Ministry of Agriculture of the Republic of Kazakhstan S.Seifullin Kazakh AgroTechnical university

Considered at the meeting of the Academic Council of the University Protocol No. _/9_from "_3/_" ___08___ 2022 y.

Chairman of the Management Board NAO "Kazakh Agrotechnical University named after S.Seifullin"

"05" 89 2022 y.

EDUCATIONAL PROGRAM 6B07104 Technological Machinery and Equipment

Field of education: 6B07 Engineering, manufacturing and construction industries
Direction of personnel training: 6B071 Engineering and engineering trades
Code in the International Standard Classification of Education: 0710
Degree/qualification awarded: Bachelor of Engineering and Technology in the educational program 6B07104-Technological machines and equipment

Duration of study: 4 years

Nur-Sultan 2022

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The team of authors was approved by the order of the NAO "KATU named attors Scriptor" No. 932-N dated 12.12.2018 (amended by Order No. 515-N dated 04.10.2022)

The educational program 6B07104-Technological machines and equipment was considered at the meeting of the Department of Technological Machines and Equipment Protocol No. 20 of June 27, 2022,

approved by the Academic Council of the Faculty for Quality Protocol No. 10 (E) dated June 29, 2022.

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1 Passport of the educational program

1.1 EP purpose: Directed comprehensive and high-quality training of competitive, highly qualified specialists, ready to solve practical and theoretical problems of professional activity in modern conditions of digitalization and technological re-equipment of existing sectors of the economy based on the development of skills and abilities necessary for the future specialist.

1.2 Educational outcome

- **EO 1.** Analyze in a logical and quantitative way the conditions for the development of production and evaluate the competitiveness of the created products on the principles of engineering activity, formulate inventions, study innovative entrepreneurship and anti-corruption culture.
 - EO 2. Apply modern methods of chemistry, physics, mathematics to solve problems that arise in the study of basic and major disciplines
- **EO 3.** To organize highly efficient operation of machines, devices, machinery and technological equipment in production, show leadership qualities.
- **EO 4.** To study the hardware and software of engineering and computer graphics and to establish the capabilities of computer-aided design of mechanisms and metalworking simulation
- EO 5. To teach the basic concepts and laws of engineering mechanics, mechanics of materials, to prepare for the design and construction of typical machine elements
- **EO 6.** Make calculations in heat engineering, thermodynamics and electrical engineering; choose the correct operation of electrical and thermal equipment, analyze dangerous and harmful factors of production, study ecology and life safety requirements.
- **EO 7.** Organize control parameters of electrical, hydraulic and pneumatic machines, metalworking machines, refrigeration equipment, drives and numerical control systems
- **EO 8.** Choose the best options for setting up and adjusting, maintaining and repairing machine tools, manipulators, robots, welding equipment and technological machines
- **EO 9.** Develop and describe projects for a mechanical engineering enterprise, develop a technological process for manufacturing parts, analyze regulatory and technical documentation and measuring systems
- **EO 10.** Diagnose and establish the causes of malfunctions, study materials science, the basics of the theory of wear of parts, repair technology, plan and carry out installation, testing and operation

2 General characteristics of the educational program (relevance, features, competitive advantages, uniqueness, stakeholders)

The relevance of the educational program. The needs of the labor market in the conditions of industrialization of production and digitalization of economic sectors within the framework of the State Program "Digital Kazakhstan" form new requirements in the direction of diversification and improvement of the quality of training of specialists. In this regard, the implementation of the program is aimed at the development of research and fundamental components in the preparation of bachelors of engineering and technology.

Features of the educational program. The educational program will meet the needs of the digital economy with an emphasis, first of all, on skills in information analysis and the development of creative thinking. Digitalization programs of industries will also be updated, taking into account the inclusion of STEM elements (robotics, CNC machines, virtual reality, 3D printing and others).

Competitive advantages

On the basis of KATU, the professional infrastructure (educational resources) necessary for the implementation of the OP has been created:

- on the recommendation of leading scientists of the University of California at Davis, an agroengineering Platform was created, which includes a "Production and experimental workshop for metalworking and welding" and a "Design Bureau", which are equipped with modern CNC machines;
 - Kazakh-Chinese Agricultural Mechanization Center;
- laboratories: "Applied Robotics", "Mechatronics", "Installation and operation of technological machines", "Repair of technological machines", "Materials Science and technology of structural materials";
 - circles: "Mechanical engineering and robotics", "Innovator", "Materaltanu, technologiyalar zhane marketing".

The uniqueness of the educational program. A unique program combining classical technical education with innovations in the field of training modern specialists. The program provides for the application of elements of Industry 4.0 for the implementation of measures for the technological re-equipment of basic branches of the agricultural sector, includes the use of innovative educational technologies, methods and methods of education, contains relevant disciplines reflecting the latest trends in the mechanical engineering market and employers' requests.

The main stakeholders of the educational program are:

- Teaching staff, students, parents, persons equated to them and relatives of students;
- Ministry of Agriculture of the Republic of Kazakhstan NAO "National Agrarian Scientific and Educational Center";
- OUL "Union of Machine Builders of Kazakhstan";
- Enterprises of machine-building and agricultural industry;
- Research institutes and research and production centers.

3 Competence model (portrait) graduate

- **3.1 Areas of professional activity:** technological machines and equipment; power equipment; running equipment; working equipment; machine drive systems; motion control systems; operator life support systems; general housing for the placement of all parts of the machine; structural and operational materials; equipment for the manufacture, testing and disposal of technological machines; equipment for maintenance and repair technological machines; control and measuring devices for the manufacture and operation of machines; equipment for automating the working processes of machines; equipment for designing machines.
- 3.2 Types of professional activity: calculation and design: collection and analysis of information source data for design; calculation and design of parts and assemblies in accordance with the terms of reference using modern design automation tools; development of design and working documentation, registration of completed design works; production and technological: organization of workplaces, their technical equipment, placement of technological equipment; control over compliance with technological discipline; maintenance of technological equipment; organization of metrological support of technological processes, use of standard methods of quality control of manufactured products; participation in the work on fine-tuning and mastering of technological processes during the preparation of production of new products.
- 3.3 General education competencies: aimed at forming the ideological, civil and moral positions of the future specialist, competitive on the basis of knowledge of information and communication technologies, building communication programs in Kazakh, Russian and foreign languages, orientation to a healthy lifestyle, self-improvement and professional success; form a system of general competencies that ensure the socio-cultural development of the personality of the future specialist based on the formation of his ideological, civil and moral positions; develop the ability to interpersonal social and professional communication in Kazakh, Russian and foreign languages; contribute to the development of information literacy through the mastery and use of modern information and communication technologies in all spheres of their lives and activities; form skills of self-development and education throughout life; form a personality capable of mobility in the modern world, critical thinking and physical self-improvement; formation of students' competencies in the field of economics and law, the basics of anti-corruption culture, ecology and life safety, as well as entrepreneurship skills, research methods.
- **3.4 Basic competencies:** providing in-depth knowledge of natural science, general technical and economic nature as the foundation of professional education; basic understanding of the scientific picture of the world with an understanding of the essence of the basic laws of science; understanding of basic hypotheses, laws, methods, formulation of conclusions and evaluation of errors.

Based on the requirements for the level of training of students, they must:

- demonstrate knowledge and understanding in the field being studied, based on advanced knowledge in the field being studied;
- apply knowledge and understanding at a professional level, formulate arguments and solve problems of the studied area;
- to collect and interpret information for the formation of judgments taking into account social, ethical and scientific considerations;
- apply theoretical and practical knowledge to solve educational, practical and professional tasks in the studied area;
- learning skills necessary for independent continuation of further education in the field of study;
- know the methods of scientific research and academic writing and apply them in the field of study;
- apply knowledge and understanding of facts, phenomena, theories and complex dependencies between them in the field under study;
- understand the importance of the principles and culture of academic integrity.

- 3.5 Professional competencies: providing in-depth theoretical knowledge and practical experience in the field of technological machines and equipment; carrying out work on the preparation of technical documentation and established reporting on approved forms; conducting training and instruction on safety, labor protection and the environment; monitoring compliance with requirements for the preparation of documentation on quality management of technological processes at production sites; improvement of the design of technological machines and equipment using breakthrough technologies and capabilities; complex mechanization and automation of technological processes; establishment and maintenance of optimal operating modes of technological machines and equipment.
- **4 The basis for passing professional practices** Educational practice is carried out in the educational and training workshops of the university, in the metalworking and welding Shop and the corresponding laboratories of the department.

The bases for the passage of industrial and pre-graduate practices of students are organizations, enterprises of the agro-industrial complex, industrial and social spheres, divisions of the management system of state-owned enterprises, joint-stock companies and private firms. Practical training is also conducted at scientific and production associations, scientific, design and design organizations, repair, machine-building plants, agricultural repair enterprises, etc.

The main bases of professional practice in the educational program are: Agropromzapchatservice LLP, Spare Part Railway LLP, MVTU LLP, Akkol branch of Agroengineering Research and Production Center LLP, Agrotechns LLP, Transport Engineering Design Bureau LLP, EuraziaGroupKazakhstan LLP, Galam LLP.

5 Structure of the Bachelor's degree program

No	Name of avales and dissiplines	Total labo	or intensity
745	Name of cycles and disciplines	in academic hours	in academic credits
1	2	3	4
1	Cycle of general education disciplines (GED)	1680	56
	Required component	1530	51
	History of Kazakhstan	150	5
	Philosophy	150	5
	Foreign language	300	10
1)	Kazakh (Russian) language	300	10
	Information and Communication Technologies (in English)	150	5
	Module of socio-political knowledge (Cultural Studies and Psychology)	120	4
	Module of socio-political knowledge (Political Science and Sociology)	120	4
	Physical Culture	240	8
2)	Component of choice	150	5
	Basics of Economics and Law		
	Labor protection and the basics of life safety		
	Introduction to Leadership in Education	150	5
	Innovative entrepreneurship		
	Basics of anti-corruption culture		
2	Cycle of basic disciplines (DB)	3360	112
1)	University component	2520	84
	Mathematics	270	9
	Physics	210	7
	Descriptive geometry and engineering graphics	180	6
	Engineering mechanics	120	4
	Electrical engineering and the basics of electronics	150	5
	Mechanics of materials	120	4
	Measuring systems	150	5
	Materials in engineering design	120	4
	Metalworking machines and welding equipment	210	7

	CNC system (Fundamentals of Mechatronics)	150	5
	Manipulators and robots	150	5
	Metalworking modeling	150	5
	Draft execution automation	120	4
	Automated design of mechanisms	150	5
	Basics of Design	150	5
	Basics of patenting and professional creativity	120	4
2)	Component of choice	840	28
	Chemistry	120	1
	Physical and colloidal chemistry	120	4
	Basics of wheeled and caterpiller vehicles	120	1
	Fundamentals of technology of processing industries	120	4
	Automatic electric drive	150	Ē
	Electric machines and drives	150	5
	Mechanization of cattle-breeding farm	150	Ē
	Machines and apparatus for processing livestock products	150	5
	Agricultural machines	150	E
	Machines and equipment for processing of crop products	150	5
	Mechanical and design assembly rooms	150	E
	Calculation and design of food production machines	150	5
3	Cycle of profile disciplines (PD)	1800	60
1)	University component	1440	48
,	Design of machine fixtures	120	4
	Educational practice	60	2
	Production practice	510	17
	Production processes (MAC, KTOP)	150	5
	Cutting theory, cutting tools and tooling	120	4
	Failure analysis and repair of machines	150	5
	Installation, testing and operation of technological machines	210	7
	Production management	120	4
2)	Component of choice	360	12
	Fluid and gas mechanics	120	4

	Pneumatic and hydraulic drives		
	Thermal and refrigerating equipment of food production	90	2
	Thermal engineering and thermodynamics Basics	90	3
	Technological processes and apparatus of food production	150	5
	Technology of Agricultural engineering	130	J
4	Additional types of training (ATT)		
1)	Elective component (military training and		
1)	other types of educational activities determined by the student independently)		
5	Final certification	360	12
1)	Writing and defending a thesis (project) or preparing and passing a comprehensive exam	360	12
	Total	7200	240

Annex 1. Academic calendar

Approved

Deputy Chairman of the Board for

Academic Affairs - Rector

A.Abdyrov

2022

ACADEMIC CALENDAR

for 2022-2023 academic year

in areas of Bachelor degree training

	Beginning of 1st trimester	1 September
1	Presentation week	from 1 September to September 2 (from August 29 to September 2 for 1 course)
2	Constitution day	30 August
3	The day of knowledge	1 September
4	Examination session	from 14 to 25 November
5	The day of the First President	of 1 December
6	FX delivery	from 14 November to 9 December
7	Independence day	16 December
8	Holidays	from 28 November to 31 December
9	The New year's holiday	January 1,2,3
	Beginning of 2nd trimester	1 January
10	Christmas	7 January
11	International Women's Day	on 8 March
12	Nauryz holiday	21,22,23 March
13	Examination session	from March 13 to 24 March
14	FX delivery	from March 13 to 31 March
15	Holidays	from March 27 to March 31
Be	ginning of 3rd trimester	1 April
16	Holiday of Unity of Nations of Kazakhstan	1 May
17		7 may
18	Victory Day	9 may
19	Examination session	from 12 June to 23 June
20	Holidays	from 26 June to 31 August
21	FX delivery	from 12 June to 30 June
22	Enrollment for a trimester	from 26 June to 30 June
23	Final examination	until June 30
24	Summer trimester	from 3 June to 11 August
25	Capital Day	6 July

O Note: If it concurs with a weekend or a holiday, study begins on the next working day.

Deputy Director of the Department of Academic Affairs ______ A.Sh.Imasheva

График учебного процесса на 2022-2023 учебный год для образовательных программ и специальностей бакалавриата технического факультета

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15	2	9	1	6	23	30	7	14	21	28	4	11	18	25	2	9	16	23 3	0 6	13	20	27	3	10	17 2	4 3	10	17	2	4 .	31	7	14	21	28	5	12	19	26	2	9	16	2:	3 30		7	14	21	28	4	11	18 25
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ПН - презентационная неделя

теоретическое обучение

3С- сдача FX

С - сессия экзаменационная

Праздничные дни: 30, 31 августа - День Конституции

1 сентября - День знаний

1 декабря - День Первого Президента 16, 17 декабря - День независимости 1, 2, 3, 4 января - Новогодние праздники

7 января - Рождество

Л - летний семестр
 Уп - учебная практика

Пр - производственная практика

Пд - преддипломная практика

ЗЛ - запись на летний триместр

8 марта - Международный женский день

21, 22, 23 марта - Наурыз мейрамы 1, 2 мая - Праздник единства народа Казахстана

7 мая - День защитника Отечества

9 мая - День Победы

6 июля - День Столицы

К - каникулы

ВС - военные сборы Д -дипломное проектирование

ИА - Итоговая атестация

Всего недель:

теоретическое обучение - 30 недель экзаменационная сессия -3-4 недели каникулы зимние - 3 недели каникулы весениие - 1 неделя летний семестр - 6 недель

Annex 2. Working curriculum.

Admission year: 25-05-2023 to the EP 6B07104 Technological machines and equipment

			+		Admission year. 23-03-2023 to the EP 0807 for reciniologic		Ро	Control in the condemi	a naria d					Number	of hour				Distrib	ıtion of	credits	s per aca	demic	period	1
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1		GER	cs	IYa 1103	Foreign language		by student's option	by student's option		_	3/0	_										\Box	\rightarrow		
2		GER	cs	KRYa 1104	Kazakh (russian) language	3		by student's option		1 3	3/0	_			_							\longrightarrow	_		
3	language	GER	cs	IYa 1101	Foreign language	4	1	1		1 3	4/0	_							4.0				_		
4		GER	cs	KRYa 1106	Kazakh (russian) language	4	1	1		-	4/0	_							4.0				_		
5		GER	cs	IYa 1102	Foreign language	3	2	2		- 3	3/0								3.0				_		
6		GER	CS	KRYa 1105	Kazakh (russian) language	3	2	2		- 3	3/0	_							3.0				\rightarrow		
7		GER	cs	KP 1110	Cultural studies and psychology	4	by student's option	by student's option			4/0	_													
8		GER	cs	PS 1109	Political science and sociology	4	2	2		1	4/0								4.0				\perp		
9		GER	cs	IK 1120	History of Kazakhstan	5	2	2		3	5/0								5.0						
10		GER	cs	Fil 2108	Philosophy	5	3	3		5	/150 1	15		30		3	30	75		5.0					
11	social and political	GER	ES	OTOBZh 4301	The labour safety and safety of the life activity			6		5		15		30		3	30	75							
12		GER	ES	OEP 3125	Basics of economics and law			6		5	/150 1	15		30		3	30	75							
13		GER	ES	VLO 3126	Introduction to leadership in education	5	6	6		5	/150 1	15		30		3	30	75					5.0		
14		GER	ES	OAK 3127	Basics of anti-corruption culture			6		5	/150 1	15		30	0	3	30	75							
15		GER	ES	IP 3123	Innovative entrepreneurship			6		5	/150 1	15		30		3	30	75							
16		GER	cs	IKT 1111	Information and communication technologies	5	by student's option	by student's option		- 3	5/0														
17		GER	cs	FK 1114	Physical education.	1	by student 's option	by student's option		1	1/0														
18	general education	GER	cs	FK 1112	Physical education.	2	1	1			2/0								2.0						
19	general education	GER	cs	FK 1113	Physical education.	1	2	2			1/0								1.0						
20		GER	cs	FK 2115	Physical education.	2	3	3		2	2/60			60	0					2.0					
21		GER	cs	FK 2116	Physical education.	2	4	4		2	2/60			60							2.0				
						N	lodules of specialty/educati	on programm																	
22		BS	UC	NGIG 1208	Descriptive geometry and engineering graphics	3	by student's option	by student's option		- 3	3/0														
23		BS	UC	Mat 1202	Mathematics	5	1	1		3	5/0								5.0						
24		BS	UC	Fiz 1205	Physics	4	1	1		1	4/0								4.0						
25		BS	UC	IM 2217	Engineering mechanics	4	3	3		4	/120 1	15	15.0	15		1	15	60		4.0					
26		BS	UC	Mat 2203	Mathematics	4	3	3		4	/120 1	15		30		1	15	60		4.0					
27		BS	UC	Fiz 2206	Physics	3	3	3		3	3/90 1	15	15.0			1	15	45		3.0					
28	base	BS	UC	NGIG 2219	Descriptive geometry and engineering graphics	3	3	3		3	3/90		30.0			1	15	45		3.0					
29]	BS	UC	EOE 2245	Electrical engineering and the basics of electronics	5	3	3		5	/150 1	15	15.0	15		3	30	75		5.0					
30		BS	UC	MM 2201	Mechanics of materials	4	4	4		4	/120 1	15	15.0	15		1	15	60			4.0				
31		BS	UC	IS 2222	Measuring Systems	5	4	4		5	/150 1	15		30		3	30	75			5.0				
32		BS	ES	Him 2208	Chemistry	4	4	4		4	/120 1	15	30.0			1	15	60			4.0				
33		BS	ES	FKH 2237	Physical and colloid chemistry	-		4		4	/120 1	15	30.0		-	- 1	15	60			4.0				
34		BS	UC	MIP 3227	Materials in engineering design	4	5	5		4.	/120 1	15	30.0			1	15	60				4.0			
35		BS	ES	OUKGM 1219	Basics of organization of wheeled and casterpillar machines	4	2	2		1	4/0				2				4.0						
36		BS	ES		Fundamentals of technology processing industries	4	2	2			4/0	┚							4.0					29	
37		BS	ES	EMP 2249	Electric machines and drives	- 5	4	4		5	/150 1	15	15.0	15	8	3	30	75			5.0				
38		BS	ES	AE 2238	Automatic electric driver	3	4	4		5	/150 1	15	15.0	15	- 1	3	30	75			5.0				
39		BS	UC	MR 3241	Manipulators and robots	5	5	5		5	/150 1	15	30.0		2	3	30	75				5.0			
40		BS	ES	MAPPZh 3250	Machines and Apparatus for Processing Livestock Products	- 5	5	5		5	/150 1	15		30		3	30	75				5.0			
41	general technical	BS	ES	MZh 3214	Mechanization of cattle-breeding farm	3	5	5		5	/150 1	15	15.0	15		3	30	75				0.0			
42		BS	ES	MAPPR 3251	Machines and equipment for processing of crop products	5	6	6		5	/150 1	15		30	i i	3	30	75					5.0		
43		BS	ES	SM 3217	Agreecultural machines) 5	ь	6		5	/150 1	15	15.0	15		3	30	75					3.0		-
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44		BS	UC	SChOM 4211	CNC system (Fundamentals of Mechatronics)	5	7 7			-		30.0			30	75		\square					5.0
45		BS	UC	MSSO 4242	Metal-working machines and welding equipment	7	7 7		7/	-	382		15		30	105						7	7.0
46		AS	ES	THOPP 3328	Thermal and refrigerating equipment of food production	3	5		3	90	15		15		15	45					3.0		
47		AS	ES	TOT 3325	Thermal Engineering and Thermodynamics Basics	_	5		3	90	15		15		15	45							
48		BS	UC	AVCh 2215	Draft execution automation.	4	3 3		4/	120		30.0	15		15	60			4.0				
49		BS	UC	APM 2209	Computer-Aided Mechanism Design	5	4 4	4	5/	150	15	15.0	15		30	75				5.0			
50		BS	UC	OK 3210	Basics of design	5	5 5		5/	150	15	15.0	15		30	75					5.0		
51		BS	UC	MM 4231	Metalworking Modeling	5	7 7		5/	150	15 :	30.0			30	75						5	5.0
52	design and technolog	BS	UC	OPPT 4243	Basics of patenting and professional creative	4	8 8		4/	120	15		30		15	60							4.0
53		BS	ES	RPMPP 4252	Calculation and design of food production machines	- 5	8	8	5/	150	15		30		30	75							5.0
54		BS	ES	PMSC 4215	Mechanical and design assembly room		8	8	5/	150	15		30		30	75							
55		AS	UC	PSP 3323	Design of machine fixtures	4	5 5		4/	120	15	30.0			15	60					4.0		
56		AS	UC	PPMK 4307	Production processes (CAM, DTSP)	5	8 8		5/	150	15	30.0			30	75							5.
57		AS	uc	UP 1316	Practical training	2	by student's option		2	60				60									
58		AS	UC	PP 2303	Internship	5	4		5/	150		1		150						5.0		\top	\top
59		AS	ES	PGP 3327	Pneumatic and hydraulic drives		5		_		15	15.0	15		15	60						+	
60		AS	ES	MZhG 3318	Mechanics of liquid and gas	- 4	5 5	\top	30.000				15		15	60					4.0	+	\top
61		AS	UC	TRRIO 3305	Cutting theory, cutting tools and tooling	4	6 6		-		_	30.0			15	60					8	4.0	\top
62	profiling	AS	UC	AORM 3302	Failure analysis and repair of machines	5	6 6	- 6	_	-	_	30.0			30	75		\Box		-	_	5.0	\top
63		AS	UC	PP 3304	Internship	6	6		-	180				180		2007				-	_	6.0	\top
64		AS	ES	TSM 3329	Technology of agricultural engineering	1000	6	- 6	5/	150	15	15.0	15	10000	30	75							\top
65		AS	ES	TPAPP 3320	Technological processes and apparatus of food production	- 5	6 6	- 6	5/	150	15	15.0	15		30	75				\neg		5.0	\top
66		AS	UC	MIETM 4301	Installation, testing and operation of technological machines	7	7 7		-	_	_	_	15		30	105					-	7	7.0
67		AS	UC	PP 4322	Internship	6	7		-	180				180							$\overline{}$	-	5.0
68	organizational-economic	AS	UC	PM 4321	Production management	4	8 8	-	387723		15	\neg	30		15	60				-	\rightarrow	_	4.0
V*****	2000 December 2000 Control of the Co		0100000	597633350000000000000000000000000000000000	esso, escator, es a transfer en ♥ non concre		Additional modules beyond qualification									6.0/611							
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1				General educati	ion subjects(GER)	56	17	0 (4	20	30	0	80 0	0	60	150	10	16	7	2	0	5	0 0
				Core subje	ects(GER/CS)	51	16	0 0	2	70	15	0	50 0	0	30	75	10	16	7	2	0	0	0 0
				University com	ponent(GER/UC)	0	0	0 0		0	0	0	0 0	0	0	0	0	0	0	0	0	0	0 0
				Electives	s(GER/ES)	5	1	0 0	1	50	15	0	30 0	0	30	75	0	0	0	0	0	5	0 0
2				Base requi	irements(BS)	112	25	0 3	2	880	300	345	0 00	0	495	1440	9	4	23	23	19	5 1	17 9
				Core subje	ects(BS/CS)	0	0	0 0		0	0	0	0 0	0	0	0	0	0	0	0	0	0	0 0
				University con	nponent(BS/UC)	84	19	0 2	2	60	225	300	95 0	0	360	1080	9	0	23	14	14	0 1	17 4
				Elective	es(BS/ES)	28	6	0 1	7	20	75	45	05 0	0	135	360	0	4	0	9	5	5	0 5
3				Profession red	quirements(VRS)	60	9	0 3	13	800	150	180	90 0	570	195	615	0	0	0	5	11	20 1	13 9
				Core subje	ects(VRS/CS)	0	0	0 0		0	0	0	0 0	0	0	0	0	0	0	0	0	0	0 0
				University com	ponent(VRS/UC)	48	6	0 2	14	140	105	150	45 0	570	135	435	0	0	0	5	4	15 1	13 9
				Electives	s(VRS/ES)	12	3	0 1	3	60	45	30	45 0	0	60	180	0	0	0	0	7	5	0 0
4		Disciplir	nes for t	he formation of p	professional competencies(BDFPC)	0	0	0 (0	0	0	0 0	0	0	0	0	0	0	0	0	0	0 0
				Core subject	ts(BDFPC/CS)	0	0	0 0		0	0	0	0 0	0	0	0	0	0	0	0	0	0	0 0
				University compo	onent(BDFPC/UC)	0	0	0 0		0	0	0	0 0	0	0	0	0	0	0	0	0	0	0 0
				Electives(BDFPC/ES)	0	0	0 0		0	0	0	0 0	0	0	0	0	0	0	0	0	0	0 0
121	Disciplin	es of pe	rsonal d	levelopment and	the formation of leadership qualities(BDPD)	0	0	0 (0	0	0	0 0	0	0	0	0	0	0	0	0	0	0 (
5				Core subject	ets(BDPD/CS)	0	0	0 0		0	0	0	0 0	0	0	0	0	0	0	0	0	0	0 (
5				Hadran B. Commis		_		0 0		0	0	0		_	0	0						0	0
5				University comp	ponent(BDPD/UC)	0	0	0 0		u I	U	U	0 0	0	0	U	0	0	0	0	0	0	0
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6			19	Electives	conent(BDPD/UC) (BDPD/ES)	0		0 0		0	0	0	0 0 70 0	0 570	0	0 2205	0	0	0 30	0	0 30	0 3	0 0

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Total including FCS

Admission year: 25-05-2022 to the EP 6B07104 Technological machines and equipment

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			nent		0.000,000	,	period		76 3	1			T	П	\neg	work of	*	1	2	3	4	5	6	7	8	9	10	11	12
<u>•</u>	Module name	ycle	ошо	subject	Subject name	credits	study		ed te					ons		with f	ıt wor				lumber	ofwee	eks in t	the acad	demic p	period			
Module code		Discipline cycle	Discipline compor	Code of su		Academic	Academic	Exams	Differentiated test	Total	Lectures	Laboratory trainings	Practice	Studio lessons	Practice	Independen of students faculty staff	Independent v of students	10	10	10	10	10	10	10	10	10	10	10	10
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2		GER GER	CS	IYa 1101 KRYa 1106	Foreign language	4	1	1	\vdash	4/120 4/120	-	_	40 40	+	-	16 16	64 64	4.0	-		-	-	-	\rightarrow	-	+	+	+	\dashv
		\vdash	_		Kazakh (russian) language	-	2			3/90	-			++	-			4.0	2.0		\vdash		-	-	-	+	+	+	-
3	language	-	cs	IYa 1102 KRYa 1105	Foreign language	3	2	2		3/90	-	_	30	+	\dashv	12 12	48		3.0			-	\rightarrow	\dashv	-	+	+	+	-
5		GER	cs	IYa 1103	Kazakh (russian) language	3	3	3		3/90	_		30	++	\dashv	12	48	\vdash	3.0	3.0		-		\rightarrow	_	+	+	+	-
6			cs	KRYa 1104	Foreign language Kazakh (russian) language	3	3	3	\vdash	3/90	-	_	30	+	\rightarrow	12	48			3.0		-		\rightarrow	-	+	+	+	-
7		_	CS	FK 1112	Physical education.	2	1	1	\vdash	2/60	1		60	++	\rightarrow	12	40	2.0	- 0	3.0	\vdash	-		\rightarrow		+	+	+	-
8		GER	CS	FK 1112		1	2	2	\vdash	1/30	-		30	+	\rightarrow	_		2.0	1.0			_	-	\rightarrow	-	+	+	+	-
9			CS	IKT 1111	Physical education. Information and communication technologies	5	3	3	\vdash	5/150	20	30.0	-	+	\dashv	20	80	\vdash	1.0	5.0		-	\rightarrow	\rightarrow	-	+	+	+	-
10	general education		CS	FK 1114	Physical education.	1	3	3	\vdash	1/30	20	30.0	30	+	-	20	80		- 6	1.0	-		-	\rightarrow		+	+	+	=
11	general education	GER	cs	FK 2115	Physical education.	2	4	4	\vdash	2/60	1		60	++	\rightarrow				-	1.0	2.0	-		\rightarrow	-	+	+	+	-
12			cs	FK 2115	Physical education. Physical education.	1	5	5	\vdash	1/30	-		30	+	-				-	_	2.0	1.0	\rightarrow	-	-	+	+	+	-
13			CS	FK 2117	Physical education.	1	6	6	\vdash	1/30			30	+	\dashv					_	\vdash	1.0	1.0	\rightarrow	-	+	+	+	-
14		GER	CS	PS 1109	Political science and sociology	4	2	2		4/120	20	8	20	++	\dashv	16	64		4.0		-	-	1.0	\rightarrow	-	+	+	+	\dashv
15		-	CS	IK 1120	History of Kazakhstan	5	2	2	\vdash	5/150	20		30	++	\dashv	20	80		5.0	_	\vdash	-	-	-+	-	+	+	+	\dashv
16			CS	KP 1110	Cultural studies and psychology	4	3	3	\vdash	4/120	20		20	++	\dashv	16	64	2 -	5.0	4.0	\vdash		-	-		+	+	+	-
17		GER	cs	Fil 2108		5	5	5	\vdash	5/150	20	-	30	+	\dashv	20	1000	\vdash	-	4.0	\vdash	5.0	\rightarrow	\dashv	-	+	+	+	\dashv
18	social and political		ES		Philosophy			8	\vdash	5/150		_	_	++	-	_	80	\vdash		_	-	5.0	\rightarrow	\dashv	5.0	+	+	+	\dashv
19	social and political	-	ES	VLO 3121 OAK 3122	Introduction to leadership in education	5	8	8	\vdash	5/150	20	_	30	+	\dashv	20	80	\vdash	-	_	\vdash	-	-	-	5.0	+	+	+	-
20		GER GER	ES	IP 3123	Basics of anti-corruption culture	5	8	8	\vdash	5/150	20		30	++	-	20	80		-	_	-			_	5.0	+	+	+	-
-		-	\rightarrow		Innovative entrepreneurship	-	_	-	\vdash		20	-	_	++	\dashv	20		-	-	_	\vdash	-	\rightarrow	-	-	+	+	+	-
21		GER GER	ES	OTOBZh 3118 OEP 3119	Labor protection and basics of life safety Basics of economics and law	5	8	8	\vdash	5/150	20	_	30	++		20	80			_	-		-	-	5.0	+	+	+	-
22		GER	ES	OEP 3119			_		ation n	ogramm	20		30			20	00		ψ.						5.0				\dashv
23		BS	uc	Mat 1202	Mathematics	5	1	1	Little	5/150	20	Г	30	Т		20	80	5.0				Т		Т		$\overline{}$		\neg	-
24		$\overline{}$	UC	Fiz 1205	Physics	4	1	1		4/120	20	10.0	_	++	$\overline{}$	16	64	4.0	0			_		-	_	+	+	+	\dashv
25			UC	NGIG 1208	Descriptive geometry and engineering graphics	3	3	3	\vdash	3/90	10	20.0		+	\rightarrow	12	48	4.0	-	3.0		_	\rightarrow	-+	_	+	+	+	_
26		-	UC	Mat 2203	Mathematics	4	4	4		4/120	20	20.0	20	+	$\overline{}$	16	64			3.0	4.0	-	-	\rightarrow	_	+	+	+	-
27		\vdash	ES	Him 2208	Chemistry	4	4	4		4/120	20	20.0	_	++	\rightarrow	16	64				4.0	-		\rightarrow		+	+	+	_
28		-	UC	Fiz 2206	· ·	3	4	4	\vdash	3/90	10	10.0	_	++	\dashv	12	48		-		3.0	-		-+	-	+	+	+	=
29	base		UC	MIP 2227	Physics Materials in engineering design	4	4	4		4/120	20	10.0	- 1005			16	64		- 4		4.0	-			-	+	-	+	-
30	Dase	$\overline{}$	UC	NGIG 2219		3	4	4		3/90	20	30.0		+	\rightarrow	12	48		- 4		3.0	-	\rightarrow	\dashv		+	+	+	\dashv
31		BS	ES	FKH 2237	Descriptive geometry and engineering graphics Physical and colloid chemistry	4	4	4		4/120	20	20.0	_	+		16	64				4.0	- 8			-	+	+	+	=
32			UC	IM 2217	Engineering mechanics	4	5	5	\vdash	4/120	10	10.0	_	+	\dashv	16	64		-		4.0	4.0		\rightarrow	-	+	+	+	-
33		$\overline{}$	UC	EOE 2245	Electrical engineering and the basics of electronics	5	5	5		5/150	20	10.0		++	-	20	80		-	-		5.0	_	-	-	+	+	+	-
34			UC	MM 2201	Mechanics of materials	4	6	6	\vdash	4/120	10	10.0	100000	++	\dashv	16	64		- 2			5.0	4.0	\rightarrow	-	+	+	+	\dashv
35			UC	IS 2222	Measuring Systems	5	6	6	\vdash	5/150	20	10.0	-	+	-	20	80					_	5.0	-		+	+	+	=
36		BS	ES	OUKGM 1219	Basics of organization of wheeled and casterpillar machines	4	2	2	\vdash	4/120	20	20.0	70000	+	\dashv	16	64	\vdash	4.0		$\overline{}$	-	5.0	\dashv		+	+	+	-
37		BS	ES	OTPP 1233	Fundamentals of technology processing industries	4	2	2	\vdash	4/120	20	20.0	_	++	$\overline{}$	16	64		4.0	_	$\overline{}$	_	_	-	_	+	+	+	-
38		BS	ES	AE 2238	Automatic electric driver	5	6	6	\vdash	5/150	20	10.0	_	+		20	80	\vdash	7.0		\vdash	-	5.0	\rightarrow	+	+	+	+	\dashv
39		BS	ES	EMP 2246	Electric machines and drives	5	6	6	\vdash	5/150	20	10.0		+		20	80	\vdash			H	-	5.0	\dashv	-	+	+	+	\dashv
40		BS	ES	MZh 3214	Mechanization of cattle-breeding farm	5	8	8	\vdash	5/150	20	10.0	-	+		20	80	\vdash	-				5.0	\rightarrow	5.0	+	+	+	\dashv
41		BS	ES	MAPPZh 3228	Machines and Apparatus for Processing Livestock Products	5	8	8	\vdash	5/150	20	10.0	_	+	-	20	80	\vdash	-		\vdash	-	\dashv	_	5.0	+	+	+	\dashv
41	general technical	BS	ES	SM 3217	Agreecultural machines	5	9	9	\vdash	5/150	20	10.0		+	-	20	80	\vdash			\vdash	\dashv	\dashv	\dashv		5.0	+	+	\dashv
43	general technical	BS	ES	MAPPR 3235	Machines and equipment for processing of crop products	5	9	9	\vdash	5/150	20	10.0		++		20	80	\vdash			H	\dashv	\dashv	\dashv	_	5.0	+	+	\dashv
43		_	UC	MSSO 4242	Metal-working machines and welding equipment	7	10	10	\vdash	7/210	20	20.0		+	-	28	112	\vdash			\vdash	-	\dashv	\dashv	- 1	_	7.0	+	\dashv
44		ВЗ	50	19/00/0 4242	wetar-working machines and welding equipment	1	10	10		11210	20	20.0	1 30			20	112					- 0					7.0		_

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69	organizational-economic	AS UC	PM 4321	Production management	4	12	12	Ļ		ASSESSIVE CO.	20	20			16	64						\perp					
68		AS UC	5.00.20.00.00.00.00	Internship	6	10			-	6/180			\perp	180			\perp			_	4	\rightarrow	\dashv			6.0	_
67		AS UC		Installation, testing and operation of technological machines	7	10	10		_		20.0	30			28	112					\Box	\Box	\Box			7.0	
66		AS UC		Internship	6	9				6/180				180								\Box			6.0		
65]	AS UC	AORM 3302	Failure analysis and repair of machines	5	9	9		9	5/150 2	0 10.0	20			20	80									5.0		
64		AS UC	TRRIO 3305	Cutting theory, cutting tools and tooling	4	9	9		9	4/120 1	0 10.0	20			16	64									4.0		
63	profiling	AS ES	TSM 3326	Technology of agricultural engineering	5	8	8			5/150 2	0 10.0	20	11		20	80							\neg	5.0			
62	1	AS ES		Technological processes and apparatus of food production	5	8	8			5/150 2	0 10.0	20			20	80	\neg					\neg		5.0			\neg
61	1	AS ES		Pneumatic and hydraulic drives	4	7	7	\Box	-	700000000000000000000000000000000000000	0 10.0	10	\Box		16	64	\neg			\neg		-	4.0			\neg	\neg
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59	1	AS UC		Internship	5	6		\vdash	-	5/150	1	+	++	150			\dashv	\dashv		-		5.0	\dashv		\vdash	\rightarrow	\dashv
58		AS UC	1.00 L 201 Stort A 3000/00 7 7 February	Practical training	2	3	30	\vdash	-	2/60	.0.0	20	+	60	20	55	\dashv	+	2.0	+	+	+	\dashv		$\mid - \mid$	\rightarrow	5.0
57	1	AS UC	2) 1000-00 -0.0001111000	Production processes (CAM, DTSP)	5	11	11		-	ALC: (2000)	0 10.0	1000000	+	-	20	80	-	-		-	+	-+	4.0		\vdash	\dashv	5.0
56	-	AS UC	(244)7-12-03 (2117-0-19)	Basics of patenting and professional creative Design of machine fixtures	4	7	7	\vdash	_	2010/00/2	0 10.0	10	+	\rightarrow	16	64	\dashv			+	+	+	4.0			\rightarrow	+
55	-			Calculation and design of food production machines	4	12	12		-		20	20	+	\rightarrow	20 16	64	\rightarrow	-	-	\rightarrow	-	+	\rightarrow		\vdash	\rightarrow	5.0
53 54	design and technolog	BS ES		Mechanical and design assembly room	5	11	11		_		10 10	30	+ +		20	80	-	- 240		-	-	-+	-			_	5.0
52	design and technolog	BS UC		Basics of design	5	8	8	\vdash	_		0 20.0	_	+	\rightarrow	20	80	\dashv	-+	-	\rightarrow	+	+	\rightarrow	5.0	\vdash	\rightarrow	5.0
51	_	BS UC		Computer-Aided Mechanism Design	5	7	7	-	_		0 20.0	20	+	-	20	80	\dashv	_	_	-	-	-	5.0	5.0	\vdash	\rightarrow	\dashv
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50		BS UC	100000000000000000000000000000000000000	Metalworking Modeling	5	5	5		_		0 10.0	4.00000	\perp		20	80	\rightarrow			- 1	5.0	\perp	\rightarrow			\rightarrow	\perp
49 50		AS ES		Thermal Engineering and Thermodynamics Basics	3	7	7		-	1000000	0	20	\perp		12	48	\perp			_	_	_	3.0			_	_
48 49 50]	AS ES	THOPP 3319	Thermal and refrigerating equipment of food production	3	7	7			3/90 1	0	20			12	48							3.0		e 9		
49	1	BS UC	MR 4241	Manipulators and robots	5	11	11		8	5/150 2	0 10.0	20			20	80											5.0
48 49	1	BS UC	SChOM 4211	CNC system (Fundamentals of Mechatronics)	5	11	11			5/150 2	20	30	\mathbf{I}		20	80				- 1							5.0

Total including FCS

300

9000.0

Admission year: 25-05-2021 to the EP 6B07104 Technological machines and equipment

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			ent				period						sf			\neg	T	5	1	2	3	4	5	6	7	8 9	9 10	11	12
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dule		Discipline	Discipline	₽		demi	E	Exams	Differentiated test	n pa	-	ectures.	oratory	Practice	Studio lessons	ractice	dependands	Independ	10	10	10	10	10	10	10	10 1	10 10	10	10
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3		GER	cs	IYa 1104	Kazakh (russian) language Foreign language	3	2	2	\vdash	\vdash	3/90			30	+	\dashv	12	48	4.0	3.0	\vdash			-	-	+	+	+	\dashv
4	linguistic	GER	cs	KRYa 1105	Kazakh (russian) language	3	2	2	\vdash	Н	3/90			30	-	\dashv	12	48	-	3.0	\vdash			\rightarrow	-	+	+	+	\dashv
5		GER	cs	IYa 1109	Foreign language	3	3	3	\vdash		3/90			30	+	\dashv	12	48		3.0	3.0			_	-	+	+	+	\dashv
6		GER	cs	KRYa 1110	Kazakh (russian) language	3	3	3	Н	Н	3/90			30	-	\dashv	12	48			3.0			_	_	+	+	+	\neg
7		GER	cs	FK 1103	Physical education.	2	1		1		2/60			60		\neg			2.0						-	\pm	+	\vdash	
8		GER	cs	FK 1108	Physical education.	1	2		2		1/30			30						1.0						\top	\top	\Box	\neg
9		GER	cs	IKT 1112	Information and communication technologies	5	3	3			5/150	20	30.0				20	80			5.0					\Box			
10	awewr	GER	cs	FK 1113	Physical education.	1	3		3		1/30			30							1.0								
11	qwewi	GER	cs	FK 2114	Physical education.	2	4		4		2/60			60								2.0							
12		GER	cs	FK 2116	Physical education.	1	5		5		1/30			30					0				1.0						
13		GER	cs	FK 2117	Physical education.	1	6		6		1/30			30										1.0		\perp	\perp	Ш	\Box
14		GER	UC	OTOBZh 3118	Labor protection and basics of life safety	5	8	8	Ш		5/150	20		30	\perp		20	80						_		5.0	\perp	\sqcup	\blacksquare
15		GER	cs	PS 1107	Political science and sociology	4	2	2	Ш		4/120	20		20		\Box	16	64	_	4.0	_			_	_	\dashv	\bot	\sqcup	\dashv
16	social and political	GER	cs	SIK 1106	The modern history of Kazakhstan	5	2	2	₩'		5/150	20		30		\dashv	20	80	_	5.0				_	_	+		\perp	_
17		GER	cs	KP 1111	Cultural studies and psychology	4	3	3	₩	\vdash	4/120	20		20	_	\dashv	16	64			4.0			\rightarrow	_	+	+	\vdash	\dashv
18		GER	cs	Fil 2115	Philosophy	5	5	5	ш	Ш	5/150	20		30		_	20	80	<u> </u>		<u> </u>		5.0		_		\bot	Ш	-
19		BS	110	M-+ 4204		Modules	$\overline{}$		ducation	on pro	gramm	20		30			20	00	1.0		т —					$\overline{}$	$\overline{}$	$\overline{}$	\dashv
20		BS	UC	Mat 1201 Fiz 1202	Mathematics Physics	5	1	1	₩	\vdash	5/150 4/120	20	10.0	10	+	\dashv	20 16	80 64	5.0 4.0	-	┢	-		\rightarrow	-	+	+	+	\dashv
21		BS	UC	NGIG 1203	Descriptive geometry and engineering graphics	3	3	3	\vdash	\vdash	3/90	10	20.0	10	-	\dashv	12	48	4.0		3.0	-		\dashv	-+	+	+	+	\dashv
22		BS	UC	Mat 2204	Mathematics	4	4	4	\vdash	Н	4/120	20	20.0	20	+	\dashv	16	64	\vdash		3.0	4.0		-	-	+	+	+	\dashv
23	Base	BS	ES	Him 2215	Chemistry	4	4	4	\vdash		4/120	20	20.0		\neg	\dashv	16	64			1	4.0		\dashv	_	+	+	+	\neg
24		BS	UC	Fiz 2205	Physics	3	4	4	Н	Н	3/90	10	10.0	10	\top		12	48	\vdash		-	3.0		\neg	_	+	+	+	\neg
25		BS	UC	NGIG 2206	Descriptive geometry and engineering graphics	3	4	4	Н		3/90		30.0		_	\neg	12	48				3.0		\neg		\pm	+	+	\neg
26		BS	ES	MZh 3218	Mechanization of cattle-breeding farm	5	8	8	\Box		5/150	20	10.0	20			20	80						\neg		5.0	\top	\Box	
27		BS	ES	SM 3219	Agreecultural machines	5	9	9			5/150	20	10.0	20			20	80								5	i.0	\Box	
28		BS	ES	OUKGM 1214	Basics of organization of wheeled and casterpillar machines	4	2	2			4/120	20	20.0				16	64		4.0								\Box	
29		BS	UC	IM 2207	Engineering mechanics	4	5	5			4/120	10	10.0	20			16	64					4.0						
30		BS	ES	EOE 2216	Electrical engineering and the basics of electronics	5	5	5			5/150	20	10.0	20			20	80					5.0						
31		BS	UC	MM 2208	Mechanics of materials	4	6	6			4/120	10	10.0	20			16	64						4.0					
32		BS	UC	IS 2209	Measuring Systems	5	6	6	\sqcup		5/150	20	10.0	20		_	20	80						5.0		\perp	\perp	Ш	_
33		BS	ES	EMP 2217	Electric machines and drives	5	6	6	\sqcup		5/150	20	10.0	20			20	80	_		_			5.0		\perp	\perp	\sqcup	_
34	General Technical	BS	UC	AVCh 3211	Draft execution automation.	4	7	7	ሥ		4/120		20.0	20	_	_	16	64			_				4.0	+	\perp	+	
35		BS	ES	TOT 3223	Thermal Engineering and Thermodynamics Basics	3	7	7	⊢		3/90	10		20	_	_	12	48	-					_	3.0	+	_	\vdash	\dashv
36		BS	ES	PK 3224	Industrial controllers	4	7	7	╨	\vdash	4/120	20	10.0	10	\perp	\dashv	16	64	-		-			-	4.0	+	+	+	\dashv
37		BS BS	ES	PGP 3225	Pneumatic and hydraulic drives	5	7	7	\vdash	\vdash	4/120 5/150	20	10.0	10 30	+	\dashv	16 20	64 80			-			-	4.0	+	+	5.0	\dashv
38		AS	uc	SChOM 4213 MIP 2301	CNC system (Fundamentals of Mechatronics)	4	11	4	┰	$\vdash\vdash$	5/150 4/120	20	10.0	10	+	\dashv	16	64			\vdash	4.0			-+	+	+	5.0	\dashv
40		AS	UC	MIP 2301 TRRIO 2302	Materials in engineering design Cutting theory, cutting tools and tooling	5	5	5	\vdash		4/120 5/150	20	10.0	20	+	\dashv	20	80	-	-	1	4.0	5.0		+	+	+	+	\dashv
41		BS	UC	APM 3210	Computer-Aided Mechanism Design	5	7	7	┰	7	5/150	10	20.0	20	+	-	20	80	\vdash		\vdash		5.0	-	5.0	+	+	+	\dashv
42		BS	UC	OK 3212	Basics of design	5	8	8	\vdash	8	5/150	10	20.0	20	+	\dashv	20	80						\dashv		5.0	+	+	=
42		50	00	OR 3212	Dasios of design	3	1 0		لــــــــــــــــــــــــــــــــــــــ	3	57 750	,0	20.0	20			20	50		1		Ц	ш			0		ш	—

43	Design and Technology	BS	ES	PMSC 4220	Mechanical and design assembly room	5	11	11			5/150	20		30			20	80										5.0
44		AS	UC	MM 3308	Metalworking Modeling	4	9	9			4/120	20	10.0	10			16	64								4.0		
45		AS	UC	PPMK 4309	Production processes (CAM, DTSP)	5	11	11			5/150	20	10.0	20			20	80						5147				5.0
46		BS	ES	TSM 3226	Technology of agricultural engineering	5	8	8		8	5/150	20	10.0	20			20	80							5.0			
47		BS	ES	MR 4221	Manipulators and robots	5	11	11			5/150	20	10.0	20			20	80										5.0
48		BS	ES	PZ 4222	Patent Law	4	12	12			4/120	20		20			16	64										4.0
49		AS	UC	UP 1311	Practical training	2	3				2/60					60					2.0							
50	Profiling	AS	UC	PP 2303	Internship	5	6				5/150					150								5.0			\Box	
51		AS	UC	AORM 3304	Failure analysis and repair of machines	5	9	9		9	5/150	20	10.0	20			20	80								5.0		
52		AS	UC	PP 3305	Internship	6	9	\square			6/180					180		,						丄		6.0	Ш	
53]	AS	UC	MIETM 4306	Installation, testing and operation of technological machines	7	10	10			7/210	30	20.0	20			28	112									7.0	
54		AS	UC	MSSO 4310	Metal-working machines and welding equipment	7	10	10			7/210	30	20.0	20			28	112					\Box	\perp		\perp	7.0	\perp
55		AS	UC	PP 4307	Internship	6	10				6/180					180											6.0	
56	Organizational-economic	AS	ES	PM 4312	Production management	4	12	12			4/120	20		20			16	64						\perp			Ш	4.0
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Admission year: 25-05-2021 to the EP 6B07105 Mechanical Engineering

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3			cs	IYa 1102	Kazakh (russian) language Foreign language	3	2	2		\rightarrow	3/90			30	-	\dashv	12	48	4.0	3.0	\vdash	\dashv	\vdash	-	-	-	+	+-	\vdash
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5			cs	IYa 1109	Foreign language	3	3	3		\dashv	3/90			30	-		12	48		5.0	3.0	\dashv	\vdash			+	+	+	\vdash
6		-	cs	KRYa 1110	Kazakh (russian) language	3	3	3		\neg	3/90			30	+		12	48			3.0	\neg	\Box		- †	-	+	+ -	Н
7		_	cs	FK 1103	Physical education.	2	1		1	\neg	2/60			60	\top				2.0			\neg	\Box			_	_	\top	П
8		GER	cs	FK 1108	Physical education.	1	2		2	\neg	1/30			30						1.0	\Box	\neg	\Box					\top	П
9		GER	cs	IKT 1112	Information and communication technologies	5	3	3			5/150	20	30.0				20	80			5.0								
10		GER	cs	FK 1113	Physical education.	1	3		3	\Box	1/30			30							1.0	\neg	\Box						
11	qwewr	GER	cs	FK 2114	Physical education.	2	4		4		2/60			60								2.0							
12		GER	cs	FK 2116	Physical education.	1	5		5		1/30			30									1.0						
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14		100000000000000000000000000000000000000	UC	OTOBZh 3118	Labor protection and basics of life safety	5	8	8		\Box	5/150	20		30			20	80								5.0			Ш
15			cs	PS 1107	Political science and sociology	4	2	2		\rightarrow	4/120	20		20			16	64		4.0	\Box					\perp	\perp		Ш
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25			UC	NGIG 2206	Descriptive geometry and engineering graphics	3	4	4		\rightarrow	3/90	10	30.0	10	+	-	12	48			-	3.0	\vdash	-	-	+	+	+-	\vdash
26		_	ES	MZh 3218	Mechanization of cattle-breeding farm	5	8	8	-	\rightarrow	5/150	20	10.0	20	+	\dashv	20	80	\vdash		\vdash	3.0	\vdash	\dashv	\rightarrow	5.0	+	+	\vdash
27		-	ES	SM 3219	Agreecultural machines	5	9	9		\rightarrow	5/150	20	10.0	20	+	-	20	80			\vdash	\dashv	\vdash	\dashv	-	5.	0	+	Н
28		_	ES	OUKGM 1214	Basics of organization of wheeled and casterpillar machines	4	2	2		-	4/120	20	20.0		\top		16	64		4.0	\Box	\neg	\Box					+	М
29			UC	IM 2207	Engineering mechanics	4	5	5		-	4/120	10	10.0	20			16	64			\Box	\neg	4.0				+	\top	П
30		_	ES	EOE 2216	Electrical engineering and the basics of electronics	5	5	5		\neg	5/150	20	10.0	20			20	80				\neg	5.0						П
31		BS	UC	MM 2208	Mechanics of materials	4	6	6		\neg	4/120	10	10.0	20			16	64			\Box	\neg	\Box	4.0				\top	
32		BS	UC	IS 2209	Measuring Systems	5	6	6			5/150	20	10.0	20			20	80						5.0					
33		BS	ES	EMP 2217	Electric machines and drives	5	6	6		\neg	5/150	20	10.0	20			20	80				\neg	\Box	5.0		- 2			
34	General Technical	BS	UC	AVCh 3211	Draft execution automation.	4	7	7			4/120		20.0	20			16	64							4.0	- 00			
35		BS	ES	TOT 3223	Thermal Engineering and Thermodynamics Basics	3	7	7			3/90	10		20			12	48							3.0				
36		BS	ES	PK 3224	Industrial controllers	4	7	7			4/120	20	10.0	10			16	64							4.0				
37		_	ES	PGP 3225	Pneumatic and hydraulic drives	4	7	7		-	4/120	20	10.0	10			16	64			\Box				4.0				
38		-	UC	SChOM 4213	CNC system (Fundamentals of Mechatronics)	5	11	11		-	5/150	20		30			20	80			\sqcup	\Box	Ш				\perp	5.0	Ш
39			UC	MIP 2301	Materials in engineering design	4	4	4		\square	4/120	20	10.0	10	_		16	64			\square	4.0				_	4		
40		_	uc	TRRIO 2302	Cutting theory, cutting tools and tooling	5	5	5		\perp	5/150	20	10.0	20			20	80			\sqcup	\square	5.0			_	\bot		\sqcup
41			UC	APM 3210	Computer-Aided Mechanism Design	5	7	7		-	5/150	10	20.0	20			20	80			\sqcup	\square			5.0		\perp		\Box
42		BS	UC	OK 3212	Basics of design	5	8	8		8	5/150	10	20.0	20			20	80			ш	\Box	ш			5.0	\perp		Ш

43	Design and Technology	BS	ES	PMSC 4220	Mechanical and design assembly room	5	11	11			5/150	20		30			20	80									\neg	5.0
44	Design and resimology	AS	UC	MM 3308	Metalworking Modeling	4	9	9	\vdash		4/120	20	10.0	10		+	16	64		-			\vdash	+	-	4.0	+	3.0
45	1	AS	UC	PPMK 4309	Production processes (CAM, DTSP)	5	11	11	H		5/150	20	10.0	20		\dashv	20	80		-			\vdash	-	-	7.	+	5.0
46		BS	ES	TSM 3226	Technology of agricultural engineering	5	8	8	Н	8	5/150	20	10.0	20		\dashv	20	80		-			\vdash			5.0	+	5.0
47	1	BS	ES	MR 4221	Manipulators and robots	5	11	11	Н		5/150	20	10.0	20		\dashv	20	80	\vdash	-		-	\vdash	\pm	+	-	+	5.0
48		BS	ES	PZ 4222	Patent Law	4	12	12	Н		4/120	20	10.0	20		\dashv	16	64					\vdash	\dashv	+	+	+	4.0
49	1	AS	UC	UP 1311	Practical training	2	3		Н		2/60					60					2.0		$\overline{}$	\dashv	_	+	+	
50		AS	UC	PP 2303	Internship	5	6		Н		5/150				-	50					2.0		\Box	5.0			+	$\overline{}$
51	Profiling	AS	UC	AORM 3304	Failure analysis and repair of machines	5	9	9	Н	9	5/150	20	10.0	20		-	20	80					\Box			5.0	+	
52		AS	UC	PP 3305	Internship	6	9		Н		6/180		332.00		1 1	80							\Box	\pm	_	6.0	_	
53		AS	UC	MIETM 4306	Installation, testing and operation of technological machines	7	10	10	Н		7/210	30	20.0	20			28	112					\Box	\dashv			7.0	
54		AS	UC	MSSO 4310	Metal-working machines and welding equipment	7	10	10			7/210	30	20.0	20			28	112					\Box	T			7.0	
55	1	AS	UC	PP 4307	Internship	6	10		П		6/180					80							\Box	T	_	1	6.0	
56	Organizational-economic	AS	ES	PM 4312	Production management	4	12	12			4/120	20		20		\neg	16	64					\Box					4.0
	3				A	ddition	al mod	ules be	yond	qualifi	cation								- '									
							and the same of	ules of		•																		
							Scienti	ifically	reseal	rch																		
				Weekly avera	ge workload at hours														57	60	63	60	60	60	60 6	60 60	60	60 24
1				General	education subjects(GER)	56	П	12	6	0	1680	120	30	570	0	0	192	768	10	16	16	2	6	1	0	5 0	0	0 0
				Co	re subjects(GER/CS)	51		11	6	0	1530	100	30	540	0	0	172	688	10	16	16	2	6	1	0	0 0	0	0 0
				Univers	sity component(GER/UC)	5		1	0	0	150	20	0	30	0	0	20	80	0	0	0	0	0	0	0	5 0	0	0 0
				1	Electives(GER/ES)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0	0	0 0
2				Bas	se requirements(BS)	112		26	0	3	3360	410	280	430	0	0	448	1792	9	4	3	14	9	14	20 '	15 5	0	15 4
				C	ore subjects(BS/CS)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0	0	0 0
				Unive	rsity component(BS/UC)	54		13	0	2	1620	160	160	220	0	0	216	864	9	0	3	10	4	9	9	5 0	0	5 0
					Electives(BS/ES)	58		13	0	1	1740	250	120	210	0	0	232	928	0	4	0	4	5	5	11	10 5	0	10 4
3				Profes	sion requirements(VRS)	60	Ш	8	0	1	1800	180	90	140	0 5	70	164	656	0	0	2	4	5	5	0	0 15	20	5 4
				Co	re subjects(VRS/CS)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0	0	0 0
				494,442	sity component(VRS/UC)	56		7	0	1	1680	160	90	120	0 5	70	148	592	0	0	2	4	5	5	0	0 15	20	5 0
					Electives(VRS/ES)	4		1	0	0	120	20	0	20		0	16	64	0	0	0	0	0	-	-	0 0	-	0 4
4		D	isciplir		ion of professional competencies(BDFPC)	0	Ш	0	0	0	0	0	0	0	5500	0	0	0	0	0	0	0	0	-	-	0 0		0 0
					e subjects(BDFPC/CS)	0	Ш	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	-	_	0 0	-	0 0
					ty component(BDFPC/UC)	0	Ш	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	-		0 0	-	0 0
				1110000	lectives(BDFPC/ES)	0	ш	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	-	-	0 0	100	0 0
5	Dis	sciplines	s of pe	-	ent and the formation of leadership qualities(BDPD)	0	\square	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0		-	0 0	1000	0 0
\vdash					e subjects(BDPD/CS)	0	Ш	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0		_	0 0		0 0
					ity component(BDPD/UC)	0	\square	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	-	-	0 0	-	0 0
					Electives(BDPD/ES)	0	\sqcup	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	_	_	0 0	_	0 0
-	Te-			Total	on curriculum	228	ш		6	4	6840	710	400	1140	0 :	70	804	3216	19	20	21	20	20			20 20		20 8
6					Additional courses											Numb	per of cre	edits		Sem	ester		Nu	mber of		1	umber	of weeks
7					Module of final certification (MoFC)												12					_	<u> </u>	360.		+		
					Total including FCS												240						1	7200	.0			

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							Contr	ol in the			-	Number o	f hours	,						Distribu	ıtion of	credits	per ac	ademic	period		
		ient				period		ic perio			Clas	sroom wo	rk		Indepe		1	course	e	2	2 cours	e	3	course		4 (ourse
	Module name	cycle	t t	Subject name	credits	study pe	Π,		1 1				SE		6000	radeiras	1	2	3	4	5	6	7	8	9	10	11 12
e code		e cy	gns		ic	nic stu	i ato	test Term	o de	"	S or		studio lessons		oent s with	dent				Numbe	er of w	eks in	the aca		neriod		\dashv
Module		Discipline	je of		demic	mep	Exams	ıξ	al le	ectures.	aborator	ctice	용	ctice	k of dents	k of dents					_					_	_
Moc		DISC	Code		Aca	Aca	Exa	Ten	paper Total	Lec	Lab	Pra	Sto	Pra	wor stuc	wor stuc	10	10	10	10	10	10	10	10	10	10	10 10
					3872	G	eneral n	odules						-							_						
1		GER CS	IYa 1101	Foreign language	4	1	1	_	4/120			40	\rightarrow		16	64	4.0								\rightarrow	\rightarrow	\rightarrow
2		GER CS	KRYa 1102	Kazakh (russian) language	4	1	1	+	4/120			40	\rightarrow	_	16	64	4.0	0.0	_				_	\rightarrow	\rightarrow	\rightarrow	-
3 4	linguistic	GER CS	IYa 1104 KRYa 1105	Foreign language Kazakh (russian) language	3	2	2	+	3/90 3/90			30	\rightarrow		12 12	48 48		3.0	_		-		_	\rightarrow	+	+	\rightarrow
5		GER CS		Foreign language	3	3	3	+	3/90			30	\dashv	_	12	48	\vdash	3.0	3.0		_	\vdash	_	\rightarrow	+	+	+
6		GER CS	KRYa 1110	Kazakh (russian) language	3	3	3	+	3/90			30	-		12	48			3.0						\pm	+	\dashv
7		GER CS	FK 1103	Physical education.	2	1	1000	1	2/60			60					2.0								=	\neg	
8		GER CS	FK 1108	Physical education.	1	2		2	1/30			30						1.0									
9		GER CS	IKT 1112	Information and communication technologies	5	3	3		5/150	20	30.0				20	80			5.0								
10	gwewr	GER CS	FK 1113	Physical education.	1	3		3	1/30			30							1.0							\perp	
11	quem	GER CS	FK 2114	Physical education.	2	4	$\overline{}$	4	2/60			60								2.0						\perp	
12		GER CS	FK 2116	Physical education.	1	5	$\overline{}$	5	1/30			30									1.0				\rightarrow	\rightarrow	
13		GER CS		Physical education.	1	6	_	6	1/30			30	\rightarrow									1.0				-	
14		GER UC	OTOBZh 3118	Labor protection and basics of life safety	5	8	8	\perp	5/150	20		30	\rightarrow		20	80		2012						5.0	\rightarrow	\rightarrow	
15		GER CS	PS 1107	Political science and sociology	4	2	2	+	4/120	20		20	-		16	64		4.0						_		\rightarrow	
16	social and political	GER CS	SIK 1106	The modern history of Kazakhstan	5	2	2	_	5/150	20		30	-		20	80		5.0	2020		-		_		-	\rightarrow	\rightarrow
17		GER CS	KP 1111 Fil 2115	Cultural studies and psychology	5	5	5	+	4/120 5/150	20		30	\dashv		16 20	64 80	\vdash		4.0		5.0	-	-	-	+	+	\rightarrow
18		GER CS	FII 2115	Philosophy	-				7/2000/00/00/00	20		30		_	20	80					5.0		_	_		_	
19		BS UC	Mat 1201	Mathematics	5 Nodule	s of sp	ecialty/e	ducation	5/150	20		30			20	80	5.0									\neg	\neg
20		BS UC	Fiz 1202	Physics	4	1	1	+	4/120	20	10.0	10	\rightarrow	_	16	64	4.0				- 2				-	+	-
21		BS UC	NGIG 1203	Descriptive geometry and engineering graphics	3	3	3	+	3/90	10	20.0	10	\rightarrow	_	12	48	4.0		3.0				-		-	\rightarrow	\rightarrow
22		BS UC	Mat 2204	Mathematics	4	4	4	+	4/120	20		20	\dashv		16	64	\vdash			4.0		\vdash		\rightarrow	$\overline{}$	\dashv	\neg
23	Base	BS ES	Him 2215	Chemistry	4	4	4		4/120	20	20.0				16	64				4.0					\neg	-	\neg
24	3-40-4-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	BS UC	Fiz 2205	Physics	3	4	4	\top	3/90	10	10.0	10			12	48				3.0						\neg	
25		BS UC	NGIG 2206	Descriptive geometry and engineering graphics	3	4	4		3/90		30.0				12	48				3.0							
26		BS ES	MZh 3218	Mechanization of cattle-breeding farm	5	8	8		5/150	20		30			20	80								5.0			
27		BS ES	SM 3219	Agreecultural machines	5	9	9		5/150	20	10.0	20			20	80									5.0		
28		BS ES	OUKGM 1214	Basics of organization of wheeled and casterpillar machines	4	2	2		4/120	20	20.0				16	64		4.0									
29		BS UC	IM 2207	Engineering mechanics	4	5	5		4/120	10	10.0	20			16	64					4.0					\perp	
30		BS ES	EOE 2216	Electrical engineering and the basics of electronics	5	5	5		5/150	20	10.0	20			20	80					5.0				\rightarrow		
31		BS UC	MM 2208	Mechanics of materials	4	6	6	\perp	4/120	10	10.0	20	\perp		16	64						4.0			\rightarrow	\rightarrow	\perp
32		BS UC	IS 2209	Measuring Systems	5	6	6	+	5/150	20	10.0	20	\rightarrow		20	80						5.0			-	\rightarrow	
33	0	BS ES	EMP 2217	Electric machines and drives	5	6	6	+	5/150	20	10.0	20	\vdash		20	80	\vdash				<u> </u>	5.0		\dashv	\rightarrow	\dashv	-
34	General Technical	BS UC	AVCh 3211	Draft execution automation.	3	7	7	+	4/120 3/90	40	20.0	20	\rightarrow		16	64 48	\vdash				-		4.0 3.0	\rightarrow	\rightarrow	\rightarrow	\rightarrow
35 36		BS ES	TOT 3223 PK 3224	Thermal Engineering and Thermodynamics Basics Industrial controllers	4	7	7	+	3/90 4/120	10 20	10.0	10	\vdash		12 16	48 64	\vdash		-		—	\vdash	4.0	-	+	+	\dashv
37		BS ES	PGP 3225	Pneumatic and hydraulic drives	4	7	7	+	4/120	20	10.0	10	\rightarrow	_	16	64							4.0	_	-	+	+
38		BS UC	SChOM 4213	CNC system (Fundamentals of Mechatronics)	5	11	11	+	5/150	20	10.0	30	$\overline{}$	-	20	80							4.0		+	+	5.0
39		AS UC	MIP 2301	Materials in engineering design	4	4	4	+	4/120	20	10.0	10	\dashv		16	64				4.0					+	+	100
40		AS UC	TRRIO 2302	Cutting theory, cutting tools and tooling	5	5	5	\top	5/150	20	10.0	20			20	80					5.0				\neg	\neg	\neg
41		BS UC	APM 3210	Computer-Aided Mechanism Design	5	7	7	7	5/150	10	20.0	20	\neg		20	80							5.0	\Box	\neg	\top	$\neg \neg$
42		BS UC	OK 3212	Basics of design	5	8	8	8	5/150	10	20.0	20			20	80								5.0		\neg	
43	Design and Technology	BS ES	PMSC 4220	Mechanical and design assembly room	5	11	11		5/150	20		30			20	80							- 17				5.0
44		AS UC	MM 3308	Metalworking Modeling	4	9	9		4/120	20	10.0	10			16	64						Š			4.0		
45		AS UC	PPMK 4309	Production processes (CAM, DTSP)	5	11	11		5/150	20	10.0	20			20	80									\Box	\perp	5.0
46		BS ES	TSM 3226	Technology of agricultural engineering	5	8	8	8	5/150	20	10.0	20			20	80	\Box							5.0		\perp	\Box
47		BS ES	MR 4221	Manipulators and robots	5	11	11	_	5/150	20	10.0	20	\perp		20	80						\square		\Box	\rightarrow	4	5.0
48		BS ES	PZ 4222	Patent Law	4	12	12		4/120	20		20			16	64	ш				Ц			\perp	\perp	\perp	4.0

-	1			T				_							-			_	_		_						_	
49		AS UC	UP 1311	Practical training	2	3		_	_	2/60					60					2.0						_	_	
50	Profiling	AS UC	PP 2303	Internship	5	6			3	5/150					150								5.0					
51		AS UC	AORM 3304	Failure analysis and repair of machines	5	9	9		9	5/150	20	10.0	20			20	80									5.0		
52		AS UC	PP 3305	Internship	6	9			3	6/180					180											6.0		
53		AS UC	MIETM 4306	Installation, testing and operation of technological machines	7	10	10		9	7/210	30	20.0	20			28	112										7.0	
54		AS UC	MSSO 4310	Metal-working machines and welding equipment	7	10	10			7/210	30	20.0	20			28	112										7.0	
55		AS UC	PP 4307	Internship	6	10				6/180					180												6.0	
56	Organizational-economic	AS ES	PM 4312	Production management	4	12	12			4/120	20		20			16	64											4.0
					Additi	onal m	odules l	beyon	d qualit	fication																		
						M	odules	of cho	ice																			
						Scie	ntifical	y rese	earch																			
			Weekly average	workload at hours														57	60	63	60	60	60	60	60	60	60	60 24
1			General ed	lucation subjects(GER)	56		12	6	0	1680	120	30	570	0	0	192	768	10	16	16	2	6	1	0	5	0	0	0 0
			Core	subjects(GER/CS)	51		11	6	0	1530	100	30	540	0	0	172	688	10	16	16	2	6	1	0	0	0	0	0 0
			University	component(GER/UC)	5		1	0	0	150	20	0	30	0	0	20	80	0	0	0	0	0	0	0	5	0	0	0 0
			Ele	ectives(GER/ES)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0
2			Base	requirements(BS)	112		26	0	3	3360	410	270	440	0	0	448	1792	9	4	3	14	9	14	20	15	5	0	15 4
			Core	e subjects(BS/CS)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0
			Universit	ty component(BS/UC)	54		13	0	2	1620	160	160	220	0	0	216	864	9	0	3	10	4	9	9	5	0	0	5 0
			E	ectives(BS/ES)	58		13	0	1	1740	250	110	220	0	0	232	928	0	4	0	4	5	5	11	10	5	0	10 4
3			Profession	on requirements(VRS)	60		8	0	1	1800	180	90	140	0	570	164	656	0	0	2	4	5	5	0	0	15	20	5 4
			Core	subjects(VRS/CS)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0
			University	y component(VRS/UC)	56		7	0	1	1680	160	90	120	0	570	148	592	0	0	2	4	5	5	0	0	15	20	5 0
			Ele	ectives(VRS/ES)	4		1	0	0	120	20	0	20	0	0	16	64	0	0	0	0	0	0	0	0	0	0	0 4
4		Discipline	es for the formation	n of professional competencies(BDFPC)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0
			Core s	ubjects(BDFPC/CS)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0
			University	component(BDFPC/UC)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0
			Elec	tives(BDFPC/ES)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0
5	Disc	iplines of pers	sonal development	and the formation of leadership qualities(BDPD)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0
			Core	subjects(BDPD/CS)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0
			University	component(BDPD/UC)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0
			Ele	ctives(BDPD/ES)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0
			Total on	curriculum	228			6	4	6840	710	390	1150	0	570	804	3216	19	20	21	20	20	20	20	20	20	20	20 8
6				Additional courses											Numbe	r of credi	ts		Sem	ester		N	umber	of hours		Nun	ber of	weeks
7				Module of final certification (MoFC)												12							360	0.0				
				Total including FCS												240							720	0.0				

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									rol in t				Nu	umber of h	hours						Dist	ributi	on of c	redits	per acad	emic pe	riod	
			nent				period		ademi eriod	,			Classr	oom work	(Indepe	endent students	1	cours	e	2	course		3 со	urse	4	course
٥	Module name	cycle	component	subject	Subject name	credits	study p	-	g	t					sons		_ £.	Į.	1	2	3	4	5	6	7 8	9	10	11 12
apoo a			ine c	of sut		mic	mic	_	Tage	proje		es	atony gs	9	S)	e e	ndent f its with	ender of ents			Nu	mber	of wee	ks in t	he acade	mic per	iod	
Module		Discipline	Discipline	Code		cade	cade	xams	inere ist	aber/	otal	ectures	aboraton, ainings	ractice	tudio	ractice	ndepend ork of tudents	ork o	10	10	10	10	10	10	10 1	0 10	10	10 10
≥		_	۵	<u> </u>		<	Copera	ш ја I modu	Jac 1	- 0	- 1		7 #	۵.	S	۵.	T W IS	- × 18		0.000		0.000						1770
1		GER	cs	KRYa 1101	Kazakh (russian) language	4	1	1	T	-15	4/120			40	1 11		16	64	4.0							\top		
2		GER	cs	IYa 1102	Foreign language	4	1	1	\neg		4/120			40			16	64	4.0					\neg		\top		
3	linguistic	GER	cs	KRYa 1104	Kazakh (russian) language	3	2	2			3/90	- 6		30			12	48		3.0				\neg			\Box	
4	illiguistic	GER	cs	IYa 1105	Foreign language	3	2	2			3/90			30			12	48		3.0								
5		GER	cs	IYa 1110	Foreign language	3	3	3			3/90			30			12	48			3.0							
6		GER	cs	KRYa 1111	Kazakh (russian) language	3	3	3	\perp		3/90			30			12	48			3.0							
7		GER	cs	FK 1103	Physical education.	2	1	_	1		2/60			60					2.0									
8		GER	CS	FK 1108	Physical education.	1	2	_	2	-	1/30			30						1.0				_		\bot	\sqcup	
9		GER	CS	IKT 1109	Information and communication technologies	5	3	3	_	_	5/150	20	30.0				20	80			5.0		_	_		\bot	\sqcup	
10	qwewr	GER	cs	FK 1113	Physical education.	1	3	_	3		1/30			30		_					1.0		_	_	_	\bot	ш	
11	10.4000000011	GER	cs	FK 2114	Physical education.	2	4	-	4	_	2/60			60		_					\rightarrow	2.0		_		+	ш	
12		GER	cs	FK 2116	Physical education.	1	5	_	5	_	1/30			30						_	\rightarrow	_	1.0		_	+	₩	
13		GER	cs	FK 2117	Physical education.	1	6		6	_	1/30			30							-	_	_	1.0		-	\vdash	
14		GER	UC	OTOBZh 3118	Labor protection and basics of life safety	5	8	8	+	_	5/150	20		30			20	80			-	-	-	-	5.)	\vdash	-
15		GER	cs	PS 1107	Political science and sociology	4	2	2	\rightarrow	_	4/120	20		20		\rightarrow	16	64		4.0	-	\rightarrow	-	\rightarrow	_	+	\vdash	-
16 17	social and political	GER	cs	SIK 1106	The modern history of Kazakhstan	5	2	2	\rightarrow	_	5/150	20		30		\rightarrow	20	80		5.0	4.0	\rightarrow	\rightarrow	\rightarrow	_	+-	\vdash	-
		GER	CS	KP 1112	Cultural studies and psychology	5	3	5	+	-	4/120	20		20		\rightarrow	16	64			4.0	\rightarrow	F 0	\rightarrow	_	+	\vdash	_
18		GER	CS	Fil 2115	Philosophy	_	5	1000		_	5/150	20		30			20	80					5.0				ш	
19		BS	UC	Mat 1201	Modu Mathematics	les of s	pecialt 1	y/educa 1	ation p		5/150	20		30			20	80	5.0					_		_	_	$\overline{}$
20		BS	UC	Fiz 1202	Physics	4	1	1	+	-	4/120	20	10.0	10	_	\rightarrow	16	64	4.0	\vdash	\rightarrow	\rightarrow	\rightarrow	\rightarrow	_	+-	\vdash	-
21		BS	UC	NGIG 1203	Descriptive geometry and engineering graphics	3	3	3	\dashv	_	3/90	10	20.0	10	_	\dashv	12	48	4.0		3.0	\rightarrow	\rightarrow	\rightarrow	_	+	\vdash	_
22		BS	ES	FKH 2215	Physical and colloid chemistry	4	4	4	+	_	4/120	20	20.0		-	-	16	64		\vdash	$\overline{}$	4.0	\rightarrow	\dashv	-	+	\vdash	
23	Base	BS	UC	Mat 2204	Mathematics	4	4	4	+	_	4/120	20	20.0	20			16	64		\vdash	_	4.0		\dashv	_	+	\vdash	-
24	NE 100.00	BS	UC	Fiz 2205	Physics	3	4	4	\dashv	_	3/90	10	10.0	10			12	48			_	3.0	\neg	\dashv		+	\vdash	
25	:	BS	UC	NGIG 2206	Descriptive geometry and engineering graphics	3	4	4	\dashv	_	3/90		30.0	3.00.0	_		12	48			_	3.0	\neg	\neg		+	\vdash	
26		BS	ES	MAPPZh 3219	Machines and Apparatus for Processing Livestock Products	5	8	8	\neg		5/150	20		30	-	\neg	20	80			\neg		\neg	\neg	5.	- 	\vdash	
27		BS	ES	MAPPR 3220	Machines and equipment for processing of crop products	5	9	9	\neg	-	5/150	20	10.0	20			20	80				\neg	\neg	\neg		5.0	\vdash	
28		BS	ES	OTPP 1214	Fundamentals of technology processing industries	4	2	2	\neg		4/120	20	20.0				16	64		4.0		\neg		\neg			\vdash	
29		BS	ES	EOE 2216	Electrical engineering and the basics of electronics	5	5	5	\neg		5/150	20	10.0	20			20	80					5.0	\neg		\top		
30		BS	UC	IMSD 2207	Engineering mechanics (Statics, Dynamics)	4	5	5	\neg		4/120	10	10.0	20			16	64					4.0	\neg		\top	\Box	
31		BS	UC	MM 2208	Mechanics of materials	4	6	6			4/120	10	10.0	20			16	64						4.0				
32		BS	ES	AE 2217	Automatic electric driver	5	6	6			5/150	20	10.0	20			20	80						5.0				
33	1000 1000 1000 N	BS	UC	IS 2209	Measuring Systems	5	6	6			5/150	20	10.0	20			20	80						5.0				
34	General Technical	BS	ES	PK 3222	Industrial controllers	4	7	7			4/120	20	10.0	10			16	64							4.0			
35		BS	ES	MZhG 3223	Mechanics of liquid and gas	4	7	7	\perp		4/120	20	10.0	10			16	64							4.0	\perp		
36		BS	ES	THOPP 3218	Thermal and refrigerating equipment of food production	3	7	7	\perp	-	3/90	10		20			12	48				\perp		_	3.0	\bot	\sqcup	
37		BS	UC	AVCh 3211	Draft execution automation.	4	7	7		-	4/120		20.0	20			16	64							4.0		\sqcup	
38		BS	UC	SChOM 4213	CNC system (Fundamentals of Mechatronics)	5	11	11	_	_	5/150	20		30			20	80						_		\perp	\sqcup	5.0
39		AS	UC	MIP 2301	Materials in engineering design	4	4	4	\perp	-	4/120	20	10.0	10			16	64				4.0		_		\perp	┯	
40		AS	UC	TRRIO 2302	Cutting theory, cutting tools and tooling	5	5	5	+	_	5/150	20	10.0	20		_	20	80			_	\rightarrow	5.0	\rightarrow		+	\perp	
41		BS	UC	APM 3210	Computer-Aided Mechanism Design	5	7	7	+	_	5/150	10	20.0	20			20	80			\rightarrow	_	\rightarrow	\rightarrow	5.0	_	┯	
42	Design and Tools of	BS	UC	OK 3212	Basics of design	5	8	8	+	_	5/150	10	20.0	20			20	80			\vdash	_	\rightarrow	_	5.	J	\vdash	-
43	Design and Technology	BS	ES	RPMPP 4225	Calculation and design of food production machines	5	11	11	+	_	5/150	20	40.0	30		_	20	80			\dashv	_	\rightarrow	-	_	1-	\vdash	5.0
44		AS AS	UC	MM 3308 PPMK 4309	Metalworking Modeling	4	9	9	+	_	4/120 5/150	20	10.0	10			16	64 80			\dashv	-	\rightarrow	\rightarrow	_	4.0	\vdash	E 0
45		AS BS	UC	TPAPP 3224	Production processes (CAM, DTSP)	5	11	11	+	_	5/150	20	10.0	20			20	80			\dashv	-	\dashv	\dashv	5.	+	\vdash	5.0
46	3	65	ES	1PAPP 3224	Technological processes and apparatus of food production	5	đ	0		0	3/130	20	10.0	∠0			20	80	_						5.	,	\perp	

47		BS	ES	PTUPP 4221	Hoisting and transport installations of food productions	5	11	11		5/150	20	10.0	20		20	80					\top	T			5.0	
48		BS	ES	OI 4226	Fundamentals of engineering	4	12	12	_	4/120	20		20		16	64			\neg	\neg	+	+		\neg	_	4.0
49		AS	UC	UP 1311	Practical training	2	3		\top	2/60			334389	60					2.0	\neg	+	\top			+	000000
50		AS	UC	PP 2303	Internship	5	6		_	5/150				150					\neg	\neg	5.0	,—		\neg	_	\Box
51	Profiling	AS	UC	AORM 3304	Failure analysis and repair of machines	5	9	9	9	5/150	20	10.0	20		20	80	\neg		\neg	\neg			\Box	5.0	+	П
52		AS	UC	PP 3305	Internship	6	9		\top	6/180				180					\neg	\neg	\top	\top		6.0	\top	П
53		AS	UC	MSSO 4310	Metal-working machines and welding equipment	7	10	10		7/210	30	20.0	20		28	112					\top	\top		7.	0	П
54		AS	UC	MIETM 4306	Installation, testing and operation of technological machines	7	10	10		7/210	30	20.0	20		28	112					\top			7.	0	П
55		AS	UC	PP 4307	Internship	6	10			6/180				180										6.	5	П
56	Organizational-economic	AS	ES	PM 4312	Production management	4	12	12	1	4/120	20		20		16	64										4.0
					Add	itional m	odule	s beyon	d qualifie	ation				-												
						N	lodule	s of cho	ice																	
						Sci	entific	ally rese	arch																	
				Weekly average	workload at hours												57	60	63	60 6	0 60	60	60	60 6	0 60	24
1				General ed	ucation subjects(GER)	56		12	6 0	1680	120	30	570	0 0	192	768	10	16	16	2 6	3 1	0	5	0 0	0	0
				Core	subjects(GER/CS)	51		11	6 0	1530	100	30	540	0 0	172	688	10	16	16	2 6	3 1	0	0	0 0	0	0
				Attended 100 (Attended 100)	component(GER/UC)	5	0	1	0 0	150	20	0	30	0 0	20	80	0	0	0	0 0		-	5	0 0	0	0
				Ele	ctives(GER/ES)	0		0	0 0	0	0	0	0	0 0	0	0	0	0	0	0 0	0	0	0	0 0	0	0
2				Base i	requirements(BS)	112		26	0 3	3360	410	270	440	0 0	448	1792	9	4	3	14 9	9 14	20	15	5 0	15	4
				Core	subjects(BS/CS)	0		0	0 0	0	0	0	0	0 0	0	0	0	0	0	0 0	0	0	0	0 0	0	0
					y component(BS/UC)	54	,	13	0 2	1620	160	160	220	0 0	216	864	9	0	3	10 4			5	0 0	5	0
				Ele	ectives(BS/ES)	58		13	0 1	1740	250	110	220	0 0	232	928	0	4	0	4 5	5 5	11	10	5 0	10	4
3				0.0000000000000000000000000000000000000	n requirements(VRS)	60		8	0 1	1800	180	90	140	0 570	164	656	0	0	2	4 5	_	_	0	15 2	0 5	4
					subjects(VRS/CS)	0		0	0 0	0	0	0	0	0 0	0	0	0	0	0	0 0	0	0	0	0 0	0	0
					component(VRS/UC)	56		7	0 1	1680	160	90	120	0 570	148	592	0	0	2	4 5	-		0	15 2	0 5	0
					ctives(VRS/ES)	4		1	0 0	120	20	0	20	0 0	16	64	0	0	0	0 0	0	0	0	0 0	0	4
4		Dis	scipline		of professional competencies(BDFPC)	0			0 0	0	0	0	0	0 0	0	0	0	0	0	0 0	_		0	0 0		0
					bjects(BDFPC/CS)	0		3900	0 0	0	0	0	0	0 0	0	0	0	0	0	0 0	S S	- 10	0	0 0	60 (1920)	0
					omponent(BDFPC/UC)	0			0 0	0	0	0	0	0 0	0	0	0	0	0	0 0	_		0	0 0		0
					ives(BDFPC/ES)	0		3530	0 0	0	0	0	0	0 0	0	0	0	0	0	0 0	0 0	-	0	0 0	80 (228)	0
5	Disc	iplines	of pers		and the formation of leadership qualities(BDPD)	0			0 0	0	0	0	0	0 0	0	0	0	0	0	0 0	_	_	0	0 0	-	0
					ubjects(BDPD/CS)	0		100	0 0	0	0	0	0	0 0	0	0	0	0	0	0 0	3 3	-	0	0 0	81 9.58	0
					component(BDPD/UC)	0		-	0 0	0	0	0	0	0 0	0	0	0	0	0	0 0		_	0	0 0		0
					tives(BDPD/ES)	0		1000	0 0	0	0	0	0	0 0	0	0	0	0	0	0 0	0 00	- 100	0	0 0	60 0000	0
				151/2/2025/2012/	curriculum	228			6 4	6840	710	390	1150	0 570	804	3216	- 1	_		20 2			-	20 2		
6					Additional courses									Num	per of cred	dits		Seme	ster	+		er of hou	irs	Numb	er of we	eks
7					Module of final certification (MoFC)										12					+	1.00	360.0	\rightarrow			
					Total including FCS										240						7	200.0				

Admission year: 15-08-2019 to the EP 6B07104 Technological machines and equipment

								Col	ntrol in	the			N	umber of	hours						Distrib	ution	of cre	dits per a	acader	nic period	d	
			nent				period		lemic p				Class	room wor	k		Indepe	endent students	1	cours	e	2 co	urse	3	cours	e	4 cours	se
	Module name	cycle	odw	ect	Subject name	credits	study p		-						sous				1	2	3 4	4 5	5	6 7	8	9 10	0 11	12
opoo		le cy	Discipline compo	subject		ic cr			tiated	rojec		_ ر	s s	-			dent s with staff	dent			Numt	er of	weeks	in the a	cadem	ic period		-
Module		Discipline	cipli	, p		Academic	Academic	ms.	eren	n er/pi	-	ture	Laborato trainings	ractice	Studio les	Practice	spende k of dents v dents v	k of dents				-	_	-		-		\vdash
Moc		Dis	Dis	Code		Aca	Aca	Exams	Diff	Term paper	Total	Lec	Lab	Pra	Str	Pra	wor wor stue	Inde wor stue	10	10	10 1	0 1	0 1	10	10	10 10	0 10	10
						77	eral m	odules																				
1		GER	CS	KRYa 1104	Kazakh (russian) language	3	1	1			3/90			30			12	48	3.0		\vdash	\perp	\perp			\perp	\bot	\sqcup
2		GER	CS	KRYa 1105	Kazakh (russian) language	3	2	2			3/90			30			12	48		3.0	\vdash	\perp	\perp			\perp	\bot	\vdash
3	language		CS	IYa 1102	Foreign language	3	2	2			3/90			30	\rightarrow		12	48		3.0	\vdash	+	+	-	_	+	+	ሥ
4		GER	cs	KRYa 1106	Kazakh (russian) language	4	3	3			4/120			40	\rightarrow		16	64		<u> </u>	4.0	+	+	+	_	-	+	—
5 6			cs	IYa 1103	Foreign language	3	3	3		_	3/90 2/60			30 60	\rightarrow		12	48	2.0	\vdash	3.0	+	+	_	\vdash	+	+	\vdash
7		GER GER	CS CS	FK 1112 IYa 1101	Physical education.	4	1	1		_	4/120		-	40	\rightarrow		16	64	4.0	\vdash	\vdash	+	+	_	\vdash	+	+	\vdash
8			CS	IKT 1111	Foreign language Information and communication technologies	5		2		_	5/150	20	30.0	40	\rightarrow	_	20	80	4.0	5.0	+	+	+	+	\vdash	+	+	\vdash
9		GER	cs	FK 1113	Physical education.	1	2	2		_	1/30	20	30.0	30	\rightarrow		20	00		1.0	\vdash	+	+	+	\vdash	+	+	\vdash
10			cs	FK 1114	Physical education.	1	3	3			1/30			30	\rightarrow					1.0	1.0	+	+			+	+	\vdash
11	general education	GER	CS	FK 2115	Physical education.	2	4	4			2/60			60	\dashv					\vdash		.0	+	+		-	+	\vdash
12		GER	cs	FK 2116	Physical education.	1	5	5			1/30			30								1.	.0			$\overline{}$		\vdash
13		GER	cs	FK 2117	Physical education.	1	6	6			1/30			30								_	1	.0			_	
14		GER	ES	OTOBZh 3118	Labor protection and basics of life safety	5	8	8			5/150	20		30			20	80				-10	\top		5.0		\top	
15		BS	ES	EOE 2222	Electrical engineering and the basics of electronics	5	5	5			5/150	20	10.0	20			20	80				5.	.0					
16		GER	cs	PS 1109	Political science and sociology	4	2	2			4/120	20		20			16	64		4.0			\top					
17	social and political	GER	cs	SIK 1107	The modern history of Kazakhstan	5	2	2			5/150	20		30			20	80		5.0								
18	social and political	GER	cs	KP 1110	Cultural studies and psychology	4	3	3			4/120	20		20			16	64			4.0							
19		GER	CS	Fil 2108	Philosophy	5	5	5			5/150	20		30			20	80				5.	.0					
					Modules	of spec	ialty/ed	lucatio	on prog	ramm																		
20		BS	UC	Mat 1203	Mathematics	5	1	1			5/150	20		30			20	80	5.0		\vdash	\perp	4			\perp	\bot	\Box
21		BS	UC	Fiz 1206	Physics	4	1	1			4/120	20	10.0	10	\perp		16	64	4.0	_	\vdash	\perp	4		\perp	-	\bot	\vdash
22		BS	UC	NGIG 1209	Descriptive geometry and engineering graphics	3	3	3			3/90	10	20.0		\perp		12	48		_	3.0	+	4			$-\!\!\!+$	\bot	\vdash
23		BS	UC	Mat 2204	Mathematics	4	_	4			4/120	20		20	\rightarrow		16	64		<u> </u>	_	.0	+	_	_	-	+	⊢
24		BS	UC	NGIG 2220	Descriptive geometry and engineering graphics	3	4	4			3/90		30.0		\rightarrow		12	48		<u> </u>	_	.0	+	_		-	+	\vdash
25		BS	ES	Him 2208	Chemistry	4	4	4		_	4/120	20	20.0	40	\rightarrow		16	64	-	<u> </u>		.0	+	-	_	$-\!\!\!+$	+	\vdash
26 27		BS BS	UC	Fiz 2207 IM 2218	Physics	3	4 5	5		_	3/90 4/120	10	10.0	10 20	\rightarrow	_	12 16	48 64		\vdash	3	.0	_	_		+	+-	\vdash
28		BS	ES	EMP 2213	Engineering mechanics Electric machines and drives	5	6	6		_	5/150	20	10.0	20	\rightarrow		20	80	-	\vdash	\vdash	4.		0.0	\vdash	+	+	\vdash
29	base	BS	UC	AVCh 3216	Draft execution automation.	4	7	7		_	4/120	20	20.0	20	\rightarrow		16	64		\vdash	-+	+	+	4.0	\vdash	-	+	\vdash
30	5400	BS	ES	TOT 3224	Thermal Engineering and Thermodynamics Basics	3	7	7		_	3/90	10	20.0	20	\rightarrow		12	48		\vdash	\vdash	+	+	3.0	\vdash	+	+	\vdash
31		BS	UC	APM 3210	Computer-Aided Mechanism Design	5	7	7		7	5/150	10	20.0	20	\dashv	-	20	80		\vdash	\vdash	+	+	5.0		-	+	\vdash
32		BS	ES	MZh 3214	Mechanization of cattle-breeding farm	5	8	8			5/150	20		30	\neg		20	80		\vdash	-	+	+		5.0	-	+	\vdash
33		BS	UC	OK 3211	Basics of design	5	8	8		8	5/150	10	20.0	20	\neg		20	80		\vdash	-	_	\top		5.0	$\overline{}$	+	
34		BS	ES	SM 3217	Agreecultural machines	5	9	9			5/150	20	10.0	20	\neg		20	80			-		\top			5.0	\top	\vdash
35		BS	UC	SChOM 4212	CNC system (Fundamentals of Mechatronics)	5	11	11	M		5/150	20		30			20	80			-	#	\top				5.0	
36		BS	ES	PMSC 4215	Mechanical and design assembly room	5	11	11			5/150	20		30			20	80					\top				5.0	
37		BS	ES	MR 4221	Manipulators and robots	5	11	11			5/150	20	10.0	20			20	80									5.0	
38		AS	UC	MSSO 4308	Metal-working machines and welding equipment	7	10	10			7/210	30	20.0	20			28	112					\top			7.	0	
39		BS	UC	UP 1202	Practical training	2	3				2/60					60					2.0							
40		BS	UC	IS 2223	Measuring Systems	5	-	6			5/150	20	10.0	20			20	80					5	.0				
41		BS	ES	PK 3225	Industrial controllers	4	7	7			4/120	20	10.0	10			16	64						4.0				
42		BS	ES	PGP 3226	Pneumatic and hydraulic drives	4	7	7			4/120	20	10.0	10			16	64			\perp		\perp	4.0		\perp	\perp	\vdash
43		BS	ES	TSM 3227	Technology of agricultural engineering	5	8	8		8	5/150	20	10.0	20	\perp		20	80		_	\vdash	\bot	\perp	\perp	5.0	\perp	\perp	\vdash
44		BS	ES	PZ 4205	Patent Law	4	12	12			4/120	20		20	\perp		16	64		<u> </u>	\vdash	\perp	\perp	-		\perp	—	4.0
45	profiling	AS	UC	MIP 2306	Materials in engineering design	4	4	4	\vdash		4/120	20	10.0	10	\rightarrow		16	64	_	_	4	.0	_	_	_	+	+	₩
46	No. of the last of	AS	UC	TRRIO 2307	Cutting theory, cutting tools and tooling	5	5	5			5/150	10	20.0	20			20	80		<u> </u>	\perp	5.	.0			\perp	Ш_	Ш

47		AS	UC	PP 2303	Internship	5	6	T			5/150					150				Т			T	5.0	\neg	\neg	Т	$\overline{}$	\neg
48		AS	UC	MM 3309	Metalworking Modeling	4	_	q			4/120	20	10.0	10		100	16	64			\vdash	\rightarrow	-	0.0	+	4.0	\vdash	-	\dashv
49		AS	UC	AORM 3302	Failure analysis and repair of machines	5	-	9		9	5/150	20	10.0	20	\dashv		20	80		1	\vdash	\rightarrow	+	_	+	5.0	_	-	\dashv
50		AS	UC	PP 3304	Internship	6	-	9		-	6/180	20	10.0	20	-	180	20	00		-	\vdash	\rightarrow	-	-	+	6.0	_	-	\dashv
51		AS	UC	MIETM 4301	Installation, testing and operation of technological machines	7	10	10			7/210	30	20.0	20	\dashv	100	28	112		1	\vdash	\rightarrow	\rightarrow	_	+	- 0.0	7.0	-	Ⅎ
52		AS	UC	PP 4305	Internship	6		10			6/180	30	20.0	20	-	180	20	112			\vdash	\rightarrow	-	-	+	+	6.0	-	\dashv
53		BS	UC	MM 2201	Mechanics of materials	4	6	6			4/120	10	10.0	20	-	100	16	64		1	\vdash	\rightarrow	-	4.0	+	+	0.0	-	\dashv
54	general technical	AS	UC	PPMK 4310	Production processes (CAM, DTSP)	5	+	11			5/150	20	10.0	20	-		20	80		-	\vdash	\rightarrow	-+	4.0	+	+	+-	5.0	\dashv
55	design and technolog organizational-economic	AS	ES	PM 4311	Production management	4	-	12			4/120	20	10.0	20	-		16	64		\vdash	\vdash	\rightarrow	\rightarrow	+	+	+	+-	3.0	\exists
56	organizational-economic	BS	ES	OUKGM 1219	Basics of organization of wheeled and casterpillar machines	4	3	3			4/120	20	20.0	20	-		16	64		\vdash	4.0	_	-	+	+	+	\vdash		4
		- 50		OCHOM 1210	Additio		100	3770	nualifi.	ration	47120	20	20.0				10	01		_	4.0			-		_			\dashv
_					Addito		dules o			ation																	_		٦
							tifically																						┪
						00001	anoully																					\neg	_
				Weekly average w	rorkload at hours	\top	\Box												54	63	63	60	60	60 6	60 60	60	60	60 2	П
1				General educ	cation subjects(GER)	56		18	0	0	1680	120	30	570	0	0	192	768	9	21	12	2	6	1	0 5	0	0	0 ($\overline{}$
				Core su	bjects(GER/CS)	51		17	0	0	1530	100	30	540	0	0	172	688	9	21	12	2	6	1	0 0	0	0	0 (П
				University c	omponent(GER/UC)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0	0	0	0 (П
				Elect	ives(GER/ES)	5		1	0	0	150	20	0	30	0	0	20	80	0	0	0	0	0	0	0 5	0	0	0 (П
2				Base re	quirements(BS)	114		26	0	3	3420	410	270	440	0	60	448	1792	9	0	9	14	9	14 2	20 1	5 5	0	15 4	П
				Core s	ubjects(BS/CS)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0	0	0	0 (П
				University	component(BS/UC)	56		13	0	2	1680	160	160	220	0	60	216	864	9	0	5	10	4	9	9 5	0	0	5 (П
				Elec	tives(BS/ES)	58		13	0	1	1740	250	110	220	0	0	232	928	0	0	4	4	5	5 1	11 10	5	0	10 4	П
3				Profession	requirements(VRS)	58		8	0	1	1740	170	100	140	0	510	164	656	0	0	0	4	5	5	0 0	15	20	5 4	П
				Core su	bjects(VRS/CS)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0	0	0	0 (П
				University c	omponent(VRS/UC)	54		7	0	1	1620	150	100	120	0	510	148	592	0	0	0	4	5	5	0 0	15	20	5 (П
				Elect	ives(VRS/ES)	4		1	0	0	120	20	0	20	0	0	16	64	0	0	0	0	0	0	0 0	0	0	0 4	
4		Dis	ciplines	for the formation o	of professional competencies(BDFPC)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0	0	0	0 (
	<u> </u>			Core sub	jects(BDFPC/CS)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0	0	0	0 (
				University co	mponent(BDFPC/UC)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0	0	0	0 (
				Electiv	es(BDFPC/ES)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0	0	0	0 (
5	Disc	iplines o	of perso	onal development a	nd the formation of leadership qualities(BDPD)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0	0	0	0 (
					ojects(BDPD/CS)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0	0	0	0 (
					omponent(BDPD/UC)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0	0	0	0 (
				Electiv	ves(BDPD/ES)	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0	0	0	0 (
				Total on c	urriculum	228			0	4	6840	700	400	1150	0	570	804	3216	18	21	21	20	20	20 2	20 20	0 20	20	20 8	
6				Ad	ditional courses	-		N-12								Numbe	r of cred	lits		Sem	ester		Num	ber of	hours	Ni	ımber	of weeks	

12

360.0

7080.0

Module of final certification (MoFC)

Total including FCS

Admission year: 15-08-2019 to the EP 6B07105 Mechanical Engineering

								Co	ntrol in	the			Nu	ımber of	hours					Dis	tributio	n of cr	edits p	er acad	emic p	eriod	
			<u>+</u>				od	acac	lemic p	eriod			Classr	oom wor	k		Indepe	endent	1	course	a í	2 cours	е	3 cours	se	4 cours	ie e
Module code	Module name	Discipline cycle	Discipline component	Code of subject	Subject name	Academic credits	Academic study period	Exams	Differentiated test	Term paper/project	Total	Lectures	Laboratory trainings	Practice	Studio lessons	Practice	Independent work of students with faculty staff	Independent work of students	10	Nu	3 4 umber o	of week	s in th		emic pe	10 11 eriod	
					Gen	eral mo			_			() () () () () () () () () ()									-				-		
1		GER	CS	FK 1112	Physical education.	2	1	1			2/60			60					2.0		\top	П			\Box	\top	\neg
2		GER	CS	FK 1113	Physical education.	1	2	2			1/30			30		-			1	1.0	_	1	7	\top	\vdash	+	\neg
3		GER	CS	IKT 1106	Information and communication technologies	5	2	2		Н	5/150	20	30.0		H	\neg	20	80		5.0	+	T	_	\top	\vdash	+	\neg
4		GER	CS	FK 1114	Physical education.	1	3	3		Н	1/30		00.0	30							1.0		- 1	+	\vdash	+	
5	general education	GER	CS	FK 2115	Physical education.	2	4	4			2/60			60	\Box	\neg			-		2.0		1	\top	\vdash	+	\neg
6		GER	CS	FK 2116	Physical education.	1	5	5		Н	1/30			30		-						1.0		1	\vdash	\pm	
7		GER	CS	FK 2117	Physical education.	1	6	6		Н	1/30			30	T	_				\vdash	+	1.0	1.0	+	\vdash	+	-
8		GER	ES	OTOBZh 3118	Labor protection and basics of life safety	5	8	8		Н	5/150	20		30	H	-	20	80			+		1.0	5.0		+	\neg
9		GER	CS	KRYa 1101	Kazakh (russian) language	3	1	1		Н	3/90			30	\vdash	\neg	12	48	3.0	\vdash	+	+	-	0.0	\vdash	+	\dashv
10		GER	CS	IYa 1102	Foreign language	4	1	1		Н	4/120			40	H		16	64	4.0		+	+		+	\vdash	+	\exists
11		GER	CS	KRYa 1103	Kazakh (russian) language	3	2	2			3/90			30		\neg	12	48	7.0	3.0	+		- 1	+	\vdash	+	\neg
12	language module	GER	CS	IYa 1104	Foreign language	3	2	2		Н	3/90			30	\vdash	\rightarrow	12	48		3.0	+			+	\vdash	+	\dashv
13		GER	CS	IYa 1108	Foreign language	3	3	3		Н	3/90		-	30	H	-	12	48		_	3.0		- 36	+	\vdash	+	-
14		GER	CS	KRYa 1109	Kazakh (russian) language	4	3	3		Н	4/120			40	\vdash	\dashv	16	64	+	-	4.0	+	-+	+	\vdash	+	\dashv
15		GER	CS	PS 1110	Political science and sociology	4	2	2		Н	4/120	20		20		-	16	64		4.0	1.0		96	+	\vdash	+	\neg
16		GER	CS	SIK 1105	The modern history of Kazakhstan	5	2	2		Н	5/150	20		30		-	20	80	+	5.0	+	+ +		+	\vdash	+	\dashv
17	social and political	GER	CS	KP 1111	Cultural studies and psychology	4	3	3			4/120	20		20	\vdash	_	16	64	+	_	4.0	+	- 1	+	\vdash	+	\dashv
18		GER	CS	Fil 2107	Philosophy	5	5	5		Н	5/150	20		30	\vdash	_	20	80	+	H	1.0	5.0	-	+	\vdash	+	\dashv
10		OLIN	00	1112107	Modules of speci				ramm		3/130	20		30			20	00	_		—	0.0					\dashv
19		BS	UC	Fiz 1213	Physics	4	1	1	ı wılıılı		4/120	20	10.0	10		_	16	64	40		\top	1 1				$\neg \neg$	
20		BS	UC	Mat 1211	Mathematics	5	1	1		Н	5/150	20	10.0	30	\vdash	\neg	20	80	5.0	\vdash	+	+	-	+	\vdash	+	\neg
21		BS	UC	NGIG 1214	Descriptive geometry and engineering graphics	3	3	3		Н	3/90	10	20.0	30	H		12	48	3.0		3.0		3	+	\vdash	+	
22		BS	UC	Mat 2219	Mathematics	4	4	4		Н	4/120	20	20.0	20	\vdash	\neg	16	64	\vdash	<u> </u>	4.0	1	_	+	\vdash	+	\neg
23	basic disciplines	BS	UC	Fiz 2220	Physics	3	4	4			3/90	10	10.0	10			12	48			3.0				\vdash	+	\neg
24	David distribution	BS	UC	NGIG 2221	Descriptive geometry and engineering graphics	3	4	4			3/90	10	30.0	10	\vdash	\neg	12	48	\vdash		3.0	_	-	+	\vdash	+	\neg
25		BS	ES	FKH 2209	Physical and colloid chemistry	4	4	4		Н	4/120	20	20.0		H	-	16	64	1		4.0	-		+	\vdash	+	\neg
26		BS	ES	MAPPZh 3210	Machines and Apparatus for Processing Livestock Products	5	8	8		Н	5/150	20	20.0	30		\neg	20	80	\vdash	\vdash	7.0	+	-	5.0	\vdash	+	\dashv
27		BS	ES	MAPPR 3212	Machines and equipment for processing of crop products	5	9	9		Н	5/150	20	10.0	20	\vdash	-	20	80	\vdash		+	1	-		5.0	+	\dashv
28		BS	ES	OTPP 1205	Fundamentals of technology processing industries	4	3	3		Н	4/120	20	20.0	20	\vdash	-	16	64			4.0			+	5.0	+	\dashv
29		BS	UC	IMSD 2203	Engineering mechanics (Statics, Dynamics)	4	5	5		$\vdash \vdash$	4/120	10	10.0	20	\vdash	\dashv	16	64	1	H	1.0	4.0	-	+	\vdash	+	\dashv
30	general technical	BS	ES	AE 2207	Automatic electric driver	5	6	6		Н	5/150	20	10.0	20		-	20	80			+	1000	5.0	+	\vdash	+	\dashv
31	ganoruntoonmoul	BS	UC	MM 2204	Mechanics of materials	4	6	6		$\vdash\vdash$	4/120	10	10.0	20	\vdash	-	16	64	+	\vdash	+	_	4.0	+	\vdash	+	\dashv
32		AS	UC	MIP 2306	Materials in engineering design	4	4	4		H	4/120	20	10.0	10	\vdash	_	16	64	\vdash		4.0	_	1.0	+	\vdash	+	\dashv
33		BS	UC	UP 1217	Practical training	2	3	-T		Н	2/60	20	10.0	10		60	10	UT	1	-	2.0	1	-	+	\vdash	+	\dashv
34		BS	UC	IS 2222	Measuring Systems	5	6	6		Н	5/150	20	10.0	20	\vdash	00	20	80	\vdash	 			5.0	+	\vdash	++	\dashv
35		BS	ES	PK 3224	Industrial controllers	4	7	7		\vdash	4/120	20	10.0	10	\vdash	-	16	64	+	\vdash	+	+	100000	0	\vdash	++	\dashv
- 55		DU	LU	1110227	ilidustifal controllers		-1	-1		ш	7/120	20	10.0	IV	ш		10	UT					17	·			—

				*																				
36	1 1	BS ES	MZhG 3225	Mechanics of liquid and gas	4	7 7			4/120		10.0	10			16	64			\vdash	-	4.0		\vdash	
37		BS ES	TPAPP 3227	Technological processes and apparatus of food production	5	8 8		8	5/150	20	10.0	20			20	80			\vdash			5.0		
38	profiling	BS ES	OI 4223	Fundamentals of engineering	4	12 13	2		4/120	20		20			16	64			\vdash					4.0
39		AS UC	PP 2302	Internship	5	6			5/150					150					\perp	5.0				
40	1	AS UC	AORM 3305	Failure analysis and repair of machines	5	9 9		9	5/150	20	10.0	20			20	80						5.0		
41		AS UC	PP 3303	Internship	6	9			6/180					180								6.0	2	
42		AS UC	MIETM 4301	Installation, testing and operation of technological machines	7	10 10)		7/210	30	20.0	20			28	112							7.0	
43		AS UC	PP 4304	Internship	6	10			6/180					180									6.0	
44	general technical	BS ES	EOE 2201	Electrical engineering and the basics of electronics	5	5 5	8		5/150	20	10.0	20			20	80				5.0	8	1 11 11		
45		BS UC	AVCh 3218	Draft execution automation.	4	7 7			4/120		20.0	20			16	64					4.0	100		
46	base	BS UC	SChOM 4216	CNC system (Fundamentals of Mechatronics)	5	11 1	1		5/150	20		30			20	80			\Box				1	5.0
47		AS UC	MSSO 4311	Metal-working machines and welding equipment	7	10 10)		7/210	30	20.0	20			28	112							7.0	
48	base	BS ES	THOPP 3215	Thermal and refrigerating equipment of food production	3	7 7			3/90	10		20			12	48			\Box		3.0			
49	Dase	BS ES	PTUPP 4202	Hoisting and transport installations of food productions	5	11 1			5/150	20	10.0	20	110		20	80							1	5.0
50		BS UC	APM 3206	Computer-Aided Mechanism Design	5	7 7	8	7	5/150	10	20.0	20			20	80			\Box	\neg	5.0			\neg
51	1 1	BS UC	OK 3208	Basics of design	5	8 8	8	8	5/150	10	20.0	20			20	80						5.0		
52	1 1	BS ES	RPMPP 4226	Calculation and design of food production machines	5	11 1			5/150	20		30			20	80	4		\Box	\neg			1	5.0
53	design and technology	AS UC	TRRIO 2307	Cutting theory, cutting tools and tooling	5	5 5	8		5/150	10	20.0	20			20	80				5.0				
54	1 1	AS UC	MM 3310	Metalworking Modeling	4	9 9	S .		4/120	20	10.0	10			16	64					-	4.0		\neg
55	1 1	AS UC	PPMK 4308	Production processes (CAM, DTSP)	5				5/150	20	10.0	20		-	20	80	-		+	-	+	1	7	5.0
56	organizational-economic	AS ES	PM 4309	Production management	4	12 13	,		4/120	20		20		\neg	16	64			+	$\overline{}$	-			4.0
				Additional mo	dules bev			n '	1											_				
					odules of		nounc																	-
					ntifically r																			
			Weekly ave	erage workload at hours					T	1	\Box		T				54	63 63	60	60 60	60	60 60	60	60 24
1				ral education subjects(GER)	56	18	3 0	0	1680	120	30	570	0	0	192	768	9		2			5 0		0 0
			(Core subjects(GER/CS)	51	1			1530	100	30	540	0		172	688	9	21 12	2	6 1	0	0 0	0	0 0
				ersity component(GER/UC)	0	0			0	0	0	0	0	0	0	0		0 0	-	0 0		0 0	0	0 0
				Electives(GER/ES)	5	1	_	_	150	20	0	30	0	0	20	80	0	0 0		0 0		5 0	0	0 0
2			-	Base requirements(BS)	114	20			3420	410	270	440			448	1792	-	0 9			20		0	15 4
				Core subjects(BS/CS)	0	0			0	0	0	0	0	0	0	0		0 0		0 0		0 0	0	0 0
				versity component(BS/UC)	56	13			1680	160	160	220			216	864		0 5		4 9		5 0	0	5 0
				Electives(BS/ES)	58	13			1740	250	110	220	0		232	928		0 4			11	10 5		10 4
3			Prof	ession requirements(VRS)	58	8			1740	170	100	140		510	164	656		0 0		5 5		0 15		5 4
				Core subjects(VRS/CS)	0	0			0	0	0	0	0	0	0	0	-	0 0		0 0	-	0 0	0	0 0
				versity component(VRS/UC)	54	7	0		1620	150	100	120			148	592		0 0		5 5	-	0 15	20	5 0
			Oilly	Electives(VRS/ES)	4	1	- 0	_	120	20	0	20	0	0	16	64	_	0 0	_	0 0	_	0 0	0	0 4
4		Die	inlines for the form	nation of professional competencies(BDFPC)	0	6		0	0	0	0	0	ő	0	0	04		0 0	<u> </u>	0 0		0 0	0	0 0
-4		וסוס		ore subjects(BDFPC/CS)	0	0	_	_	0	0	0	0	0	0	0	0	-	0 0	<u> </u>	0 0	_	0 0	0	0 0
-				rsity component(BDFPC/UC)	0	0			0	0	0	0	0	0	0	0	-	0 0		0 0	-	0 0	0	0 0
				Electives(BDFPC/ES)	0	0			0	0	0	0	0	0	0	0		0 0		0 0		0 0	0	0 0
5		Disciplines		ment and the formation of leadership qualities(BDPD)	0	l ö			0	0	0	0	0	0	0	0		0 0	l ŏ		-	0 0	-	0 0
3		Disciplines 0		Core subjects(BDPD/CS)	0	0	_	_	0	0	0	0	0	0	0	0		0 0		0 0		0 0	0	0 0
				ersity component(BDPD/UC)	0	0			0	0	0	0	0	0	0	0		0 0		0 0	-	0 0	0	0 0
	L.		Unive	Electives(BDPD/ES)	0	0	_		0	0	0	0	0	0	0	0	_				-	0 0	0	0 0
_			T-4			0		_								3216		0 0				0 0	-	0
_	r -		lot	al on curriculum	228		0	4	6840	700	400	1150		570	804							20 20		
6				Additional courses									<u> </u>		of cred	aits	8	emeste	-			urs Nu	uper of	weeks
7				Module of final certification (MoFC)									\vdash		12 240				\rightarrow		60.0 200.0	_		$\overline{}$
				Total including FCS									1	- 4	Z4U						.00.0			

Appendix 3. Matrix of achievability of the formed learning outcomes according to the educational program with the help of academic

disciplines

			<u>.</u>			_			ene			
			r of	3	lea	<u>arni</u>	ng i	resu]	ltso (cred	its	
№	Name of the discipline	Short description of the discipline	Number of	CICUIT.	FO 1	PO 3	PO 4	PO 5	PO 6	PO 8	PO 9	PO 10
		The cycle of general education disciplines is a mandatory component										
1	History of Kazakhstan	The history of Kazakhstan consists of 5 thematic blocks: Ancient people and	5	V	7							
	(GE)	the formation of a nomadic civilization, Turkic civilization and the Great										
		Steppe, Kazakhstan in modern times (XVIII - early XX centuries),										
		Kazakhstan as part of the Soviet administrative-command system,										
		Kazakhstan in the world community (1991- 2022)										
2	Philosophy	The emergence and development of philosophy. Fundamentals of	5	V	7							
		philosophical understanding of the world. Consciousness, soul and language.										
		Genesis. Ontology and metaphysics. The philosophy of man and the value										
		world. "Mangilik El" and "Rukhani zhangyru" - the philosophy of new										
		Kazakhstan.	1.0								 	
3	Foreign language	The course program is designed for the volume of teaching - 300 hours, of	10	V	7							
		which: 90 hours - classroom work and 180 hours - independent work.										
		The course ends with a comprehensive exam. The course is designed for 3 trimesters.										
		As a result of mastering the program, the student, depending on the level of										
		training, reaches the level B1/) or B2 at the time of completion of the course										
1	Kazakh (russian) language	Language and his basic functions. Speech: kinds and forms of	10	V	7						\dashv	
'	Trazarii (Tassiaii) Tangaage	speech. Functionally-semantic types of speech. Functional styles of speech.	10	'								
		General description of functional styles of speech. Common concept about										
		scientific style of speech. Features of scientific style at lexical,										
		morphological, syntactic level.										
		Text as leading unit of verbal communication. segmentation of text. Theme of										
		text. Structure and sense of text. Communicative tasks of text. A role of										
		suggestion is in text. function of suggestion. Progression of text as increase										
		of his volume and information content. Compression as basic type of										
		processing of scientific text.										

5	Information and communication technologies	A plan and his drafting are in a scientific sphere. Types of plans. scientific text. Composition-semantic structure of scientific text. Summarizing of scientific text. Annotating of scientific texts. Types of lemmatas. Reviewing of scientific texts. Types of reports. Criticizing of scientific text. Structure of scientific review. Review about the advanced study. The discipline "ICT" includes the following topics: purpose, content and development trends of ICT; methods for collecting, storing and processing information; architecture of computer systems and networks; software and	5		v	V		
		hardware for computer systems and networks for collecting, transmitting, processing and storing data; Internet resources, cloud and mobile services, Smart technologies						
6	Political science and sociology	Sociology in understanding the social world. Introduction to the theory of sociology. Sociological research. Social structure and stratification of society. Socialization and identity. Social change: the latest sociological debate. Political science as a science and academic discipline. The main stages of the formation and development of political science. Politics in the system of public life. Political power: the essence and mechanism of implementation. World politics and modern international relations.	4	V				
7	Cultural studies and psychology	Formation of students understanding of culture as the highest human value, to facilities the development of cultural needs for independent assimilation of cultural values, to reveal the essence of the main problems of modern cultural studies and the creation of a holistic view of the psyche, personality and the creative nature of the human psyche, the ability to work in a team. Training in the skills of socio-psychological analysis and resolution of specific professional situations.	4	V				
8	Physical education	The formation of positive attitude, interest and need for physical education and sports. The improving the physical health of students on the basis of increasing the arsenal of motor abilities, professional-applied and methodical readiness. Preparation and participation in mass sports and recreational events	8	V				

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		and competitions in sports, with broad-based participation of students in the							
		active physical culture.							
		The Comprehensive use of physical culture and sports as a general physical							
		training. Improving the level of physical							
		and functional status. Preventive use of physical training for health purposes.							
		The students gain additional,							
		necessary knowledge on the basics of psychological, pedagogical, medical							
		and biological control according to the method							
		and organization of independent exercise and "lifelong" sports.							
		Cycle of general education disciplines Elective component							
9	Basics of economics and	The purpose of teaching the discipline is: the formation of knowledge on the	5	\mathbf{v}				v	
	law	basics of economics and law; skills in practice to use the knowledge gained							
		on the basic legal and economic laws, to establish relationships between the							
		state, legal and economic phenomena, to determine the properties of legal							
		entities; possession of economic categories and laws, the institutional and							
		legal basis of the activities of economic entities and business ethics, the							
		basics anti-corruption culture.							
10	Labor protection and basics	Formation of students knowledge, practical skills and abilities to create safe	5			V			
	of life safety	and healthy working conditions, to prevent the causes and conditions the							
		emergence of a dangerous situations, to protect the population and							
		production staff of national economy objects from the consequences of							
		possible emergencies. The specific features of labor protection for women							
		and youth, supervision and control of the implementation of health and							
		safety legislation and liability for violations of the requirements of							
11	Introduction to leadership	Models of effective communication leader. Ways to manage in critical	5		v				
	in education	situations. Work techniques in the management team and the principles of			`				
	in education	the distribution of roles in the team. Techniques for effective control and							
		motivation of learning. Leadership Theory. Concepts of leadership behavior							
		(three leadership styles (K. Levin), Ohio State University research,							
		University of Michigan studies, management systems (R. Likert), managerial							
		framework (Blake and Moughton), the concept of reward and punishment,							
		leadership substitutes (S. Kerr and J. Dzhermier).							
10	Innovetive	-			_	+		+	\dashv
12		Formation of students" knowledge fundamental concepts of innovative	5	V					
	entrepreneurship	development, modern approaches of entrepreneurial activity in the field of							
		new technologies to ensure the competitiveness of innovative enterprise in							

13	Basics of anti-corruption culture	the market. Economic essence of innovative entrepreneurship. Business-planning. Venture financing. Types of firms with venture capital. Risk management. Human resource management in innovation management. Innovation processes as a condition for economic growth. Theoretical and methodological foundations of the concept of "corruption" Improving the socio-economic relations of Kazakhstan society as a condition for countering corruption Psychological features of the nature of corrupt behavior Formation of anti-corruption culture Features of the formation of	5	V						
		anti-corruption culture of youth Ethnic features of the formation of anti-								
		corruption culture Moral and ethical responsibility for corruption in various fields. Legal liability for corruption offenses								
		Cycle of basic disciplines University component			•	•			 	•
14	Mathematics	General provisions Elements of linear algebra (determinants of the second and third orders, their properties, linear operations on matrices, systems of linear equations, analytical geometry on the plane, analytical geometry in space) Functions, limits, derivatives of one variable (methods of function transfer,function derivatives, high-frequency derivatives, function study,function study on clipping, convexity) One variable function integral (initial function, integration of simple parts, definite integral, application of Integral)	9		V			V		
15	Physics	Formation of students' scientific worldview and modern physical thinking and practical application of the laws of physics necessary to solve engineering problems based on physical laws, phenomena and processes, the study of basic physical quantities and definitions and units of measurement.	7		v		V			
16	engineering graphics	Development of spatial imagination and instilling the skills of correct logical thinking, methods of constructing images of spatial forms on a plane, measuring these forms, allowing the transformation of images, rules for design documentation in accordance with the Unified System of Design Documentation (ESCD), execution and reading of drawings of individual parts and assembly units.	6			v	V			
17	Materials in engineering design	The ability to possess knowledge of the structure of the composition and properties of various materials (metals and nonmetals) to understand the technologies and methods of obtaining materials processing, using modern machines, machines and equipment to solve design, operational, experimental, research and design problems.	4		v					V

18	Engineering mechanics	The development of the discipline considers the general laws of the mechanical movement of bodies and their equilibrium. The main provisions related to the laws of equilibrium and motion of points of a mechanical system, taking into account the geometric forms of motion and under the influence of factors causing certain types of motion. Methods of transformation of systems of forces and conditions of equilibrium of material bodies, general laws of dynamics of motion of mechanical systems necessary for solving engineering problems. Confirmation of the reliability of the oretical know ledge byexperience.	4			V	V				
19	Electrical engineering and the basics of electronics	Basic concepts and definitions of electrical and magnetic circuits, the basic laws and methods for calculating electrical circuits, electromagnetism and basic concepts, electrical circuits of three-phase alternating current, basic concepts, the construction of vector and wave diagrams, basic concepts of industrial electronics.	5	,	7			V	v		
20	Mechanics of materials	Mastering the basic concepts and definitions set out in the sections: theoretical mechanics, theory of mechanisms and machines, resistance of materials. Basic concepts, laws and models of mechanics, kinematics and hydromechanics, classification of mechanisms, assemblies and parts, performance criteria and factors affecting them, dynamics of energy conversion into mechanical work, analysis of the functionality of mechanisms and their applications.	4				V				V
21	Measuring Systems	The concept of measuring and control. Principles of choice of SI. Limiting errors of the most common universal measuring instruments. The concept of testing and control. Limit gauges. Rules of operation, setting SI, measurement methods. The use of SR in the repair industry and in the technical diagnostics of aggregates, assemblies and mechanisms of agricultural equipment. General principles of interchangeability. General principles for building a unified system of tolerances and landings (USTL).	5		V					V	V
22	and welding equipment	Classification of machines. Features of building control systems. Features of the device drives. Feedback devices. Devices automatic tool changer machines. Technological equipment of machines. Features of the development of technological processes. Precision machining. Plasma and laser cutting machines, bending and welding machines and CNC presses. Electrical circuits of machines. Troubleshooting machine problems.	7						V	V	
23	CNC system	Study of the structures and principles of integration of mechatronic and	5						V	v	

24	(Fundamentals of Mechatronics) Manipulators and robots	robotic systems, mechatronic rotational motion modules based on high-torque motors features of setting control tasks for mechatronic and robotic systems, definition and terminology of mechatronics. Terms and definitions of robotics. Structure and principles of integration of mechatronic and robotic systems Classification of hoisting machines, manipulators and robots. Construction	5				v	v	
		of lifting machines. Load gripping devices. Elements of cargo and traction devices. Stops and brakes. Mechanisms for lifting and changing the boom. Movement mechanisms. Rotation mechanisms. Device manipulators and industrial robots. Drives of industrial robots. Robot control systems.					v	v	
25	Metalworking Modeling	Methods for compiling mathematical models (empirical, experimental-analytical, theoretical), methods for obtaining a regression equation (passive experiment, active experiment, determining the response of an object to standard perturbations). Methodological basis of optimization. Necessary conditions for the application of optimization methods. Simulate systems with continuous, discrete and hybrid properties.	5		V		,	V	
26	Draft execution automation.	Study of the basic principles and methodologies of modern computer-aided design when creating electronic tools, methods and techniques for solving problems in the main sections of the discipline using design automation tools, creation of mathematical models of construction, automation of preparation and release of design and technological documentation: SolidWorks systems, Compass 3D, Altium Designer, T-Flex CAD.	4		v	V			
27	Automated design of mechanisms	Consolidation, generalization, and expansion of the knowledge gained in the study of basic disciplines, acquire new knowledge and form skills and abilities in the use of computers for the design, analysis and maintenance of machines and mechanisms necessary for the study of special disciplines and for subsequent professional activity. fundamentals of design and modeling, calculation, and analysis, as well as structures used in general technical and agricultural engineering products.	5		V	v			
28	Basics of design	To develop students' elementary skills in designing and designing mechanisms and machine parts; mastering by students the provisions of the system of standards for the implementation, design, storage and use of design documentation, theoretical foundations and requirements of the ESKD standards fundamentals of designing mechanisms for general machine-building, purpose and development of practical skills in solving	5		V	v			

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20		complex design tasks.									-	4
29	1 &	Familiarization with the conceptual foundations of inventive activity as a	4	V							V	
	professional creative	modern complex science of intellectual property objects. Obtaining										
		sustainable knowledge on the method of activating creative thinking when										
		creating objects of industrial property. skills of independent patent search,										
		drawing up applications for inventions										
		Cycle of basic disciplines Elective component					1					
30	Chemistry	Discipline studies modern ideas about the structure and properties of	4		V						V	r
		inorganic substances, the foundations of chemical methods of analysis used										
		in assessing water quality. Studies the properties of the most important										
		classes of inorganic compounds in conjunction with their structure; patterns										
		of chemical processes; methods and achievements of chemical science.										
31	Physical and colloid	Molecular-kinetic theory of aggregative states of matter. Fundamentals of	4		V						V	7
	chemistry	Chemical Thermodynamics (TD). Chemical kinetics. Catalysis. Chemical										
		equilibrium. Phase balance. Solutions. Electrochemistry. Colloidal chemistry										
		- physical chemistry of dispersed systems. Solutions of high-molecular										
		compounds (IUD).										
32	Basics of organization of	To determine the details, the basic components and mechanisms in wheeled	4			V			v	v		
	wheeled and casterpillar	and tracked machines, to regulate their work; to recognize technological										
	machines	machines and tools, their components and parts, identify and troubleshoot;										
		skills to identify possible faults, determine the cause and maintenance of										
		systems and components of wheeled and tracked vehicles										
33	Fundamentals of	The organization of the process flow as a system of processes. The structure	4	v		V					V	
	technology processing	of the process flow. Raw materials for food production. Formation of the										
	industries	nutritional value of the grain during cultivation. Change in grain quality										
		during storage. Storage of raw materials and its preparation for production.										
		The main processes of food technology, their role and impact on food quality										
34	Automatic electric driver	Concept and definitions. Functions and requirements. Mechanical	5					V	V			
		characteristics of industrial mechanisms, DC motors, asynchronous motors.										
		The equation of motion of the electric drive. Bringing moments and effort.										
		Transients in electric drives. Regulation of speed of electric drives.										
35	Electric machines and	Types of electromechanical energy converters; design features of electric	5					V	v			
	drives	drives; operating modes, methods of selecting electric motors; drive										
		characteristics, operating modes of electric drives of basic agricultural										
		machinery and equipment; physical fundamentals of electric drives, selection										

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		and calculation of mechanical characteristics and transients in electric drives.						
36	Mechanization of cattle-	Technological bases of design and mechanization of production processes in	5	V			V	V
	breeding farm	animal husbandry; modern progressive methods and techniques of						
		mechanization of production processes in animal husbandry; selection of						
		machinery and equipment for the production of livestock products; rational						
		use of material and energy-saving technical means; Design and completion						
		of production technological lines of livestock farms and complexes.						
37	Machines and Apparatus	Technological equipment for the preparation and processing of agricultural	5	v			v	V
	for Processing Livestock	products by separation methods. Technological equipment for the						
	Products	preparation and processing of agricultural products by the methods of						
		connection. Technological equipment for the preparation and processing of						
		agricultural products by molding. Technological equipment for the						
		preparation and processing of agricultural products by the methods of heat						
		and mass transfer. Equipment for filling large-sized and small-sized						
		containers, packaging machines. Line mechanized processing plants						
38	Machines and equipment	Machines, technologies, units, complexes of primary grain processing.	5	v			v	v
	for processing of crop	Machines, Purpose, device, technology, equipment and complexes of						
	products	primary processing of potatoes. Machines, technologies, equipment and						
	Products	complexes of primary processing of root crops. Machines, technologies,						
		equipment and complexes of primary processing of fruits and vegetables						
39	Agricultural machines	The device of agricultural machines and their adjustment to the specified	5	v			v	v
	1 28110 01100 11110 1110 110	working conditions; the principle of operation of the agricultural machinery						
		and agrotechnical requirements; the basic principles and patterns of						
		interaction of the working bodies of machines with the processed material;						
		assessment of the quality of technological operations, methods and means of						
		quality control of agricultural machines.						
40	Calculation and design of	Concepts and definitions that characterize the principles, methods,	5		v		v	+-
10	food production machines	techniques and rules of design and construction, as well as forming ideas	3		•		*	
	rood production machines	about design objects, their properties and indicators, are generally accepted						
		in engineering practice. The quality of the designed machine is evaluated by						
		a number of theoretically justified quantitative indicators, the main of which						
		are economic (machine utilization rate, profitability, economic effect, etc.)						
		and design perfection (coefficients of unification, standardization,						
		normalization levels, etc.). No less important are the principles and methods						
		of designing machines that do not have a quantitative assessment: the						

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		formation of derivative machines based on the original model, the reduction							
		of the nomenclature due to the rational choice of type and the inclusion of							
		development reserves and other methods in the design.							
41	Mechanical and design	Machines, technologies, units, complexes of primary grain processing.	5		v			v	
	assembly room	Machines, Purpose, device, technology, equipment and complexes of							
		primary processing of potatoes. Machines, technologies, equipment and							
		complexes of primary processing of root crops. Machines, technologies,							
		equipment and complexes of primary processing of fruits and vegetables							
		Cycle of profile disciplines University component		11	1	1			
42	Design of machine fixtures	Acquisition by students of skills in the field of designing machine tools for	4		V		V	v	
		various purposes for the implementation of technological processes for the							
		production of agricultural and food engineering products. Know the							
		methodology for designing and calculating machine tools, basing and fixing							
		workpieces on machines. Obtaining the required accuracy of workpiece							
		processing at high process productivity, ensuring work safety and reducing							
		worker fatigue.							
43	Production processes	Discipline studies the totality of actions of workers and labor tools, as a	5					V	V
	(CAM, DTSP)	result of which raw materials, materials, and components delivered to the							
		enterprise are transformed into finished products or services in a							
		predetermined quantity and a given property, quality and assortments for a							
		certain period. Explains the production process consisting of main, auxiliary							
		and serving processes. Technical and organizational-economic							
		characteristics of the production process at the enterprise, types of products,							
		production volume, types and types of applied equipment and technology,							
		level of specialization.							
44	Cutting theory, cutting	Studying the basics of cutting theory; structural and tool materials, cutting	4				V	1	V
	tools and tooling	kinematics, cutter design and geometry; chip formation process; force factors							
		during cutting; heat and temperature in the cutting zone; wear and							
		destruction of blades of metal-cutting tools; tool life and cutting speed;							
		methods for assigning cutting conditions during processing. Types of multi-							
		blade machining and cutting tool used. Drilling, countersinking, reaming,							
		milling, piercing and broaching, thread forming methods and thread forming							
		tools, abrasive processing.							
	1				 				

45	Failure analysis and repair of machines	Mastering the basics of technical conditions and rules for the rational operation of transport and transport-technological machines and equipment, the causes and consequences of the termination of their operability, organization of technical inspection and maintenance of equipment, acceptance and development of the introduced technological equipment, drawing up an application for equipment and spare parts, preparation of technical documentation and instructions for the operation and repair of equipment	5			V				v
46	Installation, testing and operation of technological machines	Fundamentals of wear and aging of technological machines and equipment, system of preventive maintenance of equipment, installation and operation of technological machines, methods and methods of monitoring and restoring machine parts. Basic calculations of technological lines with the choice of machinery and equipment; management of specific machines and devices; the rationale for assessing their technical and operational capabilities	7						v	vv
47	Production management	Introduction to production management; basic principles of production management and personnel management; production management at the enterprise; main trends in improving production management in a market economy; rationalization of processes and methods of production management; production inventory management; production inventory management.	4	V	V					v
48	Educational practice		2							
49	Production practice		17							
		Cycle of profile disciplines Component of choice			•			•		
50	Thermal and refrigerating equipment of food production	Equipment for heat and refrigeration. The role of heat transfer and mass transfer in technical processes. Thermal equipment in catering. Classification of methods of heat treatment in the OP. General principles of the device of thermal devices OP.	3				v	V		
51	Thermal Engineering and Thermodynamics Basics	Formation of knowledge of the laws of obtaining and converting energy, methods for analyzing the efficiency of the use of heat, the ability to experimentally determine the characteristics of thermal heat and power equipment; conversion, transfer and use of heat, to such an extent that they can select	3				V	v		
52	Mechanics of liquid and gas	Studying the basics of hydrostatics, kinematics, hydrodynamics, gas statics and gas dynamics, familiarization with the basic properties of liquids and gases; get an idea of the patterns of equilibrium and movement of liquids and	4			V		V		

		gases; to master methods for calculating and analyzing flow processes, designing hydraulic and gas systems, developing skills in engineering calculations and mastering the methodology for solving the main problems of fluid and gas mechanics. The objectives of the course of studying the discipline include the mastery of theoretical knowledge and practical skills (skills) by students, the study of the basic physical properties of liquids and gases, the laws of equilibrium and movement of liquids and gases and the boundaries of their application, the study of methods for calculating liquid and gas systems, pressure losses in them, device, principle of operation and purpose of various types of hydraulic machines, methods for calculating pumping units						
53	Pneumatic and hydraulic drives	Classification of hydropneumatic machines and drives; features of hydraulic and pneumatic systems; study of technological equipment using hydraulic and pneumatic drives; calculation of the main parameters of vane and volumetric pumps, hydrodynamic gears, volumetric hydraulic and pneumatic drives used in transport and transport-technological machines; application of methods and means of measuring the characteristics of fluid and air flows.	4		v	V	V	
54	Technological processes and apparatus of food production	Formation of students' knowledge about technological processes and apparatuses of food production, as a set of scientific and engineering knowledge, which allows you to create new and improve existing technologies and equipment for food production. General patterns of technological processes; modeling of processes and devices; bases of rational construction of devices; grinding of solid materials; pressing, mixing, sorting processes; hydromechanical processes; membrane methods for separating liquid systems; essence of thermal processes; the main types of heat exchangers used in public catering; evaporation; condensation; theoretical foundations of mass transfer processes; sorption processes; drying; rectification; extraction; dissolution and crystallization	5	V	V		V	
55	Technology of agricultural engineering	To form general professional knowledge and skills in the field of design of technological processes; their equipment for the production of agricultural machinery and apparatus and their technical operation, to acquaint future graduates with the methods of technical calculations and the development of product designs in relation to progressive technologies for single, serial and mass production.	5	V			V	V