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

Approved by:
Director of Geology, Oil and Mining institute
_____A.H.Syzdykov
«___» _____ 2019.

MAJOR ELECTIVE DISCIPLINES for 2019-2020 academic year admission

Educational program 6B07205 - "Mining engineering"

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 times	lecture/ laboratory/ practice	SIS (including STIS), in hours	Prerequisites
1			**2 semester**						
	1106	LNG103	Culture of business communication	G	4	120	0/0/2	75	DK(R)Ya 1102.2
		LNG102	Rhetoric						
			In total:		4		2		
2			**3 semester**						
	2208	GEN146	Теоретическая и прикладная механика	B	5		2/1/0	105	PHY112
			In total:		5		5		
			4 semester						
	2111	LNG 109	IELST Preparation	G	4	120	0/0/3	75	LNG 1056
		LNG 110	Intercultural Communication						
		LNG 117	Technical Writing						
		LNG 118	Public speaking						
		LNG 119	Productivity skills						
		LNG 120	GRE preparation						
		LNG 121	Academic Writing						
	2214	MIN142	Processes of open cast mining	B	5	150	1/0/2	105	MIN101
		MIN106	Deposit opening and devolomentwhen underground mining				2/0/1		MIN101
		MIN107	Deposit opening and devolopment when uranium undeground borehole				2/0/1		MIN101
		MIN141	Industrial explosives				1/1/1		MIN101
		MIN128	Mechanics of underground structures				2/0/1		MIN180
		MAP138	General course of mine surveying				1/2/0		MAP160
			In total:		9		6		
3			**5 semester**						
	3217	MIN460	Interconnection and planning of open cast mining processes	B	5	150	2/0/1	105	MIN101
		MIN454	Underground mining operations processes				2/0/1		MIN101
		MIN461	Uranium deposits underground mining geotechnology				2/0/1		MIN101
		MIN462	Underground construction facilities				2/0/1		MIN101
		MAP529	Mine surveying drawing				0/0/3		MAP160
	3218	TEC186	Opencast mine mining -and -transport equipment	B	5	150	2/0/1	105	MIN101
		PED147	Mining-and-transport equipment of underground mines				2/0/1		MIN101
		MIN455	Shield tunneling complexes				2/0/1		
	3302	MIN463	Special methods of conductieg open cast mining operations	P	5	150	2/0/1	105	MIN101
		MIN464	Design and computer style for mining operations development plans				1/0/2		MIN101
		MIN465	Mining drawing when uranium deposits underground mining				1/0/2		MIN101
		MIN456	Technology of construction of tunnels				2/0/1		MIN101
		MIN457	Ways to support underground structures				2/0/1		MIN101
		MAP520	Surveying-geodesy instruments				1/0/2		MAP160
			In total:		15		9		
			6 semester						
	3221	MIN466	Resource-saving and low-waste technology on ore mines	B	5	150	2/0/1	105	MIN101
		MIN467	Mineral deposits underground mining systems				2/0/1		MIN101
		MIN468	Solutions hydraulics when uranium development				2/0/1		MIN101
		MIN469	Technology of construction of vertical mine workings				2/0/1		MIN101
		MAP531	Mine surveying at open pit mining				1/0/2		MAP160
	3304	MIN470	Technological complexes of open cast mining operations	P	5	150	2/0/1	105	MIN101
		MIN483	Rock conditions management				2/0/1		MIN101
		MIN471	Geotechnological wells drilling and operation				2/0/1		MIN101
		MIN472	Calculation of the design of underground structures				2/0/1		MIN101
		MAP528	GIS cartography in mining				1/0/2		MAP160
	3305	MIN473	Open development of building materials	P	5	150	1/0/2	105	MIN101
		MIN474	Technology and complex mechanization of underground mining				2/0/1		MIN101
		MIN475	Equipment of geotechnological fields at uranium dillhole in situ leaching				2/0/1		MIN101
		MIN476	Design of construction of mining facilities				2/0/1		MIN101
		MAP522	Mine surveying for the construction of mines				1/0/2		MAP160
	3306	MIN482	Conducting mine workings at quarries	P	5	150	1/0/2	105	MIN101
		MIN131	Underground mines air supply				2/0/1		MIN101
		MIN484	Fields development in special conditions				2/0/1		MIN101
		MIN485	Special drilling and blasting operations				2/0/1		MIN101
		MIN486	Construction of underground hydraulic structures				2/0/1		MIN101
		MAP521	Mine surveying at open pit mining				1/0/2		MAP138
			In total:		20		12		
4			**7 semester**						
	4309	MIN487	Prospective and current planning of open cast mining operations	P	5	150	2/0/1	105	MIN101
		MIN488	Product guality management				2/0/1		
		MIN489	Technology and mechanization of piling works				2/0/1		MIN101
		MIN490	Separate methodes of uranium deposits development				2/0/1		MIN101
		MIN491	Designing of blasting operations				2/0/1		MIN101
		MIN492	Designing of construction of underground mining enterprises				2/0/1		MIN101
		MAP525	Mine Survey of underground development systems				1/0/2		MAP160
	4310	MIN493	Reclamation of disturbed lands on mines	P	5	150	2/0/1	105	MIN101
		MIN 494	Layout of underground mines plan				2/0/1		MIN101
		MIN498	Uranium deposits conservation				2/0/1		MIN101
		MIN495	Technology of construction of horizontal and inclined mine workings				2/0/1		MIN101
		MAP523	Geometry of subsoil				1/0/2		MAP160
	4222	MIN477	Opening of career fields	B	5	150	1/0/2	105	MIN101
		MIN478	Opening of career fields				2/0/1		MIN101
		MIN479	Geotechnological methods of development of solid minerals				2/0/1		MIN101
		MIN480	Special ways of building underground structures				2/0/1		MIN101
		MAP524	Geomechanics				1/0/2		MAP172

	In total:			**15**		9		
	8 semester							
	4308	MIN496	Design of ore and coal mines	P	5	150	1/0/2	105	MIN101
		MIN497	Mines conservation				2/0/1		MIN101
		MIN501	Layout of underground deposits plan				2/0/1		MIN101
		MIN499	Reconstruction of mines and underground structures				2/0/1		MIN101
		MAP527	Mine survey software				1/0/2		MAP160
	4311	MIN500	Systems of open development of mineral deposits	P	5	150	1/0/2	105	MIN101
		MIN441	Sheet deposits underground mining				2/0/1		MIN101
		MIN432	Underground development of indigenous and alluvial deposits				2/0/1		MIN101
		MIN433	Technology of construction of urban underground structures				2/0/1		MIN101
		MAP526	Mine surveying of the construction of tunnels				1/0/2		MAP126
	In total:				**10**		6		

Credits numbers of elective disciplines over the entire period of study	
Cycles of disciplines	**Credits**
Cycle of general disciplines (G)	9
Cycle of basic disciplines (B)	25
Cycle of special disciplines (S)	40
Total:	74

Decision of the Academic Board of the Institute _____ Protocol No. 5 of "24" 12 2021.

Head of the Department "Mining" **S.K.Moldabayev**

Representative of the Specialty Council from employers **N.S. Buktukov**