

MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF KAZAKHSTAN
KAZAKH NATIONAL RESEARCH TECHNICAL UNIVERSITY after K. SATBAYEV



WORKING CURRICULUM
of the educational program for 2021-2022 academic year admission
Educational program 6B05201 - "Geology and exploration of mineral deposits"
Group of Educational programs B052 - "Earth Science"

Full-time study

Study duration : 4 years

Academic degree: bachelor of natural sciences

Year of study	Code	Name of discipline	Cycle	Total Credits	Total hours	lec/lab/pr/	S/W (including S/W/T) in hours	pre-requisites	Code	Name of discipline	Cycle	Credits	Total hours	lec/lab/pr/SW	S/W (including S/W/T) in hours	pre-requisites
1 semester (autumn 2021)									2 semester (spring 2022)							
1	LNG108	English	G	5	150	0/0/3	105	no	LNG108	English	G	5	150	0/0/3	105	LNG108
	LNG104	Kazakh (Russian) language	G	5	150	0/0/3	105	no	LNG104	Kazakh (Russian) language	G	5	150	0/0/3	105	LNG104
	HUM129	Culturology	G	2	60	1/0/0	45	no	HUM100	Contemporary History of Kazakhstan	G	5	150	1/0/2	105	no
	MAT101	Mathematics I	B	5	150	1/0/2	105	no	HUM128	Political science	G	2	60	1/0/0	45	no
	PHY111	Physics I	B	5	150	1/1/1	105	no	MAT102	Mathematics II	B	5	150	1/0/2	105	MAT101
	GEN177	Engineering and Computer Graphics	B	5	150	1/0/2	105	no	PHY112	Physics II	B	5	150	1/1/1	105	PHY111
	GEO431	General and historical geology	B	5	150	2/1/0	105	no	GEO432	Structural geology	B	5	150	2/1/0	105	GEO431
	KFK101	Physical education I	G	2	60	0/0/2	30		KFK102	Physical education II	G	2	60	0/0/2	30	
Total:				34				Total:				34				
3 semester (autumn 2022)									4 semester (spring 2023)							
2	HUM132	Philosophy	G	5	150	1/0/2	105	no	CSE677	Information and communication technology	G	5	150	2/1/0	105	no
	CHE451	Life safety	G	2	60	1/0/0	45	no	HUM127	Sociology	G	2	60	1/0/0	45	no
	HUM122	Psychology	G	2	60	1/0/0	45	no	CHE452	Ecology and sustainable development	G	2	60	1/0/0	45	no
	MNG487	Fundamentals of Entrepreneurship, Leadership and Anti-corruption culture	G	3	90	1/0/1	60	no	GEO434	Petrography	B	5	150	1/2/0	105	GEO433
	MAT103	Mathematics III	B	5	150	1/0/2	105	MAT102	GEO435	Geology and Mineral Resources of Kazakhstan	B	5	150	2/1/0	105	GEO431
	GEO433	Crystallography and mineralogy	B	5	150	1/2/0	105	GEO431	GEO436	Geoinformation technologies in geology	B	5	150	2/1/0	105	no
	CHE495	Chemistry	B	5	150	2/1/0	105	no	MAP113	Geodesy with the basics of topography	B	5	150	2/1/0	105	no
	KFK103	Physical education III	G	2	60	0/0/2	30		KFK104	Physical education IV	G	2	60	0/0/2	30	
Total:				29				Total:				31				
5 semester (autumn 2023)									6 semester (spring 2024)							
3	GEO439	Sedimentology	B	5	150	2/1/0	105	GEO177	GEO429	Fundamentals of prospecting and exploration of mineral deposits	B	5	150	2/1/0	105	GEO432
	GEO411	Geophysical methods of prospecting and exploration	B	5	150	2/1/0	105	GEO177	GEO428	Mathematic methods in geology	B	5	150	2/0/1	105	no
	PET406	Drilling of the wells	B	5	150	2/1/0	105	no	GEO443	Fundamentals of subsoil	S	5	150	2/0/1	105	GEO431
	GEO438	Geology of mineral deposits	S	5	150	2/1/0	105	GEO177	GEO430	Hydrogeology with the basics of engineering geology	S	4	120	2/1/0	90	GEO431
	3218	Electives	B	5					GEO445	Oil and Gas Geology	S	5	150	2/0/1	105	GEO431
	3219	Electives	B	5					3305	Electives	S	5				
	Total:				30				Total:				29			
7 semester (autumn 2024)									8 semester (spring 2025)							
4	4220	Electives	B	5					ECA003	Preparation & writing of thesis (project)*	FA	6				
	4306	Electives	S	5					ECA103	Thesis (project) defence*	FA	6				
	4307	Electives	S	5					4311	Electives	S	5				
	4308	Electives	S	5					Total:				17			
	4309	Electives	S	5												
	4310	Electives	S	5												
Total:				30												

Other academic education				
Year of study	Code	Name of discipline	Credits	Semester
Obligatory education with P/NP assessment (Professional practice)				
1	AAP164	Educational geological survey practice (B)	2	2
2	AAP143	Industrial internship I (S)	2	4
3	AAP163	Industrial internship II (S)	4	6
Other education				
1		Sports club sectional	0	5-7
2-3	AAP500	Military training	0	3-6

Total number of credits			
Cycle of disciplines	Credits		
	compulsory	elective	total
Cycle of general disciplines (G)	58		58
Cycle of basic disciplines (B)	97	15	112
Cycle of special disciplines (S)	25	35	60
Total of theoretical study:			230
Final attestation (FA)	12		12
OVERALL:			192 50 242

Decision of the Academic Council of KazNRTU after K.Satbayev. Minutes # 3, dated "25" 06 2021.

Decision of the Academic Council of the IGP&ME. Minutes # 5, dated "24" December 2020.

Vice-rector for academic affairs

B. Zhautikov

Director of Geology, petroleum and mining engineering institute

A. Syzdykov

Head of the department "Geological mapping, prospecting and exploration of mineral deposits"

A. Bekbotayeva

Representative of Speciality council

A. Zhunusov

APPROVED
Director of the Institute of Geology, petroleum and mining
engineering

Исцелый (полный) А. Сыздықов

№ 2021/01/01

Исцелый А. Сыздықов

MAJOR ELECTIVE DISCIPLINES educational program for the 2021-2022 academic year admission
Educational program 6B05201 - "Geology and exploration of mineral deposits"
Group of Educational programs B052 - "Earth Science"

Full-time study Study duration : 4 years Academic degree: bachelor of natural sciences

Year of study	Code of elective	Code of discipline	Name of discipline	Cycle	Credits	Total hours	lec/lab/pr	SIW (including SIWT) In hours	Prerequisites	
5 semester (autumn 2023)										
3	3218	GEO 440	Geological mapping	B	5	150	2/0/1	105	GEO 432	
		GEO 462	Oil and gas areas in Kazakhstan				2/0/1		GEO 431	
		PET 405	Revervoir engineering I: Primary recovery				1/0/2		no	
	3219	GEO 441	Crystaloptics	B	5	150	1/2/0	105	GEO 434	
		GEO 442	Lithology, diagenesis and biofacies of oil and gas complexes				2/0/1		GEO 434	
Total:					10					
6 semester (spring 2024)										
3305		GEO 444	Geological and industrial types of mineral deposits	S	5	150	2/0/1	105	GEO 438	
		GEO 446	Geodynamics of lithospheric plates				2/1/0		GEO 438	
Total:					5					
7 semester (autumn 2024)										
4220		GPH 181	Theoretical bases and applied aspects of well logging	B	5	150	2/1/0	105	GEO 431	
		GPH 180	Geophysical exploration (well logging) of uranium deposits				2/1/0		GEO 431	
		GPH 182	Modern geophysical technologies for calculating reserves of uranium deposits				2/1/0		GEO 431	
		MIN 502	Mining				2/1/0		no	
Total:					5					
4	4306	GEO 451	Computer technologies in geology	S	5	150	1/2/0	105	GEO 431	
		GEO 447	Oil and gas provinces of the world				2/0/1		GEO 445	
	4307	GEO 457	Applied geochemical studies	S	5	150	2/0/1	105	GEO 476	
		GEO 453	Geochemical methods of exploration of mineral deposits				2/0/1		GEO 476	
		GEO 456	Theoretical basis for searching and exploration of oil and gas fields				2/0/1		GEO 445	
	4308	GEO 452	Laboratory Methods of studying minerals	S	5	150	1/2/0	105	GEO 434	
		GEO 481	Geodynamics of oil and gas pools				2/0/1		GEO 431	
		GEO 448	Physics of oil reservoir				2/0/1		GEO 447	
	4309	GEO 455	Fundamentals of geotectonics	S	5	150	2/0/1	105	GEO 432	
		GEO 450	Geologic basis of oil and gas field development				2/0/1		GEO 445	
	4310	GEO 184	Geological assessment of mineral resources and reserves	S	5	150	2/0/1	105	GEO 476	
		GEO 454	Geological and economic evaluation of mineral deposits				2/0/1		GEO 476	
		GEO 449	Oil and gas geology and estimation of reserves				2/0/1		GEO 445	
	Total:					25				
	8 semester (spring 2025)									
4311		GEO 458	Mine geology	S	5	150	2/0/1	105	GEO 476	
		GEO 459	Geochemistry of organic matter and hydrocarbons of oil and gas basins				2/0/1		GEO 445	
		GEO 461	Geomorphology and anthropogenic geology				2/0/1		GEO 431	
		GEO 460	Computer modeling of oil and gas fields				2/0/1		GEO 445	
Total:					5					

Credits numbers of elective disciplines over the entire period of study	
Cycle of disciplines	Credits
Cycle of basic disciplines (B)	15
Cycle of special disciplines (S)	35
Overall:	50

Decision of the Academic Council of the IGP&ME. Minutes # 5, dated "24" December 2020.

Head of the department "Geological mapping,
prospecting and exploration of mineral deposits"

Representative of Specialty council

A. Bekbotayeva

A. Zhunusov