"Kazakh University of Technology and Business" named after K.Kulazhanova" JSC

EDUCATIONAL PROGRAM

«6B07254 Oil and Gas Business»

code and name of the educational program

Level: Bachelor's

Approved
by the Board of Directors of JSC
«K.Kulazhanov KazUTB»
"19" 02 2026 protocol No. 4

Recommended
by the Academic Council of JSC
«K.Kulazhanov KazUTB»
"27" 02 2026 protocol No. 7

Astana – 2026

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Preface

The educational program "6B07254 Oil and Gas Business" was developed in accordance with the State Compulsory Standard of Higher Education, approved by the order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022 № 2, and also on the basis of professional standards: "Oil and Gas Production Management" (27.12.2024, № 494), "Main Pipeline Operation" (23.12.2024, № 479), "Oil and Gas Well Operation" (27.12.2024, № 494), "Oil Transportation Management" (06.12.2024, № 479), as well as based on the professional standards of the Career Enbek system, the Sectoral Atlas and the Regional Atlas for the following occupations "Equipment Modernization Supervisor", "Oilfield Service Engineer for Digitalization (Big Data Architect)" and "Drilling Engineer Using Environmentally Friendly Technologies".

The educational program "6B07254 Oil and Gas Business" was approved at the meeting of the Council on Academic Quality on "22" 01 2026, protocol No. 3
Chairman E.B. Askarbekov _____

The educational program "6B07254 Oil and Gas Business" was approved at the meeting of the Commission on Academic Quality of the Faculty «Engineering and Information Technology» on "21" 12 2025, protocol №. 3/1
Chairman B.A. Serimbetov _____

The educational program "6B07254 Oil and Gas Business" was developed and discussed at the meeting of the department "Chemistry, Chemical Technology and Ecology" dated "27" 11 2025, protocol №.. 4
Head of the department J. T. Nurtai _____

Approval sheet

Educational program «6B07254 Oil and Gas Business»

AGREED:

Vice-Rector for Administrative Affairs		E. Askarbekov	"24" 01 2026 year
Head of Educational Programs Department		B. Bayadilova	"24" 01 2026 year
«Astana Gas Service» LLP	PP	K. Bagramova	"27" 11 2025 year
«Institute of Chemistry, Coal and Technology» LLP	PP	B.Yermagambet	"27" 11 2025 year
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Student of the group NGD -241		D.Taspanbetov	"27" 11 2025 year

1 Passport of the educational program

International Standard Classification of Education (ISCED) level	6
National Qualification Framework (NQF) level	6
Sectoral Qualifications Framework (SQF) level	6
Code and name of the field of education	6B07 Engineering, manufacturing and construction industries
Direction of training	6B072 Industrial and manufacturing branches
Number and name of the group of educational programs	B271 Oil and gas major
Code and name of the educational program (EP	6B07254 Oil and Gas Business
Educational program profile	Higher engineering education
goal of the educational program	Training of a competitive generation of technical specialists for the labor market of the oil and gas industry, who are able to solve issues related to the continuous technological process of oil and gas production, transportation, storage, and sale
completion criterion of an educational program	240 academic credits
language of instruction of the educational program	Kazakh, Russian
Distinctive features of the educational program	-
Partner University	-

2 Qualification characteristics of a graduate of an educational program

Degree awarded	Bachelor of Engineering and Technology in the educational program 6B07254 Oil and Gas Business
Field of professional activity	They can perform the following types of professional activities: - design; - production and technological; - organizational and managerial; - scientific research.
Types of professional activities	06 Crude oil and natural gas production; 09.1 Technical services in the field of crude oil and natural gas production; 35.22 Distribution of gaseous fuels via pipelines; 42.21 Construction of distribution engineering facilities; 49.5 Pipeline transportation; 71.12 Engineering survey activities and the provision of technical consulting services in this field
Object of professional activity	The objects of professional activity of graduates are: enterprises of the oil and gas complex; technical devices and means for drilling oil wells; oil, gas and gas condensate fields on land and at sea.

Functions of professional activity	The main functions of professional activity are: drilling wells, casing and cementing wellbore, well development, operation of drilling equipment, operation of equipment for oil and gas production, well and reservoir exploration, operation of equipment for field preparation, transportation and storage of oil and gas.

3 Requirements for the content of the educational program

Name of cycles and disciplines	Workload in academic credits
Cycle of general education disciplines (GED)	56
Required component	51
University component	5
Cycle of basic disciplines (BD)	84
University component	25
Component of choice	59
Cycle of major disciplines (MD)	92
University component	15
Component of choice	60
Professional practice	17
Final certification	8
Total	240

4 Additional educational programs (minor)

4.1 Minor "Modern Aspects of Artificial Intelligence Application"

Name of disciplines	Workload in academic credits
Introduction to Artificial Intelligence	5
Development of artificial neural networks	5
Artificial intelligence in the management of object	5
Total	15

5 Competency map of the educational program 6B07254 Oil and Gas Business

Competence map of the educational program	Learning outcome code	Learning Outcome (according to Bloom's Taxonomy)
Behavioral skills and personality traits (Softskills)	GEK_1	Forms a system of general competencies that ensure the socio-cultural development of the future specialist's personality, based on the formation of their worldview, civic, and moral stance, oriented towards a healthy lifestyle
	GEK_2	Capable of communication in both oral and written forms in Kazakh, Russian, and foreign languages to solve tasks related to interpersonal, intercultural, and professional communication
	LO_1	Develops competencies in the field of economics, law, the foundations of an anti-corruption culture, as well as entrepreneurship and financial literacy skills in professional activities, taking into account the principles of sustainable development, ecology and life safety
Digital competencies (Digital skills)	GEK_3	Promotes the development of information literacy through the mastery and use of modern information and

		communication technologies in all areas of activity
Professional skills (Hardskills)	LO_2	Models the physicochemical changes in production composition and field equipment performance parameters at all stages from production to the end consumer
	LO_3	Conducts a physico-chemical multifactorial experiment using modern highly informative equipment, obtaining reliable and reproducible data with scientific novelty, analyzes scientific results from the standpoint of the latest ideas and achievements in the field of the study of the structure of matter in various states of aggregation, thermodynamics, hydrostatics, kinematics, hydrodynamics and gas dynamics, calculation of pipeline vessels, as well as drilling equipment
	LO_4	Solves the production, technological, research, design and operational tasks of the industry related to the design of technological processes of oil and gas production
	LO_5	Performs technical drawings for various purposes, sketches of parts, drawing up design and technical documentation of production, using professional terminology in the field of materials science and technology of structural materials; conducts microstructural analysis of metals and alloys
	LO_6	Proficient in applied software for solving problems in the design of oil, gas, and gas condensate production and the maintenance of oil and gas facilities and gas distribution systems, selecting the necessary data for calculations and evaluating the reliability of the calculations performed
	LO_7	Develops measures aimed at improving the efficiency of hydrocarbon production, with the introduction of environmentally friendly drilling and the use of technologies to enhance oil recovery
	LO_8	Organizes the work of primary production units engaged in the development, drilling, overhaul and operation of wells, oil and gas production, field control and regulation of hydrocarbon extraction, pipeline transportation of oil and gas, underground gas storage, storage and marketing of oil, petroleum products, liquefied gases
	LO_9	Selects methods of geological and field research and methods of increasing oil recovery, taking into account the geological features of the field and technical conditions, optimizing the transportation of oil and gas based on mathematical modeling of production processes, technological calculations of equipment and apparatuses of petrochemical
	LO_{10}	Determines the qualitative and quantitative compositions of the types and volumes of petrochemical products, methods and methods of quality control of oil and gas products
	LO_{11}	Applies artificial intelligence to solve practical tasks, including the development and optimization of production processes for asset management, improving efficiency, and reducing risks in the oil and gas industry

6 Learning outcomes of the educational program and modules

Key competencies	Learning Outcomes (LO) for the educational program	Name of module	Learning outcomes for the module	Name of disciplines that form learning outcomes
Behavioral skills and personality traits (Softskills)	GEK_1 Forms a system of general competencies that ensure the socio-cultural development of the future specialist's personality, based on the formation of their worldview, civic, and moral stance, oriented towards a healthy lifestyle	Self-education and personal development	Applies the fundamental laws of Kazakhstan's history, philosophy, and socio-political knowledge for effective socialization and adaptation in changing socio-cultural conditions, shaping a personality capable of mobility in the modern world, critical thinking, and physical self-improvement.	History of Kazakhstan, Philosophy, Socio-political knowledge module (sociology, political science, cultural studies, psychology) Physical Education
	GEK_2 Capable of communication in both oral and written forms in Kazakh, Russian, and foreign languages to solve tasks related to interpersonal, intercultural, and professional communication	Information and communication	Capable of interpersonal social and professional communi-cation in Kazakh, Russian, and foreign languages.	Foreign Language Kazakh/Russian
	LO_1 Develops competencies in the field of economics, law, the foundations of an anti-corruption culture, as well as entrepreneurship and financial literacy skills in professional activities, taking into account the principles of sustainable development, ecology and life safety	Self-education and personal development Fundamentals of technical engineering	Apply knowledge of the legal system and anti-corruption culture to professional activities, and assess the economic state of the system, occupational safety measures, and environmental impact. They master skills in personal financial management, budgeting, and investing, and understand the environmental impacts of oil and gas production, environmental protection methods, and sustainable development principles.	Economics, Entrepreneurship, Law, and Financial Literacy Module (Fundamentals of Economics and Entrepreneurship, Fundamentals of Law and Anti-Corruption Culture, Fundamentals of Financial Literacy) Sustainable Development, Ecology, and Life Safety Safety of oil and gas facilities extraction technology
competencies (Digital	GEK_3 Promotes the development of information literacy through the mastery and use of modern information and communication technologies in all areas of activity	Information and communication	Possesses various types of information and communication technologies for searching, storing, processing, protecting, and disseminating information.	Information and Communication Technologies

	LO_2 Models the physicochemical changes in production composition and field equipment performance parameters at all stages from production to the end consumer	Basic technical module Fundamentals of Oil and Gas Production Natural Science Fundamentals of Technical Engineering Oil and Gas Production, Processing, and Transportation on Land and Offshore Design and Maintenance of Oil and Gas Field Equipment Organization of the Oil and Gas Industry and Requirements for Oil and Gas Products	Models key oil and gas production technologies; methods for solving practical problems using strength of materials methods; standards and specifications; and the theory of mechanisms and machines in oil and gas production. Students utilize methods of static, kinematic, and dynamic calculations of mechanisms and machines; utilize knowledge of the composition and properties of oil and gas in relevant calculations; study modeling methods and technologies for optimizing field development, and master the principles of using CAD systems to create and manage design documentation.	Mathematical Modeling of Oil and Gas Processing Methods of Enhancing Oil and Gas Recovery from Reservoirs Oilfield Geology Fundamentals of Oil and Gas Production Technology Physics of Oil and Gas Reservoirs Oil and Gas Chemistry Production Geophysics Oilfield Equipment Well Production Collection and Preparation Computer Modeling of Oil and Gas Fields Fundamentals of Computer-Aided Design Systems Scientific Foundations of Well Drilling Design
Professional skills (Hardskills)	LO_3 Conducts a physico-chemical multifactorial experiment using modern highly informative equipment, obtaining reliable and reproducible data with scientific novelty, analyzes scientific results	Natural Science Basic Technical Module Fundamentals of Oil	They study the laws of mechanics and their application to motion analysis; master the principles of hydraulic processes in oil and gas systems and technologies that enhance hydrocarbon recovery; understand modern methods and processes used in field development;	Oil and Gas Reservoir Physics Drilling Equipment Hydraulics and Oil and Gas Hydromechanics Theoretical Mechanics

	from the standpoint of the latest ideas and achievements in the field of the study of the structure of matter in various states of aggregation, thermodynamics, hydrostatics, kinematics, hydrodynamics and gas dynamics, calculation of pipeline vessels, as well as drilling equipment	and Gas Production Fundamentals of Technical Engineering Design and Maintenance of Oil and Gas Field Equipment Oil and Gas Production, Processing, and Transportation on Land and Offshore	methods for obtaining and interpreting geophysical data for field evaluation; master technologies and strategies for efficient hydrocarbon recovery; and gain knowledge of the geological conditions and characteristics that influence the formation and exploitation of these resources. They understand the operating principles and design of pumping and compressor systems, and cover technologies for the creation and maintenance of pipeline systems for hydrocarbon transportation.	Electrical and Thermal Engineering Drilling Fluids and Methods of Their Preparation Fundamentals of Oil and Gas Production Technology Well Logging Trunk Pipelines, Pump Stations for Oil and Gas Pipelines and Storage Facilities Theoretical Foundations of Electrical Engineering
Professional skills (Hardskills)	LO_4 Solves the production, technological, research, design and operational tasks of the industry related to the design of technological processes of oil and gas production	Basic Technical Module Fundamentals of Oil and Gas Production Production, Processing, and Transportation of Oil and Gas on Land and Offshore Design and Maintenance of Oil and Gas Field Equipment Organization of the	Demonstrates the basic concepts and definitions of hydrostatics, kinematics, hydrodynamics, and gas dynamics; the law of pressure distribution in a fluid at rest; and pressure measurement instruments. Conducts a lithological breakdown of a well section; identifies reservoir rocks within the section; determines reservoir saturation (water, oil, and gas saturation); and quantitatively evaluates reservoir parameters for volumetric reserve calculation. Learn methods for creating and analyzing models to optimize field development, design efficient hydrocarbon storage and distribution systems, and gain knowledge of well restoration technologies; and acquire knowledge of the technological processes and equipment used in the oil and gas industry.	Fundamentals of Research and Theoretical Mechanics, Industrial Practice 1 Fundamentals of oil and gas business Oil and Gas Collection and Preparation for Transportation, Well Operation in Harsh Conditions Corrosion Protection of Drilling Equipment Design and Operation of Oil and Gas Storage Facilities and Oil and Gas Distribution Networks Design of Oil Depots and Petroleum Product Warehouses Oil Depots and Gas Stations

		Oil and Gas Industry and Requirements for Oil and Gas Products		Petrochemical Processes and Equipment
	LO_5 Performs technical drawings for various purposes, sketches of parts, drawing up design and technical documentation of production, using professional terminology in the field of materials science and technology of structural materials; conducts microstructural analysis of metals and alloys	Natural Science Fundamentals of Technical Engineering Design and Maintenance of Oil and Gas Field Equipment	Knowledge of the application areas of various modern materials for product manufacturing, their composition, structure, properties, and methods of thermal and chemical-thermal treatment; use professional terminology in the field of materials science and the technology of structural materials; conduct microstructural analysis of metals and alloys; prescribe appropriate processing to obtain specified structures and mechanical properties that ensure product reliability.	Engineering Graphics Descriptive Geometry Materials Science and Technology of Structural Materials Corrosion Protection of Oil and Gas Equipment
Professional skills (Hardskills)	LO_6 Proficient in applied software for solving problems in the design of oil, gas, and gas condensate production and the maintenance of oil and gas facilities and gas distribution systems, selecting the necessary data for calculations and evaluating the reliability of the calculations performed	Basic Technical Module Organization of the Oil and Gas Industry and Requirements for Oil and Gas Products Oil and Gas Production, Processing, and Transportation on Land and Offshore Fundamentals of Technical Engineering	Regulates the operating principles of expert systems, their capabilities, design and modeling principles, and principles of model creation and calculation; masters skills in organizing production work, planning production processes, and managing production resources; formulates a problem, selects the necessary data for the calculation, presents it in the form required for the calculation, and evaluates the reliability of the calculation performed.	Gas supply and design of gas distribution systems Organization, Planning, and Management of Production in the Oil and Gas Industry Offshore Field Development Industrial Internship 2 Process Calculations for Equipment and Apparatus in the Petrochemical Industry
	LO_7 Develops measures aimed at improving the efficiency of hydrocarbon production, with the introduction of environmentally	Basic Technical Module Fundamentals of technical	Consider environmental aspects in oil and gas production and strive for sustainable development; designs process and equipment safety. Develops measures to prevent accidents and	Oil production technology and techniques Well Drilling

	friendly drilling and the use of technologies to enhance oil recovery	engineering Oil and gas production, processing, and transportation on land and at sea Design and maintenance of oil and gas field equipment	mitigate their consequences, adhering to occupational health and safety, environmental safety, and industrial safety regulations and standards.	Materials Science and Technology of Structural Materials, Oil and Gas Production Safety Oil and Gas Processing Technology Corrosion Protection of Drilling Equipment
Professional skills (Hardskills)	LO_8 Organizes the work of primary production units engaged in the development, drilling, overhaul and operation of wells, oil and gas production, field control and regulation of hydrocarbon extraction, pipeline transportation of oil and gas, underground gas storage, storage and marketing of oil, petroleum products, liquefied gases	Natural Science Fundamentals of Oil and Gas Production Fundamentals of Technical Engineering Basic Technical Module Oil and Gas Production, Processing, and Transportation on Land and Offshore Design and Maintenance of Oil and Gas Field Equipment	They have a basic understanding of the principles and methods of preparing drilling fluids, and study their properties and application in drilling operations. They master the basic methods of collecting and preparing well products, as well as the technology; they identify and eliminate bottlenecks in the production process; they use the operating principles of drilling equipment, equipment for well operation and workover, for laying and repairing pipeline systems, and for collecting, preparing, and transporting oil, gas, and water. They have a basic understanding of the principles and methods of preparing drilling fluids, and study their properties and application in drilling operations, as well as the specifics of offshore field development. They know how to carry out well workovers, optimize costs, and improve well performance; they also understand the basic principles of design, construction, and operation of trunk pipelines; they master the technologies and operating methods of pumps and compressors, as well as the technologies for storing and transporting petroleum products; they study safety measures when working with stations, and the standards and safety requirements for storing and transporting petroleum products.	Oil and Gas Fundamentals General Geology and Hydrogeology Drilling Fluids and Methods of Preparation Well Drilling Industrial Geophysics Oil and Gas Field Development Operation of Oil and Gas Storage Facilities Drilling Equipment Shale Gas Production Technology Oil and Gas Collection and Preparation for Transportation Gathering and Preparation of Well Products Offshore Field Development Well Operation in Difficult Conditions Well Workovers Trunk Pipelines Pump Stations for Oil and Gas Pipelines and Storage Facilities

		Organization of the Oil and Gas Industry and Requirements for Oil and Gas Products		Oil Depots and Storage Facilities Design and Operation of Oil and Gas Storage Facilities and Oil and Gas Distribution Networks Design of Oil Depots and Petroleum Product Storage Facilities Construction and Repair of Pipeline Transport System Facilities Scientific Foundations of Well Drilling Design Oil Depots and Gas Stations Organization, Planning, and Management Production in the oil and gas industry Petrochemical processes and equipment
Professional skills (Hardskills)	LO_9 Selects methods of geological and field research and methods of increasing oil recovery, taking into account the geological features of the field and technical conditions, optimizing the transportation of oil and gas based on mathematical modeling of production processes, technological calculations of equipment and apparatuses of petrochemical	Basic Technical Module Natural Science Fundamentals of Technical Engineering Oil and Gas Production, Processing, and Transportation on Land and Offshore Design and Maintenance of Oil and Gas Field Equipment Organization of the Oil and Gas Industry and	Regulates the operating principles of expert systems, their capabilities, design and modeling principles, and model creation and calculation principles; selects methods for increasing oil and gas production, as well as modern technologies for optimizing production at various types of fields. Understands the fundamentals of geological and hydrogeological processes, as well as the specifics of offshore production, and applies this knowledge to selecting optimal fields and well placement. Calculates drilling rigs and tools, and organizes the processes of collecting, cleaning, and preparing products for transportation.	Mathematical modeling of oil and gas refining processes Enhanced oil and gas recovery methods Oilfield geology Geology of oil and gas fields General geology and hydrogeology Well geophysical surveys Diagnostic maintenance of gas pipeline facilities Process calculations for petrochemical equipment and apparatus Oil and gas refining technology Computer modeling of oil and gas fields Construction and repair of pipeline transportation systems Calculation and design of drilling equipment Pre-graduation internship/industrial training

		Requirements for Oil and Gas Products		
Professional skills (Hardskills)	LO_{10} Determines the qualitative and quantitative compositions of the types and volumes of petrochemical products, methods and methods of quality control of oil and gas products	Natural Science Organization of the Oil and Gas Industry and Requirements for Oil and Gas Products	Understanding the composition and chemical properties of hydrocarbon feedstocks, using chemical processes in the oil and gas industry to optimize production processes, studying the methods and processes of processing raw materials to obtain valuable products, as well as their compliance with modern quality standards and market requirements in the field of petrochemicals	Oil and Gas Chemistry Modern Requirements for Petrochemical Products
	LO_{11} Applies artificial intelligence to solve practical tasks, including the development and optimization of production processes for asset management, improving efficiency, and reducing risks in the oil and gas industry	Basic Technical Module Fundamentals of Technical Engineering Oil and Gas Production, Processing, and Transportation on Land and Offshore Oil and Gas Field Equipment Design and Maintenance	They gain basic knowledge of the principles and methods of artificial intelligence and its application in various fields; master methods for designing, training, and applying neural networks to solve classification, regression, and other complex problems; and study ways to apply AI to the automation and optimization of control of various technical and production systems, including data processing and real-time decision making.	Introduction to Artificial Intelligence Development of Artificial Neural Networks Artificial Intelligence in Object Management Fundamentals of Computer-Aided Design

7 The relationship between the attainability of the formed learning outcomes according to the educational program and academic disciplines

№	Name of the discipline	Brief description of the discipline	Number of credits		Formed learning outcomes (codes)													
				GEK1	GEK2	GEK3	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10	LO11
Cycle of general education disciplines																		
Required component																		
1	Foreign Language	The goal of the curriculum shall be the formation of intercultural communicative competence of students in the process of foreign language education at a sufficient level (A2, common European framework) and the level of basic sufficiency (B1, common European framework). The course content entails a sequential study of language proficiency levels by integrating social, socio-cultural, and academic-professional communication spheres. Upon completion of the discipline, student will be able to articulate potential solutions to contemporary issues in a foreign language, utilizing evidence-based information and reasoned arguments.	10		+													
2	Kazakh (Russian) Language	The purpose of the program - to teach the Kazakh (Russian) language in accordance with international standards for teaching languages, to increase the importance of the Kazakh language as the state language and the Russian language as a medium for intercultural and professional communication, developing competence in the use of the Kazakh (Russian) language by a future specialist as a means of communication in scientific, socio-cultural, political, professional spheres of public life. Upon completion of the curriculum, the student shall show competence in conditions of personal, social and professional communication in accordance with the peculiarities of the language, culture, communication situation.	10		+													
3	History of Kazakhstan	The purpose of the discipline shall be to give objective knowledge about the main stages in the development of the history of Kazakhstan from ancient times to the present. The program consists of 5 thematic blocks: Ancient people and the formation of a nomadic civilization, Turkic civilization and the Great Steppe,	5	+														

		Kazakhstan in a new era (XVIII-early XX centuries), Kazakhstan in the Soviet period, and Independent Kazakhstan. Upon completion of the discipline, student applies skills of analytical, axiological, critical analysis in the study of historical processes for an objective understanding of the modern Kazakh model of development.																
4	Information and Communication Technologies	The purpose of the program is to develop the ability to critically evaluate and analyze processes, methods of searching, storing and processing information, and methods of collecting and transmitting information through digital technologies. Studies the fundamentals of working with information, digital technologies, and computer systems; the application of software, internet services, and ICT in professional and research activities; information security; and artificial intelligence technologies. Upon completion of the discipline, student will be able to utilize digital technologies to develop data analysis and management tools for various fields of activity.	5			+												
5	Physical Culture	The goal of the curriculum shall be the formation of socio-personal competences of students and the ability to purposefully use the means and methods of physical culture for conservation, promotion of health to prepare for professional activities; to take physical stress, mental stress and adverse factors in their future activities. Upon completion of the curriculum, the student shall to use a variety of forms and types of physical activities for healthy life, active recreation and leisure.	8	+														
6	Module of Socio-political Knowledge (Sociology, Political science,Ccultural Studies, Psychology)	The objective of the discipline is to form the socio-humanitarian worldview of learners in the context of addressing the tasks of modernizing public consciousness, encompassing the interdisciplinary study of sociology, political science, cultural studies, and psychology while integrating principles of inclusion and the «Adal Azamat» (Honest Citizen) value orientations as fundamental pillars for the development of modern society. Upon completion of the discipline, the student interprets socio-humanitarian knowledge and ethical values based on	5	+														

		scientific methods of social analysis, participates in conflict resolution, and provides reasoned advocacy for positions regarding the modernization of Kazakhstan.																
7	Philosophy	The purpose of the program is to develop students' holistic understanding of philosophy as a special form of knowledge of the world, its main branches, problems, and methods of their study in the context of future professional activity. The discipline covers the key directions in the emergence and development of philosophy, the foundations of the philosophical understanding of the world, the philosophy of the human being, and the world of values. Upon completion of the discipline, student argue their own moral position regarding relevant issues of contemporary global society.	5	+														
University component																		
8	Module of Economics, Entrepreneurship, Law and Financial Literacy (Fundamentals of Economics and Entrepreneurship, Fundamentals of Law and Anti-corruption Culture, Fundamentals of Financial Literacy)	The discipline is aimed at developing entrepreneurial thinking, financial responsibility, legal literacy, fostering an anti-corruption culture, and commitment to the principles of law and order in a market economy. Its content includes the fundamentals of economics, entrepreneurship, financial literacy, law, anti-corruption culture. As a result of studying the discipline, the student has the skills to make effective economic decisions, ensure legal protection, apply financial literacy, and adhere to anti-corruption practices.	5				+												
Cycle of basic disciplines																		
University component																		
9	Mathematical Modeling of Oil and Gas Processing	The discipline is aimed at forming students' knowledge about the basic concepts of mathematical modeling methods, computer modeling of chemical and technological processes. Students acquire practical	5					+								+			

	Processes	skills in using the ChemCad package in modeling equilibrium (stationary) chemical technological processes (CC-Steady State), methods for creating technological circuits, calculating equipment parameters, using a periodic injection column (CC-Patch Column), analyzing the sensitivity of parameters, thermal balance and optimal process conditions.															
10	Fundamentals of Research in the Oil and Gas Industry	The discipline is aimed at developing students" theoretical knowledge and practical skills in conducting scientific research in the oil and gas industry. Students study the basic principles of scientific research, methods of planning and conducting research, modern approaches to data processing, visualization and interpretation; analyze experimental results; acquire the competencies necessary for independent research, preparation of reports, publications and scientific reports.	3							+							
11	Fundamentals of Oil and Gas Engineering	The discipline is aimed at developing students' basic knowledge about the processes of exploration, production, transportation and processing of oil and gas, the main technical and economic aspects of the oil and gas industry. Students have the skills to work with geological surveys to identify oil and gas fields, with modern technologies and equipment in the oil and gas industry.	5							+				+			
12	Sustainable Development, Ecology, and Life Safety	This discipline is designed to cultivate a systemic understanding of the principles of balancing economic development, social well-being, environmental preservation, and the protection of human life and health. It covers key issues in ecology, environmental protection, life safety, and sustainable development. Upon completion of the course, students will be able to apply the principles of sustainable development, environmental safety, and occupational health and safety to manage energy and waste within a circular economy framework.	5				+						+				
13	Physics of Oil and Gas Reservoir	The discipline is aimed at forming students' knowledge about modern concepts of physical processes occurring in oil and gas reservoirs; about the main physical migrations of reservoir fluids, geophysical methods for	4					+	+								

		assessing the physical condition of the reservoir environment, and the mineral composition of rock collectors. Students analyze the physical properties of an oil and gas reservoir, interpret data from geophysical studies, physical processes in the reservoir and their impact on hydrocarbon production.																
14	Chemistry of Oil and Gas	The discipline is aimed at developing students' knowledge of chemical processes, basic methods and technologies of chemical processing and refining of oil and gas systems. Students analyze the chemical properties of oil and gas, determine the composition of products, apply chemical methods to improve the quality of products and assess environmental impacts in order to develop measures to reduce them.	6					+									+	
Component of choice																		
17	Well Drilling	The discipline is aimed at developing knowledge about the basic principles of well drilling, including the selection and preparation of deposits, types of drilling rigs, features of the geological structure and well conditions. Students use the methods of drilling wells, the technical characteristics of drilling equipment used in the drilling process, and also observe safety measures at the site during drilling and well operation.	5											+	+			
18	Drilling Equipment	The course is aimed at developing students" knowledge of the theoretical and practical aspects of design, operation and maintenance of equipment used in the process of well drilling. Students study various types of drilling rigs, their design features, as well as the operating principles of pumping, lifting and motor systems; issues of ensuring safety during the operation of drilling equipment and the effective use of modern technologies to improve drilling productivity.	5						+						+			
19	Drilling Fluids and Their Preparation Methods (Minor)	The discipline is aimed at developing students" knowledge on the study of chemical and physical aspects of the preparation of drilling fluids (including their application and quality control) used in the oil and gas industry for drilling wells. Students determine the requirements for drilling mud depending on the geological features of the field and the characteristics of the well, ensuring efficient and safe drilling of wells.	5						+						+			

20	Introduction to Artificial Intelligence	The discipline is aimed at studying the basic concepts, methods and technologies used in modern artificial intelligence systems. The course covers artificial neural networks, machine learning, deep learning, as well as applied algorithms and models used in various fields such as computer vision, natural language processing, robotics, and game art. At the end of the course, students are able to analyze and solve problems using artificial intelligence methods.	5														+
21	Geology of Oil and Gas Fields	The discipline is aimed at developing students' basic knowledge of the basics of geology and geophysics, geological processes and structures related to the formation and placement of oil and gas in the Earth's crust. Students are able to analyze the processes underlying the formation and accumulation of oil and gas, as well as apply methods and technologies for oil and gas exploration and production.	5												+		
22	Geophysical Studies of Wells	The discipline is aimed at forming students" knowledge about the basic principles of working with geophysical equipment, interpreting data and applying research results for the exploration and development of oil and gas fields. Students interpret and process data obtained as a result of geophysical research in order to determine the structure, properties and content of hydrocarbons in wells.	5						+						+		
23	Hydraulics and Oil and Gas Hydromechanics	The discipline is aimed at forming students' knowledge about the basic laws of hydraulics and oil and gas hydromechanics, theoretical methods for calculating the main technological parameters. As a result of studying the discipline, students apply theoretical methods for calculating the basic parameters of hydraulic systems, devices and equipment in various fields of the oil and gas industry.	5						+								
24	Diagnostic Maintenance of Gas Pipeline Facilities	The discipline is aimed at forming students' knowledge about the main types of diagnostics of pipeline equipment, maintenance and repair of gas pipelines. Students have diagnostic skills and abilities to determine the technical condition of gas pipelines, identify defects and damages, as well as to maintain safe and efficient operation of gas pipelines.	5											+			
25	Engineering	The purpose of the discipline is to study and master	4								+						

	Graphics	the rules for the implementation, designation, drawing, which make it possible to depict parts and assemblies of technological machines using views, sections, sections, assembly drawings at the request of the unified system for design documentation. The study of the discipline allows you to develop the spatial and logical thinking of a specialist necessary for the development of drawings when creating new technological equipment.															
26	Materials Science and Technology of Structural Materials	The discipline is aimed at the formation of knowledge about the structure and properties of structural materials, ways to change their properties to improve the performance of parts. Students are able to analyze modern methods of obtaining, processing and processing structural materials.	5								+		+				
27	Methods of Enhancing Oil and Gas Recovery from Reservoirs	The discipline is aimed at developing students" knowledge about the technical characteristics of reservoirs and their impact on oil and gas recovery, modern principles, methods and strategies for increasing oil and gas recovery and optimizing production processes. Students are able to analyze and evaluate the main factors affecting the oil and gas recovery of reservoirs, apply modern methods and technologies to increase well productivity.	5					+							+		
28	Descriptive Geometry	The discipline is aimed at developing students' knowledge, techniques and skills in depicting spatial figures on a plane. Students are able to work with various types of graphic projections, create technical drawings, and visualize and analyze three-dimensional structures on a plane.	4								+						
29	Oilfield Geology	The discipline is aimed at forming students" knowledge about geological features and processes related to the formation, accumulation and production of oil and gas. Students analyze and interpret geological maps and seismic data to identify promising areas for exploration and development of oil and gas fields.	5					+							+		
30	General Geology and Hydrogeology	The discipline is aimed at developing students' fundamental knowledge about the structure, composition and processes of the Earth, hydrogeological characteristics and water resources of	5											+	+		

		the Earth's crust, the formation and placement of minerals, minerals, composing rocks (igneous and metamorphic). Students determine the geological structure and composition of rocks, analyze the main geological processes and phenomena, geological maps and diagrams, principles and methods of hydrogeological research.																
31	Fundamentals of Oil and Gas Production Technology	The discipline is aimed at developing students" knowledge about modern processes and technologies of oil and gas production, the principles of operation of oil and gas wells and installations. Students use geophysical methods of well exploration in studying the geological structure of oil and gas regions, as well as methods of hydrodynamic research in order to increase oil recovery of deposits.	5					+	+									
32	Field Geophysics	The discipline is aimed at forming students" knowledge about the application of geophysical methods for the exploration and evaluation of oil and gas fields in order to optimize their exploration, development and operation. Students use the results of field geophysics to make decisions in various aspects of the oil and gas industry, including choosing the location of wells, optimizing production and increasing the efficiency of field exploration.	5					+							+			
33	Development of artificial neural networks (Minor)	The discipline focuses on the study of methods for creating and training neural networks, which are mathematical models that mimic the work of the human brain. During the course of studying this discipline, students will learn about various types of neural networks, their structures and learning algorithms. Upon completion of the course, students will be able to create, train and apply neural networks to solve various tasks in the field of artificial intelligence and machine learning.	5															+
34	Development of Oil and Gas Fields	The discipline is aimed at developing knowledge about the development of oil and gas fields, types and methods of drilling fields, including the removal of oil and gas reserves to the surface. Students acquire the skills to analyze the fundamental principles of the development of oil and gas fields, methods of influencing the downhole zone of productive	5												+			

		formations and deposits to increase productivity and oil recovery of oil and gas formations, consider the problems of stability of the phase state and transformations of hydrocarbon systems in deposits of various types.															
35	Oil and Gas Gathering and Transportation Preparation	The discipline is aimed at the formation of knowledge necessary for the organization of effective collection, processing and preparation of oil and gas for transportation in the oil and gas industry. Students acquire skills in working with various types of equipment for collecting and preparing oil and gas for transport, such as pumps, compressors, separators, filters, and also observe safety measures when working with oil and gas to prevent accidents and minimize risks.	5							+				+			
36	Well Production Gathering and Processing	The discipline is aimed at developing knowledge about the physico-chemical foundations of the process of collecting and preparing well products on land and at sea for further transportation in various ways. Students have the skills to collect and prepare downhole products, including pressure and temperature control, comply with the rules and requirements of safety and ecology when working with downhole products.	5					+						+			
37	Theoretical Mechanics	The discipline is aimed at forming students" knowledge about the basic laws, principles and methods of theoretical mechanics, including the general laws of the mechanical movement of material points and mechanical systems, and the interaction between them. Students analyze and solve problems based on the laws of theoretical mechanics, as well as analyze the statics, kinematics and dynamics of a system of solids and their interactions.	5						+	+							
38	Oil Production Technology and Equipment	The discipline is aimed at providing students with knowledge about modern technologies and technical means of oil production, the main stages of oil field development, and the principles of operation of wells and surface equipment. As a result of studying the discipline, students learn how to select and calculate technological modes of well operation, select production equipment, and acquire the skills to analyze and optimize oil production processes in various											+	+			

		mining and geological conditions.															
39	Operation of Oil and Gas Storage Facilities	The discipline is aimed at the formation of knowledge and skills in the field of operation of the main facilities and facilities for the storage of oil and gas. In the process of studying the discipline, students use the principles of operation, maintenance and repair of equipment of oil and gas storage facilities, including health checks, replacement of parts, maintenance of security systems, etc.	5											+			
40	Electrical and Thermal Engineering	The discipline is aimed at forming students" knowledge about the basic principles and methods of converting electrical and thermal energy, their interrelation and influence on each other. Students develop the skills necessary for the selection, operation and maintenance of electrical and thermal engineering devices and systems.	5						+								
The cycle of profile disciplines																	
The university component																	
41	Safety of Oil and Gas Production Technologies	The discipline is aimed at developing students' knowledge about various types of risks (related to work at oil and gas facilities), their prevention, and management in accordance with modern standards and legislation. Upon successful completion of the course, students are able to apply workplace safety methods and techniques, as well as identify potential causes of emergencies and develop measures to prevent them.	5				+						+				
42	Well Workover	The discipline is aimed at forming students" knowledge about the main problems that arise during the operation of wells, modern methods and technologies for carrying out major repairs. Students diagnose the condition of wells in order to identify problems and malfunctions, observing the rules and safety standards during major well repairs.	5											+			
43	Oil and Gas Processing Technology	The discipline is aimed at forming students" knowledge about the composition and structure of oil and gas, their physico-chemical properties; chemical and technological schemes for obtaining organic substances from liquid and gaseous raw materials; the basics of thermodestructive, catalytic and	5										+		+		

		hydrogenation processes. Students acquire skills in using methods and methods of oil and gas refining to develop technological schemes for obtaining liquid components of fuels, lubricants, and solid hydrocarbons.																
Component of choice																		
44	Gas Supply and Design of Gas Distribution Systems	The discipline is aimed at providing students with knowledge in the field of organization and functioning of gas supply systems, principles of calculation and design of gas distribution networks for various purposes. Students learn methods of hydraulic calculation of gas pipelines, selection of gas supply schemes and equipment for gas regulation stations, and design of elements of gas distribution systems, taking into account the category of consumers, gas consumption modes, and industrial safety requirements.										+	+				
45	Corrosion Protection of Drilling Equipment	The discipline is aimed at forming students" knowledge about the main causes of corrosion on metal structures used in drilling; their qualitative and quantitative characteristics; methods and methods for assessing the reliability of equipment in conditions of corrosion. Students substantiate methods and means of protecting technological equipment from corrosion based on the results of structural studies of structural materials of oil and gas equipment.	5							+			+				
46	Artificial intelligence in the management of object (Minor)	The discipline studies the basic concepts and principles of artificial intelligence systems, as well as their application in object management. Methods and technologies of artificial intelligence for effective management of objects. Upon completion of the course, students gain the skills and knowledge necessary for successful management of facilities using	5														+
47	Computer Modeling of Oil and Gas Fields	The discipline is aimed at developing students' knowledge on the use of computer programs, methods for analyzing and modeling geological structures using artificial intelligence related to oil and gas fields. Students are able to process and analyze geological data, build the simplest geological graphics using graphical editors, create horizons, calculate reserves,	5					+							+		

		design wells using artificial intelligence, simulate the processes of oil and gas fields to improve the accuracy of forecasts and optimize field development.																
48	Main Pipeline	The discipline is aimed at developing knowledge on technologies for transporting oil, petroleum products and gas, on the composition of main pipeline structures, and sequential pumping of petroleum products through a pipeline. Students are able to determine the loads and impacts on main pipelines during construction and operation, calculate the strength characteristics of pipelines in various conditions.	5						+					+				
49	Pumping and Compressor Stations of Oil and Gas Pipelines and Storage Facilities	The discipline is aimed at educating students about the basic principles of operation and devices of pumping and compressor stations of oil and gas pipelines and storage facilities, modern technologies to ensure efficient and safe operation of this equipment. Students have the ability to control the process of pumping oil and gas in pumping and compressor stations using specialized control and monitoring systems.	5						+					+				
50	Pumping and Compressor Stations of Oil and Gas Pipelines and Storage Facilities	The discipline is aimed at developing knowledge of the principles and theoretical foundations of well drilling using scientific approaches and technologies. Students use scientific approaches and methods from various fields of science, such as geology, physics, mechanics and drilling technology, to effectively design well drilling modes and increase field productivity.	5					+						+				
51	Oil Depots and Gas Stations	The discipline is aimed at forming students' knowledge about petroleum products and their properties, the composition of structures and equipment of oil depots and gas stations, requirements for their execution and operation. Students measure the quantity and quality control of petroleum products, measures to reduce their losses, and also apply methods to protect pipelines and reservoirs from corrosion and loss of petroleum products from spills, fumes, pollution, etc.	5							+				+				
52	Oil Depots and Oil Storage Facilities	The discipline is aimed at developing students" knowledge about the organization, management and maintenance of oil depots and oil storage facilities (warehouses of oil and petroleum products). Students	5											+				

		acquire the skills of competent selection of modern methods and technological equipment to ensure the safe and efficient operation of oil depots and oil storage facilities.															
53	Oilfield Eqipment	The discipline is aimed at forming students" knowledge about the study of types and classification of basic and auxiliary equipment and structures in the oil field. Students understand the principles of operation of various types of oilfield equipment, taking into account the requirements for performance, safety and reliability.	5					+									
54	Organization, Planning, and Management of Production in the Oil and Gas Industry	The discipline is aimed at developing students" knowledge about the methodological and practical foundations of the organization, planning and management of production, taking into account the specifics of the oil and gas industry. As part of the study of the discipline, students are taught skills in the field of organization and system management of oil and gas industries, the use of economic levers in the organization of production, structural design, and features of labor organization in the oil and gas industry.	5									+		+			
55	Development of Offshore Fields	The discipline is aimed at forming students" knowledge about the processes of offshore field development, modern methods and technologies of offshore field development. Students analyze the geological structure and features of offshore fields, as well as carry out exploration, production and exploitation of deposits on the continental shelf, taking into account the peculiarities of the working environment.	5									+		+			
56	Fundamentals of Computer-Aided Design Systems	The discipline is aimed at forming students" knowledge about modern computer-aided design systems; structures, subsystems, types of support and interactions of CAD subsystems in the process of computer-aided design. Students apply software for industrial automated systems, ways to use information technology to automate design, engineering, and technological work, classify design and construction process design methods, and introduce artificial intelligence into management and decision support	5					+									+

		systems, improving the process and increasing the accuracy of computer-aided design.															
57	Design and Operation of Oil and Gas Storage Facilities and Distribution Networks	The discipline is aimed at forming students' knowledge of the purpose, design and technical characteristics of equipment and installations of oil and gas storage facilities and oil and gas distribution networks. Students apply modern methods of designing and operating oil and gas storage facilities and oil and gas distribution networks, as well as the principles of safety and environmental sustainability of networks, basic methods of control and maintenance during the operation of these facilities.	5							+				+			
58	Design of Oil Depots and Petroleum Product Warehouses	The discipline is aimed at developing students" knowledge of the basic principles of designing oil depots and warehouses of petroleum products, regulatory requirements and standards governing activities in this area. As a result of studying the discipline, students acquire the necessary skills to calculate and select equipment for oil depots and warehouses of petroleum products, they are able to work with professional tools and programs to create projects for oil depots and warehouses of petroleum products.	5							+				+			
59	Corrosion Protecti Gas Equipment	The discipline is aimed at forming students" knowledge about the types of metal corrosion and ways to combat it, technologies for anticorrosive protection of oil and gas field equipment and pipeline transport. Students make decisions to identify the root causes of corrosion and substantiate methods of combating corrosion in the extraction of energy resources, production, and transportation.	5								+						
60	Processes and Apparatuses of Petrochemistry	The discipline is aimed at forming students" knowledge about the basic technological processes of chemical production, methods of calculating chemical devices and chemical technology systems. In the process of studying the discipline, students analyze chemical and technological processes, choose the designs of the main devices for each technological process.	5							+					+		
61	Calculation and Design of	The discipline is aimed at the formation of knowledge on the definition and calculation of drilling equipment	5											+			

	Drilling Equipment	parameters, the application of methods for constructing objects in graphical form. Students acquire skills in engineering calculations and modeling to determine the characteristics and parameters of drilling equipment, including strength, wear resistance, and hydraulic losses.																
62	Modern Requirements for Petrochemical Products	The discipline is aimed at forming students" knowledge about modern systems and means of measuring the quality of petrochemical products. Students analyze the physico-chemical properties of petroleum products, acquire practical skills in mastering the basic physico-chemical analysis methods used to control the quality of oil and petroleum products.	5														+	
63	Construction and Repair of Pipeline Transport System Facilities	The discipline is aimed at the formation of knowledge about the types of objects of pipeline transport systems, its composition, structure and purpose; methods, methods and repair of pipeline transport facilities. Students are able to classify pipelines and pumping systems, the composition of pipeline structures, pumping and compressor stations, main and auxiliary pipeline equipment.	5												+	+		
64	Theoretical Foundations of Electrical Engineering	The discipline is aimed at forming students" knowledge about the basic laws and methods of calculating electric and magnetic circuits, electrostatic and electric fields. Students acquire practical skills in choosing the optimal production mode, calculating material and energy balances and modeling technological electrochemical processes.	5						+									
65	Technological Calculations of Oil and Gas Chemical Equipment and Apparatus	The discipline is aimed at forming students" knowledge about the basic physico-chemical processes occurring in technological installations and devices of petrochemistry. Students apply technological and mechanical calculations for thermal, mass transfer and hydrodynamic processes in various types of equipment and devices of petrochemistry.	5									+			+			
66	Shale Gas Production Technology	The discipline is aimed at forming students" knowledge about the peculiarities of the geology and geophysics of shale deposits, the development of modern technologies and processes used for efficient and safe gas extraction from shale rocks. Students use	5										+	+				

		well drilling technologies in shale deposits, choose types of equipment and tools to ensure efficient production.																
67	Operation of Wells in Challenging Conditions	The discipline is devoted to the specifics of working with oil and gas wells located in difficult geological, technical and climatic conditions. Students study methods to increase the efficiency of hydrocarbon production in conditions of high temperatures, pressure, the presence of aggressive chemicals, low reservoir permeability, prevention and elimination of emergency situations, and the use of specialized equipment and technologies to work in such conditions.	5							+				+				

8 Alignment of planned learning outcomes with assessment technologies and teaching methods within the module

Learning Outcomes (LO) Number	Planned learning outcomes for the module	Assessment technologies (tools)	Methods of learning and teaching
GEK_1	Applies the fundamental laws of Kazakhstan's history, philosophy, and socio-political knowledge for effective socialization and adaptation in changing socio-cultural conditions, shaping a personality capable of mobility in the modern world, critical thinking, and physical self-improvement.	Testing, essays/written papers, discussions, debates, project work, colloquium	Project method, case analysis
GEK_2	Capable of interpersonal social and professional communi-cation in Kazakh, Russian, and foreign languages.	Testing, multi-level tasks and assignments	
GEK_3	Possesses various types of information and communication technologies for searching, storing, processing, protecting, and disseminating information.	Colloquium	Project work, case study, interactive lecture
LO_1	Develops competencies in the field of economics, law, the foundations of an anti-corruption culture, as well as entrepreneurship and financial literacy skills in professional activities, taking into account the principles of sustainable development, ecology and life safety	Group work, discussion, practical assignments, testing and quizzes	Problem solving
LO_2	Models the physicochemical changes in production composition and field equipment performance parameters at all stages from production to the end consumer		
LO_3	Conducts a physico-chemical multifactorial experiment using modern highly informative equipment, obtaining reliable and reproducible data with scientific novelty, analyzes scientific results from the standpoint of the latest ideas and	Solving computational and practice-oriented problems, Oral examination/defense of	

	achievements in the field of the study of the structure of matter in various states of aggregation, thermodynamics, hydrostatics, kinematics, hydrodynamics and gas dynamics, calculation of pipeline vessels, as well as drilling equipment	calculations and models	
LO_4	Solves the production, technological, research, design and operational tasks of the industry related to the design of technological processes of oil and gas production	Solving practice-oriented problems, discussion	Test, solving situational problems
LO_5	Performs technical drawings for various purposes, sketches of parts, drawing up design and technical documentation of production, using professional terminology in the field of materials science and technology of structural materials; conducts microstructural analysis of metals and alloys	Technical drawings, multi-level tasks and assignments	
LO_6	Proficient in applied software for solving problems in the design of oil, gas, and gas condensate production and the maintenance of oil and gas facilities and gas distribution systems, selecting the necessary data for calculations and evaluating the reliability of the calculations performed	Interactive practical exercise, Project activity Case study	Practical tasks, project/case presentations, colloquium,
LO_7	Proficient in applied software for solving problems in the design of oil, gas, and gas condensate production and the maintenance of oil and gas facilities and gas distribution systems, selecting the necessary data for calculations and evaluating the reliability of the calculations performed	Practical exercises, interactive lecture, case study	Brainstorming. SWOT analysis, case studies
LO_8	Organizes the work of primary production units engaged in the development, drilling, overhaul and operation of wells, oil and gas production, field control and regulation of hydrocarbon extraction, pipeline transportation of oil and gas, underground gas storage, storage and marketing of oil, petroleum products, liquefied gases	Interactive lecture, case study, creative assignmentРолевые игры	
LO_9	Selects methods of geological and field research and methods of increasing oil recovery, taking into account the geological features of the field and technical conditions, optimizing the transportation of oil and gas based on mathematical modeling of production processes, technological calculations of equipment and apparatuses of petrochemical		Test, Interactive practical lesson
LO_{10}	Determines the qualitative and quantitative compositions of the types and volumes of petrochemical products, methods and methods of quality control of oil and gas products	Project activities, colloquium	Project defense, case analysis
LO_{11}	Applies artificial intelligence to solve practical tasks, including the development and optimization of production processes for asset management, improving efficiency, and reducing risks in the oil and gas industry	Interactive lecture, Multi-level tasks and assignments	

9 Correlation of learning outcomes of the educational program with the labor functions of professional standards (if any)

Name of the professional standards used	Professions at level 6 and/or 7 of the SQF	Labor functions	Tasks	Learning outcomes for the educational program
Operation of main pipelines	Main pipeline operation engineer	Monitoring the implementation of production indicators by divisions operating the main pipeline and process pipelines	Task 1: Verifying compliance with operating regulations for main pipeline equipment and process pipelines Task 2: Maintaining records of assigned equipment, installations, and systems for main pipeline facilities and process pipelines Task 3: Analyzing the causes of main pipeline equipment and process pipeline failures and process disturbances	LO3 Conducts physicochemical multifactorial experiments using modern, highly informative equipment, obtaining reliable and reproducible data with scientific novelty. It analyzes scientific results based on the latest concepts and advances in the study of the structure of matter in various states of aggregation, thermodynamics, hydrostatics, kinematics, hydrodynamics, and gas dynamics, as well as the calculation of pipeline vessels and drilling equipment. LO4 Solves production, technological, research, design, and operational problems in the industry related to the design of technological processes in oil and gas production.
Operation of oil and gas wells	Oil and Gas Production Engineer	Regulation of oil development and extraction processes	Task 1: Participation in events	LO2 Models the physicochemical changes in production composition and field equipment performance parameters at all stages from production to the end consumer LO7 Develops measures aimed at improving the efficiency of hydrocarbon production, with the introduction of environmentally friendly drilling and the use of technologies to enhance oil recovery LO8 Organizes the work of primary production units engaged in the development, drilling, overhaul and operation of wells, oil and gas production, field control and regulation of hydrocarbon extraction, pipeline transportation of oil and gas, underground gas storage, storage and marketing of oil, petroleum products, liquefied gases LO10 Determines the qualitative and quantitative compositions of the types and volumes of petrochemical products, methods and methods of quality control of oil and gas products LO11 Applies artificial intelligence to solve practical tasks, including the development and optimization of production processes for asset management, improving efficiency, and reducing risks in the oil and gas industry
Oil transportation	Chief Oil	Route planning and	Task 1: Defining routes	LO5: Creates technical drawings for various purposes,

management	Transportation Specialist	monitoring, oil distribution, documentation preparation	Task 2: Preparing documentation for approval Task 3: Monitoring oil transportation supplies	sketches parts, and prepares design and technical documentation for production, using professional terminology in the field of materials science and structural materials technology; conducts microstructural analysis of metals and alloys. LO6 Proficient in applied software for solving problems in the design of oil, gas, and gas condensate production and the maintenance of oil and gas facilities and gas distribution systems, selecting the necessary data for calculations and evaluating the reliability of the calculations performed LO9 Selects methods of geological and field research and methods of increasing oil recovery, taking into account the geological features of the field and technical conditions, optimizing the transportation of oil and gas based on mathematical modeling of production processes, technological calculations of equipment and apparatuses of petrochemical
Oil and Gas Production Management	Production Operations Engineer (Petroleum)	Ensuring a safe working environment	Task 1: Ensure that oil field workers comply with labor and production discipline, rules and instructions for the safe conduct of work, technological regimes and processes, the use of personal protective equipment, rules and regulations for occupational safety and health, safety engineering, fire safety, environmental protection, industrial sanitation and labor protection	LO9 Selects methods of geological and field research and methods of increasing oil recovery, taking into account the geological features of the field and technical conditions, optimizing the transportation of oil and gas based on mathematical modeling of production processes, technological calculations of equipment and apparatuses of petrochemical

10 Graduate model

GRADUATE MODEL			
Professional standards "Production Technology" (06.12.2022, No. 224), "Operation of Oil and Gas Wells" (06.12.2022, No. 224), "Quality Control of Oil, Gas and Refined Products" (12.06.2022, No. 486), "Oil and Gas Production Management" (06.12.2022, No. 224), Oil Transportation Management (06.12.2024, No. 479), Operation of Trunk Pipelines (06.12.2022, No. 224). Professional standards of the Career Enbek system, the Sectoral Atlas, and the Regional Atlas for the following occupations: "Equipment Modernization Supervisor", "Oilfield Service Engineer for Digitalization (Big Data Arc,hitect)" and "Drilling Engineer Using Environmentally Friendly Technologies".	Competencies (soft skills, digital skills)		
	Attributes of a graduate	Knowledge	Skills
	- Responsibility; - Accuracy; - Stress resistance; - Technical literacy; - Diligence; - Effective teamwork; - Accuracy in completing assigned tasks; - Independence; - Responsibility for one's own work and for the team's work; - Ability to independently develop professional qualifications and skills	Graduates should confidently use software required for modeling, accounting, and managing pipeline processes. They should be familiar with the technical characteristics and operating principles of main and process pipeline equipment, as well as repair, diagnostic, and maintenance methods. They should also be familiar with regulatory documents, regulations, specifications, and standards governing the operation and safety of this equipment. Knowledge of industry terminology, enterprise structure, department specializations, and best practices in oil and gas production, transportation, and processing is essential. Graduates should understand the principles of field development design and regulation, as well as methods for predicting their performance. Additionally, they should have a basic understanding of economics, occupational health and safety, fire safety, and the ability to provide first aid and coordinate the actions of production units on product quality control issues. Regulatory legal acts of the Republic of Kazakhstan, methodological and regulatory materials related to oil and gas processing equipment and technology.	Graduates are skilled in organizing and ensuring the completion of production tasks, planning, and monitoring production processes at oil and gas facilities. They possess skills in working with technical, service, and regulatory documentation, and are capable of developing and implementing regulatory and technical documents. They are skilled in analyzing information, systematizing data related to their field of activity, and developing and adjusting equipment operating procedures. They are proficient in using a personal computer, specialized software, office equipment, and automated accounting and control systems. They are capable of monitoring technological processes, controlling product quality, assessing risks during equipment operation, and ensuring industrial safety. They participate in the planning and implementation of repair, modernization, and commissioning of facilities, and interact with customers and internal services on logistics and product supply.

Типтік оқу жоспары
Типичный учебный план
Typical curriculum

Білім беру бағдарламасының коды және атауы: **6B07254-Мұнай-газ ісі**
Код и наименование образовательной программы: **6B07254-Нефтегазовое дело**
Code and name of the educational program: **6B07254 Oil and Gas Business**

Оқу түрі / Форма обучения / Form of training: Күндізгі / Очное/ Internal
Курс / Year 1,2,3,4

Модульдік № / № модуля / Module №	Пәндердің № / № дисциплины / Discipline №	ОҚУ ПӘНДЕРІНІҢ АТАУЫ НАИМЕНОВАНИЕ УЧЕБНЫХ ДИСЦИПЛИН NAME OF TEACHING DISCIPLINES	Оқу пәндерінің циклы (міндетті компонент / таңдау компоненті) Цикл учебных дисциплин (обязательный компонент / компонент по выбору) Educational disciplines cycle (compulsory component / component of choise)	Оқу пәндерінің коды Код учебной дисциплины Educational discipline code	Семестр / semester	Кредиттер саны Количество кредитов Number of credits	Білім алушылардың жұмыс уақытының бюджеті сағатпен Бюджет рабочего времени (час) Budget of working time (hours)							Кафедра атауы/ Наименование кафедры	Семестр бойынша болу Распределение по семестрам Distribytion of semesters								Пән бойынша қорытынды бағалау (емтихан, дифференциалды сынақ, мемлекеттік емтихан, жоба және т.б.)/ Форма итогового контроля по дисциплине (экзамен, дифференцированный зачет, государственный экзамен, проект и др.)/ Final assessment form for the discipline (exam, differentiated credit, state exam, project, etc.)	Пән бойынша қорытынды бағалаудың форматы (ауызша, жазбаша, тестілік, шығармашылық және т.б.)/ Форма проведения итогового контроля по дисциплине (устно, письменно, тест, творческий, и т д.)/ The format of the final assessment for the discipline (oraly, in writing, test, creative, etc.)
							Барлық сағат / Всего часов / Total hours	Аудиториялық жұмыс / Аудиторная работа / Class work				ОБОЖ / СРОП / IWST	БАОЖ / СРО / IWS		1 КУРС / YEAR		2 КУРС / YEAR		3 КУРС / YEAR		4 КУРС / YEAR			
								Барлық аудит. сағат Всего аудит. часов Total classroom hours	оның ішінде / в том числе / including						1 Академиялық кезең / Academic period	2 Академиялық кезең / Academic period	3 Академиялық кезең / Academic period	4 Академиялық кезең / Academic period	5 Академиялық кезең / Academic period	6 Академиялық кезең / Academic period	7 Академиялық кезең / Academic period	8 Академиялық кезең / Academic period		
									Д / ЛК / Lec	СПС / СПЗ / SPL	ЛС / ЛЗ / LC				Семестрдағы апталар саны / Недель в семестре / Weeks in a semester									
															15	15	15	15	15	15	15	15		
															аптасына аудиториялық сағат / аудиторных часов в неделю / classroom hours per week									
1	2	3	4	5	6	7	10	11	12	13	14	15			16	17	18	19	20	21	22	23	24	25
		ЦИКЛ ОБЩЕОБРАЗОВАТЕЛЬНЫХ ДИСЦИПЛИН (ООД) - 56 академических кредитов																						
		Обязательный компонент -_____51_____ академических кредитов																						
Модуль № 1	1	Қазақстан тарихы История Казахстана History of Kazakhstan	ЖБП (МК) ООД (ОК) GER (CS)	IK 1101-26 IK 1101-26 IK 1101-26	2	5	150	45	30	15		15	90	СГД		5							емлекеттік емтихан государственный экзамен state exam	ауызша устно oraly
	2	Философия Философия Philosophy	ЖБП (МК) ООД (ОК) GER (CS)	Fil 2102-26 Fil 2102-26 Fil 2102-26	4	5	150	45	30	15		15	90	СГД				5					емтихан экзамен exam	тест тест test
	3	Әлеуметтік-саясаттану білім модулі (әлеуметтану, саясаттану, мәдениеттану, психология) Модуль социально-политических знаний (политология, социология, культурология, психология) Module of socio-political knowledge (political science, sociology, cultural studies, psychology)	ЖБП (МК) ООД (ОК) GER (CS)	MSPZ 2103-26 MSPZ 2103-26 MSPZ 2103-26	4	8	240	120	60	60		24	96	СГД				8					емтихан экзамен exam	тест тест test
Модуль № 2	4	Шетел тілі Иностранный язык Foreign language	ЖБП (МК) ООД (ОК) GER (CS)	IYa 1104-26 IYa 1104-26 IYa 1104-26	1,2	10	300	90		90		30	180	ГиИЯ	5	5							емтихан экзамен exam	аралас комбинированный combined
	5	Қазақ (Орыс) тілі Казахский (Русский) язык Kazakh (Russian) language	ЖБП (МК) ООД (ОК) GER (CS)	K(R)Ya 1105-26 K(R)Ya 1105-26 K(R)Ya 1105-26	1,2	10	300	90		90		30	180	ГиИЯ	5	5							емтихан экзамен exam	аралас комбинированный combined
	6	Ақпараттық-коммуникациялық технологиялар Информационно-коммуникационные технологии Information and communication technologies	ЖБП (МК) ООД (ОК) GER (CS)	IKT 1106-26 IKT 1106-26 IKT 1106-26	1	5	150	45	15		30	15	90	ИТ	5								емтихан экзамен exam	тест тест test
	7	Дене шынықтыру Физическая культура Physical Culture	ЖБП (МК) ООД (ОК) GER (CS)	PhK 1107-26 PhK 1107-26 PhK 1107-26	1,2,3,4	8	240	120		120			120	ФВ	2	2	2	2					дифференциалды сынақ дифференцированный зачет differentiated credit	дифференциалды сынақ дифференцированный зачет differentiated credit
				ВСЕГО:	51	1530	555	135	390	30	129	846		17	17	2	15	0	0	0	0		
		Вузовский компонент и (или) компонент по выбору - 5 академических кредитов																						
Модуль № 1	1	Экономика, кәсіпкерлік, құқық және қаржылық сауаттылық модулі (экономика және кәсіпкерліктің негіздері, құқық негіздері және сыбайлас жемқорлыққа қарсы мәдениет, қаржылық сауаттылық негіздері) Модуль экономики, предпринимательства, права и финансовой грамотности (основы экономики и предпринимательства, основы права и антикоррупционная культура, основы финансовой грамотности) Module of economics, entrepreneurship, law and financial literacy (fundamentals of economics and entrepreneurship, basics of law and anti-corruption culture, basics of financial literacy)	ЖБП (ЖК) ООД (ВК) GER (UC)	MEPPFG 1101-26 MEPPFG 1101-26 MEPPFG 1101-26	2	5	150	45	30	15		15	90	ЭиУ СГД ФиУ		5							емтихан экзамен exam	тест тест test
				ВСЕГО:	5	150	45	30	15		15	90		0	5	0	0	0	0	0	0		
				ИТОГО ООД:	56	1680	600	165	405	30		936	0	17	22	2	15	0	0	0	0		

	ЦИКЛ БАЗОВЫХ ДИСЦИПЛИН (БД) - 84 академических кредитов																								
	Вузовский компонент 25 академических кредитов																								
Модуль № 3	1	Мұнай және газ қабатының физикасы Физика нефтяного и газового пласта Physics of the oil and gas reservoir	БП (ЖК) БД (ВК) BD (UC)	FizNGP 1201-26 FizNGP 1201-26 FizNGP 1201-26	1	4	120	45	15	30		3	72	ХХТиЭ	4								емтихан экзамен exam	жазбаша письменно in writing
	2	Мұнай-газ саласы негіздері Основы нефтегазового дела Basics of oil and gas business	БП (ЖК) БД (ВК) BD (UC)	ONGD 1202-26 ONGD 1202-26 ONGD 1202-26	2	3	90	30	15	15		6	54	ХХТиЭ		3							емтихан экзамен exam	жазбаша письменно in writing
	3	Мұнай және газ химиясы Химия нефти и газа Chemistry of oil and gas	БП (ЖК) БД (ВК) BD (UC)	ChNG 1204-26 ChNG 1204-26 ChNG 1204-26	2	5	150	45	15	30		15	90	ХХТиЭ		5							емтихан экзамен exam	жазбаша письменно in writing
Модуль № 5	4	Мұнай мен газды өңдеу процестерін математикалық модельдеу Математическое моделирование процессов переработки нефти и газа Mathematical modeling of oil and gas refining processes	БП (ЖК) БД (ВК) BD (UC)	MMPP 2205-26 MMPP 2205-26 MMPP 2205-26	3	5	150	45	15	30		15	90	ХХТиЭ			5						емтихан экзамен exam	жазбаша письменно in writing
	5	Мұнай-газ саласындағы ғылыми-зерттеу жұмысының негіздері Основы научно-исследовательской работы в нефтегазовой отрасли Fundamentals of scientific research in the oil and gas industry	БП (ЖК) БД (ВК) BD (UC)	ONIRNO 2206-26 ONIRNO 2206-26 ONIRNO 2206-26	3	3	90	30	15	15		6	54	ХХТиЭ			3						емтихан экзамен exam	жазбаша письменно in writing
Модуль № 1	6	Тұрақты даму, экология және тіршілік қауіпсіздігі Устойчивое развитие, экология и безопасность жизнедеятельности Sustainable development, ecology and life safety	БП (ЖК) БД (ВК) BD (UC)	UREBZh 3207-26 UREBZh 3207-26 UREBZh 3207-26	6	5	150	45	30	15		15	90	ЭиБ ХХТиЭ				5					емтихан экзамен exam	тест test test
					ВСЕГО:	25	750	240	105	135		60	450		4	8	5	0		5				
	Компонент по выбору - 59 академических кредитов																								
	Дисциплина по выбору БД-1																								
Модуль № 3	1	Инженерлік графика/ Инженерная графика/ Engineering graphics	БП (ТК) БД (КВ) BS (ES)	IG 1201-26 IG 1201-26 IG 1201-26	1	4	120	45	15	30		3	72	ТЛПиД	4								емтихан экзамен exam	жазбаша письменно in writing
	2	Сызба геометриясы / Начертательная геометрия / Descriptive geometry		NG 1201-26 NG 1201-26 NG 1201-26																			емтихан экзамен exam	жазбаша письменно in writing
	Дисциплина по выбору БД-2																								
Модуль № 3	3	Мұнай-газ кен орындарының геологиясы/ Геология нефтегазовых месторождений/ Geology of oil and gas fields	БП (ТК) БД (КВ) BS (ES)	NGM 1202-26 NGM 1202-26 NGM 1202-26	1	5	150	45	15	30		15	90	ХХТиЭ	5								емтихан экзамен exam	жазбаша письменно in writing
	4	Жалпы геология және гидрогеология/ Общая геология и гидрогеология/ General geology and hydrogeology		OGG 1202-26 OGG 1202-26 OGG 1202-26																			емтихан экзамен exam	жазбаша письменно in writing
	Дисциплина по выбору БД-3																								
Модуль № 4	5	Мұнай кәсіпшілігінің геологиясы/ Нефтепромысловая геология/ Oilfield geology	БП (ТК) БД (КВ) BS (ES)	NPG 2203-26 NPG 2203-26 NPG 2203-26	3	5	150	45	15	30		15	90	ХХТиЭ				5					емтихан экзамен exam	жазбаша письменно in writing
	6	Бұрғылау ерітінділері және оларды дайындау әдістері/ Буровые растворы и методы их приготовления/ Drilling fluids and methods of their preparation		BRMP 2203-26 BRMP 2203-26 BRMP 2203-26																			емтихан экзамен exam	жазбаша письменно in writing
	Дисциплина по выбору БД-4																								
Модуль № 5	7	Электр және жылу техникасы / Электро- и теплотехника / Electrical and thermal engineering	БП (ТК) БД (КВ) BS (ES)	ETT 2204-26 ETT 2204-26 ETT 2204-26	3	5	150	45	30	15		15	90	ХХТиЭ				5					емтихан экзамен exam	жазбаша письменно in writing
	8	Теориялық механика/ Теоретическая механика/ Theoretical mechanics		TM 2204-26 TM 2204-26 TM 2204-26																			емтихан экзамен exam	жазбаша письменно in writing
	Дисциплина по выбору БД-5																								
Модуль № 4	9	Мұнай-газ өндіру технологиясының негіздері / Основы технологии нефтегазодобычи / Fundamentals of oil-gas production technology	БП (ТК) БД (КВ) BS (ES)	OTND 2205-26 OTND 2205-26 OTND 2205-26	3	5	150	45	15	30		15	90	ХХТиЭ				5					емтихан экзамен exam	жазбаша письменно in writing
	10	Қабаттардың мұнай-газ шығынын арттыру әдістері / Методы повышения нефтегазоотдачи пластов / Methods of increasing oil and gas recovery of reservoirs		MPNGP 2205-26 MPNGP 2205-26 MPNGP 2205-26																			емтихан экзамен exam	жазбаша письменно in writing
	Дисциплина по выбору БД-6																								
Модуль № 5	11	Гидравлика және мұнай-газ гидромеханикасы/ Гидравлика и нефтегазовая гидромеханика/ Hydraulics and oil and gas hydromechanics	БП (ТК) БД (КВ) BS (ES)	GNGG 2206-26 GNGG 2206-26 GNGG 2206-26	3	5	150	45	15	30		15	90	ХХТиЭ				5					емтихан экзамен exam	жазбаша письменно in writing
	12	Мұнай өндіру технологиясы және техникасы Технология и техника добычи нефти Oil production technology and techniques		TTDN 2206-26 TTDN 2206-26 TTDN 2206-26																			емтихан экзамен exam	жазбаша письменно in writing
	Дисциплина по выбору БД-7																								
Модуль № 5	13	Бұрғылау жабдықтары/ Буровое оборудование/ Drilling equipment	БП (ТК) БД (КВ) BS (ES)	BO 2207-26 BO 2207-26 BO 2207-26	4	5	150	45	15	30		15	90	ХХТиЭ					5				емтихан экзамен exam	жазбаша письменно in writing
	14	Жасанды интеллектке кіріспе/ Введение в искусственный интеллект / Introduction to Artificial Intelligence		VII 2207-26 VII 2207-26 VII 2207-26										ИТ									емтихан экзамен exam	жазбаша письменно in writing
	Дисциплина по выбору БД-8																								
Модуль № 6	15	Мұнай және газ кен орындарын игеру/ Разработка нефтяных и газовых месторождений/ Development of oil and gas fields	БП (ТК) БД (КВ) BS (ES)	RNGM 3208-26 RNGM 3208-26 RNGM 3208-26	5	5	150	45	15	30		15	90	ХХТиЭ						5			емтихан экзамен exam	жазбаша письменно in writing
	16	Газ құбырлары объектілеріне диагностикалық қызмет көрсету/ Диагностическое обслуживание объектов газопроводов/ Diagnostic maintenance of gas pipeline facilities		DOOG 3208-26 DOOG 3208-26 DOOG 3208-26																			емтихан экзамен exam	жазбаша письменно in writing
	Дисциплина по выбору БД-9																								

Модуль № 6	17	Ұңғымаларды бұрғылау/ Бурение скважин/ Well drilling	БП (ТК) БД (КВ) BS (ES)	BS 3209-26 BS 3209-26 BS 3209-26	5	5	150	45	15	30		15	90	ХХТиЭ					5				емтихан экзамен exam	жазбаша письменно in writing
	18	Жасанды нейрондық желілерді әзірлеу/ Разработка искусственных нейронных сетей/ Development of artificial neural networks		RINS 3209-26 RINS 3209-26 RINS 3209-26										ИТ									емтихан экзамен exam	жазбаша письменно in writing
		Дисциплина по выбору БД-10																									
Модуль № 6	19	Материалтану және құрылымдық материалдар технологиясы / Материаловедение и технология конструкционных материалов / Materials science and technology of structural materials	БП (ТК) БД (КВ) BS (ES)	MTKM 3210-26 MTKM 3210-26 MTKM 3210-25	5	5	150	45	15	30		15	90	ХХТиЭ					5				емтихан экзамен exam	жазбаша письменно in writing
	20	Мұнай қоймаларын және газ қоймаларын пайдалану/ Эксплуатация нефтехранилищ и газохранилищ/ Operation of oil and gas storage facilities		ENGH 3210-26 ENGH 3210-26 ENGH 3210-26																			емтихан экзамен exam	жазбаша письменно in writing
		Дисциплина по выбору БД-11																									
Модуль № 6	21	Ұңғымаларды геофизикалық зерттеу/ Геофизические исследования скважин/ Geophysical studies of wells	БП (ТК) БД (КВ) BS (ES)	GIS 3211-26 GIS 3211-26 GIS 3211-26	5	5	150	45	15	30		15	90	ХХТиЭ					5				емтихан экзамен exam	жазбаша письменно in writing
	22	Кәсіпшілік геофизика/ Промысловая геофизика/ Field geophysics		PGPh 3211-26 PGPh 3211-26 PGPh 3211-26																			емтихан экзамен exam	жазбаша письменно in writing
		Дисциплина по выбору БД-12																									
Модуль № 7	23	Мұнай мен газды жинау және кәлікке дайындау/ Сбор и подготовка нефти и газа к транспорту/ Collection and preparation of oil and gas for transport	БП (ТК) БД (КВ) BS (ES)	SPNGT 3212-26 SPNGT 3212-26 SPNGT 3212-26	6	5	150	45	15	30		15	90	ХХТиЭ						5			емтихан экзамен exam	жазбаша письменно in writing
	24	Ұңғыма өнімдерін жинау және дайындау/ Сбор и подготовка скважинной продукции/ Collection and preparation of well products		SPSP 3212-26 SPSP 3212-26 SPSP 3212-26																			емтихан экзамен exam	жазбаша письменно in writing
				ВСЕГО:	**59**	**1770**	**540**	**195**	**345**		**168**	**1062**		**9**	**0**	**20**	**5**	**20**	**5**	**0**	**0**		
				ИТОГО ПО ЦИКЛУ БД:	**84**	**2520**	**780**	**300**	**480**	**0**	**228**	**1512**	**0**	**13**	**8**	**25**	**5**	**20**	**10**	**0**	**0**		
		ЦИКЛ ПРОФИЛИРУЮЩИХ ДИСЦИПЛИН (ПД) - 92 академических кредитов																									
		Вузовский компонент - 15 академических кредитов																									
Модуль № 6	1	Мұнай және газ өндіру технологиясының қауіпсіздігі Безопасность технологии добычи нефтегазовых объектов Safety of oil and gas facilities production technology	БП (ЖК) ПД (ВК) PD (UC)	BTDNO 3301-26 BTDNO 3301-26 BTDNO 3301-26	5	5	150	45	15	30		15	90	ХХТиЭ					5				емтихан экзамен exam	жазбаша письменно in writing
Модуль № 7	2	Мұнай-газды өңдеу технологиясы Технология нефтегазопереработки Oil and gas processing technology	БП (ЖК) ПД (ВК) PD (UC)	TNGP 3302-26 TNGP 3302-26 TNGP 3302-26	6	5	150	45	15	30		15	90	ХХТиЭ						5			емтихан экзамен exam	жазбаша письменно in writing
Модуль № 8	3	Ұңғымаларды күрделі жөндеу Капитальный ремонт скважин Overhaul of wells	БП (ЖК) ПД (ВК) PD (UC)	KRS 4303-26 KRS 4303-26 KRS 4303-26	7	5	150	45	15	30		15	90	ХХТиЭ							5		емтихан экзамен exam	жазбаша письменно in writing
				ВСЕГО:	**15**	**450**	**135**	**45**	**90**		**45**	**270**						**5**	**5**	**5**			
		Профессиональная практика 17 академических кредитов																									
Модуль № 5	1	Өндірістік практика 1 Производственная практика 1 Industrial practice 1	БП (ЖК) ПД (ВК) PD (UC)	PP 1-26 (NGD) PP 1-26 (NGD) PP 1-26 (NGD)	4	5	150	45	15	30				ХХТиЭ					5				Защита отчёта по практике Практика есебін қорғау Defense of the internship report	Защита отчёта по практике Практика есебін қорғау Defense of the internship report
Модуль № 7	2	Өндірістік практика 2 Производственная практика 2 Industrial practice 2	БП (ЖК) ПД (ВК) PD (UC)	PP 2-26 (NGD) PP 2-26 (NGD) PP 2-26 (NGD)	6	5	150	45	15	30				ХХТиЭ						5			Защита отчёта по практике Практика есебін қорғау Defense of the internship report	Защита отчёта по практике Практика есебін қорғау Defense of the internship report
Модуль № 9	3	Диплом алдындағы практика/ Өндірістік практика Преддипломная практика/Производственная практика Pre-graduate practice/ Industrial practice	БП (ЖК) ПД (ВК) PD (UC)	PDP/PP 26 (NGD) PDP/PP 26 (NGD) PDP/PP 26 (NGD)	8	7	210	45	15	30				ХХТиЭ								7	Защита отчёта по практике Практика есебін қорғау Defense of the internship report	Защита отчёта по практике Практика есебін қорғау Defense of the internship report
				ВСЕГО:	**17**	**510**	**135**	**45**	**90**								**5**		**5**	**0**	**7**		
		Компонент по выбору - 60 академических кредитов																									
		Дисциплина по выбору ПД-1																									
Модуль № 5	1	Тақта газын өндіру технологиясы Технология добычи сланцевого газа Shale gas production technology	БеП (ТК) ПД (КВ) PD (EC)	TDSG 2301-26 TDSG 2301-26 TDSG 2301-26	4	5	150	45	15	30		15	90	ХХТиЭ					5				емтихан экзамен exam	жазбаша письменно in writing
	2	Газбен жабдықтау және газ тарату жүйелерін жобалау Газоснабжение и проектирование газораспределительных систем Gas supply and design of gas distribution systems		GSPGRS 2301-26 GSPGRS 2301-26 GSPGRS 2301-26																			емтихан экзамен exam	жазбаша письменно in writing
		Дисциплина по выбору ПД-2																									
Модуль № 6	3	Мұнай кәсіпшілік жабдығы Нефтепромысловое оборудование Oilfield eqipment	БеП (ТК) ПД (КВ) PD (EC)	NPO 3302-26 NPO 3302-26 NPO 3303-26	5	5	150	45	15	30		15	90	ХХТиЭ					5				емтихан экзамен exam	жазбаша письменно in writing
	4	Мұнай-газ химиясы жабдықтары мен аппараттарының технологиялық есептеулері Технологические расчеты оборудовании и аппаратов нефтегазохимии Technological calculations of equipment and apparatuses of oil and gas chemistry		TROA 3302-26 TROA 3302-26 TROA 3302-26																			емтихан экзамен exam	жазбаша письменно in writing
		Дисциплина по выбору ПД-3																									
Модуль № 7	5	Қайраң кен орындарын игеру Освоение шельфовых месторождений Development of offshore fields	БеП (ТК) ПД (КВ) PD (EC)	OShM 3303-26 OShM 3303-26 OShM 3303-26	6	5	150	45	15	30		15	90	ХХТиЭ						5			емтихан экзамен exam	жазбаша письменно in writing
	6	Электротехниканың теориялық негіздері Теоретические основы электротехники Theoretical foundations of electrical engineering		TOE 3303-26 TOE 3303-26 TOE 3303-26																			емтихан экзамен exam	жазбаша письменно in writing
		Дисциплина по выбору ПД-4																									
Модуль № 7	7	Күрделі жағдайларда ұңғымаларды пайдалану Эксплуатация скважин в осложненных условиях Well operation in difficult conditions	БеП (ТК) ПД (КВ) PD (EC)	ESOU 3304-26 ESOU 3304-26 ESOU 3304-26	6	5	150	45	15	30		15	90	ХХТиЭ						5			емтихан экзамен exam	жазбаша письменно in writing
	8	Нысандарды басқарудағы жасанды интеллект Искусственный интеллект в управлении объектами Artificial intelligence in the management of object		IIUO 3304-26 IIUO 3304-26 IIUO 3304-26										ИТ									емтихан экзамен exam	жазбаша письменно in writing

		Дисциплина по выбору ПД-5																									
Модуль № 8	9	Мұнай-газ жабдықтарын коррозиядан қорғау Противокоррозионная защита нефтегазового оборудования Corrosion protecti gas equipment	БеП (ТК) ПД (КВ) PD (EC)	PZNGO 4305-26 PZNGO 4305-26 PZNGO 4305-26	7	5	150	45	15	30		15	90	ХХТиЭ							5		емтихан экзамен exam	жазбаша письменно in writing
	10	Бұрғылау жабдығын коррозиядан қорғау Защита от коррозии бурового оборудования Corrosion protection of drilling equipment		ZKBO 4305-26 ZKBO 4305-26 ZKBO 4305-25																			емтихан экзамен exam	жазбаша письменно in writing
		Дисциплина по выбору ПД-6																									
Модуль № 8	11	Мұнай және газ кен орындарын компьютерлік модельдеу Компьютерное моделирование месторождений нефти и газа Computer modeling of oil and gas fields	БеП (ТК) ПД (КВ) PD (EC)	KMMNG 4306-26 KMMNG 4306-26 KMMNG 4306-26	7	5	150	45	15	30		15	90	ХХТиЭ							5		емтихан экзамен exam	жазбаша письменно in writing
	12	Автоматтандырылған жобалау жүйесінің негіздері Основы системы автоматизированного проектирования Fundamentals of computer-aided design system		OSAP 4306-26 OSAP 4306-26 OSAP 4306-26																			емтихан экзамен exam	жазбаша письменно in writing
		Дисциплина по выбору ПД-7																									
Модуль № 8	13	Мұнай-газ қоймалары мен мұнай-газ тарату желілерін жобалау және пайдалану Проектирование и эксплуатация нефтегазохранилищ и нефтегазораспределительных сетей Design and operation of oil and gas storage facilities and oil and gas distribution networks	БеП (ТК) ПД (КВ) PD (EC)	PNSN 4307-26 PNSN 4307-26 PNSN 4307-26	7	5	150	45	15	30		15	90	ХХТиЭ							5		емтихан экзамен exam	жазбаша письменно in writing
	14	Мұнай базалары мен мұнай өнімдерінің қоймаларын жобалау Проектирование нефтебаз и складов нефтепродуктов Design of oil depots and warehouses for petroleum products		PNSN 4307-26 PNSN 4307-26 PNSN 4307-26																			емтихан экзамен exam	жазбаша письменно in writing
		Дисциплина по выбору ПД-8																									
Модуль № 8	15	Мұнай базалары мен мұнай қоймалары Нефтебазы и нефтехранилища Oil depots and oil storage facilities	БеП (ТК) ПД (КВ) PD (EC)	NBNH 4308-26 NBNH 4308-26 NBNH 4308-26	7	5	150	45	15	30		15	90	ХХТиЭ							5		емтихан экзамен exam	жазбаша письменно in writing
	16	Мұнай және газ құбырлары мен қоймаларына арналған сорғы-компрессорлық станциялары Насосно-компрессорные станции нефтегазопроводов и хранилищ Pump and compressor stations for oil and gas pipelines and storage facilities		NKSNGP 4308-26 NKSNGP 4308-26 NKSNGP 4308-26																			емтихан экзамен exam	жазбаша письменно in writing
		Дисциплина по выбору ПД-9																									
Модуль № 8	17	Магистральдық құбырлар Магистральные трубопроводы Main pipeline	БеП (ТК) ПД (КВ) PD (EC)	MT 4309-26 MT 4309-26 MT 4309-26	7	5	150	45	15	30		15	90	ХХТиЭ							5		емтихан экзамен exam	жазбаша письменно in writing
	18	Құбырмен тасымалдау жүйелерінің объектілерін салу және жөндеу/ Сооружение и ремонт объектов систем трубопроводного транспорта/ Construction and repair of objects of pipeline transport systems		SRO 4309-26 SRO 4309-26 SRO 4309-26																			емтихан экзамен exam	жазбаша письменно in writing
		Дисциплина по выбору ПД-10																									
Модуль № 9	19	Мұнай-газ саласындағы өндірісті ұйымдастыру, жоспарлау және басқару Организация, планирование и управление производства в нефтегазовой отрасли Organization, planning and production management in the oil and gas industry	БеП (ТК) ПД (КВ) PD (EC)	OPUPNO 4310-26 OPUPNO 4310-26 OPUPNO 4310-26	8	5	150	45	15	30		15	90	ХХТиЭ							5		емтихан экзамен exam	жазбаша письменно in writing
	20	Ұңғымаларды бұрғылау режимдерін жобалаудың ғылыми негіздері Научные основы проектирования режимов бурения скважин Ұңғымаларды бұрғылау режимдерін жобалаудың ғылыми негіздері		NOPRBS 4310-26 NOPRBS 4310-26 NOPRBS 4310-26																			емтихан экзамен exam	жазбаша письменно in writing
		Дисциплина по выбору ПД-11																									
Модуль № 9	21	Мұнай-газ химиясының процестері мен аппараттары Процессы и аппараты нефтегазохимии Processes and apparatuses of petrochemistry	БеП (ТК) ПД (КВ) PD (EC)	PANGC 4311-26 PANGC 4311-26 PANGC 4311-26	8	5	150	45	15	30		15	90	ХХТиЭ							5		емтихан экзамен exam	жазбаша письменно in writing
	22	Бұрғылау жабдықтарын есептеу және жобалау Расчет и конструирование бурового оборудования Calculation and design of the drilling equipment		RKBO 4311-26 RKBO 4311-26 RKBO 4311-26																			емтихан экзамен exam	жазбаша письменно in writing
		Дисциплина по выбору ПД-12																									
Модуль № 9	23	Мұнай-газ химиясы өнімдеріне қойылатын заманауи талаптар Современные требования к продуктам нефтегазохимии Modern requirements for petrochemical products	БеП (ТК) ПД (КВ) PD (EC)	STPNG 4312-26 STPNG 4312-26 STPNG 4312-26	8	5	150	45	15	30		15	90	ХХТиЭ							5		емтихан экзамен exam	жазбаша письменно in writing
	24	Мұнай базалары мен жанармай құю станциялары Нефтебазы и АЗС Oil depots and gas stations		NBAZS 4312-26 NBAZS 4312-26 NBAZS 4312-26																			емтихан экзамен exam	жазбаша письменно in writing
		ВСЕГО:				**60**	**1800**	**540**	**180**	**360**		**180**	**1080**					**5**	**5**	**10**	**25**	**15**		
		ИТОГО ПО ЦИКЛУ ПД:				**92**	**2760**	**810**	**270**	**540**		**225**	**1350**					**10**	**10**	**20**	**30**	**22**		
		Қорытынды аттестаттау модулі/Модуль итоговой аттестации/Final certification module																						
Модуль № 10		Дипломдық жұмысты (жобаны) жазу және қорғау немесе кешенді емтихан дайындау және тапсыру/ Написание и защита дипломной работы (проекта) или подготовка и сдача комплексного экзамена/ Writing and defense of diploma work (project) or preparation and submission of comprehensive exam			8	8	240							ХХТиЭ							8		Защита ДП/ДР/ Прием комплексного экзамена 1,2 ДЖ/ДЖ қорғау/ Кешенді емтихан 1.2 Defense of the diploma thesis / diploma project	Защита ДП/ДР/ Прием комплексного экзамена 1,2 ДЖ/ДЖ қорғау/ Кешенді емтихан 1.2 Defense of the diploma thesis / diploma project
Барлығы модуль бойынша / Итого по модулю / Total for module					**8**	**240**	**0**	**0**	**0**	**0**	**0**	**0**	ХХТиЭ							8			
БАРЛЫҒЫ МОДУЛЬДАР БОЙЫНША / ИТОГО ПО МОДУЛЯМ / TOTAL FOR MODULES					**240**	**7200**	**2190**	**735**	**1425**		**453**	**3798**		**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**		

EXPERT OPINION
on the Educational Program
"6B07254 – Oil and Gas Business" for 2026–2030

The educational program has been developed in accordance with the requirements of the State Mandatory Standard for Higher and Postgraduate Education approved by Order No. 2 of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022, as well as on the basis of the following professional standards: "Operation of Main Pipelines" (15.10.2025), "Management of Oil and Gas Production Operations" (18.11.2025), "Operation of Oil and Gas Wells" (18.11.2025), and "Management of Oil Transportation" (23.12.2024).

The duration of the bachelor's degree educational program in specialty 6B07254 – "Oil and Gas Business" is 4 years. The significance of this program is determined by the strategic importance of the oil and gas sector for the economic development of Kazakhstan.

The purpose of the educational program is to train competitive specialists capable of effectively performing professional duties in the fields of oil and gas exploration, production, processing, transportation, and storage. The program complies with the modern requirements of both national and international labor markets and meets current challenges and demands of the energy sector.

The program is aimed at training competent specialists with knowledge in geology, drilling, operation of oil and gas wells, transportation and storage of hydrocarbons, as well as the fundamentals of engineering design, ecology, and industrial safety. The training of qualified personnel in this field contributes not only to the sustainable development of the oil and gas industry, but also to the implementation of national programs in the areas of energy, industry, and environmental protection.

The program includes academic disciplines supplemented by an extensive catalog of elective courses, allowing flexible adaptation of the educational trajectory to the individual needs of students and the demands of the industry. The implementation of practice-oriented approaches, internships, and practical training at профильных enterprises enables students to develop skills corresponding to real industrial conditions. Thus, the program ensures a high level of specialist training and may be recommended for implementation in the educational process.

Expert:
Head of the Chemical Products
Development Directorate of
JSC "Kazakhstan Industry and Export
Center "QazIndustry" Zhatkanbaev E.E.

EXPERT OPINION

on the Educational Program

"6B07254 – Oil and Gas Business" for 2026–2030

The educational program "6B07254 – Oil and Gas Business" is aimed at training highly qualified specialists in the field of extraction, processing, and transportation of hydrocarbon raw materials. The program covers fundamental and applied disciplines that provide comprehensive knowledge in technology, safety, environmental protection, and economics of the oil and gas industry.

The purpose of the educational program is to ensure the training of a competitive generation of technical specialists for the labor market of the oil and gas industry, capable of solving issues related to the continuous technological processes of oil and gas extraction, transportation, storage, and marketing.

The program includes relevant disciplines reflecting modern trends in the development of the oil and gas industry, such as drilling and well operation methods, geology and geophysics, production process management, and environmental protection.

Educational materials and methodological resources comply with the requirements of state educational standards and include modern scientific developments, innovative technologies, and international standards.

The teaching staff possesses high qualifications and extensive scientific and practical experience in the oil and gas sector, which ensures high-quality education for students.

The educational program "6B07254 – Oil and Gas Business" meets modern requirements for training specialists in the oil and gas industry and provides comprehensive development of professional knowledge and skills necessary for successful professional activity in a dynamically developing market environment.

Recommendation: The program may be recommended for approval and implementation within the framework of bachelor's degree training in the field 6B072 – Manufacturing and Processing Industries.

Reviewer:

Engineer of the Branch of Schlumberger Logelco Inc, in the Republic of Kazakhstan, Ph.D. in Petroleum Engineering



M.K. Karimova

EXPERT OPINION

on the Educational Program
"6B07254 – Oil and Gas Business" for 2026–2030

The educational program has been developed in accordance with the requirements of the State Mandatory Standard for Higher and Postgraduate Education approved by Order No. 2 of the Minister of Science and Higher Education of the Republic of Kazakhstan dated July 20, 2022, as well as on the basis of the following professional standards: "Operation of Main Pipelines" (15.10.2025), "Management of Oil and Gas Production Operations" (18.11.2025), "Operation of Oil and Gas Wells" (18.11.2025), and "Management of Oil Transportation" (23.12.2024).

The duration of the bachelor's degree educational program in specialty 6B07254 – "Oil and Gas Business" is 4 years. The significance of this program is determined by the strategic importance of the oil and gas sector for the economic development of Kazakhstan.

The purpose of the educational program is to train competitive specialists capable of effectively performing professional duties in the fields of oil and gas exploration, production, processing, transportation, and storage. The program complies with the modern requirements of both national and international labor markets and meets current challenges and demands of the energy sector.

The program is aimed at training competent specialists with knowledge in geology, drilling, operation of oil and gas wells, transportation and storage of hydrocarbons, as well as the fundamentals of engineering design, ecology, and industrial safety. The training of qualified personnel in this field contributes not only to the sustainable development of the oil and gas industry, but also to the implementation of national programs in the areas of energy, industry, and environmental protection.

The program includes academic disciplines supplemented by an extensive catalog of elective courses, allowing flexible adaptation of the educational trajectory to the individual needs of students and the demands of the industry. The implementation of practice-oriented approaches, internships, and practical training at профильных enterprises enables students to develop skills corresponding to real industrial conditions. Thus, the program ensures a high level of specialist training and may be recommended for implementation in the educational process.

Expert:
Head of the Chemical Products
Development Directorate of
JSC "Kazakhstan Industry and Export
Center "QazIndustry"



Zhatkanbaev E.E.

EXPERT OPINION

on the Educational Program

"6B07254 – Oil and Gas Business" for 2026–2030

The educational program "6B07254 – Oil and Gas Business" is aimed at training highly qualified specialists in the field of extraction, processing, and transportation of hydrocarbon raw materials. The program covers fundamental and applied disciplines that provide comprehensive knowledge in technology, safety, environmental protection, and economics of the oil and gas industry.

The purpose of the educational program is to ensure the training of a competitive generation of technical specialists for the labor market of the oil and gas industry, capable of solving issues related to the continuous technological processes of oil and gas extraction, transportation, storage, and marketing.

The program includes relevant disciplines reflecting modern trends in the development of the oil and gas industry, such as drilling and well operation methods, geology and geophysics, production process management, and environmental protection.

Educational materials and methodological resources comply with the requirements of state educational standards and include modern scientific developments, innovative technologies, and international standards.

The teaching staff possesses high qualifications and extensive scientific and practical experience in the oil and gas sector, which ensures high-quality education for students.

The educational program "6B07254 – Oil and Gas Business" meets modern requirements for training specialists in the oil and gas industry and provides comprehensive development of professional knowledge and skills necessary for successful professional activity in a dynamically developing market environment.

Recommendation: The program may be recommended for approval and implementation within the framework of bachelor's degree training in the field 6B072 – Manufacturing and Processing Industries.

Reviewer:

Engineer of the Branch of Schlumberger
Logelco Inc, in the Republic of Kazakhstan,
Ph.D. in Petroleum Engineering



M.K. Karimova

EXPERT OPINION
on the Educational Program
"6B07254 – Oil and Gas Business" for 2026–2030

The educational program "6B07254 – Oil and Gas Business" is aimed at training highly qualified specialists focused on solving production-technological, environmental, and economic challenges in the oil and gas industry. The program covers modern technologies and methods in the fields of oil and gas production, processing, and transportation.

Program Content and Structure:

- The specialization program covers all major areas of the industry, including oil and gas geology, drilling operations, well operation, environmental protection, and industrial safety.
- The program maintains a high balance between theoretical and practical components, while students' professional skills are developed during industrial internships and practical training.
- The curriculum includes sections on new technologies and automation systems, ensuring that future specialists meet modern industry requirements.

The oil and gas industry is the foundation of our country's economy; therefore, training highly qualified personnel in this field is strategically important. The knowledge and skills provided within the program correspond to current labor market demands.

The educational process is carried out by highly qualified academic staff, while teaching materials and methodological resources are regularly updated and adapted to industrial requirements.

The specialty "6B07254 – Oil and Gas Business" is a high-quality educational program that meets modern standards and is aimed at training highly qualified specialists for the oil and gas industry. The implementation of the program is effective and contributes to the development of the country's oil and gas sector.

Best wishes,
Karatayev Kanat

Field Petroleum Engineering Superintendent
Reservoir Petroleum Engineering Department
Karachaganak Petroleum Operating b.v.
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ЭКСПЕРТНОЕ ЗАКЛЮЧЕНИЕ

на образовательную программу «6B07254 - Нефтегазовое дело» на 2025-2029 года

Образовательная программа "Нефтегазовое дело" направлена на подготовку специалистов, обладающих знаниями и навыками в области добычи, переработки и транспортировки углеводородного сырья. В условиях современного рынка труда, где энергетические ресурсы играют ключевую роль, данная программа имеет важное значение для обеспечения качественной подготовки кадров.

Целью образовательной программы является обеспечение подготовка конкурентоспособного поколения технических специалистов для рынка труда нефтегазовой отрасли, способных решать вопросы, связанные с непрерывным технологическим процессом добычи, транспортировки, хранения, реализации нефти и газа.

Основные задачи включают: изучение основ геологии, геофизики и геохимии углеводородов; обучение технологиям добычи и переработки нефти и газа; освоение методов проектирования и эксплуатации нефтегазовых месторождений; развитие навыков в области экологии и безопасности в нефтегазовом производстве.

Содержание программы соответствует современным требованиям отрасли и включает актуальные темы, такие как экологические аспекты добычи углеводородов и инновационные технологии. Программа также предполагает взаимодействие с промышленными партнерами, что способствует интеграции теоретических знаний с практическим опытом.

Специалисты в этой области востребованы как на национальном, так и на международном рынке труда. Программа "Нефтегазовое дело" отвечает требованиям работодателей и готовит студентов к вызовам современного рынка.

Образовательная программа "6B07254-Нефтегазовое дело" является актуальной и востребованной. Она предоставляет студентам необходимые знания и навыки для успешной карьеры в нефтегазовой отрасли и рекомендуется к использованию в учебном процессе в Казахском университет технологии и бизнеса им. К.Кулажанова.

Научный работник научно-исследовательского института окружающей среды и природоохранных технологий при Green University, д.с.х.н. **Бобоев Х.О.**

International Academic Advisor Confirmation/ Шетелдік кеңесшінің қатысуы/ Участие зарубежного консультанта

Educational Program/ Білім беру бағдарламасы/ Образовательная программа	6B07254 – Oil and Gas Business/ 6B07254 – Мұнай газ ісі/ 6B07254 - Нефтегазовое дело
Level/ Дәрежесі/ Уровень	Bachelor/Бакалавр/Бакалавр
International Academic Advisor/ Шетелдік академиялық кеңесші/ Зарубежный консультант	Khudaiberdieva Dilfuza Bakhramovna / Худайбердиева Дилфуза Бахрамқызы / Худайбердиева Дилфуза Бахрамовна
Academic degree/ Ғылыми дәреже/ Ученая степень	Doctor of Technical Sciences/ Техника ғылымдарының докторы/ Доктор технических наук
Position/ Лауазымы/ Должность	Professor/ Профессор/ Профессор
University/ Университет/ Университет	Tashkent Institute of Textile and Light Industry / Ташкент тоқыма және жеңіл өнеркәсіп институты/ Ташкентский институт текстильной и легкой промышленности
Country/ Ел/ Страна	Uzbekistan /Өзбекстан /Узбекистан

Approved/ Келісілді/ Согласовано

The educational program has been reviewed and approved. The updated content of the educational program, the sequence of courses, and the revised learning outcomes (LO) have been developed in accordance with modern academic approaches.

Білім беру бағдарламасы қарастырылып, келісілді. Білім беру бағдарламасының жаңартылған мазмұны, пәндерді оқу реттілігі және жаңартылған оқу нәтижелері (ОН) заманауи академиялық тәсілдерге сәйкес әзірленді.

Образовательная программа рассмотрена и согласована. Актуализированное содержание образовательной программы, последовательность изучения дисциплин и обновленные результаты обучения (РО) сформированы с учетом современных академических подходов.

International Academic Advisor/	D. Khudaiberdieva /	_____	_____
		(Signature/	*(Date/*
Шетелдік академиялық кеңесші/	Д. Худайбердиева/	*Қолы/*	*Күні/*
Зарубежный консультант	Д. Худайбердиева	*Подпись)*	*Дата)*

Seal/ МО/ МП