

MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF KAZAKHSTAN
SATBAYEV UNIVERSITY



MODULAR EDUCATIONAL PROGRAM for admission for the 2020-2021 academic year
6B07107 - "Operational Service Engineering"

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

The name of the modules	Code	Code of discipline	Name of disciplines	semester	Cycle	Credits	lec/lab/pr/IWS	pre-requisites
Multilingual preparation module	Required component							
	1101	LNG 1051	Beginner (A1)	1	G	6	0/0/3/3	Diagnostic test
		LNG 1052	Elementary English (A1)					
		LNG 1053	General English 1 (A2)					
		LNG 1054	General English 2 (A2)					
		LNG 1055	Academic English (B1)					
	1102	LNG1072	Basic Kazakh (Russian) language (A2)	1	G	4	0/0/2/2	Diagnostic test
		LNG1073	Academic Kazakh (Russian) language (B1)					
		LNG1074	Business Kazakh language/Advanced Russian language (B2)					
	1105	LNG 1052	Elementary English (A1)	2	G	6	0/0/3/3	LNG 1051
		LNG 1053	General English 1 (A2)					LNG 1052
		LNG 1054	General English 2 (A2)					LNG 1053
		LNG 1055	Academic English (B1)					LNG 1054
		LNG 1056	Business English (B2)					LNG 1055
	1106	LNG1073	Academic Kazakh (Russian) language (B1)	2	G	6	0/0/3/3	LNG1072
		LNG1074	Business Kazakh language/Advanced Russian language (B2)					LNG1073
	2108	LNG 1053	General English 1 (A2)	3	G	6	0/0/3/3	LNG 1052
		LNG 1054	General English 2 (A2)					LNG 1053
		LNG 1055	Academic English (B1)					LNG 1054
		LNG 1056	Business English (B2)					LNG 1055
		LNG 1057	Professional English (B2+)					LNG1056
	2110	LNG 1054	General English 2 (A2)	4	G	6	0/0/3/3	LNG 1053
		LNG 1055	Academic English (B1)					LNG 1054
		LNG 1056	Business English (B2)					LNG 1055
		LNG 1057	Professional English (B2+)					LNG1056
	Optional component							
	1106	LNG1074	Business Kazakh language/Advanced Russian language (B2)	2	G	4	0/0/2/2	LNG1012.2
		LNG1075	Kazakh (Russian) language. Rhetoric (C1)					
LNG1076		Kazakh (Russian) language. Culture of business communication (C1)						
2110	LNG109	IELTS Preparation	4	G	6	0/0/3/3	LNG 1056	
	LNG110	Intercultural Communication						
	LNG117	Technical Writing						
	LNG118	Public speaking						
	LNG119	Productivity skills						
	LNG120	GRE preparation						
LNG121	Academic Writing							
Required component								
Social Studies Module	1103	HUM113	Contemporary History of Kazakhstan	1	G	6	1/0/2/3	no
	2111	HUM124	Philosophy	4	G	6	1/0/2/3	no
	2112	HUM126	Social & Political Knowledge	4	G	8	4/0/0/4	no
	1104	KFK101	Physical education I	1	G	4	0/0/2/2	no

Sc	1107	KFK102	Physical education II	2	G	4	0/0/2/2	no
Physical and mathematical training and informatics module	Required component							
	1201	PHY00130	Physics Begin	1	B	6	1/1/1/3	Diagnostic test
		PHY00131	Physics I					
	1202	MAT00110	Algebra & introduction to calculus	1	B	6	1/0/2/3	Diagnostic test
		MAT00131	Calculus I					
	1204	PHY00131	Physics I	2	B	6	1/1/1/3	PHY110
		PHY00132	Physics II					PHY111
	1205	MAT00131	Calculus I	2	B	6	1/0/2/3	MAT00110
		MAT00132	Calculus II					MAT00131
	2109	CSE174	Information & Communication Technologies	3	G	6	2/1/0/3	no
	2208	MAT00132	Calculus II	3	B	6	1/0/2/3	MAT00131
		MAT00133	Calculus III					MAT00132
	3221	AUT146	Basics of Automation	5	B	6	2/1/0/3	no
	2212	MAT00133	Calculus III	4	B	6	1/0/2/3	MAT00132
		MAT126	Ordinary Differentiation Equations MatLab					MAT00133
	3216	MAT126	Ordinary Differentiation Equations MatLab	5	B	6	1/0/2/3	MAT00133
		MAT127	Partial Differentiation Equations MatLab					MAT126
	Optional component							
	2209	PHY00132	Physics II	3	B	6	1/1/1/3	PHY00131
		TEC169	Drives of mining machines and fixed installations				2/1/0/3	PHY00131
PED430		Technique of field experiment	2/1/0/3				PHY00131	
TEC148		Fuels, oils and special liquids	2/0/1/3				PHY00131	
PED414		Friction and wear	2/0/1/3				PHY00131	
3220	MAT127	Partial Differentiation Equations MatLab	6	B	6	1/0/2/3	MAT126	
	TEC108	Pumps, fans, compressors				2/0/1/3	MAT00133	
	PED118	Dust-gas cleaning and recycling water supply of industrial enterprises				2/0/1/3	PHY00131	
	PED191	Gas-pumping units				2/0/1/3	PHY00131	
	PED192	Gas turbine plants				2/0/1/3	PHY00131	
	TEC413	Ways to restore and repair parts				2/0/1/3	PHY00131	
Required component								
1203	TEC193	Introduction to specialty	1	B	6	2/0/1/3	no	
1207	TEC178	Construction materials of technological machines and equipment	2	B	6	2/1/0/3	PHY00130	
2210	PED413	Interchangeability, standardization and technical measurements	3	B	6	2/0/1/3	PHY00131	
2211	GEN146	Theoretical and applied mechanics	3	B	6	2/1/0/3	PHY00132	
2213	PED435	Welding and cutting of metals	4	B	6	2/1/0/3	PHY00131	
2214	PED436	Thermodynamics, heat transfer and heat engineering equipment	4	B	6	2/1/0/3	PHY00131	
Optional component								
3218	TEC105	Mining machines and equipment	5	B	6	2/1/0/3	PHY00132	
	TEC153	Tool base of metallurgical enterprises				2/0/1/3	PED435	
	TEC104	Drilling machines and complexes				2/0/1/3	PHY00132, PED436	
	TEC131	Machines and equipment for drilling oil and gas wells at sea				2/0/1/3	PHY00132, PED436	
	TEC404	Technical audit				2/0/1/3	PHY00132	
	TEC411	Equipment maintenance system				2/0/1/3	PHY00132	
Required component								
1206	GEN101	Engineering and Computer Graphics	2	B	6	1/0/2/3	no	
Optional component								
2215	PED114	Computer-aided design of technological machines	4	B	6	1/2/0/3	GEN101	
	TEC118	Calculation and design of technological machines and equipment				1/2/0/3	GEN101	
	TEC403	Computer simulation of machine parts				1/2/0/3	GEN101	
	TEC409	Computer technologies for calculation, modeling and design				1/2/0/3	GEN101	
3219	TEC121	Transportation machines	6	B	6	2/1/0/3	PHY00131	
	PED141	Drives of metallurgical machines				2/0/1/3	PHY00131	
	TEC155	Technological processes in the oil and gas industry				2/0/1/3	PED104	
	TEC156	Technology of drilling wells and oil and gas production				2/0/1/3	PHY00131	
	TEC405	Technical aesthetics and ergonomics				2/0/1/3	MAT00133	
	TEC412	Material and technical means of repair work				2/0/1/3	MAT00133	
Computer Aided Design Module	PED417	Automation and calculation of parameters of mining machines and fixed installations				2/0/1/3	MAT103, GEN101	
	PED151	Reliability of metallurgical machines				2/0/1/3	TEC112	
	PED161	Operation and repair of oilfield machines and equipment				2/0/1/3	TEC178, TEC104	

Engineering and Com	4307	PED458	Organization of repair and maintenance of oil and gas machines and equipment	8	S	3	2/0/1/3	PHY00131, GEN146		
		TEC408	Equipment Reliability Management System				2/0/1/3	PHY00131, GEN146		
		TEC417	Technologies for increasing the durability of equipment				2/0/1/3	PHY00132		
	4308	TEC152	Control and measuring equipment	8	S	6	2/0/1/3	PED413		
		PED177	Designing of metallurgical machines				2/0/1/3	TEC141		
		PED157	Well overhaul equipment and installations				2/0/1/3	PHY00132, GEN146		
		PED454	Engineering and well workover technology				2/0/1/3	TEC134		
		TEC418	Fundamentals of design of repair enterprises in the industry				2/0/1/3	PHY00132		
	4309	PED421	Construction of mining transport vehicles and fixed installations	8	S	6	2/0/1/3	GEN101		
		TEC110	Equipment 3-5 redistribution				2/0/1/3	MAT00133		
		PED193	Instrumentation and automation of technological machines				2/1/0/3	PED435		
		PED455	Technical diagnostics and maintenance of oil and gas machines and equipment				2/0/1/3	TEC178, TEC104		
		TEC420	Innovative technologies in the practice of maintenance and repair of technological machines				2/0/1/3	GEN146		
	Technology and Operations Module	Required component								
		3302	TEC179	Installation and exploitation of technological machines	6	S	6	2/0/1/3	TEC178	
3303		TEC180	Repair of technological machines	6	S	6	2/0/1/3	TEC178		
Optional component										
4304		TEC177	Drain, fan and pneumatic installations	7	S	6	2/1/0/3	PHY00132		
		TEC141	The equipment of metallurgical shops				2/0/1/3	TEC112		
		TEC109	Oil and gas field machines and mechanisms				2/0/1/3	PHY00132, PED436		
		TEC133	Machines and equipment for oil and gas production at sea				2/0/1/3	PHY00132		
4305		MIN416	Burro-blasting works	7	S	6	2/0/1/3	PHY00132		
		MIN415	Technology of mine workings				2/0/1/3	PHY00132		
		PED185	Technical diagnostics of metallurgical equipment				2/0/1/3	TEC180		
		TEC127	Hydromachines and compressors in the oil and gas industry				2/0/1/3	PED413, PHY00132		
		TEC106	Machines and equipment for gas and oil pipelines				2/0/1/3	PED191		
		TEC415	Technological equipment of the industry for mechanical processing				2/0/1/3	PHY00132		
		TEC406	Non-Destructive Testing and Diagnostic Methods				2/0/1/3	PHY00132		
4306		TEC114	Lifting installations	7	S	6	2/1/0/3	PHY00132		
		TEC161	Dynamics of metallurgical machines				2/1/0/3	TEC112		
		PED170	Calculation and design of drilling equipment				2/0/1/3	TEC104		
		PED155	Calculation and design of oil and gas equipment				2/0/1/3	TEC118		
		TEC416	Technological processes of preparation of materials for repair production				2/0/1/3	PHY00132		
		TEC407	Reliability Oriented Maintenance				2/0/1/3	PHY00132		
Machines and equipment module		Optional component								
		3217	MIN407	Open-cast mining technology	5	B	6	2/0/1/3	PHY00132	
			PED175	Auxiliary transport equipment of metallurgical workshops				2/0/1/3	PHY00132	
			PED445	Fundamentals of Research and Development				2/0/1/3	MAT00133	
			PED446	Fundamentals of the theory of reliability of machines and mechanisms				2/0/1/3	MAT00133	
			TEC410	Fundamentals of the theory of wear of machinery and equipment				2/0/1/3	MAT00133	
	3301	MIN414	Development of mineral deposits	5	S	6	2/0/1/3	PHY00132		
		MIN173	Mining technology				1/0/2/3	PHY00132		
		TEC112	Equipment for ore preparation				2/1/0/3	TEC193		
		PED439	Basics of hydraulics and hydraulic drives of technological machines				2/0/1/3	PED436		
		PED190	Internal combustion engines				2/0/1/3	PHY00132		
		TEC414	Technological process of repair				2/0/1/3	PHY00132		
	4310	TEC123	Internship transport	6	S	6	2/0/1/3	TEC121		
		PED183	Equipment for hydrometallurgical enterprises				2/0/1/3	TEC112		
		PED456	Energy-saving equipment and technologies in the oil and gas industry				2/0/1/3	PED192, TEC191		
		PED457	Industrial safety in the oil and gas industry				2/0/1/3	TEC130		
		TEC419	Management in the planning of work on repair and maintenance of machines				2/0/1/3	PHY00132		
	Final certification module	ECA001	Preparation & writing of thesis (project)	7-8	FA	8				
		ECA103	Thesis (project) defence	8	FA	6				
Additional training module	AAP122,132	Physical education III, IV	1-4		0					
	AAP500	Military training	3-6		0					
Practice-oriented module	AAP101	Internship	2		2					
	AAP109	Industrial internship I	4		2					
	AAP103	Industrial internship II	6		4					

Total number of credits			
Cycle of disciplines	Credits		
	compul- sary	elective	total
Cycle of general disciplines (G)	58	10	68
Cycle of basic disciplines (B)	126	0	126
Cycle of special disciplines (S)	60	0	60
Total of theoretical study :	244	10	254
Extra education	8	0	8
Final attestation (FA)	14	0	14
TOTAL:			276

Vice-rector for academic affairs

R.M. Iskakov

Chairman of Academic Planning Committee

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Director of the School of Metallurgy and Industrial Engineering

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