



**K. Turysov Institute of Geology and Oil and Gas Engineering
Department of Hydrogeology, Engineering and Petroleum Geology**

EDUCATIONAL PROGRAM

7M05210 Water diplomacy
code and name of the educational program

Educational field code and classification: 7

Code and classification of training areas:

7M05 Natural Sciences, Mathematics and Statistics

Group of educational programs: 7M052 Environment

NQF level: 7

ORK level: 7

Duration of study: 2

Volume credits: 120

Almaty city, 2025

Educational program **7M05210 Water Diplomacy**

"Water Diplomacy" was approved at a meeting of the Academic Council of KazNITU named after K.I. Satpayev .

Protocol No 10 dated “06” 03 2025

Reviewed and recommended for approval at a meeting of the Educational and Methodological Council of KazNITU named after K.I. Satpayev .

Protocol No dated “20” 12 2025

Educational program **7M05210 Water Diplomacy**

code and name of the educational program

developed by the academic committee in the field of "Hydrogeology and engineering geology"

Full name	Academic degree/ academic title	Job title	Place of work	Signature
Chairman of the Academic Committee:				
Umbetaliev Dauren Balaevich	Master of Science	Head of the company	RGU "Zonal Hydrogeological and Meliorative Center" of the Committee for Land Resources Management of the Ministry of Agriculture of the Republic of Kazakhstan , mobile phone: +77015771525, zonalny_ggmc@mail.ru	
Faculty:				
Auelkhan E.S.	Candidate of Technical Sciences	Associate Professor	JSC "Kazakh National Research Technical University named after K.I. Satpayev ", mobile phone: +7 707 829 01 61, y.auyelkhan@satbayev.university	
Zapparov Medetkhan Rasilkhanovich	Candidate of Geological and Mineralogical Sciences, Mining Engineer-Hydrogeologist	Associate Professor	JSC "Kazakh National Research Technical University named after K.I. Satpayev ", mobile phone: +7 777 297 08 98, m.zapparov@satbayev.university	
Ensepbaev Talgat Ablaevich	Candidate of Geological and Mineralogical Sciences	Professor	JSC "Kazakh National Research Technical University named after K.I. Satpayev ", mobile phone: +7 777 693 22 44 , t.yensepbayev@satbayev.university	

Uzbekgaliev Rizahan Halelovich	Candidate of Geological and Mineralogical Sciences	Senior Lecturer	JSC "Kazakh National Research Technical University named after K.I. Satpayev ", mobile phone: +7 701 733 33 01, r.uzbekgaliyev@satbayev.universit y	
Smabaeva Raigul Kulbekovna	Doctor of Philosophy (PhD)	Senior Lecturer	JSC "Kazakh National Research Technical University named after K.I. Satpayev ", mobile phone: +77077045446, r.smabayeva@satbayev.university	
Omirezakova Elmira Zhenisovna	Candidate of Geological and Mineralogical Sciences,	Senior Lecturer	JSC "Kazakh National Research Technical University named after K.I. Satpayev ", mobile phone: +77772808560, e.omirezakova@satbayev.university	
Employers:				
Absametov Malis Kudysovich	Doctor of Geological and Mineralogical Sciences, Professor	Director	Akhmedsafin Institute of Hydrogeology and Geoecology , mobile phone: +77078290161, igg.info@ail.ru	
Students				
Bakbergenov Danila		First-year Master's student in OP 7M05203 "Hydrogeology and Engineering Geology"	JSC "Kazakh National Research Technical University named after K.I. Satpayev ", mobile phone: +77057730446 danila.bakbergenov@bk.ru	

List of abbreviations and designations

BD – basic disciplines
GOSO – state compulsory education standard
DP – documented procedure
DOT – distance educational technologies
UNT – Unified National Testing
IEP – individual educational plan
KTO – credit-based learning technology
KED – catalog of elective courses
MES RK – Ministry of Education and Science of the Republic of Kazakhstan
MOP – modular educational program
R&D – scientific research work
R&D and ID - scientific research work and innovation activities
NIRS – students' scientific research work
OOD – general education disciplines
OP – educational program
PD – major disciplines
PC – personal computer
PPS – professorial and teaching staff
RK – Republic of Kazakhstan
RUP – working curriculum
QMS – quality management system
SRS – independent work of students
SRSP – independent work of students under the guidance of a teacher
ТҮПІІ – standard curriculum
UVP – educational and support personnel
UMKD – educational and methodological complex of disciplines
UMS – educational and methodological council
UMR – educational and methodological work
EUM – electronic educational materials

1. Description of the educational program

The educational program (hereinafter, EP) is a set of documents developed by the K.I. Satpayev Kazakh National Research Technical University and approved by the Ministry of Science of the Republic of Kazakhstan. The EP takes into account the needs of the regional labor market, the requirements of government agencies, and relevant industry requirements, and is based on the state educational standard for higher professional education in the relevant field.

The educational program defines the program's educational objectives, student learning outcomes, the necessary conditions, content, and technologies for implementing the educational process, as well as the assessment and analysis of student performance during and after completion. The educational program includes the curriculum, course content, learning outcomes, and other materials to ensure high-quality student education.

The purpose of the "Water Diplomacy" program is to assist students, faculty, and industry experts in understanding the structure of the educational process and demonstrating how the curriculum and course content contribute to the development of essential core competencies upon graduation. Last but not least, the program aims to establish a common framework for the feasibility and necessity of the "Water Diplomacy" training program for all stakeholders, including government, public authorities, the water industry, universities, parents, students, and the community. It is designed to provide specialized training for master's students in the "Water Diplomacy" program at Satbayev University and is developed within the "Environment" program.

This document meets the requirements of the following legislative acts of the Republic of Kazakhstan and regulatory documents of the Ministry of Education and Science of the Republic of Kazakhstan:

- The Law of the Republic of Kazakhstan "On Education" with amendments and additions within the framework of legislative changes to increase the independence and autonomy of universities dated 04.07.18 No. 171-VI.
- Law of the Republic of Kazakhstan "On Amendments and Additions to Certain Legislative Acts of the Republic of Kazakhstan on Issues of Expanding the Academic and Managerial Independence of Higher Education Institutions" dated 04.07.18 No. 171-VI.
- Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 30, 2018 No. 595 "On approval of the Model Rules for the activities of educational organizations of the corresponding types."
- State Compulsory Standard of Higher Education (Appendix 7 to the Order of the Minister of Education and Science of the Republic of Kazakhstan dated 10/31/18 No. 604.
- Resolution of the Government of the Republic of Kazakhstan dated 19.01.12 No. 111 "On approval of the Model Rules for Admission to Educational Organizations Implementing Higher Education Programs" with amendments and additions dated 14.07.16 No. 405.

- Resolution of the Government of the Republic of Kazakhstan dated 13.08.12 No. 1042 “On approval of the Concept for the development of the geological industry until 2030”.
- The Law on Subsoil and Subsoil Use and the draft Code on Subsoil and Subsoil Use.
- Code of public reporting of exploration results, mineral resources and reserves of KAZRC.
- Concept of the State Program for Geological Exploration for 2021–2025, January 31, 2020
- "National Qualifications Framework", approved by the protocol of March 16, 2016, of the Republican Tripartite Commission on Social Partnership and Regulation of Social and Labor Relations.

2. The purpose and objectives of the educational program

• **The purpose of the OP :** The aim of the educational program of the specialty "Water diplomacy" is the implementation of education aimed at on training of highly qualified personnel possessing practical skills And leadership qualities, by way implementation innovative technologies training And Preparation competitive specialists V areas of the water industry and rural farms.

• The training under this *educational program* is aimed at preparing specialists in water diplomacy - to prepare master's degree students to solve water management problems in Kazakhstan related to the intensive use of surface and groundwater for various purposes.

• *Types of work activities:*

- production and technological;
- organizational and managerial;
- experimental research :
- calculation, design and analytical

Depending on the type of professional activity, a Master's degree student in the "Water Diplomacy" program is prepared to solve the following professional problems:

a) production and technological activities:

- implementation of water management, hydrogeological, engineering-geological observations;
- use of apparatus, devices and equipment for engineering-geological and water management studies;
- Apply information management tools in the implementation of IWRM to address water issues and sustainable development
- compliance with standards, norms and rules for the technical operation of hydrogeological equipment;
- ensuring compliance with the methodology and techniques of field observations;
- preparation of documentation for water management, hydrogeological and engineering-geological works;
- operation of modern field and laboratory equipment and devices;
- maintaining records of work performed and assessing its economic efficiency;
- processing, analysis and systematization of information using modern methods of

automated collection, storage and processing;
– Make decisions during development legislative acts and documents in the field of water resources management in a changing climate, as well as methodological documents in the field of water resources management economic assessment of objects ;

b) organizational and managerial:

- organization of work of a team, site;
- planning and organization of industrial water management studies,
- laboratory studies of soils and groundwater;
- selection of optimal solutions when planning work in extreme conditions and the need for joint management of surface and groundwater ;
- providing assistance in strengthening regional cooperation on environmental protection and water resources
- To navigate modern approaches and methodology of water diplomacy for the analysis of international and Kazakhstani experience of water diplomacy ;
- compliance with the fundamentals of legislation on the rational use and protection of water resources.
- strengthening cooperation between countries of the region in the field of use and management of water resources, development of unified approaches at the level of specialists and decision-makers.

c) experimental research :

- collection and systematization of scientific and technical information from domestic and international experience in relation to the solution of research projects in the field of water resources management and assessment ;
- mathematical modeling of water management facilities based on standard automated design and research packages;
- planning, conducting experiments according to specified methods, mathematical processing and analysis of results.
- Apply data analysis and modeling techniques to predict the impact of climate change on water resources

d) calculation, design and analytical:

- formation of the goals and objectives of the project (program) that ensure a modern level of technology for carrying out water management works;
- collection and analysis of initial information data for design;
- conducting a preliminary feasibility study of design calculations;
- implementation of projects into production and author's supervision.
- implementation of technical design in the field of water resources management and assessment , economic and environmental assessment of facilities, as well as facilities related to underground structures;
- To evaluate the mechanisms of water allocation of transboundary water resources in different regional situations ; .

Objects of professional activity of a graduate:

- Water resources are all the waters [of the hydrosphere](#) , that is, the waters of rivers, lakes, canals, reservoirs, seas and oceans, [groundwater](#) , soil moisture, water (ice) of mountain and polar [glaciers](#) , [and](#) atmospheric water vapor .

- physical properties of rocks, filtration capacity of rocks;
- underground waters, drinking, mineral and industrial waters;
- equipment and technologies for carrying out water management works
- geographic information systems – technologies for subsoil exploration,
- ecological functions of the lithosphere and the ecological state of mining areas of subsoil use.

Tasks of the OP :

- The objectives of the educational program are to prepare a competitive specialist who meets the modern requirements and demands of the water management market through the use of modern materials, technologies, and innovative methods in the design and organization of the water industry.

- study of a cycle of *general educational disciplines* to ensure social and humanitarian education based on the laws of social and economic development of society, history, modern information technologies, the state language, foreign and Russian languages;

- study of a cycle of *basic disciplines* to ensure knowledge of natural science, general technical and economic disciplines, as the foundation of professional education;

- the cycle of *specialized disciplines* is focused on the study of key theoretical aspects of water resources and the rational use of natural resources;

- study of disciplines that develop knowledge, skills and abilities in planning and organizing research, designing hydrogeological and engineering-geological and water management works.

- familiarization with technologies and equipment of enterprises during various types of internships.

- **acquisition of skills and abilities in laboratory research, technological calculations, equipment selection and design using modern computer technologies and programs.**

3. Requirements for the assessment of learning outcomes of the educational program

4. Passport of the educational program

4.1. General information

No.	Field name	Note
1	Code and classification of the field of education 7M05 Environment	
2	Code and classification of training areas 7M052	
3	Educational program group 7M052 Environment	
4	Name of the educational program: Water Diplomacy	
5	Brief description of the educational program	
6	The goal of the educational program is to train highly qualified, competitive, and in-demand specialists for water management enterprises of the Republic of Kazakhstan, capable of performing design, production, technological, and organizational work at industrial enterprises in the region.	
7	Type of OP production and technological; organizational and managerial; experimental research : calculation, design and analytical	

8	level 7	
9	level 7	
10	Distinguishing Features of the OP: The most important feature of the research object is water resources and their rational use (groundwater). Water resources include all waters of the <u>hydrosphere</u> , i.e., the waters of rivers, lakes, canals, reservoirs, seas and oceans, <u>groundwater</u> , soil moisture, water (ice) of mountain and polar <u>glaciers</u> , and atmospheric water vapor. The potential for using this resource is also extremely broad: the use of fresh groundwater for drinking, domestic, and other water supplies. Regulating the water problem is an issue that affects not only economic and agricultural matters, it is largely a matter of national security, and its success here can only be achieved through diplomacy and the coordinated work of a number of structures	
11	List of competencies of the educational program: Natural scientific and theoretical- ideological competencies; Social, personal and civic competencies; General engineering professional competencies; Communication and IT virtual competencies;	
12	Learning outcomes of the educational program: 7	
13	Full- time education	
14	Duration of study: 2 years	
15	Loan volume 240	
16	Languages of instruction Russian, Kazakh	
17	The academic degree awarded is Master of Science in Natural Sciences.	
18	Developer(s) and authors: Erikul J., Auelkhan E.S. Ospanov K	

4.2. Matrix of correlation of learning outcomes for the educational program as a whole with the developed competencies

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
KK1	Apply knowledge of mathematics, science and technology, and identify and formulate to solve engineering problems and solve them emerging problems for improving technological processes in industry	Effective effectively convey information to other people and thoughts	Practice in your profession social responsible and environmental standards	Manifest to be tall level of competence in engineering black princes and in practice ke	Work in different industries ykh and mnogokuly tour teams	Serve society, state vu through participation in professional community vakh and v society n organization	Be successful in our profession onals and lead a team, organization tion , the Republic of Kazakhstan and the world community to new achievements and .
KK2	the ability to apply knowledge of mathematics, science, and technology	the ability to design and conduct experiments, and to analyze and interpret ate data	the ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, technological strength and stability	ability to work in interdisciplinary settings air teams	the ability to identify, formulate, and solve technical problems	understanding of professional and ethical responsibility	ability to communicate effectively
KK3	a well-rounded education to understand the impact of technical decisions in a global,	recognition of the need for lifelong learning and the ability to learn independently	knowledge of contemporary issues	ability to use the methods, skills and modern engineering tools necessary for engineering practice.	Apply methods and principles of engineering sciences to analyze and evaluate various elements, systems, processes and well completions and	Understand the meaning, interpreters to write and comment on the information received.	A wide range of specialized (theoretical and practical) knowledge (including innovative).

	economic, environmental and social context				find optimal (rational) conditions for their operation		
KK4	Use sections of fundamental sciences in production activities when modeling	The ability to correlate one's aspirations with the interests of other people and social groups;	Be able to methodologically ki justify scientific research.	Critically examine any aspect of the development of society, possess the ethics of labor and civil relations th ; have respect for the professional code of engineering, a sense of intolerance towards violations of the law	) Skills and abilities to carry out research and innovation activities to develop new knowledge and procedures for integrating knowledge from various fields, to correctly and logically formulate one's thoughts in written and oral form, to apply theoretical knowledge in practice in a specific field	Independent search , analysis and evaluation of professional information	Solving problems technologically of a methodological nature, related to a certain field of knowledge, implying a choice and variety of solutions (including innovative ones)

4.3. Interrelationship attainability generated results training By educational program And educational disciplines

No.	Name of the discipline	Brief description of the discipline	Number of credits	Formed learning outcomes (codes)								
				PO1	PO2	PO3	PO4	PO5	PO6	PO7		
Cycle general education disciplines Required component												
	Foreign language (professional)	Advanced proficiency in professional English (for non-linguistic fields). Study of the grammatical characteristics of scientific style in both oral and written forms. Professional oral communication in monologue and dialogue as required by the curriculum. Ability to present research results in reports, essays, publications, and public discussions; interpret and present scientific research findings in a foreign language.	5			v						
	HUM214 Psychology of Management	This course focuses on mastering the tools of effective employee management, drawing on an understanding of the psychological mechanisms of leadership. This course will help students develop skills in decision-making, creating a positive psychological climate, motivating employees, setting goals, building a team, and communicating with employees. Upon completion of the course, master's students will learn how to resolve management conflicts, develop their own image, analyze management situations, conduct negotiations, and become stress-resistant and effective leaders.	5		v							
	HUM213 Pedagogy of Higher Education	This course focuses on mastering the methodological and theoretical foundations of higher education pedagogy. This course will help students develop skills in modern teaching technologies, pedagogical design, organization, and control in higher education, and communicative competence. Upon completion of the course, master's students will learn how to organize and implement various forms of learning, apply active learning methods, and select lesson	2				v					

		content. They will also learn how to organize the learning process using credit-based learning.										
	HUM212 History and Philosophy science	Objective : To explore the history and philosophy of science as a system of concepts in global and Kazakhstani science. Contents: The subject of the philosophy of science, the dynamics of science, the main stages of the historical development of science, the characteristics of classical science, non-classical and post-non-classical science, the philosophy of mathematics, physics, engineering, and technology, the specifics of engineering, the ethics of science, and the social and moral responsibility of scientists and engineers.										
	International Water Law: Theory and Practice	The goal of the course "International Relations and Diplomatic Consular Service" is to develop a holistic understanding of the fundamentals of diplomatic and consular service, their main components, and both the profession and the organization of work. Course content : Systematically explore the priorities of diplomatic and consular service in the modern world and identify their role among the key instruments of foreign policy.	5		v							
	Climate risks to water resources	The objective of the course is to study the impact of climate change on the availability, quality and management of water resources, as well as methods of adaptation and mitigation of climate risks necessary for sustainable water resources management and ensuring regional environmental sustainability. Abstract: climate factor, high deterioration of infrastructure, wasteful water consumption, lack of a legal framework, modernization and development of water management infrastructure.	5	v								
	Integrated water resources management and sustainable development of the Republic of Kazakhstan	To develop basic knowledge of key contemporary issues and methodological skills in integrated water resources management to ensure the rational use and protection of water resources in achieving the Sustainable Development Goals in the Republic of Kazakhstan.	5		v							

Cycle general education disciplines Component of choice												
Cycle of basic disciplines Component of choice												
	Operational exploration of transboundary groundwater deposits	The aim of this course is to solve problems by organizing and conducting comprehensive studies on the groundwater regime at all major water intake structures, as well as conducting small-scale special studies to justify the artificial reproduction of operational groundwater reserves. Summary: Requirements for the content of hydrogeological supervision .	5		v							
	Hydrogeological aspects of water resources management	The purpose of teaching this course is to train specialists in the field of water use with in-depth knowledge of the fundamentals of water resources management. Summary: Deep understanding of the specifics of water resources management and water management systems within the Republic of Kazakhstan; gain knowledge of existing water resources regulation and management systems, both in the Republic of Kazakhstan and elsewhere	5				v					
	Progress on transboundary water cooperation (SDG indicator 6)	The aim of this course is to develop transboundary water cooperation, which plays a crucial role in ensuring greater regional integration, peace and sustainable development, as well as in addressing regional security issues and supporting adaptation to climate change. Abstract: to ensure integrated water resources management at all levels, including, where necessary, on the basis of	5		v							
	Fundamentals of International and Regional Water Policy	The objective of the course is to define the role of policy and international cooperation in water resources management, focusing on the international and regional aspects, analyzing the foundations of international , regional, and national water policy and their impact on decision-making at various levels. Abstract: regulation of water relations occurring within the boundaries of basin districts, as well as the operation of water	5		v							

	Water Code	The objective of the course: knowledge of natural waters, their reserves and distribution, their importance and role in society, their use in the national economy, and the impact of anthropogenic activity on their regime and quality; Summary : water and water management balances; the organization of state accounting of water resources, the state water cadastre, register, water code, and monitoring of water bodies of the Republic of Kazakhstan.										
	Sustainable development strategies	Objective: To train master's students in sustainable development strategies to achieve a balance between economic growth, social responsibility, and environmental protection. Content: Master's students will study the concepts and principles of sustainable development, the development and implementation of sustainable development strategies, the evaluation of their effectiveness, as well as international standards and best practices. Case studies and examples of successful sustainable development strategies are included.	5	v								
	International Relations and Diplomatic Consular Service	The goal of the course "International Relations and Diplomatic Consular Service" is to develop a holistic understanding of the fundamentals of diplomatic and consular service, their main components, and both the profession and the organization of work. Course content : Systematically explore the priorities of diplomatic and consular service in the modern world and identify their role among the key instruments of foreign policy.	5			v						
Cycle Practice-oriented module												
	Research practice	The purpose of the internship is to gain experience in researching a relevant scientific problem, expand the professional knowledge acquired during the course of study, and develop practical skills for conducting independent research. The internship is aimed at developing skills in research, analysis, and application of economic knowledge .	4		v		v					
	Teaching practice	The objective of the course: to develop the ability to carry out pedagogical activities in universities, design the educational process and conduct certain types of educational classes using innovative educational technologies.	6		v		v					

Cycle of core disciplines Component By choice											
Current issues of water sharing with neighboring countries in transboundary basins	The objective of this course is to examine country-specific issues arising in the allocation of transboundary water resources for the use of water allocation regulation mechanisms in transboundary basins, as well as the implementation of their contractual framework for the rational use of water resources. Abstract : The course analyzes the situation with the use of water resources in transboundary rivers and basins, analyzing and adapting existing water allocation mechanisms for the region.	5					v				
Water management in transboundary basins	The objective of this course is to examine water resources management theories, the current situation, and future challenges of water resources management at the local, national, and transboundary levels. The course outlines the following: To identify and analyze various water allocation processes and outcomes; to highlight and explain the main theories of water resources management at the local, national, and transboundary levels.	5		v		v					
Management and monitoring of groundwater resources in transboundary areas	The purpose of water resources monitoring is to obtain data from repeated observations of water resource elements, conducted for their assessment according to a defined plan, using modern methodologies for parameter measurement and data collection. Definitions in the field of transboundary water resources management, which is an important aspect of ensuring development and water security for effective water resources management.	5		v		v					
Climate risks to water resources	The objective of the course is to study the impact of climate change on the availability, quality and management of water resources, as well as methods of adaptation and mitigation of climate risks necessary for sustainable water resources management and ensuring regional environmental sustainability. Abstract: climate factor, high deterioration of infrastructure, wasteful water consumption, lack of a legal framework,	5		v		v					

		modernization and development of water management infrastructure.										
	Environmental and climate law	The objective of the course is to study regulatory acts and conventions on environmental and water law, among which are international treaties and international law, which are the legal basis for interstate cooperation on transboundary issues. Brief content: international law, environmental, climate, technological law, technical regulations, designs, preventive measures for the protection of natural resources.	5		v		v					
	Water conflict resolution and peacebuilding	The objective of the course is to provide fundamental guidance on conflict prevention, assistance to parties to a conflict in achieving peace, peacebuilding, and the creation of conditions for maintaining and strengthening peace. It also promotes sustainable development, protects human rights, and works for the development and respect of international law. Summary: peacebuilding, the Charter, the Security Council, water resources, and sustainable development.	5		v				v			
	International Management	The main objective of studying the course "International Management" is to provide students with theoretical foundations and practical knowledge in the field of managing large integrated corporate structures in a rapidly changing external environment. Abstract: Formation, use and development of competitive advantages of international companies, due to favorable opportunities for doing business in various countries, using other features and international interaction.	5		v						v	
	Contemporary problems of international relations	This course explores the fundamental issues of international relations. Summary: This course examines the specifics of current processes on the global stage, including gaining insight into modern academic approaches to international conflicts and their resolution, as well as the role of states, governmental, and non-governmental organizations in this process.	5		v		v					

	Monitoring and data processing in GIS	The goal of this course is to acquire basic skills in working with geographic information systems (GIS) and a basic understanding of digital maps and vector data. Brief outline: application of basic GIS tools (navigation, search, etc.), concepts of spatial data and digital maps, concepts of attribute data/tables, concepts of coordinate systems, and digitization of raster images.	5	v		v						
	Foreign policy and diplomacy of the Republic of Kazakhstan	The course aims to explore the priority areas of foreign policy and diplomacy of other countries. Brief summary: It examines political governance as a process in which subject-object relations are realized, examining the conditions of its emergence, structure, influencing factors, and development trends; it also explores the intrapersonal processes that influence people's motivation and behavior, and the process of countries' entry into the global community.	5	v					v			
	Techniques for conducting diplomatic negotiations in the Republic of Kazakhstan	The course "Techniques of Conducting Diplomatic Negotiations in the Republic of Kazakhstan" provides a theoretical understanding of international diplomatic negotiations. Summary: Introduction to approaches to negotiation analysis; identification of the structural elements of negotiation activities; analysis of negotiation results; stages of negotiations and tactical techniques; mediation in negotiations; structural elements of the negotiation process; and rules of business etiquette.	5	v				v				
	Research module											
	Research work of a master's student, including an internship and the completion of a master's thesis	The students' research work is an independent study under the guidance of a scientific supervisor (consultant) of a current problem in a branch of science corresponding to the profile of the educational program being mastered by the student.	24	v				v				

5. Curriculum of the educational program

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



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

WORKING CURRICULUM

Academic year
Group of educational programs
Educational program
The awarded academic degree
Form and duration of study

2025-2026 (Spring, Autumn)
M088 - "Hydrogeology and geology engineering"
7M05210 - "Water diplomacy"
Master of science in Natural Sciences
full time (scientific and pedagogical track) - 2 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			
									1 sem	2 sem	3 sem	4 sem		
CYCLE OF GENERAL EDUCATION DISCIPLINES (GED)														
CYCLE OF BASIC DISCIPLINES (BD)														
M-1. Module of basic training (university component)														
HUM212	History and philosophy of science		BD, UC	3	90	15/0/15	60	E	3					
HUM213	Higher school pedagogy		BD, UC	3	90	15/0/15	60	E	3					
LNG213	Foreign language (professional)		BD, UC	3	90	0/0/30	60	E		3				
HUM214	Psychology of management		BD, UC	3	90	15/0/15	60	E		3				
GIG248	Operational exploration of transboundary groundwater deposits	1	BD, CCH	5	150	30/0/15	105	E		5				
GIG249	Hydrogeological aspects of water resources management	1	BD, CCH	5	150	30/0/15	105	E		5				
GIG250	Progress on transboundary water cooperation (SDG indicator 6)	2	BD, CCH	5	150	30/0/15	105	E		5				
GIG251	Fundamentals of international and regional water policy	2	BD, CCH	5	150	30/0/15	105	E		5				
MNG781	Intellectual property and research	2	BD, CCH	5	150	30/0/15	105	E		5				
MNG782	Sustainable development strategies	1	BD, CCH	5	150	30/0/15	105	E			5			
MNG788	The history of international relations in modern times	1	BD, CCH	5	150	30/0/15	105	E			5			
MNG789	The history of international relations in modern times	1	BD, CCH	5	150	30/0/15	105	E			5			
M-4. Practice-oriented module														
AAP273	Pedagogical practice		BD, UC	8				R		8				
CYCLE OF PROFILE DISCIPLINES (PD)														
M-2. Rational use and management of water resources (university component)														
MNG792	Fundamentals of international and regional security		PD, UC	5	150	30/0/15	105	E	5					
MNG790	The technique of conducting diplomatic negotiations of the Republic of Kazakhstan		PD, UC	5	150	30/0/15	105	E		5				
GIG257	Water Code		PD, UC	5	150	30/0/15	105	E			5			
MNG791	Foreign policy and diplomacy of the Republic of Kazakhstan		PD, UC	5	150	30/0/15	105	E			5			
M-3. Reconstruction and operation of water management systems and structures (optional component)														
GIG266	Water management of trans-boundary basins	1	PD, CCH	5	150	30/0/15	105	E	5					
GIG267	Water conflict resolution and peacebuilding	1	PD, CCH	5	150	30/0/15	105	E	5					
MNG794	Modern problems of international	2	PD, CCH	5	150	30/0/15	105	E	5					

Developed by:	Considered: meeting of the Institute's Management Committee	Approved by: UMS KazNITU	Page 19of 20
---------------	---	--------------------------	--------------

MNG795	International management	2	PD, CCH	5	150	30.0/15	105	E	5				
GIG270	Modeling hydrological systems	3	PD, CCH	5	150	30.0/15	105	E	5				
GIG271	Sectoral and complex hydraulic structures	3	PD, CCH	5	150	30.0/15	105	E	5				
GIG254	International Water Law: Theory and Practice	1	PD, CCH	5	150	30.0/15	105	E			5		
GIG259	Actual issues of water sharing with neighboring countries in transboundary basins	1	PD, CCH	5	150	30.0/15	105	E			5		
GIG264	Management and monitoring of groundwater resources in trans-boundary areas	2	PD, CCH	5	150	30.0/15	105	E			5		
GIG265	Monitoring and data processing in GIS	2	PD, CCH	5	150	30.0/15	105	E			5		
GIG268	Climate risks to water resources	1	PD, CCH	4	120	30.0/15	75	E				4	
GIG269	Environmental and climate law	1	PD, CCH	4	120	30.0/15	75	E				4	
M-4. Practice-oriented module													
AAP256	Research practice		PD, UC	4				R				4	
M-5. Experimental research module													
AAP268	Research work of a master's student, including internship and completion of a master's thesis		RWMS	4				R	4				
AAP268	Research work of a master's student, including internship and completion of a master's thesis		RWMS	4				R		4			
AAP251	Research work of a master's student, including internship and completion of a master's thesis		RWMS	2				R			2		
AAP255	Research work of a master's student, including internship and completion of a master's thesis		RWMS	14				R				14	
M-6 Module of final attestation													
ECA212	Registration and protection of the master thesis		FA	8								8	
Total based on UNIVERSITY:									30	33	27	30	
									63		57		

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	0	0	0	0
BD	Cycle of basic disciplines	0	20	15	35
PD	Cycle of profile disciplines	0	24	29	53
Total for theoretical training:		0	44	44	88
RWMS	Research Work of Master's Student				24
ERWMS	Experimental Research Work of Master's Student				0
FA	Final attestation				8
TOTAL:					120

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 Zhunagalayeva A. S.

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

Acting Department Chair - Hydrogeology, Engineering and Oil and Gas Geology Akparbayev R. C.

Representative of the Academic Committee from Employers Umbetaliyev D. B.

_____Acknowledged_____

