

**WORKING CURRICULUM**  
of the educational program for 2020-2021 academic year admission  
Educational program 6B07202 - "Geology and exploration of mineral deposits"  
Group of Educational programs B071 - "Mining"

Full-time study Study duration : 4 years

Academic degree: bachelor of engineering and technology

Year of study	Code	Name of discipline	Cycle	Total amount of credits	Total hours	lec/lab/pr/	SW (including SWT) in hours	pre-requisites
<b>1st semester (autumn 2020)</b>								
1	LNG 1051	Beginner (A1)	G	5	150	0/0/3	105	Diagnostic test
	LNG 1052	Elementary English (A1)						
	LNG 1053	General English 1 (A2)						
	LNG 1054	General English 2 (A2)						
	LNG 1055	Academic English (B1)						
	LNG1056	Business English (B2)						
	LNG104.1-2	General Kazakh (Russian) (A1)	G	4	120	0/0/2	90	Diagnostic test
	LNG104.1.1	Basic Kazakh (Russian) language (A2)						
	LNG104.1.2	Academic Kazakh (Russian) language (B1)						
	LNG101.13-14	Business Kazakh (Russian) language (B2)	B	5	150	1/0/2	105	Diagnostic test
MAT00110	Algebra and introduction to mathematical analysis							
MAT101	Mathematics I	B	5	150	1/1/1	105	Diagnostic test	
PHY400	Introduction to physics							
PHY111	Physics I	B	5	150	2/1/0	105	no	
GEO473	General geology (Introduction to specialty)							
GEN177	Engineering and computer graphics	B	5	150	1/0/2	105	no	
KFK101	Physical education I							
<b>Total:</b>				<b>31</b>				
<b>3rd semester (autumn 2021)</b>								
2	HUM132	Philosophy	G	5	150	1/0/2	105	no
	CHE451	Life safety	G	2	60	1/0/0	45	no
	MAT102	Mathematics II	B	5	150	1/0/2	105	MAT101
	MAT103	Mathematics III						
	PHY112	Physics II	B	5	150	1/1/1	105	PHYS111
	GPH183	Fundamental Physics of Earth						
	GEO433	Crystallography and mineralogy	B	5	150	1/2/0	105	GEO473
	CHE495	Chemistry						
	GEO478	Hydrogeology	B	5	150	2/1/0	105	GEO473
	KFK103	Physical education III						
<b>Total:</b>				<b>34</b>				
<b>5th semester (autumn 2022)</b>								
3	MNG487	Fundamentals of Entrepreneurship, Leadership and Anti-corruption culture	G	3	90	1/0/1	60	no
	GEO436	Geoinformation technologies in geology	B	5	150	2/1/0	105	no
	GEO439	Sedimentology	B	5	150	2/1/0	105	GEO473
	GEO411	Geophysical methods of prospecting and exploration	B	5	150	2/1/0	105	GEO473
	GEO438	Geology of mineral deposits	S	5	150	2/1/0	105	GEO473
	3220	Electives	B	5	150	2/1/0	105	
	3221	Electives	B	5	150	2/1/0	105	
	3222	Electives	B	5	150	2/1/0	105	
<b>Total:</b>				<b>38</b>				
<b>7th semester (autumn 2023)</b>								
4	4309	Electives	S	5	150	2/1/0	105	
	4310	Electives	S	5	150	2/1/0	105	
	4311	Electives	S	5	150	2/1/0	105	
	4312	Electives	S	5	150	2/1/0	105	
	4313	Electives	S	5	150	2/1/0	105	
<b>Total:</b>				<b>25</b>				

Code	Name of discipline	Cycle	Total amount of credits	Total hours	lec/lab/pr/	SW (including SWT) in hours	pre-requisites	
<b>2nd semester (spring 2021)</b>								
LNG 1052	Elementary English (A1)	G	5	150	0/0/3	105	LNG 1051	
LNG 1053	General English 1 (A2)							
LNG 1054	General English 2 (A2)							
LNG 1055	Academic English (B1)							
LNG1056	Business English (B2)							
LNG 1057	Professional English (B2+)	G	5	150	0/0/3	105	LNG104.1-2	
LNG101.11-21	Basic Kazakh (Russian) language (A2)							
LNG101.11-21	Academic Kazakh (Russian) language (B1)							
LNG101.13-23	Business Kazakh (Russian) language (B2)	B	5	150	1/0/2	105	LNG101.11-21	
1104	Electives (C1)							
MAT101	Mathematics I	B	5	150	1/0/2	105	MAT100	
MAT102	Mathematics II							
PHY111	Physics I	B	5	150	1/1/1	105	PHY110	
PHY112	Physics II							
HUM100	Contemporary history of Kazakhstan	G	5	150	1/0/2	105	no	
GEO432	Structural geology							
KFK102	Physical education II	G	2	60	0/0/2	30	GEO473	
<b>Total:</b>								<b>32</b>
<b>4th semester (spring 2022)</b>								
CSE677	Information and communication technology	G	5	150	2/1/0	105	no	
HUM126	Social-political knowledge	G	8	240	4/0/0	180	no	
GEO434	Petrography	B	5	150	1/2/0	105	GEO433	
GEO435	Geology and Mineral Resources of Kazakhstan	B	5	150	2/1/0	105	GEO473	
PE406	Drilling of the wells	B	5	150	2/1/0	105	no	
MAP113	Geodesy with the basics of topography	B	5	150	2/1/0	105	no	
GEO428	Mathematic methods in geology	B	5	150	2/0/1	105	no	
<b>Total:</b>				<b>32</b>				
KFK104	Physical education IV	G	2	60	0/0/2	30		
<b>Total:</b>				<b>32</b>				
<b>6th semester (spring 2023)</b>								
CHE452	Ecology and sustainable development	G	2	60	1/0/0	45	no	
GEO476	Prospecting and exploration of mineral deposits	S	5	150	2/1/0	105	GEO432	
GEO443	Fundamentals of subsol	S	5	150	2/0/1	105	GEO473	
GEO477	Paleontology and historical geology	S	5	150	2/1/0	105	GEO473	
GEO445	Oil and Gas Geology	S	5	150	2/0/1	105	GEO473	
GEO479	Engineering geology	S	5	150	2/1/0	105	GEO473	
3307	Electives	S	5	150	2/1/0	105		
3308	Electives	S	5	150	2/1/0	105		
<b>Total:</b>				<b>37</b>				
<b>8th semester (spring 2024)</b>								
ECA003	Preparation and writing of graduation work (project)	FE	6					
ECA103	The defence of graduation work (project)	FE	6					
4314	Electives	S	5	150	2/1/0	105		
<b>Total:</b>				<b>17</b>				

Year of study	Code	Name of discipline	Credits	Semester
<b>Other academic education</b>				
<b>Obligatory education with P/NP assessment (Professional practice)</b>				
1	AAP107	Educational field geological internship (B)	2	2
2	AAP143	Industrial internship I (S)	2	4
3	AAP163	Industrial internship II (S)	4	6
<b>Other education</b>				
1		Sports club sectional	0	5-7
2-3	AAP500	Military training	0	3-6

Cycle of disciplines	Credits		
	compulsory	elective	total
Cycle of general disciplines (G)	57		57
Cycle of basic disciplines (B)	102	15	117
Cycle of special disciplines (S)	36	40	76
<b>Total of theoretical study:</b>			<b>250</b>
Final attestation (FA)	12		12
<b>OVERALL:</b>			<b>262</b>

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

Decision of the Academic Council of the IGP&MI named after K. Turysov. Minutes # 5, dated "24" 12 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"

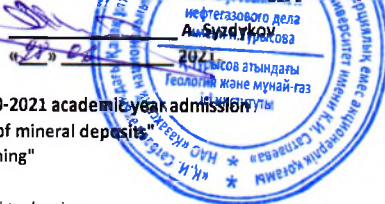
A. Bekbotayeva

Representative of Specialty council

A. Zhunusov

APPROVED

Director of the Institute of Geology, petroleum and mining engineering



MAJOR ELECTIVE DISCIPLINES educational program for the 2020-2021 academic year admission  
Educational program 6B07202 - "Geology and exploration of mineral deposits"  
Group of Educational programs B071 - "Mining"

Full-time study Study duration : 4 years Academic degree: bachelor of engineering and technology

Year of study	Code of elective	Code of discipline	Name of discipline	Cycle	Credits	Total hours	lec/lab/pr/siw	SIW (including SIWT) in hours	Prerequisites	
<b>5th semester (autumn 2022)</b>										
3	3221	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 473	
		GEO 463	Ecological hydrogeology				2/1/0		GEO 473	
		PET 405	Revervoir engineering I: Primary recovery				1/0/2		no	
	3222	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	
		GEO 464	Watersupply and irrigation				2/1/0		GEO 473	
	3223	GPH 181	Theoretical bases and applied aspects of well logging	B	5	150	2/1/0	105	GEO 473	
		GPH 180	Geophysical exploration (well logging) of uranium deposits				2/1/0		GEO 473	
		GPH 182	Modern geophysical technologies for calculating reserves of uranium deposits				2/1/0		GEO 473	
		MIN 502	Mining				2/1/0		no	
	Total:					15				
	<b>6th semester (spring 2023)</b>									
	3	3307	GEO 444	Geological and industrial types of mineral deposits	S	5	150	2/0/1	105	GEO 438
			GEO 446	Geodynamics of lithospheric plates				2/0/1		GEO 432
GEO 465			Hydrogeodynamics	2/1/0				GEO 473		
3308		GEO 451	Computer technologies in geology	S	5	150	1/2/0	105	GEO 473	
		GEO 447	Oil and gas provinces of the world				2/0/1		GEO 445	
GEO 466	Hydrogeological study		2/1/0	GEO 478						
Total:					10					
<b>7th semester (autumn 2023)</b>										
4	4309	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	
		GEO 467	Computer technologies in hydrogeology and engineering geology				2/1/0		GEO 479	
	4310	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 473	
		GEO 448	Physics of oil reservoir				2/0/1		GEO 447	
		GEO 468	Meliorative hydrogeology				2/1/0		GEO 170	
	4311	GEO 455	Fundamentals of geotectonics	S	5	150	2/0/1	105	GEO 432	
		GEO 450	Geological bases of oil and gas fields' development and exploitation				2/0/1		GEO 445	
		GEO 469	Search and exploration of underground waters				2/1/0		GEO 478	
	4312	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	
		GEO 426	Engineering and geological study				2/1/0		GEO 479	
	4313	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 470	Hydrogeochemistry				2/1/0		GEO 478	
	Total:					25				
	<b>8th semester (spring 2024)</b>									
4	4314	GEO 461	Geomorphology and anthropogenic geology	S	5	150	2/0/1	105	GEO 473	
		GEO 460	Computer modeling of oil and gas fields				2/0/1		GEO 445	
		GEO 471	Groundwater monitoring and geohazard				2/1/0		GEO 478	
Total:					5					

Credits numbers of elective disciplines over the entire period of study	
Cycle of disciplines	Credits
Cycle of general disciplines (G)	0
Cycle of basic disciplines (B)	15
Cycle of special disciplines (S)	40
Overall:	55

Decision of the Academic Council of the IGP&MI named after K. Turysov. Minutes # 5, dated "24"/12 2020

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



A. Bekbotayeva

Representative of Specialty council



A. Zhunusov

