastering students' knowledge in the field of designing pipeline systems for distillation of various media, to ensure the safety, efficiency, long-term and cost of oil and gas pipeline systems, studying the characteristics (loads and pressures, the need for additional equipment). Theoretical and practical issues are considered: features of designing oil and gas pipeline systems in various natural and climatic conditions. When studying the discipline, discussion is used.	Fundamentals of oil and gas business, Machinery and equipment for construction and repair of oil and gas facilities,Mechanization of pipeline construction, Oil and gas Pipelines Oil and gas storage facilities	Maintenance and repair of oil and gas pipelines, Maintenance and repair of oil and gas storage facilities.
PD	VK	Maintenance and repair of oil and gas pipelines	270	9	7		Development of a systematic understanding of the maintenance and repair of oil and gas pipelines, incomplete replacement and (or) restoration of pipeline equipment elements, repair work with linear fittings and equipment, communication and power supply lines, cleaning and anti-corrosion painting of pipeline surfaces, the full name of technical measures aimed at comprehensive or partial restoration of the linear part of the pipeline. When studying the discipline, guest lectures are provided.	Fundamentals of oil and gas business, Machinery and equipment for construction and repair of oil and gas facilities,Mechanization of pipeline construction, Oil and gas	Maintenance and repair of oil and gas storage facilities,Design of oil storage facilities, Design of oil depots and gas tanks.

								Pipelines Oil and gas storage facilities	
PD	VK	Maintenance and repair of oil and gas storage facilities	270	9	8		Mastering by students of knowledge on maintenance and repair of oil and gas storage equipment of various sizes and shapes, on the processes of repair and operation of tanks, on systems of planned preventive and preventive repairs of park facilities, regulations of working processes of oil and gas storage, on methods of installation and dismantling of thermal insulation coatings for tank equipment. When studying the discipline, guest lectures are provided.	Fundamentals of oil and gas business, Machinery and equipment for construction and repair of oil and gas facilities,Mechanization of pipeline construction, Oil and gas Pipelines Oil and gas storage facilities, Maintenance and repair of oil and gas pipelines.	Production practice 2.
PD	VK	Production practice 1	90	3	6		The main objectives of industrial practice are: consolidation of theoretical knowledge and practical skills in the chosen educational program in production conditions, acquisition of organizational work experience, obtaining a working specialty, formation of practical skills and competencies in the process of mastering the bachelor's program. It is conducted in the practice bases at enterprises according to this educational program.	Fundamentals of oil and gas business, Oil and gas pipelines	Production practice 2
		Production practice 2	120	4	9		The purpose of the practice for bachelors is to ensure the relationship between the theoretical knowledge gained during the assimilation of the chosen educational program and practical activities. The objectives of this practice are to consolidate and deepen the theoretical knowledge gained by students in the learning process, to collect information for	Fundamentals of oil and gas business, Oil and gas pipelines, Oil and gas	FINAL CERTIFICATION

PD	VK						writing a final qualifying work, to study best practices at the enterprise, as well as to gain experience in independent research work, mastering various methods of scientific work. It is conducted in the practice bases at enterprises according to this educational program.	storage facilities, Designing of oil and gas pipeline systems Maintenance and repair of oil and gas pipelines, Maintenance and repair of oil and gas storage facilities, Production practice 1.	
TKO		FINAL CERTIFICATION	241	8			The objectives of the thesis are to identify the degree of assimilation of the content of the educational program by the bachelor, to check his readiness for independent activity in the direction of the educational program, to consolidate and deepen practical work skills. It also provides for the passing of a comprehensive exam.	TOTAL FOR THE ENTIRE PERIOD OF STUDY	TOTAL FOR THE ENTIRE PERIOD OF STUDY
Att	V	Volunteering	30	1	1		The formation of concepts of gratuitous activities, including traditional forms of mutual assistance and self-help, fundraising, official provision of services and other forms of civic participation, which is carried out voluntarily for the benefit of the general public without counting on monetary remuneration. In some cases, it is possible to pay for the services of volunteers.	ADDITIONAL TYPES OF TRAINING	Financial literacy
Att	V	Financial literacy	90	3	3		Formation of decision-making skills based on comparative analysis of financial alternatives, planning and forecasting of future budget revenues and expenditures, general functional financial literacy, mastering methods and tools of financial calculations for solving practical problems, interaction with banks, pension funds, tax authorities, insurance companies in the process of accumulating savings, obtaining loans and paying taxes.	Volunteering	Managerial economics, Transport logistics, Resource saving in transport, Time management (minor), Digital

									diagnostics of transport facilities (minor), Power BI Business Analytics (minor).
Minor Program 1 "Resource Management"									
PD	VK	Managerial economics	90	3	5		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 tasks facing the head of the company. The study of this discipline will allow students to obtain and develop knowledge in the field of analytical studies of 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. Methods of active learning are used - situational tasks, case method.	Fundamentals of oil and gas business, Engineering mathematics.	Transport logistics, Resource conservation in transport, Power BI Business Analytics (minor).
PD	VK	Transport logistics	90	3	6		The study of the main provisions of transport support of logistics systems, activities in the field of transportation, covering the entire range of operations and services for the delivery of goods from the manufacturer of products to the consumer, the principles of design and construction of logistics systems. Mastering the skills of optimization and organization of rational cargo flows, their processing in specialized logistics centers, ensuring an increase in their efficiency, reducing unproductive costs and expenses. The teaching methods are: solving problems, conducting thematic colloquiums, seminars "brainstorming". Within the framework of the discipline, guest lectures are conducted by leading specialists of transport and logistics companies.	Managerial economics	Resource saving in Transport, Power BI Business Analytics (minor)
		Resource saving in	90	3	7		The study of the main types and characteristics of energy resources, regulatory and legal support for energy	Managerial economics,	Production practice 2

PD	VK	transport					conservation, improving the energy efficiency of the transportation process; energy-saving technologies in repair production and operation of transport infrastructure facilities; organization and methods of energy conservation management. They are used to solve problems, conduct thematic colloquiums, debates. Guest lectures are being held by leading experts of the transport and communication industry.	Transport logistics	FINAL CERTIFICATION
Minor Program 2 "Digital Competencies"									
PD	VK	Time management	90	3	5		Formation of students' general ideas about the essence and types of time management, principles and methods of time resource management for more successful implementation of professional activities. Methods of active learning are used - situational tasks, case method.	Managerial economics.	Transport logistics, Digital diagnostics of transport facilities (minor), Power BI Business Analytics (minor).
PD	VK	Digital diagnostics of transport facilities	90	3	6		Studies modern methods of diagnostics, monitoring and testing of construction objects using innovative technologies, modern geodetic means of periodic and automatic monitoring (GPS measurements, total station, leveling, laser scanning). Methods of active learning are used - situational tasks, case method.	Managerial Economics, Time Management (minor).	Managerial Economics, Power BI Business Analytics (minor).
PD	VK	Power BI Business Analytics.	90	3	7		Formation of students' skills and knowledge to collect, analyze and structure data in order to build interactive dashboards, program at the current level of development of the MDX multidimensional data analysis language, build models and algorithms of projects in relevant areas of BI technology, be able to analyze the essence of the subject field of the project and make decisions. Methods of active learning are used - brainstorming, working in small groups.	Managerial economics, Transport logistics, Time Management (minor), Digital diagnostics of transport facilities (minor). .	Production practice 2 FINAL CERTIFICATION

9. CATALOG OF ELECTIVE COMPONENT DISCIPLINES

"6B07322 – CONSTRUCTION OF OIL AND GAS FACILITIES"

Education level: Bachelor's degree Duration of study: 4 years Admission year: 2023

Цикл	Компонент	Наименование дисциплины	Общая трудоемкость		Term	Learning outcomes	Brief description of the discipline	Prerequisites	Post-requirements
			академических часах	академических кредитах					
1	2	3	4	5	6	7	8	9	10
GEB	EK	Ecology and life safety	150	5	3		The study of basic environmental concepts, environmental problems and approaches to their solution, sources and types of environmental pollution by enterprises, the principles of rationing the quality of atmospheric air and water, the main provisions of legislation in various fields, natural and man-made emergencies, their causes, methods of prevention and protection. Teaching methods - analysis of specific situations (case-study).	History of Kazakhstan, Kazakh (Russian, foreign) language, Professional foreign language, Sociology, Cultural Studies, Political Science, Psychology	Final certification
		Methods of scientific research					Obtaining theoretical and applied knowledge by students on the methods of scientific research of problems in the studied area, training specialists with cognitive skills in the field of science, forming deep ideas about the content of scientific activity, its methods and forms of knowledge.	History of Kazakhstan, Kazakh (Russian, foreign) language, Professional foreign language, Sociology, Cultural Studies, Political Science, Psychology	Final certification
		Fundamentals of Economics and Entrepreneurship					Studies the activities of enterprises in various types of market, the model of equilibrium and functioning of the market, state regulation of prices and tariffs. Examines the concept of entrepreneurship and the limits of	History of Kazakhstan, Kazakh (Russian, foreign) language, Professional foreign	Final certification

							its legal regulation, conditions for the development of entrepreneurship, organizational and legal forms of doing business, business planning, business secrecy, social responsibility of entrepreneurship. Active teaching methods: case methods; business role-playing games, group work.	language, Sociology, Cultural Studies, Political Science, Psychology	
		Fundamentals of law and anti-corruption culture					Increase of public and individual legal awareness and legal culture of students, as well as the formation of a knowledge system and a civic position on combating corruption as an antisocial phenomenon. As a result of studying the course, the student must master 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.	History of Kazakhstan, Kazakh (Russian, foreign) language, Professional foreign language, Sociology, Cultural Studies, Political Science, Psychology	Final certification
		Theoretical mechanics					To familiarize with the basic concepts, laws and theorems that make it possible to compose and study equations describing the behavior of mechanical systems, the development of logical thinking and understanding that the laws of mechanics express the laws of mechanical motion of bodies expressed in mathematical form, the ability to record a specific phenomenon in mathematical form, the formation of practical skills in applying the basic methods of mechanics in the study of motion and balances of mechanical systems in the study of disciplines of the professional cycle and solving specific tasks, which you have to face	Engineering Mathematics, Applied Physics.	Resistance of Materials, Engineering Mechanics 2, Construction Mechanics, Engineering Mechanics 2

PD	KV		180	6	3		in your professional activity. Methods of active training – execution and protection of individual calculation and graphic works.		
		Engineering Mechanics 1					Formation of logical thinking and scientific foundation of engineering education. The study of the laws of motion and equilibrium of material bodies, the construction of mathematical models of the behavior of mechanical systems using the theorems of mechanics. Application of methods for studying the equilibrium and motion of mechanical systems for solving technical problems. Methods of active learning – the use of interactive tools, a blitz survey – a series of short questions, the performance of individual calculation and graphic works.	Engineering Mathematics, Applied Physics	Resistance of Materials, Engineering Mechanics 2, Construction Mechanics, Engineering Mechanics 2
PD	KV	Resistance of materials	180	6	4		Forms basic knowledge about the types of building materials, methods of their production, properties and applications of various building materials, familiarization with standard methods of testing building materials and determining their properties, standardization of requirements for building materials depending on the conditions of their use. Within the framework of the discipline, interactive teaching methods, case studies, and discussion are used.	Engineering Mechanics 1, Geology and Soil Mechanics,	Construction mechanics, Engineering mechanics 3, Machinery and equipment for the construction and repair of oil and gas facilities, Mechanization of pipeline construction
		Engineering Mechanics 2					To familiarize with the basic techniques for determining internal forces and stresses for each type of deformation, methods for calculating structures and their elements for strength, rigidity and stability, skills for studying loads, displacements and stress-strain state in structural elements, constructing design diagrams of machine parts and product calculations to ensure reliability and efficiency requirements under the influence of static and dynamic loads.	Engineering mechanics 1 Geology and mechanics of soils, foundations and foundations	Construction mechanics, Engineering mechanics 3, Machinery and equipment for the construction and repair of oil and gas facilities, Mechanization of pipeline construction

							Methods of active learning – performing individual computational and graphical tasks.		
PD	KV	Construction mechanics	180	6	5		Formation of the basic laws of deformation of core systems that make up the frame of structures when exposed to external forces in order to ensure strength, stability, basic methods of calculation of standard structures and structures. Formation of design skills of standard structures related to the selection of the design scheme and the determination of the most loaded structural elements and the calculation of internal forces and stresses.	Engineering Mathematics, Applied Physics, Engineering Mechanics 1,2	Oil and gas storage facilities, Design of oil and gas pipeline systems, Maintenance and repair of oil and gas pipelines, Maintenance and repair of oil and gas storage facilities.
		Engineering Mechanics 3					Formation of design skills of structures and structures related to the selection of the design scheme and the determination of the most loaded structural elements and the calculation of internal forces and stresses, the basic laws of deformation of core systems that make up the frame of structures when exposed to external forces to ensure strength, stability, basic methods of calculation of standard structures and structures.	Engineering Mathematics, Applied Physics, Engineering Mechanics 1,2	Oil and gas storage facilities, Design of oil and gas pipeline systems, Maintenance and repair of oil and gas pipelines, Maintenance and repair of oil and gas storage facilities.
		Engineering geodesy					Studies the composition and technology of geodetic works that provide surveys, design, construction, operation of structures, the basic requirements for solving typical engineering and geodetic tasks, their geometric essence. Obtains the skills of reading a topographic map, solving on its basis the corresponding tasks of both graphical and mathematical computational nature. Interactive teaching methods are used within the discipline.	Engineering Mathematics, Applied Physics, Engineering Mechanics 1,2,3	Fundamentals of the design of transport facilities, Introduction to the design of transport infrastructure facilities, Machinery and equipment for the construction and repair of oil and gas facilities, Mechanization of pipeline

									construction.
PD	KV	Fundamentals of geoinformatics	180	6	3		The study of general information about geoinformation systems, basic terms and concepts, issues of data input and output, their digitization, ways of presenting spatial and attribute information, brief characteristics of the main GIS, their advantages and disadvantages, general ideas about GIS software, basic geoinformation technologies and techniques for preparing initial information, creating and editing objects. Interactive teaching methods are used within the discipline.	Engineering Mathematics, Applied Physics, Engineering Mechanics 1,2,3	Fundamentals of the design of transport facilities, Introduction to the design of transport infrastructure facilities, Machinery and equipment for the construction and repair of oil and gas facilities, Mechanization of pipeline construction.
PD	KV	Fundamentals of the design of transport structures.	180	6	4		Study of the basic rules (methods) for constructing and reading drawings, methods for solving metric and positional problems, rules for design documentation in accordance with the ESCD standards, mastering the skills of taking sketches, images of technical products, drawing drawings using graphical tools (AutoCAD, Compass 3D). The discipline provides software training, computer modeling and practical analysis of the results.	Engineering Mathematics, Applied Physics, Engineering Mechanics 1,2,3	Machinery and equipment for the construction and repair of oil and gas facilities, Mechanization of pipeline construction, Design of oil and gas pipeline systems, Maintenance and repair of oil and gas pipelines, Maintenance and repair of oil and gas storage facilities.
		Introduction to the design of transport infrastructure facilities					Principles and methods of graphic and geometric modeling of engineering tasks, general requirements of the ESKD, SPDS and other regulatory documents for the execution and design of drawings, modern	Engineering Mathematics, Applied Physics, Engineering Mechanics 1,2,3	Machinery and equipment for the construction and repair of oil and gas facilities, Mechanization of

							methods of automation of graphic works, the possibility of automated creation of geometric models of spatial objects and the execution of drawings. Creation of 2D and 3D models within the framework of graphic systems (Compass 3D, Solidworks). The discipline provides software training, computer modeling and practical analysis of the results.		pipeline construction, Design of oil and gas pipeline systems, Maintenance and repair of oil and gas pipelines, Maintenance and repair of oil and gas storage facilities.
PD	KV	Machinery and equipment for the construction and repair of oil and gas facilities.	180	6	5		Studies the principles of operation and modern designs of special machines for the construction and repair of trunk and oil and gas pipelines, trench excavators, trench excavators, machines for the development of trenches on flooded and swampy sections of the route, for laying pipelines during the construction of crossings under roads, rivers and other obstacles, methods for calculating the parameters of working bodies and machines when performing various technological operations. Interactive teaching methods are used within the discipline.	Ecology and life safety, Engineering geodesy, Building materials, Electrical engineering and the basics of electronics	Oil and gas storage facilities, Design of oil and gas pipeline systems, Maintenance and repair of oil and gas pipelines, Maintenance and repair of oil and gas storage facilities.
		Mechanization of pipeline construction					The issues of the theory of complex mechanization of the construction of trunk pipelines, methods of formation, management and determination of the field of efficiency of the fleet of machines, methods of choosing rational options for mechanization, basic information about machines and equipment used in construction and repair work at the facilities of pipeline transportation of hydrocarbons, classification of modern technical means of mechanization of labor-intensive processes in the	Ecology and life safety, Engineering geodesy, Building materials, Electrical engineering and the basics of electronics	Oil and gas storage facilities, Design of oil and gas pipeline systems, Maintenance and repair of oil and gas pipelines, Maintenance and repair of oil and gas storage facilities.

							construction, operation and repair of pipelines are considered. Within the framework of the discipline, interactive teaching methods are used, the form of assessment is the protection of an individual task.		
PD	KV	Technology of construction of oil and gas facilities	180	6	6		Studies modern technologies for the construction of oil and gas structures, methods and technologies for the construction of oil and gas structures, rules for the installation of vertical and horizontal tanks, methods for testing tanks for tightness, installation and dismantling works, rules for checking the operability of devices, mechanisms and equipment, general construction processes for the construction of structures, methods for the construction of structures in accordance with design and regulatory documents. The discipline uses discussion.	Fundamentals of oil and gas business, , Oil and gas pipelines.	Organization of construction of transport infrastructure facilities, Organization and planning of construction of transport facilities, Design of oil and gas storage facilities. Design of oil depots and gas tanks.
		Organization of construction of transport infrastructure facilities, Organization and planning of construction of transport facilities, Design of oil and gas storage facilities. Design of oil depots and gas tanks.					Studies modern technologies of pipeline construction for laying in various climatic areas, including at long distances from large industrial complexes, installation of pipelines during the seasonal period, formation of brigades and columns, equipping with various machinery and equipment, with safe working methods at a certain construction site. The discipline uses discussion.	Fundamentals of oil and gas business, , Oil and gas pipelines.	Organization of construction of transport infrastructure facilities, Organization and planning of construction of transport facilities, Design of oil and gas storage facilities. Design of oil depots and gas tanks.
PD	KV	Organization of construction of transport infrastructure	180	6	7		Development of a systematic understanding of construction processes and types of work, the principles of their implementation, the requirements for the organization of work of	Fundamentals of oil and gas business, , Oil and gas pipelines, Oil and gas storage	Design of oil and gas storage facilities, Design of oil depots and

		facilities					the working link or team, in compliance with the requirements of safety and environmental protection, the fundamental principles of planning, industriality, complex mechanization and automation of production, the flow of construction, all seasonality of work.	facilities.	gas tanks,
		Organization and planning of construction of transport facilities					Studies the use of advanced technologies and the organization of construction and installation works, ensuring a reduction in labor, material and energy costs in compliance with the requirements of state standards, the order of execution of preparatory, basic and final works on the construction of transport facilities and commissioning of facilities, the needs of materials, equipment, labor and completion dates. Within the framework of the discipline, the computational and analytical method is used.	Fundamentals of oil and gas business, , Oil and gas pipelines, Oil and gas storage facilities.	Design of oil and gas storage facilities, Design of oil depots and gas tanks,
PD	KV	Design of oil and gas storage facilities	180	6	8		To form the necessary set of knowledge about the design of oil storage and gas storage facilities, methods of developing a master plan for the construction area of oil storage and gas storage facilities, tank and gas storage structures, access roads, the procedure for checking the geometric parameters of the tank body for stability, ways of passing pipelines for the tank farm. Within the framework of the discipline, the computational and analytical method is used.	Fundamentals of oil and gas business, , Oil and gas pipelines, Oil and gas storage facilities, Design of oil and gas pipeline systems, Maintenance and repair of oil and gas pipelines.	Production practice 2, FINAL CERTIFICATION
		Design of oil depots and gas tanks					To form the necessary set of knowledge about the design of tank farms and gas tanks, methods of developing a master plan for the construction area of an oil depot and gas tanks, tank farm and gas tank tank structures,	Fundamentals of oil and gas business, , Oil and gas pipelines, Oil and gas storage facilities, Design of oil and gas pipeline	Production practice 2, FINAL CERTIFICATION

							access roads, the procedure for checking the geometric parameters of the tank and gas tank housing for stability, ways of passing pipelines for the tank farm. Within the framework of the discipline, the computational and analytical method is used.	systems, Maintenance and repair of oil and gas pipelines.	
PD	KV	Managerial economics	90	3	5	LO6	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 tasks facing the head of the company. The study of this discipline will allow students to obtain and develop knowledge in the field of analytical studies of 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.	Fundamentals of Economics and Entrepreneurship, Fundamentals of Law and Anti-corruption Culture	Final certification
PD	KV	Transport logistics	90	3	6	LO6	The study of the main provisions of transport support of logistics systems, activities in the field of transportation, covering the entire range of operations and services for the delivery of goods from the manufacturer of products to the consumer, the principles of design and construction of logistics systems. Mastering the skills of optimization and organization of rational cargo flows, their processing in specialized logistics centers, ensuring an increase in their efficiency, reducing unproductive costs and expenses. The teaching methods are: solving problems, conducting thematic colloquiums, seminars "brainstorming". Within the framework of the discipline, guest lectures are conducted by leading specialists of transport and logistics companies	Fundamentals of Economics and Entrepreneurship, Fundamentals of Law and Anti-corruption Culture	Final certification
PD	KV	Resource saving in transport	90	3	7	LO6	The study of the main types and characteristics of energy resources, regulatory and legal support for energy conservation, improving the energy efficiency of the transportation process; energy-saving technologies in repair production and operation of	Fundamentals of Economics and Entrepreneurship	Final certification

							transport infrastructure facilities; organization and methods of energy conservation management. They are used to solve problems, conduct thematic colloquiums, debates. Guest lectures are being held by leading experts of the transport and communication industry		
PD	KV	Time management	90	3	5	LO6	Formation of students' general ideas 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, Fundamentals of Law and Anti-corruption Culture	Final certification
PD	KV	Digital diagnostics of transport facilities	90	3	6	LO6	Study of digital information processing systems, basic functional units, principles of information separation and multiplexing, analysis of characteristics of digital communication channels in the diagnosis of transport construction facilities	Bridges and tunnels on highways, Highways	Technology of construction of highways and airfields, Organization of construction of transport infrastructure facilities
PD	KV	Power BI Business Analytics	90	3	7		Teaches the skills of creating interactive visualizations of data obtained from various sources and providing them to employees of this organization, obtaining valuable information when making strategic decisions, analyzing retrospective and current data, presenting results in intuitive visual formats, providing general access to business-critical analytical information using Power BI	Fundamentals of Economics and Entrepreneurship, Fundamentals of Law and Anti-corruption Culture	Technology of construction of highways and airfields, Organization of construction of transport infrastructure facilities
Total			**2310**	**77**					

10. Expert opinions

«Волковгеология»
акционерлік қоғамы

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Акционерное общество
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№ 2022 «26» 06 2023 ж/г.

ЭКСПЕРТНОЕ ЗАКЛЮЧЕНИЕ
на образовательную программу «6В07322 –Строительство нефтегазовых сооружений»

Реализация образовательной программы «6В07322 –Строительство нефтегазовых сооружений» осуществляется посредством последовательности изучаемых дисциплин, с установлением конкретных задач и целевых индикаторов. Четко прослеживается междисциплинарное взаимодействие, которое заключается в комплексной связи между содержанием отдельных учебных дисциплин, посредством которых достигается внутреннее единство программы подготовки специалистов.

В учебном плане образовательной программы определен перечень всех учебных дисциплин обязательного компонента и компонента по выбору, трудоемкость каждой учебной дисциплины в кредитах, последовательность их изучения, виды учебных занятий и формы контроля. Актуально изучение вопросов экологической обстановки и обеспечение условий безопасной трудовой деятельности на предприятиях АО «НАК «Казатомпром»

Образовательные траектории разработаны в соответствии с запросами транспортно-коммуникационной отрасли Строительство нефтегазовых сооружений

Цель образовательной программы актуальна, сформулирована достаточно лаконично и объединяет в себе результаты обучения. В описании дисциплин отражены их цели и содержание, как индикатора достижения результатов обучения по данной образовательной программе. Также, в образовательной программе, разработанной на основе профессионального стандарта, отражены основные трудовые функции в компетенциях и результатах обучения, указаны виды связей с работодателями: проведение гостевых лекций, лекций ведущих топ менеджеров, наличие филиалов кафедр на базе организаций.

Таким образом, представленная на экспертизу образовательная программа «6В07322 – Строительство нефтегазовых сооружений» по направлению подготовки кадров «6В073–Архитектура и строительство», полностью соответствует требованиям ГОСО, имеет четкую последовательность при разработке, отвечает современным запросам рынка

труда, профессиональным стандартам и может быть реализована для подготовки кадров по образовательной программе «6B07322 – Строительство нефтегазовых сооружений» по направлению «6B073–Архитектура и строительство»

Эксперт Работодатель _____
Советник Председателя Правления АО «Волковгеология"

_____

Дата **печать**

11. REVIEWER'S CONCLUSION

Рецензия

на образовательную программу
по направлению подготовки «6В07322 –Строительство нефтегазовых сооружений»

Образовательная программа (бакалавриат) «6В07322 –Строительство нефтегазовых сооружений» содержит следующую информацию: квалификация выпускника, форма и срок обучения, направление и характеристика деятельности выпускников, приведен полный перечень компетенций, которыми должен обладать выпускник в результате освоения данной образовательной программы.

Дисциплины учебного плана по рецензируемой образовательной программе формируют весь необходимый перечень общекультурных и профессиональных компетенций, предусмотренных ГОСО по соответствующим видам деятельности.

В учебном плане образовательной программы определен перечень всех учебных дисциплин обязательного компонента и компонента по выбору, трудоемкость каждой учебной дисциплины в кредитах, последовательность их изучения, виды учебных занятий и формы контроля. Каталог элективных дисциплин, Каталог внутри вузовского компонента полностью отражает преемственность дисциплин: 1.Нефтегазопроводы; 2.Нефтегазохранилищ; 3.Проектирование нефтегазопроводных систем.

Соблюдена последовательность изучения дисциплин, включены дисциплины необходимые для производства и технологического процесса.

Содержание рабочих программ учебных дисциплин и практик позволяет сделать вывод, что оно соответствует компетентности модели выпускника.

Образовательная программа предусматривает профессионально-практическую подготовку обучающихся в виде практики. Содержание программ практик свидетельствует об их способности сформировать практические навыки обучающихся.

Для разработки образовательной программы были привлечены опытный профессорско-преподавательский состав, ведущие представители работодателя, обучающиеся, учтены их требования при формировании дисциплин профессионального цикла.

Заключение:

В целом, рецензируемая образовательная программа отвечает основным требованиям ГОСО, национальной рамке квалификаций, отраслевой рамке квалификаций, профессиональных стандартов, Атласу новых профессий и способствует формированию общекультурных и профессиональных компетенций по направлению подготовки «6В073– Архитектура и строительство».

Рецензент **Исмаилов А.А., кандидат технических наук, профессор, декан Школы Энергетики и нефтегазовой индустрии АО «КБТУ»**

12. LETTERS OF RECOMMENDATION

«Волковгеология»
акционерлік қоғамы
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№ 2020 «26» 06 2023 ж/г.

Рекомендательное письмо

Уважаемый (ая) Салтанат Нурадиловна

Руководство АО «Волковгеология» в лице Советника Председателя Правления ознакомилось с содержанием образовательной программы «6В07322 –Строительство нефтегазовых сооружений» и внесло следующие рекомендации:

- включить в содержание образовательной программы дисциплины: Основы нефтегазового дела,
- 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:

1. Нефтегазопроводы; 2. Нефтегазохранилищ; 3. Проектирование нефтегазопроводных систем.

- увеличить количество часов, выделяемых на проведение производственных практик;

включить дисциплины:
- нефтегазопроводы;
- нефтегазохранилищ;
- проектирование нефтегазопроводных систем;

Работодатель Асанов Н.С
Советник Председателя Правления АО «Волковгеология"

Дата **печать**

13. REVIEW AND APPROVAL PROTOCOLS

Академия логистики и транспорта

ПРОТОКОЛ №6 (начало формирования ОП)
Заседания
Академического комитета по образовательной программе и ведущих преподавателей кафедры «Строительная инженерия»

г. Алматы «__15__»___03__2023 года

Председатель: Исмагулова С.О.
Секретарь: Жадраев Р.Ж.
Присутствовали: члены Академического комитета, ведущие ППС кафедры
Представители с производства: Главный технолог АО «Волковгеология» Кудабаев Б.А., Советник Председателя Правления АО «Волковгеология» Асанов Н.С., Директор ТОО «Научно-внедренческий центр» Смашов Н.Ж.
Обучающиеся: Аманжолов К.

ПОВЕСТКА ДНЯ:

1. Рассмотрение компетентностной модели выпускника
2. Рассмотрение возможности включения дисциплин в КЭД и РУП

По первому вопросу

ВЫСТУПИЛ(а):

Зав. кафедрой Исмагулова С.О. предложиларассмотреть компетентностную модель выпускника по 3 уровням образования: бакалавриат, магистратура, докторантура.

Компетентностная модель выпускника включает в себя следующие части:

- Цель и задачи образовательной программы;
- Результаты обучения;
- Область, объекты, виды и функции профессиональной деятельности;
- Перечень должностей по образовательной программе;
- Профессиональные сертификаты, полученные по окончании обучения;
- Требования к предшествующему уровню образования.

ВЫСТУПИЛ: Главный технолог АО «Волковгеология» Кудабаев Б.А., которы предложил в силу специфики их организации отразить в объектах профессиональной деятельности следующее: Современные инновационные технологии в транспортно-коммуникационной сфере.

ВЫСТУПИЛ:

Член кафедры Ибраимов А.К., который предложил утвердить

После рассмотрения компетентностной модели выпускника было предложено утвердить данную Модель по 3 уровням образования.

ПОСТАНОВИЛИ:

- предоставить компетентностную модель выпускника по 3 уровням образования: бакалавриат, магистратура, докторантура для рассмотрения и утверждения на Совете института «Транспортная инженерия».

По второму вопросу

ВЫСТУПИЛ: представитель работодателей Советник Председателя Правления АО «Волковгеология» Асанов Н.С.

Организации заинтересованы в специалистах, имеющих хороший уровень подготовки и знаний в области проектирования и строительство нефтегазовых сооружений. Вносим предложения о внесении в РУП тследующих востребованных дисциплин Нефтегазопроводы, Нефтегазохранилищ, Проектирование нефтегазопроводных систем.

ВЫСТУПИЛ: обучающийся Аманжолов К.

Считаем необходимым включить в РУП следующие дисциплины Нефтегазопроводы, Нефтегазохранилищ, Проектирование нефтегазопроводных систем.

ПОСТАНОВИЛИ:

1. Информацию принять к сведению;
2. Учесть предложения и рекомендации работодателей и обучающихся;
3. Рассмотреть включение в РУП следующие дисциплины: Нефтегазопроводы, Нефтегазохранилищ, Проектирование нефтегазопроводных систем.

Председатель: **Исмагулова С.О.**

Секретарь: **Жадраев Р.Ж.**

Академия логистики и транспорта

ПРОТОКОЛ №7 (перед утверждением ОП на УС)

Заседания КОК УМБ института «Транспортная инженерия»

г. Алматы «15 » марта 2023 года

Председатель: Чигамбаев Т.О.

Секретарь: Утепова А.

Присутствовали: члены КОК УМБ, члены Академического комитета

Представители с производства: Главный технолог АО «Волковгеология» Кудабаев Б.А., Советник Председателя Правления АО «Волковгеология» Асанов Н.С., Директор ТОО «Научно-внедренческий центр» Смашов Н.Ж.

Обучающиеся: Аманжолов К.

ПОВЕСТКА ДНЯ:

1. Рассмотрение Каталога элективных дисциплин (КЭД), Рабочей учебной программы (РУП), паспорта образовательных программ бакалавриата, магистратуры и докторантуры.

ВЫСТУПИЛ(а): зав. кафедрой Исмагулова С.О. представил (а) на рассмотрение КЭД, РУП бакалавриата, магистратуры и докторантуры.

На кафедре«Строительная инженерия» было проведено заседание с привлечением представителей работодателей и обучающихся по обсуждению структуры и содержанию образовательной программы 6В07322–Строительство нефтегазовых сооружений

Представителями работодателей и обучающимися были предложены ряд новых актуальных дисциплин, которые кафедра одобрила и включила в новые КЭД и РУП.

ПОСТАНОВИЛИ:

1. Информацию принять к сведению;
2. Учесть все предложения и рекомендации работодателей, представителей студенческого актива;
3. Представить КЭД, РУП и ОП бакалавриата, магистратуры и докторантуры для рассмотрения и утверждения на Совете института, УС Академии.

Председатель КОК УМБ **Чигамбаев Т.О.**

Секретарь **Утепова А.**

14. APPROVAL SHEET

№п/п	Ф.И.О.	Место работы и должность	Подпись	Дата
1	Исмагулова С.Д.	зав. каф. „СИ"		30.03.23г
2	Смаилова Ф.И.	зав.каф. „ЯП"		30.03.23г.
3	Арипбаев ТК	зав.каф.ПС		30.03.23г
4	Машимбетова А.Т	зав каф ОЧ		30.03.23г
5	Шунгисов Б.Т.	зав. каф АТиБКД		30.03.23г.
6	Кошмакова Д.Т.	зав каф ИК		30.03.23г.
7	Мусамиева Р.Д.	зав. каф МСТ		30.03.23г.
8	Сулесова А.Р.	зав. каф. Э		30.03.23г.

15. CHANGE REGISTRATION SHEET

№	Section, paragraph of the document	**Вид изменения (заменить, аннулировать, добавить)**	**Номер и дата извещения**	**Изменение внесено**	
				Дата	**Фамилия и инициалы, подпись, должность**