NON-PROFIT JOINT STOCK COMPANY "KAZAKH NATIONAL RESEARCH TECHNICAL UNIVERSITY named after K.I. SATABYEV"

Institute of «Geology and Oil and Gas Business»

Department of «Petroleum Engineering»

EDUCATIONAL PROGRAM

6B07204 «Petroleum engineering»

Code and classification of the field of education: 6B07 «Engineering, manufacturing and construction industries»
Code and classification of training areas: 6B072 «Industrial and manufacturing branches»
Group of educational programs: B071 «Mining and mineral extraction»
Level on NQF: 6
Level on SQF: 6
Period of study: 4
Volume of credits: 240

Almaty 2025

NON-PROFIT JOINT STOCK COMPANY "KAZAKH NATIONAL RESEARCH TECHNICAL UNIVERSITY named after K.I. SATABYEV"

Educational program 6B07204 «Petroleum Engineering» approved at the meeting of the Academic Council of KazNRTU named after K.Satbayev.

Protocol no. 10 from 2025 y. "03" 06.

Reviewed and recommended for approval at a meeting of the Educational and Methodological Council of KazNRTU named after K.Satbayev.

Protocol no. 3 from 2024 y. "20" 12.

Educational program 6B07204 «Petroleum Engineering» developed by the academic committee in the direction of 6B072 «Manufacturing and processing»

Full name	Academic degree/ academic title	Position	Place of work	Signature
Chairman:				
Abdimaulen Dias	Doctor PhD	Head of the Department	NCJS «Kazakh National Research Technical university named after K.I.Satbayev»	
Teaching staff:				
Moldabayeva Gulnaz	Doctor of Technical Sciences, prof.	Professor	NCJS «Kazakh National Research Technical university named after K.I.Satbayev»	
Zaurbekov Seitzhan	Candidate of Technical Sciences	Professor	NCJS «Kazakh National Research Technical University named after K.I.Satbayev»	
Akhymbayeva Bibinur	Doctor of Philosophy (PhD)	Associate Professor	NCJS «Kazakh National Research Technical University named after K.I.Satbayev»	
Baimukhametov Murat	Candidate of Physical and Mathematical Sciences, docent	Associate Professor	NCJS «Kazakh National Research Technical University named after K.I.Satbayev»	
Moldabekov Murat	Doctor of Philosophy (PhD)	Associate Professor	NCJS «Kazakh National Research Technical University named after K.I.Satbayev»	

NON-PROFIT JOINT STOCK COMPANY "KAZAKH NATIONAL RESEARCH TECHNICAL UNIVERSITY named after K.I. SATABYEV"

Smashov Nurlan	Candidate of Technical Sciences, docent	Associate Professor	NCJS «Kazakh National Research Technical University named after K.I.Satbayev»	
Imansakipova Nurgul	Doctor of Philosophy (PhD)	Associate Professor	NCJS «Kazakh National Research Technical University named after K.I.Satbayev»	
Yskak Ardak	Doctor of Philosophy (PhD)	Senior Lecturer	NCJS «Kazakh National Research Technical University named after K.I.Satbayev»	
Employers:				
Nurkas Zhasulan		Director	LLP «Manul»	
Bekbau Bakbergen		Leading Researcher, Modeling Service	«KMG Engineering» LLP	
Nysangaliyev Amangali	Doctor of Technical Sciences, Professor, Academician of the National Engineering Academy of the Republic of Kazakhstan	Director of the Center for Ground Design	JSC «Kazakh Institute of Oil and Gas»	
Students:				
Mahsut Beknur	Student of the educational program 6B07214 «Drilling engineering»	3nd year (after college)	NCJS «Kazakh National Research Technical University named after K.I.Satbayev»	

Table of contents

List of abbreviations and designations

EP – Educational program
NQF – National Qualifications Framework
IQF – Industry Qualifications Framework
KC – Key competencies
PC – Professional competencies
MIOR – Methods of increasing oil recovery

1. Description of the educational program

The educational program "Petroleum Engineering" is devoted to the study, monitoring and management of natural and man-made systems for the extraction of hydrocarbons (oil, associated and natural gas) and other components from the subsurface on the basis of rational subsurface use, including resource-saving, environmentally safe and cost-effective geotechnologies for the development of subsurface resources, systems for the preparation of well products and geological and technical systems for long-term and trouble-free functioning. The program provides for the study of a wide range of subjects from fundamental sciences (mathematics, physics, geology, chemistry) to special disciplines on the development and operation of oil and gas fields, methods of enhanced oil recovery, modeling of technological processes. The subjects of professional activity of the OP are deposits and enterprises engaged in the development and operation of oil and gas fields.

The EP is based on the state educational standard for higher professional education, the professional standard, and the Atlas of New Professions.

The professional standards for this educational program include:

1. Operation of oil and gas wells;
2. Reception, storage and delivery of oil;
3. Commodity transport operations for oil;
4. Oil and gas production management;
5. Commodity production, storage of oil, petroleum products and gas;
6. Commissioning and repair works;
7. Preparation of washing liquids;
8. Heat tracing of oil.

Atlas of new professions – Analytical engineer in the oil and gas industry.

2. Purpose and objectives of the educational program

EP purpose: The purpose training of highly qualified specialists with competencies in the field of exploration, drilling, development and operation of oil and gas fields, capable of applying advanced technologies and engineering solutions to increase the efficiency of hydrocarbon production and sustainable energy development.

EP objectives:

1. To train specialists who will be able to apply knowledge of mathematics, science and technology, as well as identify, formulate and solve engineering problems to improve the technological processes of the oil and gas industry.

2. To instill in students knowledge of research methodology (setting research

goals, data collection, data processing and transformation, data examination, model building and method selection, presentation and visualization of results).

3. Develop the ability to extract the necessary information from various sources, including information flows in real time, analyze it for further decision-making and see logical connections in the system of collected information.

4. Train students to effectively convey information and thoughts to other people.

5. To instill in students the desire for independent learning and the manifestation of a high level of competence in engineering principles and in practice.

6. To instill in students the skills of working in different industry and multicultural teams.

7. To develop the graduates' need to live and practice ethical, social and environmental standards in their professions in a responsible manner.

3. Requirements for assessing learning outcomes of an educational program

The educational program has been developed in accordance with the State Mandatory Standards of 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 (registered in the Register of State Registration of Normative Legal Acts under No. 28916) and reflects the learning outcomes on the basis of which curricula are developed (working curricula, individual curricula of students) and working curricula in disciplines (syllabuses).

The assessment of learning outcomes is carried out according to the developed test tasks within the framework of the educational program in accordance with the requirements of the state mandatory standard of higher and postgraduate education.

When evaluating learning outcomes, uniform conditions and equal opportunities are created for students to demonstrate their knowledge, skills and abilities.

4. Passport of the educational program

4.1. General information

№	Field name	Note
1	Code and classification of field of education	6B07 «Engineering, Manufacturing and contruction industries»
2	Code and classification of direction of personnel training	6B072 «Industrial and manufacturing branches
3	Group of educational programs	B071 «Mining and mineral extraction»
4	Name of educational program	6B07204 «Petroleum engineering»
5	Brief description of the educational program	The educational program is harmonized with the 6th level of the National Qualifications

		Framework of the Republic of Kazakhstan, the Dublin Descriptors and contains a wide range of disciplines of fundamental sciences and special disciplines on the development and operation of oil and gas fields, methods of enhanced oil recovery, modeling of technological processes.
6	EP purpose	The purpose training of highly qualified specialists with competencies in the field of exploration, drilling, development and operation of oil and gas fields, capable of applying advanced technologies and engineering solutions to increase the efficiency of hydrocarbon production and sustainable energy development.
7	EP type	New EP
8	Level on NQF	6
9	Level on SQF	6
10	Distinctive features of EP	Collaborative EP. Partner OHPE - Pennsylvania State University (PENN STATE), USA
11	List of competencies of the educational program:	1. Apply knowledge of mathematics, science and technology 2. Design and conduct experiments, as well as analyze and interpret data 3. Develop systems, components, or processes to meet desired needs under specific constraints such as economic, environmental, social, political, ethical, health, and safety, production and stability 4. Work effectively in interdisciplinary teams 5. Identify, formulate and solve technical problems 6. Understand professional and ethical responsibility 7. Communicate effectively, be able to formulate thoughts and present projects in public
12	Educational program learning outcomes:	ON1. Identify, formulate, and solve complex engineering problems in the areas of drilling, production, processing, and transportation of oil and gas by applying engineering science principles and optimizing industrial processes while considering economic, environmental, social, and industrial constraints. ON2. Apply engineering design to develop solutions that meet specific requirements for the development and operation of oil and gas fields, ensuring public health, safety, and welfare, and taking into account global, cultural, social, and economic factors. ON3. Design and conduct laboratory and field experiments, analyze and interpret experimental data, and use engineering judgment and research methods to draw

		justified conclusions and optimize technological processes in petroleum engineering, applying specialized equipment and software for data analysis. ON4. Communicate effectively with both professional and general audiences in oral, written, and graphical forms, and participate in discussions with engineers, clients, and regulatory bodies regarding the design and operation of oil and gas facilities. ON5. Recognize ethical and professional responsibilities and make informed engineering decisions, considering the impact of engineering activities on global, economic, environmental, and societal aspects within the context of the oil and gas industry and sustainable subsurface resource management. ON6. Function effectively on a team whose members collectively provide leadership, create a collaborative environment, establish goals, plan tasks, and achieve objectives within the practical constraints of oil and gas projects. ON7. Acquire and apply new knowledge as needed, using appropriate learning strategies, information technologies, engineering simulators, and databases for continuous professional development and the effective resolution of petroleum engineering challenges throughout a career.
13	Form of study	Full-time
14	Period of study	4
15	Volume of the credits	240
16	Language of education	Kazakh, Russian, English
17	Academic degree awarded:	Bachelor of Engineering and Technology
18	Developer and author:	N. Imansakipova Doctor of Philosophy, Associate Professor

4.2. The relationship between the achievability of the formed learning outcomes in the educational program and academic disciplines

№	Name of discipline	Short description of discipline	Amount of credits	The formed educational outcomes						
				ON1	ON 2	ON3	ON 4	ON5	ON6	ON7
Cycle of general education disciplines Required component										
1	Foreign language	English is a compulsary subject. According to the results of placement test or IELTS score, students are placed into groups and disciplines. The name of the discipline corresponds to the level of English. When passing from level to level, prerequisites and postrequisites are respected.	10				v			v
2	Kazakh (Russian) language	Kazakh (Russian) language In this course author considers socio-political, socio-cultural spheres of communication and functional styles of the modern kazakh (russian) language. The course covers the specifics of the scientific style to develop and activate professional communication skills and abilities of students. Also it allows students to leavn the basics of scientific style practically and develop the ability of production structural and semantic text analysis.	10				v			v
3	Physical Culture	The purpose of the discipline is to master the forms and methods of forming a healthy lifestyle within the framework of the professional education system. Familiarization with the natural-scientific basics of physical education, knowledge of modern health-improving technologies, basic methods of independent physical education and sports. As part of the course, the student will master the rules of judging in all sports.	8				v		v	
4	Information and Communication technology	The aim of the course is to gain theoretical knowledge in information processing, the latest information technologies, local and global networks, the methods of information protection; Getting the right use of text editor editors and tabulators; creation of base and different categories of applications.	5		v		v			v

5	History of Kazakhstan	The purpose of the discipline is to provide objective historical knowledge about the main stages of the history of Kazakhstan from ancient times to the present day; introduce students to the problems of the formation and development of statehood and historical and cultural processes; contribute to the formation of humanistic values and patriotic feelings in the student; teach the student to use the acquired historical knowledge in educational, professional and everyday life; evaluate the role of Kazakhstan in world history.	5				**v**		**v**	**v**
6	Philosophy	The purpose of the discipline is to teach students the theoretical foundations of philosophy as a way of knowing and spiritually mastering the world; developing their interest in fundamental knowledge, stimulating the need for philosophical assessments of historical events and facts of reality, assimilating the idea of the unity of the world historical and cultural process while recognizing the diversity of their skills in applying philosophical and general scientific methods in professional activities.	5				**v**		**v**	**v**
7	Module of socio-political knowledge (sociology, political science)	The objectives of the disciplines are to provide students with explanations on the sociological analysis of society, about social communities and personality, factors and patterns of social development, forms of interaction, types and directions of social processes, forms of regulation of social behavior, as well as primary political knowledge that will serve as a theoretical basis for understanding social -political processes, for the formation of political culture, development of a personal position and a clearer understanding of the extent of one's responsibility; help to master the political, legal, moral, ethical and socio-cultural norms necessary to act in the interests of society, form personal responsibility and achieve personal success.	3				**v**		**v**	**v**
8	Module of socio-political knowledge (cultural studies, psychology)	The purpose of the disciplines is to study the real processes of cultural creative activity of people who create material and spiritual values, identify the main trends and patterns of cultural development, changes in cultural eras, methods and styles, their role in the formation of man and the development of society, as	5				**v**		**v**	**v**

		well as master psychological knowledge for the effective organization of interpersonal interaction, social adaptation in the field of their professional activities.								
Cycle of general education disciplines Election Component										
9	Law basics	Aims and objectives of the course: is to acquire legal knowledge and skills, ways of effective management of labor collective, based on legal mechanisms of human activity. Brief content: This course allows to acquire knowledge on the basics of law of profiling and some derivative branches of law, to systematize ideas about the content of subjects and objects of legal relations about the main institutions and functions of the studied branches of law. Expected results: Ability to freely find the rule of law, which provides for a specific legal relationship, the ability to draw up legal documents necessary in the process of carrying out professional activities, as well as to take the necessary legal measures to restore violated personal, subjective rights.	5				**v**	**v**		**v**
10	Basics of Financial Literacy	Purpose: formation of financial literacy of students on the basis of building a direct link between the acquired knowledge and their practical application. Contents: using in practice all kinds of tools in the field of financial management, saving and increasing savings, competent budget planning, obtaining practical skills in calculating, paying taxes and correctly filling out tax reports, analyzing financial information, orienting in financial products to choose adequate investment strategies	5	**v**				**v**		**v**
11	Fundamentals of economics and entrepreneurship	Purpose: To develop basic knowledge of economic processes and skills in entrepreneurial activities. Content: The course aims to develop skills in analyzing economic concepts such as supply and demand, and market equilibrium. It includes the basics of creating and managing a business, developing business plans, risk assessment, and strategic decision-making	5				**v**	**v**		**v**
Cycle of basic disciplines										

University component										
12	Oil and gas well drilling	Purpose: providing fundamental and necessary knowledge of drilling processes, technologies and well construction, covering the operation of equipment and drilling methods. Contents: the discipline covers: a review of drilling work, including various methods and approaches; study of drilling rig components; detailed examination of the drill string and drill bits; reservoir pressure analysis and well control methods; training in well casing techniques, well cementing processes, and features of drilling fluids. The course also includes sections on drilling hydraulics, directional and offshore drilling, allowing students to better understand the specifics and technologies of drilling in various conditions.	6	**v**	**v**					**v**
13	Introduction to major	Purpose: is to teach students the basics of oil and gas business, to understand the basic technological processes from a scientific point of view and to work at oil and gas production sites. Contents: training in the basics of geology, oil and gas drilling, development and use of oil and gas fields, transportation, storage and processing of oil and gas.	4	**v**			**v**	**v**		**v**
14	Oil and gas geology	Goal: To teach students methods of geology. Learn how to choose the right method to solve a problem..Oil and gas, and their physical properties. Genesis of petroleum. Migration of petroleum. Collection of oil and gas. Porosity. Permeability. Natural reservoirs of oil and gas. Deposits of oil and gas. Fields of oil and gas. Geophysical and geochemical methods of search for oil and gas geological structure and petroliferous of sedimentary basins of Kazakhstan. Distribution of oil and gas reserves in earth core. Characteristic of zone of oil And gas resources.	5	**v**		**v**	**v**			**v**
15	Well log analysis	Purpose: this class covers basic well logging methods to evaluate important reservoir properties. Among the topics to be discussed are: fundamental rock physics principles, introduction to well logging measurement tools, analysis of open hole logs, porosity determination, formation evaluation of clay-free and shaly sand formations, determination of water saturation. Contents: Archie’s equation, net pay	5	**v**		**v**	**v**			**v**

		thickness, hydrocarbon saturation and recoverable reserves, mud logging principles, density, neutron and sonic logs, resistivity logs, and lithology cross plots.								
16	Engineering and computer graphics	Purpose: To develop students' knowledge of drawing construction and skills in developing graphical and textual design documentation in accordance with standards. Content: Students will study ESKD standards, graphic primitives, geometric constructions, methods and properties of orthogonal projection, Monge's projection, axonometric projections, metric tasks, types and features of connections, creating part sketches and assembly drawings, detailing, and creating complex 3D solid objects in AutoCAD.	5		v		v			v
17	Mathematics I	Purpose: to introduce students to the fundamental concepts of linear algebra, analytical geometry and mathematical analysis. To form the ability to solve typical and applied problems of the discipline. Contents_ Elements of linear algebra, vector algebra and analytical geometry. Introduction to the analysis. Differential calculus of a function of one variable. The study of functions using derivatives. Functions of several variables. Partial derivatives. The extremum of a function of two variables.	5	v		v				v
18	Mathematics II	Purpose: To teach students integration methods. To teach you how to choose the right method for finding the primitive. To teach how to apply a certain integral to solve practical problems. Contents_ integral calculus of the function of one and two variables, series theory. Indefinite integrals, methods of their calculation. Certain integrals and applications of certain integrals. Improper integrals. Theory of numerical and functional series, Taylor and Maclaurin series, application of series to approximate calculations	5	v		v				v
19	Mathematics III	Purpose: To teach students integration methods. To teach you how to choose the right method for finding the primitive.The discipline is a continuation of Mathematics II. The course includes sections: ordinary differential equations and elements of probability theory and mathematical statistics. Differential equations with separable variables,	5	v		v				v

		homogeneous, in full differentials, linear inhomogeneous differential equations with constant coefficients, systems of linear differential equations with constant coefficients, finding the probability of events, calculating the numerical characteristics of random variables, using statistical methods for processing experimental data are studied.								
20	Calculus IV: Differential equations	The purpose: teaching the course is the formation of basic knowledge on the sections of the course, helping to analyze, model, solve theoretical and practical problems, to introduce students to the ideas and concepts of mathematical physics. Objectives: to apply the theory of partial differential equations to solve, study applied problems from various fields of natural science; form ideas about the implementation of numerical methods for solving boundary value problems using Matlab.	5	**v**		**v**				**v**
21	Fluid mechanics	Purpose: after completing the course, the student must demonstrate the ability to analyze, synthesize and possess the skills of engineering calculations and methods for solving the main problems of the sections of fluid mechanics - kinematics, statics and dynamics. Contents: properties of liquids and gases; - classification of modes and flows of liquid and gas movement; - deformation movement of the elementary volume of the medium; - conservation equations on which the theoretical study of hydromechanics is based.	5	**v**		**v**	**v**			**v**
22	General and structural geology	Purpose: to study the material composition of the Earth, geodynamic processes and forms of occurrence of rocks. Objectives: study of the material composition of the Earth, mineralogical, chemical; geodynamic exogenous and endogenous processes, forms of occurrence of igneous, sedimentary, metamorphic rocks, patterns of their location and consistency, geological conditions of formation, faults, general patterns of development of the earth's crust.	5	**v**		**v**	**v**			**v**

23	Chemistry	Purpose: formation of knowledge on fundamental issues of general chemistry and skills of their application in professional activity. Summary Laws, theoretical propositions and conclusions that underlie chemical disciplines; properties and relationships of chemical elements based on the periodic law of D.I.Mendeleev and on modern ideas about the structure of matter; fundamentals of chemical thermodynamics and kinetics; processes in solutions; structure of complex compounds.	5	v		v				v
24	Revervoir engineering I: Primary recovery	Purpose: study the basic concepts underlying the development of oil fields; demonstrate the application of the material balance method in the development of oil fields; generalize knowledge about reservoir development modes for use in the MB equation; reveal the concept of water inflow into the reservoir; to demonstrate calculations; familiarize with the basics of immiscible displacement. Content: The course covers calculations of the material balance for natural gas, retrograde condensate, non-volatile (black oil) and volatile (volatile oil) oil systems with and without a gas cap, water pressure regime.	6	v	v	v	v			v
25	Reservoir Engineering II: Secondary and tertiary recovery	Purpose: develop students' skills to apply analytical and numerical tools to predict incremental oil production. Contents: This discipline covers methods of maintaining reservoir pressure by water injection and gas injection into a gas cap; enhanced oil recovery (EOR) methods such as thermal, gas, chemical and microbiological. Students will also learn about the difficulties and challenges in choosing methods for hydrocarbon production	5	v	v	v	v			v
26	Reservoir rock properties	Purpose: familiarizing students with the essence of the basic physical processes in rocks, with the basic petrophysical properties of rocks and their relationships. Contents: Systematic theoretical and laboratory study of the physical properties of formation rocks: lithology, permeability, elastic properties, rock strength, acoustic properties, electrical properties, relative and effective permeability, oil or water saturation, capillary	5	v		v	v			v

		characteristics, interactions between rock and fluid such as adsorption and absorption.								
27	Revervoir Fluid properties	Purpose: to develop in students a system of theoretical knowledge and practical skills in the field of determining and analyzing the properties of formation fluids, such as oil, gas and formation water, in the conditions of their natural occurrence and during the development of hydrocarbon fields. Contents: the discipline covers the basics of organic chemistry, the study of the phase behavior of hydrocarbon systems, the principles of operation of equations of state, as well as a detailed analysis of five types of reservoir fluids. The course covers dry and wet gas properties, Black oil, including definitions and production data, as well as formation fluid testing techniques. Additionally, the course includes the study of Black oil correlations, equilibrium states of gas and liquid, properties of formation waters and gas hydrates, which provides students with a comprehensive understanding of the physical and chemical properties of formation fluids.	5	**v**		**v**	**v**			**v**
28	Strength of materials	Purpose: To teach students integration methods. To teach you how to choose the right method for finding the primitive.Stretching and compression. Pressure in sections and deformations of a direct core. Mechanical properties of materials at a stretching and com-pression. Calculation on durability and rigidity at a stretching-compression. Geometrical charac-teristics of flat sections. Shift and torsion. Cal-culation on durability and rigidity at torsion. A bend. Normal and tangents of a pressure at a bend. Calculation on durability at a bend. The theory of the intense and deformed conditions. A hypothesis of a limiting condition. Complex resistance. Stability of balance of deformable systems. Dynamic loading.	6	**v**		**v**				**v**
29	Thermodynamics and heat engineering	Purpose: to develop students' theoretical and practical knowledge in the field of thermodynamics and heat transfer. Contents: the discipline covers the basic laws and calculated relationships of thermodynamics and	5	**v**		**v**				**v**

		heat transfer, the operating principles of the working processes of heat engines, thermal power plants, refrigeration machines and steam generator plants. The training will allow students to apply this knowledge to solve engineering problems and develop efficient thermal engineering systems.								
30	Physics I	Purpose: to study the basic physical phenomena and laws of classical and modern physics; methods of physical research; the influence of physics on the development of technology; the relationship of physics with other sciences and its role in solving scientific and technical problems of the specialty. Contents: mechanics, dynamics of rotational motion of a solid body, mechanical harmonic waves, fundamentals of molecular-kinetic theory and thermodynamics, transfer phenomena, continuum mechanics, electrostatics, direct current, magnetic field, Maxwell's equations.	5	**v**		**v**				**v**
31	Physics II	Purpose: to form students' knowledge and skills in using fundamental laws, theories of classical and modern physics, as well as methods of physical research as the basis of a system of professional activity. Contents: harmonic oscillations, damped oscillations, alternating current, wave motion, laws of refraction and reflection of light, quantum optics, laws of thermal radiation, photons, their characteristics, wave function, electrical conductivity of metals, atomic nucleus, its structure and properties, binding energy, radioactivity.	5	**v**		**v**				**v**
32	Physics III	Goal: To develop students' knowledge and skills in utilizing physical processes related to the development and operation of oil fields, as well as in working with equipment and technologies used in the oil industry. Content: Theoretical and practical aspects of physics related to petroleum engineering, including mechanisms occurring in geological formations and the oil extraction process, as well as the use of modern technologies and equipment to ensure the safety and economic efficiency of processes in the oil industry.	5	**v**		**v**				**v**

33	Petroleum and gas chemistry	Purpose: formation of knowledge on fundamental issues of general chemistry and skills of their application in professional activity. Chemistry of oil and gas. The course examines the theoretical foundations of the chemistry of oil and gas, the physico-chemical properties of hydrocarbon raw materials. The main technological methods of crude oil preparation. Methods and technology of separation of multicomponent systems. Chemical transformations of hydrocarbons. Methods of oil and gas refining necessary for practical solutions of physico-chemical problems arising at various stages of the oil chain. Economically feasible and environmentally friendly technologies for the preparation of crude oil for transportation and processing. Engineering calculation skills.	5	**v**		**v**	**v**			**v**
Cycle of basic disciplines Election Component										
34	Drilling fluids	Purpose: Obtaining basic knowledge in the field of the theory of basic technological processes related to the use of drilling flushing and grouting solutions necessary to ensure environmental safety and economic efficiency of the drilling process. Contents: The discipline allows you to competently choose the type of drilling and cement mortars for specific geological conditions during drilling and completion of wells, determine the scope of application of various types of drilling and cement mortars, methods for determining operational properties, develop a solution formulation, experimentally find the composition of the solution for drilling and completion of wells. find a solution with the specified properties, calculate the required amount of materials for the preparation of solutions, select equipment for the preparation, processing, cleaning, degassing of drilling fluids, as well as correctly observe the technology of grouting.	5	**v**	**v**	**v**		**v**		**v**

35	The basics of anti-corruption culture	The course introduces students to the improvement of socio-economic relations of Kazakhstan society, psychological features of corrupt behavior. Special attention is paid to the formation of an anti-corruption culture, legal responsibility for acts of corruption in various spheres. The purpose of studying the discipline "Fundamentals of anti-corruption culture" is to increase public and individual legal awareness and legal culture of students, as well as the formation of a knowledge system and a civic position on combating corruption as an antisocial phenomenon. Expected results: to realize the values of moral consciousness and follow moral norms in everyday practice; to work on improving the level of moral and legal culture; to use spiritual and moral mechanisms to prevent corruption.	5				**v**	**v**		**v**
36	Fundamentals of Artificial Intelligence	Purpose: to familiarize students with the basic concepts, methods and technologies in the field of artificial intelligence: machine learning, computer vision, natural language processing, etc. Contents: general definition of artificial intelligence, intelligent agents, information retrieval and state space exploration, logical agents, architecture of artificial intelligence systems, expert systems, observational learning, statistical learning methods, probabilistic processing of linguistic information, semantic models, natural language processing systems	5	**v**		**v**	**v**			**v**

37	Fundamentals of scientific research	Purpose: to form students' research skills, to develop interest in scientific activity. Content: based on the course study, students will consider: - formation of practical skills in planning and performing scientific research; - development of skills of independent search, analysis and use of scientific information using software and hardware; - mastering the concepts of sustainable development and ESG principles, with an emphasis on their application in the oil and gas sector of Kazakhstan.	5	v		v				v
38	Fundamentals of sustainable development and ESG projects in Kazakhstan	Purpose: the goal is for students to master the theoretical foundations and practical skills in the field of sustainable development and ESG, as well as to develop an understanding of the role of these aspects in the modern economic and social development of Kazakhstan. Contents: introduces the principles of sustainable development and the implementation of ESG practices in Kazakhstan, includes the study of national and international standards, analysis of successful ESG projects and strategies for their implementation in enterprises and organizations.	5	v		v	v			v
39	Legal regulation of intellectual property	Purpose: the goal is to form a holistic understanding of the system of legal regulation of intellectual property, including basic principles, mechanisms for protecting intellectual property rights and features of their implementation. Contents: The discipline covers the basics of IP law, including copyright, patents, trademarks, and industrial designs. Students learn how to protect and manage intellectual property rights, and consider legal disputes and methods for resolving them	5				v	v		v

40	ESG principles in inclusive culture	Purpose of the course: It focuses on studying ESG (Environmental, Social, Governance) principles and their interaction with the creation of an inclusive culture within an organization. Content: Students will gain knowledge on how implementing ESG principles contributes to corporate social responsibility, sustainable development, and equal opportunities for all employees, including those who may face various forms of discrimination. The course will help students understand the importance of an inclusive culture in achieving long-term business goals and ensuring sustainable organizational development.	5	v		v	v			v
41	Design and operation of oil and gas pipelines	Objective: To master the theoretical and practical aspects of the design and operation of pipeline systems for the transportation of liquid and gaseous hydrocarbons. Contents: The classification of pipelines, hydraulic and technological calculations, pumping, cleaning and testing processes are considered. Special attention is paid to underwater and underground passages, stability and longitudinal movements of pipes, pumping of high-viscosity and high-setting oils, sequential pumping of petroleum products. Skills of analysis and optimization of pipeline systems are being developed.	5	v	v	v		v	v	v
42	Natural gas engineering	Purpose: after completing the course, the student must demonstrate the ability to analyze, synthesize and design the development of gas and gas condensate fields, as well as calculate the economic indicators of the development of gas and gas condensate fields. Contents: - systems and technological indicators for the development of gas and gas condensate fields; - classification of gas and gas condensate deposits; - features of the development of gas and gas condensate deposits; - physico-chemical methods for the development of gas and gas condensate fields.	5	v	v	v		v	v	v
43	Ecology and life safety	The discipline studies the main approaches to solving environmental problems; sources and types of environmental pollution by transport enterprises;	5	v				v		v

		methods of reducing harmful effects on the environment. Natural and man-made emergencies, their causes, methods of prevention and protection. Carrying out rescue and other urgent work, rules of behavior of people in emergency situations.								
Cycle of profileded disciplines University component										
44	Well completion	Purpose: The main goal of this discipline is to study the technology of drilling oil and gas wells, the design of the drilling mode and bit performance indicators, methods of drilling and sealing objects containing oil and gas, as well as the prevention of complications that arise when drilling a well and opening a productive formation, as well as wells - This is the training of specialists who perform finishing work at a high level. Contents: The discipline teaches students to design a well structure, divide a well section into standard intervals for drilling, select effective well operating parameters and the type of bit, select the type and parameters of the drilling fluid for drilling a well, drill into a productive formation, prevent possible complications when drilling into formations, and use drilling equipment correctly.	4	**v**	**v**	**v**		**v**	**v**	**v**
45	Multidisciplinary petroleum project	Purpose: This course provides a multidisciplinary environment for students to integrate knowledge of geology, geophysics and petroleum engineering to solve real-world problems in the oil and gas industry. Contents: the discipline covers geology, well drilling, methods of developing and operating wells. Students work in teams and, at the end of the course, present the results of their work orally and in writing, preparing for writing dissertations/projects.	5	**v**	**v**	**v**	**v**	**v**	**v**	**v**
46	Oil and gas facilities design and operation	Purpose: The course covers the study of ground structures needed in the oil and gas industry. Contents: pressurized collection system taking into account the size and configuration of the oil field area; separation of oil from gas; main purposes and types of oil and gas separators; calculation of separators taking into account the capacity of gas and liquid; classification of pipelines; prevention of contamination and	5	**v**	**v**	**v**		**v**		**v**

		clogging of pipelines and methods of their purification; oil treatment; oil emulsions and their properties; main methods of destruction of oil emulsions; purposes and types of reservoirs.								
47	Petroleum production engineering	Purpose: formation of a holistic view of the fundamental principles of production engineering, empirical models for production decline curve analysis, and the future performance of natural oil and gas wells. Contents: the discipline some topics include: well completion, artificial lift methods design, sucker rod pumps, gas lift, progressing cavity pumps, electrical submersible pumps, nodal analysis.	4	v	v	v		v	v	v
48	Economic evaluation of oil and gas projects	Objective: to master the methods of economic assessment of oil and gas projects, including cash flow analysis and assessment of financial attractiveness. Contents: covers calculation of net present value (NPV), internal rate of return (IRR), payback period (PP) and profitability index (PI), assessment of capital (CAPEX) and operating (OPEX) costs for oil and gas projects, risk analysis, building economic models, using software, as well as financial planning budgeting and selection of optimal projects.	5	v	v			v	v	v
Cycle of profileded disciplines Election Component										
49	Reservoir geomechanics	Purpose: upon completion of the course, the student must demonstrate the ability to analyze, synthesize and design elements of the mining system, as well as assess the impact of drilling, mining and reservoir development technologies on stress distribution in the productive reservoir; how changes in stress values can cause various failures. Contents: - basic concepts of reservoir geomechanics; - calculation of reservoir and geostatic pressures; - destruction of rocks by compression, tension and shear; - calculations for the determination of horizontal stresses, the angle of internal friction and the coefficient of friction.	5	v	v	v		v	v	v
50	Geostatistics	Purpose: The course aims at increasing the understanding of applied geostatistics and focus on concepts and methods important for modelling heterogeneity and uncertainty in reservoir models. Contents: Emphasis is put on work processes for 3D	5		v		v		v	

		reservoir modelling rather than mathematics and algorithms.								
51	Well testing	Purpose: formation of students' knowledge about the basic principles of well test; formation of skills in interpreting well test data and evaluating reservoir parameters. Content: This course covers the study of physical principles, technology of execution and methods of interpretation of the results of modern complex hydrodynamic tests of wells; solving problems of determining the main characteristics of formations to identify the condition and analysis of the bottomhole zone of wells.	5	v		v	v			v
52	Well workover	Purpose: To study issues related to the purpose of well repair, is to carry out measures to prevent and eliminate malfunctions of the underground part of the equipment and the borehole. Content: Preparatory: arrival of the crew at the accident site, production of well jamming, placement of equipment at the mouth and installation, disassembly of wellhead equipment; Repair work: performing descent operations; Final work: assembly of the wellhead equipment, commissioning of the well, putting it into operation, cleaning of tools and equipment from the resulting contamination, as well as dismantling of equipment and cleaning of the working area.	5	v	v	v				v
53	Well Stimulation	Purpose: this practical course is designed for those involved in all aspects of well stimulation. To be better able to make decisions it is important to have a basic understanding of the types of formations and basic reservoir properties with which we deal. For this reason, time is spent in the early portion of the course setting the geological and reservoir property stage for vertical, horizontal, and multilateral wells prior to developing the basic formation damage, acidizing, and hydraulic fracturing concepts. Contents: the course includes acidizing and fracturing quality control, conducting the treatment, monitoring pressures, and other critical parameters during and after the treatment.	5	v	v		v	v		v
54	Directional drilling	Purpose: teaching students the basics of technology for the construction of inclined wells, well design, scientific understanding of the main technological	5	v	v		v		v	v

		processes and work in oil production. Contents: the acquired knowledge contributes to the formation of the bachelor's skills in directional drilling and operation of oil and gas fields.								
55	Petroleum regulations and practices	Goal: - study of the main aspects of legislation regulating the oil and gas business; - study of legal norms related to the development of private and public mineral rights; - understanding energy policy and legal regulation of oil and gas leases; - - formation of skills for the protection and transfer of rights to oil and gas, as well as leasing management and taxation in the oil and gas industry; - development of the ability to apply legal knowledge to solve practical problems in the field of subsoil use. Content: the discipline contains: - scientific and engineering basis of legislation; - Energy policy; - development of mineral rights; - leasing of oil and gas resources; - taxation in the oil and gas industry; - protection and transfer of oil and gas rights; - regulation of environmental aspects of subsurface use; - International law and subsoil use.	5				v	v	v	v
56	Flow assurance	Purpose: students acquire practical skills in solving problems to ensure the uninterrupted flow of oil and gas. Contents: There are many problems when transporting oil and gas through pipelines. These problems require a real understanding of the fundamentals of fluid mechanics, heat transfer, phase change, sedimentation and/or obstruction, erosion and new technologies to ensure reliable and cost-effective oil and gas supply.	5	v	v	v		v		v
57	Development of offshore fields	Purpose: to study the principles of offshore field development, taking into account geological, technical, technological, transport, environmental and regulatory components. The study of types of hydraulic structures and drilling rigs, platforms used under various conditions. Content: The course includes modules considered in the learning process: - - the use of hydraulic structures necessary for exploration and production; - technological trends in the use of all types of wells; - collection and transportation of hydrocarbons and collection systems in the offshore industry.	5	v	v	v		v		v

58	Fundamentals of Data Analytics and Programming for Petroleum Engineers	Objective: to provide engineering students with knowledge and skills in data analytics and programming to solve problems in the oil and gas industry. Content: The main aspects of the course include Python or R, data collection and analysis, calculation automation and modeling. Students apply their skills in practice to optimize the processes of oil and gas extraction and refining and increase production efficiency.	5	v	v	v				v
59	Design and operation of oil and gas storages	Purpose: to develop knowledge and practical skills in the field of design and operation of oil and gas storage facilities. Contents: introduces the principles when choosing sites for the placement of tanks, the classification of oil depots, technical and economic indicators, losses of oil and petroleum products during the operation of tank farms, determining the volume of the tank farm and the choice of types of tanks, types of gas storage facilities, their features during operation	5	v					v	
60	Design and operation of pump and compressor stations	Purpose: to teach future specialists in the design and operation of pumping and compressor stations Content: introduces the development of technological schemes for the installation of structures of buildings of compressor stations, pumping stations, as well as main and auxiliary technological equipment, engineering networks and technological pipelines, ensuring their safe operation and reliability over the standard service life and during construction and reconstruction.	5	v	v	v		v		v
61	Reservoir Engineering III: reservoir simulation	Purpose: to form students' knowledge of the basics of hydrodynamic modeling of oil and gas reservoirs in the aspect of practical application in professional activities. Contents: This course covers the study of the fundamental principles of modeling oil and gas deposits, starting with the continuity equation, the Darcy equation, ending with a two-phase two-dimensional reservoir model. Students learn not only to use commercial reservoir modeling software, but also to create their own simple models.	5	v	v	v		v		v
62	Petroleum Engineering seminar	Objective: To develop students' general skills and competencies required in research activities, writing scientific research papers, and public presentations,	5				v	v	v	v

		with consideration of inclusive education principles. Content: Based on the study of the course, students will examine: - The formats of high-quality scientific articles and thesis papers, ensuring accessibility for all categories of learners; - The ability to conduct critical analysis of research literature, including works related to inclusive education; - The ability to plan and conduct experiments with an inclusive approach in mind; - Skills for successful presentation of scientific works, considering the adaptation of materials for diverse audiences.								
63	Computer - aided design	Goal: - development of skills in the application of software products for computer-aided design and modeling of technological processes in the oil and gas industry; - formation of scientific and experimental research skills. Content: - software products for CAD; - theorems and similarity criteria; - the method of dimensions; - fundamentals of computer modeling; - modeling of technological processes.	5	v	v	v		v		v
64	Artificial lift systems	Purpose: The purpose of teaching the discipline: The choice and effective use of equipment and pumps in the mechanized method of oil production. Contents: Maintenance and Operation of equipment during oil production; the main requirements for them; the influence and device of rod and rodless pumps; as well as the use and basic calculations during selection. Optimization of pump modes.	5	v	v	v		v		v
65	Multiphase flow systems	Purpose: Upon completion of the course, the student must demonstrate the ability to analyze, synthesize and design multiphase flow systems in the development of oil, gas and gas condensate fields, as well as calculate the economics of the development of oil, gas and gas condensate fields. Contents: - technological indicators for the development of multiphase flow systems for oil, gas and gas condensate fields; - classification of fluid models in the mechanics of liquids and gases; - ways to describe the motion of a continuous medium; - equations of viscous fluid dynamics.	5	v	v	v		v		v

66	Theory and practice of project management	Purpose: for students to master the basic principles and methods of project management, as well as develop the necessary skills for the successful implementation of projects in various fields of activity. Contents: Students learn the theoretical foundations of project management, including the concepts, principles, methods of planning, organizing, controlling, and completing projects.	5	v	v			v	v	v

5. Curriculum of the educational program

NON-PROFIT JOINT STOCK COMPANY
"KAZAKH NATIONAL RESEARCH TECHNICAL UNIVERSITY NAMED AFTER K.I. SATBAYEV"

SATBAYEV UNIVERSITY

«APPROVED»
Decision of the Academic Council
NPJSC «KazNRTU
named after K.Satbayev»
dated 06.03.2025 Minutes № 10

WORKING CURRICULUM

Academic year	**2025-2026 (Autumn, Spring)**
Group of educational programs	**B071 - "Mining and mineral extraction"**
Educational program	**6B07204 - "Petroleum engineering"**
The awarded academic degree	**Bachelor of engineering and technology**
Form and duration of study	**full time - 4 years**

Discipline code	Name of disciplines	Block	Cycle	Total ECTS credits	Total hours	lek/lab/pr Contact hours	in hours SIS (including TSIS)	Form of control	Allocation of face-to-face training based on courses and semesters								Prerequisites
									1 course		2 course		3 course		4 course		
									1 sem	2 sem	3 sem	4 sem	5 sem	6 sem	7 sem	8 sem	
CYCLE OF GENERAL EDUCATION DISCIPLINES (GED)																	
M-1. Module of language training																	
LNG108	Foreign language		GED, RC	5	150	0/0/45	105	E	5								
LNG104	Kazakh (russian) language		GED, RC	5	150	0/0/45	105	E	5								
LNG108	Foreign language		GED, RC	5	150	0/0/45	105	E		5							
LNG104	Kazakh (russian) language		GED, RC	5	150	0/0/45	105	E		5							
M-2. Module of physical training																	
KFK101	Physical culture I		GED, RC	2	60	0/0/30	30	E	2								
KFK102	Physical culture II		GED, RC	2	60	0/0/30	30	E		2							
KFK103	Physical culture III		GED, RC	2	60	0/0/30	30	E			2						
KFK104	Physical culture IV		GED, RC	2	60	0/0/30	30	E				2					
M-3. Module of information technology																	
CSE677	Information and communication technology		GED, RC	5	150	30/15/0	105	E			5						
M-4. Module of socio-cultural development																	
HUM137	History of Kazakhstan		GED, RC	5	150	15/0/30	105	GE		5							
HUM134	Module of socio-political knowledge (cultural studies, psychology)		GED, RC	5	150	30/0/15	105	E			5						
HUM132	Philosophy		GED, RC	5	150	15/0/30	105	E				5					
HUM120	Module of socio-political knowledge (sociology, political science)		GED, RC	3	90	15/0/15	60	E				3					
M-5. Module of anti-corruption culture, ecology and life safety base																	
MNG489	Fundamentals of economics and entrepreneurship	1	GED, CCH	5	150	30/0/15	105	E				5					
MNG564	Basics of Financial Literacy	1	GED, CCH	5	150	30/0/15	105	E				5					
HUM159	Law basics	1	GED, CCH	5	150	30/0/15	105	E				5					
CYCLE OF BASIC DISCIPLINES (BD)																	
M-6. Module of physical and mathematical training																	
MAT101	Mathematics I		BD, UC	5	150	15/0/30	105	E	5								
PHY111	Physics I		BD, UC	5	150	15/15/15	105	E	5								
MAT102	Mathematics II		BD, UC	5	150	15/0/30	105	E		5							MAT101
PHY112	Physics II		BD, UC	5	150	15/15/15	105	E		5							PHY111
MAT103	Mathematics III		BD, UC	5	150	15/0/30	105	E			5						MAT102

PHY530	Physics III		BD, UC	5	150	15/15/15	105	E			5						
MATap104	Calculus IV: Differential equations		BD, UC	5	150	15/0/30	105	E				5					
M-7. Basic general technical training module																	
PET521	Introduction to major		BD, UC	4	120	30/0/15	75	E	4								
GEN429	Engineering and computer graphics		BD, UC	5	150	15/0/30	105	E	5								
AAP173	Practical training		BD, UC	2				R		2							
CHE495	Chemistry		BD, UC	5	150	15/30/0	105	E			5						
GEO482	General and structural geology		BD, UC	5	150	30/15/0	105	E			5						
GEN443	Strength of materials		BD, UC	6	180	30/15/15	120	E				6					
GEO486	Oil and gas geology		BD, UC	5	150	30/15/0	105	E					5				
PET409	Thermodynamics and heat engineering		BD, UC	5	150	15/0/30	105	E					5				
PET410	Fluid mechanics		BD, UC	5	150	15/15/15	105	E					5				
CHE559	Petroleum and gas chemistry		BD, UC	5	150	30/15/0	105	E					5				
PET415	Reservoir Fluid properties		BD, UC	5	150	30/15/0	105	E					5				
PET124	Reservoir engineering I: Primary recovery		BD, UC	6	180	15/0/30	135	E						6			
PET411	Reservoir rock properties		BD, UC	5	150	30/15/0	105	E						5			
PET424	Well log analysis		BD, UC	5	150	30/15/0	105	E						5			
M-8. Petroleum Engineering Basic Training Module																	
PET510	Design and operation of oil and gas pipelines	1	BD, CCH	5	150	15/0/30	105	E					5				
MNG563	Fundamentals of sustainable development and ESG projects in Kazakhstan	1	BD, CCH	5	150	30/0/15	105	E					5				
IDD427	Ecology and life safety	1	BD, CCH	5	150	30/0/15	105	E					5				
CSE880	Fundamentals of Artificial Intelligence	1	BD, CCH	5	150	30/0/15	105	E					5				
HUM158	The basics of anti-corruption culture	1	BD, CCH	5	150	30/0/15	105	E					5				
PET525	Fundamentals of scientific research	1	BD, CCH	5	150	30/0/15	105	E					5				
CHE950	ESG principles in inclusive culture	1	BD, CCH	5	150	30/0/15	105	E					5				
PET509	Drilling fluids	1	BD, CCH	5	150	30/0/15	105	E					5				
PET511	Natural gas engineering	1	BD, CCH	5	150	30/0/15	105	E					5				
MNG562	Legal regulation of intellectual property	1	BD, CCH	5	150	30/0/15	105	E					5				
PET101	Oil and gas well drilling		BD, UC	6	180	30/15/0	135	E						6			
PET422	Reservoir Engineering II: Secondary and tertiary recovery		BD, UC	5	150	15/0/30	105	E							5		
CYCLE OF PROFILE DISCIPLINES (PD)																	
M-9. Petroleum Engineering Professional Activity Module																	
AAP102	Production practice I		PD, UC	2				R				2					
AAP183	Production practice II		PD, UC	3				R						3			
PET437	Well Stimulation	1	PD, CCH	5	150	30/0/15	105	E						5			
PET428	Design and operation of pump and compressor stations	1	PD, CCH	5	150	15/0/30	105	E						5			
PET431	Reservoir Engineering III: reservoir simulation	1	PD, CCH	5	150	30/0/15	105	E						5			
PET487	Well completion		PD, UC	4	120	30/0/15	75	E							4		
PET488	Petroleum production engineering		PD, UC	4	120	15/15/15	75	E							4		
PET435	Oil and gas facilities design and operation		PD, UC	5	150	15/0/30	105	E							5		
PET432	Directional drilling	1	PD, CCH	5	150	30/0/15	105	E							5		
PET434	Design and operation of oil and gas storages	1	PD, CCH	5	150	15/0/30	105	E							5		
PET439	Artificial lift systems	1	PD, CCH	5	150	15/15/15	105	E							5		
PET442	Well testing	2	PD, CCH	5	150	30/15/0	105	E							5		
PET440	Well workover	2	PD, CCH	5	150	30/0/15	105	E							5		
PET430	Computer - aided design	2	PD, CCH	5	150	30/0/15	105	E							5		

PET438	Development of offshore fields	3	PD, CCH	5	150	15/0/30	105	E							5		
PET423	Geostatistics	3	PD, CCH	5	150	30/0/15	105	E							5		
PET433	Flow assurance	3	PD, CCH	5	150	15/0/30	105	E							5		
PET429	Multiphase flow systems	3	PD, CCH	5	150	15/0/30	105	E							5		
AAP195	Predictable Practice		PD, UC	4				R								4	
PET524	Multidisciplinary petroleum project		PD, UC	5	150	30/0/15	105	E								5	
PET111	Economic evaluation of oil and gas projects		PD, UC	5	150	15/0/30	105	E								5	
PET512	Fundamentals of Data Analytics and Programming for Petroleum Engineers	1	PD, CCH	5	150	15/15/15	105	E								5	
PET523	Petroleum Engineering seminar	1	PD, CCH	5	150	30/0/15	105	E								5	
PET417	Petroleum regulations and practices	1	PD, CCH	5	150	30/0/15	105	E								5	
PET421	Reservoir geomechanics	1	PD, CCH	5	150	30/0/15	105	E								5	
NSE185	Theory and practice of project management	1	PD, CCH	5	150	30/0/15	105	E								5	
M-10. Module of final attestation																	
ECA103	Final examination		FA	8												8	
Additional type of training (ATT)																	
AAP500	Military training																
Total based on UNIVERSITY:									31	29	32	28	30	30	33	27	
									60		**60**		**60**		**60**		

Number of credits for the entire period of study

Cycle code	Cycles of disciplines	Credits			
		Required component (RC)	University component (UC)	Component of choice (CCH)	Total
GED	Cycle of general education disciplines	51	0	5	56
BD	Cycle of basic disciplines	0	114	5	119
PD	Cycle of profile disciplines	0	32	25	57
Total for theoretical training:		**51**	**146**	**35**	**232**
FA	Final attestation				8
TOTAL:					**240**

Decision of the Educational and Methodological Council of KazNRTU named after K.Satpayev. Minutes № 3 dated 20.12.2024

Decision of the Academic Council of the Institute. Minutes № 3 dated 28.11.2024

Signed:

Governing Board member - Vice-Rector for Academic Affairs — Uskenbayeva R. K.

Approved:

Vice Provost on academic development — Kalpeyeva Z. B.

Head of Department - Department of Educational Program Management and Academic-Methodological Work — Zhumagaliyeva A. S.

Director - Geology and Oil-gas Business Institute named after K. Turyssov — Auyelkhan Y. .

Department Chair - Petroleum Engineering — Akhymbayeva B. .

Representative of the Academic Committee from Employers ____Acknowledged____ — Nysangaliev A.