

Advisor to the Chairman of the Board of JSC
"VolkovoGeologiya"

Asanov N.S.

"16" 03 2023



«Логистика және көлік академиясы» АҚ

«Көлік инженерия» институты

I APPROVE

Director of the Institute

АО «Академия логистики и транспорта»

Transport Engineering

Институт «Транспортная инженерия»

Chigambayev T.O.

"16" 03 2023

**CATALOG OF DISCIPLINES OF THE COMPONENT BY CHOICE
EDUCATIONAL PROGRAM**

"6B07322 – CONSTRUCTION OF OIL AND GAS FACILITIES"

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

Цикл	Комп онент	Наименование дисциплины	Общая трудоемкость		Term	Learn ingou tcome s	Brief description of the discipline	Prerequisites	Post-requirements	Depart ment
			академи ческих часах	академи ческих кредитах						
1	2	3	4	5	6	7	8	9	10	
GEB	ЕК	Ecology and life safety	150	5	3	LO5	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	Mvals
		Methods of scientific research				LO9	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,		

		Fundamentals of Economics and Entrepreneurship				LO6	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 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.	History of Kazakhstan, Kazakh (Russian, foreign) language, Professional foreign language, Sociology, Cultural Studies, Political Science, Psychology	Final certification	TLM
		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	SaHDa PE

PD	KV	Theoretical mechanics	180	6	3	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 in your professional activity. Methods of active training – execution and protection of individual calculation and graphic works.	Engineering Mathematics, Applied Physics.	Resistance of Materials, Engineering Mechanics 2, Construction Mechanics, Engineering Mechanics 2	Se
		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	Se

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	Se
		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. Methods of active learning – performing individual computational and graphical tasks.	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	Se
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.	Se
		Engineering Mechanics 3				Formation of design skills of structures and structures related to the selection of the design scheme and the determination of the	Engineering Mathematics, Applied Physics,	Oil and gas storage facilities, Design of oil and	Se

							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 Mechanics 1,2	gas pipeline systems, Maintenance and repair of oil and gas pipelines, Maintenance and repair of oil and gas storage facilities.	
PD	KV	Engineering geodesy	180	6	3	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.	Se	
		Fundamentals of geoinformatics				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		Se	

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.	Se
		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 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.	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.	Se

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.	Se
		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 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.	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.	Se

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.	Se
		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.	Se

PD	KV	Organization of construction of transport infrastructure facilities	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 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.	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,	Se
		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,	Se
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 CERTIFICATIO N	Se
		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	Fundamentals of oil and gas business, , Oil and gas pipelines,	Production practice 2, FINAL	

							construction area of an oil depot and gas tanks, tank farm and gas tank tank structures, 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.	Oil and gas storage facilities, Design of oil and gas pipeline systems, Maintenance and repair of oil and gas pipelines.	CERTIFICATIO N	Se
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	TLM
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	TLM

							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	Se
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	RS
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	IaCT
Total			2310	77						

Acting Head of the Department of
«Construction Engineering»



Ismagulova S.O.