## MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF KAZAKHSTAN MINISTRY OF EDUCATION AND SCIENCE OF THE REF OBEIO OF THE REF OF THE REF OF THE REPORT OF THE REPORT

Approved by:

Director of Geology, Oil and Mining institute

MHCTKTYT [CONOTION A.H. Syzdykov

MHCHUK K.TYPE 2021.

Қ.Тұрысов атындағы Геология және мұнай-газ ісі институты

MAJOR ELECTIVE DISCIPLINES for 2021-2022 academic year admission

Full-time study

Study duration: 4 years

Educational program 6B07205 - "Mining engineering" Academic degree: bachelor of engineering and technology

r	udy	Study duration : 4 years Academic degree: bachelor of en		17	0 70		* 5 /	
Code of elective	Code of discipline	Name of discipline	Cycle	Credits	total w	Maboratory/ practice	SIS (including STIS), in hours	Prerequisit
	MIN449	Open-pit mining processes				1/0/2		Ta annua na
	MIN450		_	5	150		2/0/1	MIN101
2214	MIN450	Deposit opening and devoloment when underground mining	_			2/0/1		MIN101
	MIN451	Deposit opening and devolopment when uranium undeground borehole				2/0/1		MIN101
			В					
	MIN452	Industrial explosives				1/1/1		MIN101
	MIN459	Mechanics of underground structures				2/0/1		MIN180
	MAP530	General course of surveying				1/0/2		MAP519
	1	In total:		5		6		
	. 10	5 semester					= 10	allerine a se
	MIN460	Interconnection and planning of open cast mining processes		5	150	2/0/1		MIN101
	MIN454	Underground mining operations processes				2/0/1		MIN101
3217	MIN461	Uranium deposits underground mining geotechnology	В			2/0/1	105	MIN101
	MIN462	Underground construction facilities	and the state			2/0/1		MIN101
25 5 15 DO - 10	MAP529	Mine surveying drawing	1.0 00000			0/0/3/2		MAP519
1 2 2	TEC186	Opencast mine mining and transport equipment	(a) 1-1	1	150	2/0/1	105	MIN101
3218	PED147	Mining-and-transport equipment of underground mines	В	5		2/0/1		MIN101
trenetical.	MIN455	Shield tunneling complexes				2/0/1		ky y mar žiao
	MAP531	Surveying support of mining operations during the construction of mining enterprises				1/0/2		MAP519
	MIN463	Special methods of conductieg open cast mining operations		5	150	2/0/1		MIN101
	MIN464	Design and computer style for mining operations development plans				1/0/2		MIN101
3303	MIN465	Mining drawing when uranium deposits underground mining	P			1/0/2	105	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		MAP519
		In total:		15		12		
	MINIACC	Resource saving and law weste technology on are mines				0.10.1-		Lanua Sa
3221	MIN466	Resource-saving and low-waste technology on ore mines  Mineral deposits underground mining systems	<b>⊣</b>	5	150	2/0/1	105	MIN101
	MIN467 MIN468					2/0/1		MIN101
		Solutions hydraulics when uranium development	В			2/0/1		MIN101
	MIN469	Technology of construction of vertical mine workings	_			2/0/1		MIN101
	MAP532	Mathematical processing of surveying and geodetic measurements				1/0/2		MAP519
	MIN470	Technological complexes of open cast mining operations	_	129	= 3k	2/0/1		MIN101
3304	MIN131	Underground mines air supply				2/0/1	105	MIN101
	MIN471 MIN472	Geotechnological wells drilling and operation	P	5	150	2/0/1		MIN101
		Calculation of the design of underground structures	_			2/0/1		MIN101
	MAP528	GIS cartography in mining				1/0/2		MAP519
	MIN473	Open development of building materials		5		1/0/2	105	MIN101
	MIN474	Technology and complex mechanization of underground mining			150	2/0/1		MIN101
3305	MIN475	Equipment of geotechnological fields at uranium dillhole in situ leaching	P			2/0/1		MIN101
	MIN476		_					
	MAP521	Design of construction of mining facilities  Mine surveying at open pit mining	_			2/0/1		MIN101
	MIN477	Opening of career fields	_			1/0/2		MAP519
	MIN478	Subsoil use contract and license	<b>-</b>			1/0/2		MIN101
3222	MIN479	Geotechnological methods of development of solid minerals	В	5		2/0/1	105	MIN101
3222	MIN480	Special ways of building underground structures	→ ° '	5		2/0/1 105		MIN101
	MAP522							MIN101
	IMAF322	Mine currently for the construction of mines	-			2/0/1		
K		Mine surveying for the construction of mines	-	20	J	2/0/1 1/0/2		MAP519
		In total:		20	£	2/0/1		
	MIN482			20	3	2/0/1 1/0/2 9		MAP519
	MIN482 MIN483	In total: 7 semester		20	J	2/0/1 1/0/2		
4207		In total: 7 semester  Conducting mine workings at quarries			150	2/0/1 1/0/2 9		MAP519 MIN101
4307	MIN483 MIN484 MIN485	In total:  7 semester  Conducting mine workings at quarries  Rock conditions management  Fields development in special conditions  Special drilling and blasting operations	P	<b>20</b>	150	2/0/1 1/0/2 9 1/0/2 2/0/1	105	MAP519  MIN101  MIN101
4307	MIN483 MIN484 MIN485 MIN486	In total:  Conducting mine workings at quarries  Rock conditions management  Fields development in special conditions  Special drilling and blasting operations  Construction of underground hydraulic structures	P P		150	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1	105	MIN101 MIN101 MIN101 MIN101 MIN101 MIN101
4307	MIN483 MIN484 MIN485 MIN486 MAP524	In total: 7 semester  Conducting mine workings at quarries  Rock conditions management  Fields development in special conditions  Special drilling and blasting operations  Construction of underground hydraulic structures  Geomechanics	P		150	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2	105	MIN101 MIN101 MIN101 MIN101 MIN101 MIN101 MAP519
4307	MIN483 MIN484 MIN485 MIN486 MAP524 MIN487	In total:  Conducting mine workings at quarries  Rock conditions management  Fields development in special conditions  Special drilling and blasting operations  Construction of underground hydraulic structures  Geomechanics  Prospective and current planning of open cast mining operations	P		150	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1	105	MIN101 MIN101 MIN101 MIN101 MIN101 MIN101 MAP519 MIN101
4307	MIN483 MIN484 MIN485 MIN486 MAP524 MIN487 MIN488	In total:  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions  Special drilling and blasting operations  Construction of underground hydraulic structures  Geomechanics  Prospective and current planning of open cast mining operations  Product guality management	P		150	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1 2/0/1	105	MIN101 MIN101 MIN101 MIN101 MIN101 MIN101 MAP519 MIN101 MIN101
	MIN483 MIN484 MIN485 MIN486 MAP524 MIN487 MIN488 MIN489	In total: 7 semester  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions  Special drilling and blasting operations  Construction of underground hydraulic structures  Geomechanics  Prospective and current planning of open cast mining operations  Product guality management  Technology and mechanization of piling works		5	Lay	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1	105	MIN101 MIN101 MIN101 MIN101 MIN101 MIN101 MAP519 MIN101 MIN101 MIN101 MIN101
4307	MIN483 MIN484 MIN485 MIN486 MAP524 MIN487 MIN488 MIN489 MIN490	In total:  7 semester  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions Special drilling and blasting operations Construction of underground hydraulic structures  Geomechanics Prospective and current planning of open cast mining operations Product guality management Technology and mechanization of piling works Separate methodes of uranium deposits development	P		150	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1	105	MAP519  MIN101  MIN101  MIN101  MIN101  MIN101  MAP519  MIN101  MIN101  MIN101  MIN101  MIN101  MIN101  MIN101  MIN101
	MIN483 MIN484 MIN485 MIN486 MAP524 MIN487 MIN488 MIN489 MIN490 MIN491	In total:  7 semester  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions Special drilling and blasting operations Construction of underground hydraulic structures Geomechanics Prospective and current planning of open cast mining operations Product guality management Technology and mechanization of piling works Separate methodes of uranium deposits development Designing of blasting operations		5	Lay	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1	105	MAP519  MIN101
	MIN483 MIN484 MIN485 MIN486 MAP524 MIN487 MIN488 MIN490 MIN490 MIN490 MIN491 MIN492	In total:  7 semester  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions Special drilling and blasting operations Construction of underground hydraulic structures Geomechanics Prospective and current planning of open cast mining operations Product guality management Technology and mechanization of piling works Separate methodes of uranium deposits development Designing of blasting operations Designing of construction of underground mining enterprises		5	Lay	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1	105	MAP519  MIN101
	MIN483 MIN484 MIN485 MIN486 MAP524 MIN487 MIN488 MIN489 MIN490 MIN490 MIN491 MIN492 MAP525	In total:  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions Special drilling and blasting operations Construction of underground hydraulic structures Geomechanics Prospective and current planning of open cast mining operations Product guality management Technology and mechanization of piling works Separate methodes of uranium deposits development Designing of blasting operations Designing of construction of underground mining enterprises Mine Survey of underground development systems		5	Lay	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2	105	MAP519  MIN101  MAP519
	MIN483 MIN484 MIN485 MIN486 MAP524 MIN487 MIN487 MIN489 MIN490 MIN491 MIN491 MIN492 MAP525 MIN493	In total:  7 semester  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions Special drilling and blasting operations Construction of underground hydraulic structures  Geomechanics Prospective and current planning of open cast mining operations Product guality management Technology and mechanization of piling works Separate methodes of uranium deposits development Designing of blasting operations Designing of construction of underground mining enterprises Mine Survey of underground development systems Reclamation of disturbed lands on mines		5	Lay	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1	105	MAP519  MIN101  MIN101  MIN101  MIN101  MIN101  MAP519  MIN101
4308	MIN483 MIN484 MIN485 MIN486 MAP524 MIN487 MIN488 MIN489 MIN490 MIN491 MIN492 MAP525 MIN493 MIN493 MIN494	In total:  7 semester  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions Special drilling and blasting operations Construction of underground hydraulic structures Geomechanics Prospective and current planning of open cast mining operations Product guality management Technology and mechanization of piling works Separate methodes of uranium deposits development Designing of blasting operations Designing of construction of underground mining enterprises Mine Survey of underground development systems Reclamation of disturbed lands on mines Layout of underground mines plan	P	5	150	2/0/1 1/0/2 9 . 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1	105	MAP519  MIN101  MIN101  MIN101  MIN101  MIN101  MAP519  MIN101  MAP519  MIN101  MAP519  MIN101  MIN101  MIN101  MAP519  MIN101  MIN101
	MIN483 MIN484 MIN485 MIN486 MAP524 MIN487 MIN487 MIN489 MIN490 MIN491 MIN491 MIN492 MAP525 MIN493	In total:  7 semester  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions Special drilling and blasting operations Construction of underground hydraulic structures Geomechanics Prospective and current planning of open cast mining operations Product guality management Technology and mechanization of piling works Separate methodes of uranium deposits development Designing of blasting operations Designing of construction of underground mining enterprises Mine Survey of underground development systems Reclamation of disturbed lands on mines Layout of underground mines plan Layout of underground deposits plan		5	Lay	2/0/1 1/0/2 9 1/0/2 2/0/1	105	MAP519  MIN101
4308	MIN483 MIN484 MIN485 MIN486 MAP524 MIN487 MIN488 MIN489 MIN490 MIN491 MIN491 MIN492 MAP525 MIN493 MIN 494 MIN501 MIN495	In total:  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions Special drilling and blasting operations Construction of underground hydraulic structures Geomechanics Prospective and current planning of open cast mining operations Product guality management Technology and mechanization of piling works Separate methodes of uranium deposits development Designing of blasting operations Designing of construction of underground mining enterprises Mine Survey of underground development systems Reclamation of disturbed lands on mines Layout of underground mines plan Layout of underground deposits plan Technology of construction of horizontal and inclined mine workings	P	5	150	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1	105	MIN101
4308	MIN483 MIN484 MIN485 MIN486 MAP524 MIN487 MIN488 MIN490 MIN490 MIN491 MIN492 MAP525 MIN493 MIN493 MIN494 MIN494 MIN494 MIN494	In total:  7 semester  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions Special drilling and blasting operations Construction of underground hydraulic structures  Geomechanics Prospective and current planning of open cast mining operations Product guality management Technology and mechanization of piling works Separate methodes of uranium deposits development Designing of blasting operations Designing of construction of underground mining enterprises Mine Survey of underground development systems Reclamation of disturbed lands on mines Layout of underground mines plan Layout of underground deposits plan Technology of construction of horizontal and inclined mine workings Geometry of subsoil	P	5	150	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1 2/0/1 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1	105	MAP519  MIN101
4308	MIN483 MIN484 MIN485 MIN486 MAP524 MIN487 MIN488 MIN489 MIN490 MIN491 MIN491 MIN492 MAP525 MIN493 MIN 494 MIN501 MIN495	In total:  7 semester  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions Special drilling and blasting operations Construction of underground hydraulic structures  Geomechanics Prospective and current planning of open cast mining operations Product guality management Technology and mechanization of piling works Separate methodes of uranium deposits development Designing of blasting operations Designing of construction of underground mining enterprises Mine Survey of underground development systems Reclamation of disturbed lands on mines Layout of underground mines plan Layout of underground deposits plan Technology of construction of horizontal and inclined mine workings Geometry of subsoil In total:	P	5	150	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1	105	MIN101
4308	MIN483 MIN484 MIN485 MIN486 MAP524 MIN487 MIN488 MIN489 MIN490 MIN491 MIN491 MIN492 MAP525 MIN493 MIN 494 MIN501 MIN495	In total:  7 semester  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions Special drilling and blasting operations Construction of underground hydraulic structures  Geomechanics Prospective and current planning of open cast mining operations Product guality management Technology and mechanization of piling works Separate methodes of uranium deposits development Designing of blasting operations Designing of construction of underground mining enterprises Mine Survey of underground development systems Reclamation of disturbed lands on mines Layout of underground mines plan Layout of underground deposits plan Technology of construction of horizontal and inclined mine workings Geometry of subsoil	P	5	150	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1	105	MAP519  MIN101  MIN101  MIN101  MIN101  MIN101  MAP519  MIN101  MAP519  MIN101  MAP519
4308	MIN483 MIN484 MIN485 MIN486 MAP524 MIN487 MIN489 MIN490 MIN491 MIN492 MAP525 MIN493 MIN493 MIN494 MIN501 MIN495 MIN495	In total:  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions Special drilling and blasting operations Construction of underground hydraulic structures Geomechanics Prospective and current planning of open cast mining operations Product guality management Technology and mechanization of piling works Separate methodes of uranium deposits development Designing of blasting operations Designing of construction of underground mining enterprises Mine Survey of underground development systems Reclamation of disturbed lands on mines Layout of underground mines plan Layout of underground deposits plan Technology of construction of horizontal and inclined mine workings Geometry of subsoil  In total:  8 semester	P	5	150	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1 2/0/1 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1	105	MIN101
4308	MIN483 MIN484 MIN485 MIN486 MAP524 MIN487 MIN488 MIN489 MIN490 MIN491 MIN491 MIN492 MAP525 MIN493 MIN494 MIN495 MIN495 MIN495	In total:  7 semester  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions Special drilling and blasting operations Construction of underground hydraulic structures Geomechanics Prospective and current planning of open cast mining operations Product guality management Technology and mechanization of piling works Separate methodes of uranium deposits development Designing of blasting operations Designing of construction of underground mining enterprises Mine Survey of underground development systems Reclamation of disturbed lands on mines Layout of underground mines plan Layout of underground deposits plan Technology of construction of horizontal and inclined mine workings Geometry of subsoil  In total:  8 semester	P	5	150	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1 1/0/2 2/0/1 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1	105	MAP519  MIN101
4308	MIN483 MIN484 MIN485 MIN486 MAP524 MIN487 MIN488 MIN490 MIN490 MIN491 MIN492 MAP525 MIN493 MIN 494 MIN501 MIN501 MIN495 MAP523	In total:  7 semester  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions Special drilling and blasting operations Construction of underground hydraulic structures  Geomechanics Prospective and current planning of open cast mining operations Product guality management Technology and mechanization of piling works Separate methodes of uranium deposits development Designing of blasting operations Designing of construction of underground mining enterprises Mine Survey of underground development systems Reclamation of disturbed lands on mines Layout of underground mines plan Layout of underground deposits plan Technology of construction of horizontal and inclined mine workings Geometry of subsoil  In total:  8 semester  Design of ore and coal mines Mines conservation	P	5 5 5 15	150	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1 1/0/2 2/0/1	105	MAP519  MIN101
4308	MIN483 MIN484 MIN485 MIN486 MAP524 MIN487 MIN487 MIN489 MIN490 MIN491 MIN492 MAP525 MIN493 MIN 494 MIN501 MIN495 MAP523 MIN495 MAP523	In total:  7 semester  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions Special drilling and blasting operations Construction of underground hydraulic structures  Geomechanics Prospective and current planning of open cast mining operations Product guality management Technology and mechanization of piling works Separate methodes of uranium deposits development Designing of blasting operations Designing of bonstruction of underground mining enterprises Mine Survey of underground development systems Reclamation of disturbed lands on mines Layout of underground mines plan Layout of underground deposits plan Technology of construction of horizontal and inclined mine workings Geometry of subsoil  In total:  8 semester  Design of ore and coal mines Mines conservation Uranium deposits conservation	P	5 5 5 15	150	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1	105	MAP519  MIN101
4308	MIN483 MIN484 MIN485 MIN486 MAP524 MIN486 MAP524 MIN488 MIN489 MIN490 MIN491 MIN492 MAP525 MIN493 MIN 494 MIN501 MIN495 MAP523  MIN495 MIN496 MIN497 MIN498 MIN498 MIN499 MIN499 MIN499 MIN498 MIN499	In total:  7 semester  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions  Special drilling and blasting operations  Construction of underground hydraulic structures  Geomechanics  Prospective and current planning of open cast mining operations  Product guality management  Technology and mechanization of piling works  Separate methodes of uranium deposits development  Designing of blasting operations  Designing of construction of underground mining enterprises  Mine Survey of underground development systems  Reclamation of disturbed lands on mines  Layout of underground mines plan  Layout of underground deposits plan  Technology of construction of horizontal and inclined mine workings  Geometry of subsoil  In total:  8 semester  Design of ore and coal mines  Mines conservation  Uranium deposits conservation  Pevoнструкция шахт и подземных сооружений  Mine survey software  Systems of open development of mineral deposits	P	5 5 5 15	150	2/0/1 1/0/2 9 1/0/2 2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 1/0/2 1/0/2 1/0/2 1/0/2 1/0/2	105	MAP519  MIN101
4308	MIN483 MIN484 MIN485 MIN486 MAP524 MIN487 MIN487 MIN489 MIN490 MIN491 MIN492 MAP525 MIN493 MIN 494 MIN501 MIN495 MAP523 MIN495 MIN496 MIN497 MIN499 MAP527 MIN499 MAP527 MIN499 MAP527 MIN499 MAP527 MIN499	In total:  7 semester  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions Special drilling and blasting operations Construction of underground hydraulic structures  Geomechanics Prospective and current planning of open cast mining operations Product guality management Technology and mechanization of piling works Separate methodes of uranium deposits development Designing of blasting operations Designing of construction of underground mining enterprises Mine Survey of underground development systems Reclamation of disturbed lands on mines Layout of underground mines plan Layout of underground deposits plan Technology of construction of horizontal and inclined mine workings Geometry of subsoil  In total:  8 semester  Design of ore and coal mines Mines conservation Uranium deposits conservation Peконструкция шахт и подземных сооружений Mine survey software Systems of open development of mineral deposits Sheet deposits underground mining	P	5 5 5	150	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2 9 1/0/2 2/0/1	105	MIN101
4308	MIN483 MIN484 MIN485 MIN486 MAP524 MIN486 MAP524 MIN487 MIN489 MIN490 MIN491 MIN492 MIN491 MIN501 MIN493 MIN495 MAP523 MIN495 MAP523 MIN496 MIN497 MIN496 MIN497 MIN498 MIN499 MAP527 MIN500 MIN491 MIN409 MAP527 MIN500 MIN441 MIN402	In total:  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions Special drilling and blasting operations Construction of underground hydraulic structures Geomechanics Prospective and current planning of open cast mining operations Product guality management Technology and mechanization of piling works Separate methodes of uranium deposits development Designing of blasting operations Designing of construction of underground mining enterprises Mine Survey of underground development systems Reclamation of disturbed lands on mines Layout of underground mines plan Layout of underground deposits plan Technology of construction of horizontal and inclined mine workings Geometry of subsoil  In total:  8 semester  Design of ore and coal mines Mines conservation Uranium deposits conservation Pеконструкция шахт и подземных сооружений Mine survey software Systems of open development of mineral deposits Sheet deposits underground mining Underground development of indigenous and alluvial deposits	P	5 5 5 15	150	2/0/1 1/0/2 9 1/0/2 2/0/1 1/0/2 9 1/0/2 2/0/1 1/0/2 2/0/1 1/0/2 2/0/1	105 105 105	MIN101
4308	MIN483 MIN484 MIN485 MIN486 MAP524 MIN486 MAP524 MIN488 MIN489 MIN490 MIN491 MIN492 MAP525 MIN493 MIN 494 MIN501 MIN495 MAP523 MIN495 MAP523 MIN496 MIN497 MIN496 MIN497 MIN498 MIN499 MAP527 MIN500 MIN441 MIN501 MIN499 MAP527 MIN500 MIN441 MIN432 MIN433	In total:  7 semester  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions  Special drilling and blasting operations  Construction of underground hydraulic structures  Geomechanics Prospective and current planning of open cast mining operations  Product guality management  Technology and mechanization of piling works  Separate methodes of uranium deposits development  Designing of blasting operations  Designing of construction of underground mining enterprises  Mine Survey of underground development systems  Reclamation of disturbed lands on mines  Layout of underground deposits plan  Technology of construction of horizontal and inclined mine workings  Geometry of subsoil  In total:  8 semester  Design of ore and coal mines  Mines conservation  Uranium deposits conservation  Реконструкция шахт и подземных сооружений Mine survey software  Systems of open development of mineral deposits Sheet deposits underground dining Underground development of indigenous and alluvial deposits  Technology of construction of urban underground structures	P	5 5 5	150	2/0/1 1/0/2 9 1/0/2 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 2/0/1 1/0/2 2/0/1 1/0/2 2/0/1 1/0/2 2/0/1 1/0/2 9 1/0/2 2/0/1 1/0/2 2/0/1 1/0/2 2/0/1 1/0/2 2/0/1	105 105 105	MIN101
4308	MIN483 MIN484 MIN485 MIN486 MAP524 MIN486 MAP524 MIN487 MIN489 MIN490 MIN491 MIN492 MIN491 MIN501 MIN493 MIN495 MAP523 MIN495 MAP523 MIN496 MIN497 MIN496 MIN497 MIN498 MIN499 MAP527 MIN500 MIN491 MIN409 MAP527 MIN500 MIN441 MIN402	In total:  Conducting mine workings at quarries  Rock conditions management Fields development in special conditions Special drilling and blasting operations Construction of underground hydraulic structures Geomechanics Prospective and current planning of open cast mining operations Product guality management Technology and mechanization of piling works Separate methodes of uranium deposits development Designing of blasting operations Designing of construction of underground mining enterprises Mine Survey of underground development systems Reclamation of disturbed lands on mines Layout of underground mines plan Layout of underground deposits plan Technology of construction of horizontal and inclined mine workings Geometry of subsoil  In total:  8 semester  Design of ore and coal mines Mines conservation Uranium deposits conservation Pеконструкция шахт и подземных сооружений Mine survey software Systems of open development of mineral deposits Sheet deposits underground mining Underground development of indigenous and alluvial deposits	P	5 5 5	150	2/0/1 1/0/2 9 1/0/2 2/0/1 1/0/2 9 1/0/2 2/0/1 1/0/2 2/0/1 1/0/2 2/0/1	105 105 105	MAP519  MIN101

Credits numbers of elective disciplines over the entire period of study						
Cycles of disciplines	Credits					
Cycle of general disciplines (G)	0					
Cycle of basic disciplines (B)	25					
Cycle of special disciplines (S)	40					
Total:	65					

Decision of the Academic Council of the School of Industrial Engineering. Minutes No. 5, dated 200.

Head of the Department "Mining"

S.K.Moldabayev

Representative of the Specialty Council from employers

N.S. Buktukov