

V. EDUCATION PROCESS PLAN

Code in accordance with the EF	Name of academic discipline	Semester distribution			Number of ECTS credits	Number of hours						Distribution of classroom hours per a week and ECTS credits per a semester																Department	
		Exams	Tests	Individual tasks		Total amount	Classroom			Independent work	I course				II course				III course				IV course						
							Total	including			Semesters																		
		Lectures	Laboratory works	Practical studies		1		2	3	4	5	6	7	8	Number of weeks in the semester														
		20		20		20		20		20		20		20		20		20		20									
		Classroom in hours	ECTS credits	Classroom in hours		ECTS credits	Classroom in hours	ECTS credits	Classroom in hours	ECTS credits	Classroom in hours	ECTS credits	Classroom in hours	ECTS credits	Classroom in hours	ECTS credits	Classroom in hours	ECTS credits	Classroom in hours	ECTS credits	Classroom in hours	ECTS credits							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
1	Obligatory educational components				146,0	4380,0	1824,0	712,0	284,0	876,0	2556,0	26,0	27,0	28,0	30,0	16,0	19,0	23,0	25,0	8,0	9,0	5,0	11,0	8,0	11,0	2,0	14,0		
1.1	General training				79,0	2370,0	1116,0	352,0	128,0	636,0	1254,0	17,0	18,0	26,0	28,0	11,0	14,0	7,0	8,0	2,0	2,0	2,0	2,0	4,0	5,0	2,0	2,0		
GT 1	History and Culture of Ukraine	2		R	4,0	120,0	48,0	16,0		32,0	72,0			3,0	4,0													310	
GT 2	Philosophy	3		R	3,0	90,0	32,0	16,0		16,0	58,0				2,0	3,0												307	
GT 3	Jurisprudence		4	R	3,0	90,0	32,0	16,0		16,0	58,0					2,0	3,0											306	
GT 4	History of Science and Technology			R	3,0	90,0	32,0	16,0		16,0	58,0													2,0	3,0			310	
GT 5	Vocational Language	2	1		9,0	270,0	128,0			128,0	142,0	4,0	5,0	4,0	4,0													273	
GT 6	Foreign Language		7-8		4,0	120,0	52,0			52,0	68,0														2,0	2,0	2,0	275	
GT 7	Ukrainian as a foreign language		3-6		10,0	300,0	120,0			120,0	180,0				2,0	4,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	273	
GT 8	Higher Mathematics p.1	1		C	6,0	180,0	96,0	48,0		48,0	84,0	6,0	6,0															170	
	Higher Mathematics p.2	2		C	6,0	180,0	96,0	48,0		48,0	84,0			6,0	6,0														170
	Higher Mathematics p.3	3		C	4,0	120,0	64,0	32,0		32,0	56,0				4,0	4,0													170
	Higher Mathematics p.4	4		C	3,0	90,0	48,0	16,0		32,0	42,0						3,0	3,0											170
GT 9	Physics p.1	1		C	5,0	150,0	80,0	32,0	32,0	16,0	70,0	5,0	5,0																168
	Physics p.2	2		C	5,0	150,0	80,0	32,0	32,0	16,0	70,0				5,0	5,0													168
	Physics p.3	3		C	3,0	90,0	48,0	32,0	16,0		42,0				3,0	3,0													168
GT 10	Chemistry	2		C	4,0	120,0	64,0	32,0	32,0		56,0				4,0	4,0													192
GT 11	Ecology		2	R	3,0	90,0	32,0	16,0	16,0		58,0				2,0	3,0													144
GT	Physical education		1 - 6		4,0	120,0	64,0			64,0	56,0	2,0	2,0	2,0	2,0														302
1.2	Professional training				67,0	2010,0	708,0	360,0	156,0	240,0	1302,0	9,0	9,0	2,0	2,0	5,0	5,0	16,0	17,0	6,0	7,0	3,0	9,0	4,0	6,0		12,0		
PT 1	Enterprise Economy		7		3,0	90,0	32,0	16,0		16,0	58,0														2,0	3,0		201	
PT 2	Descriptive Geometry, Engineering and Computer Graphics	1		G	6,0	180,0	96,0	32,0		64,0	84,0	6,0	6,0																163
PT 3	Fundamentals of Informatics	1		C	3,0	90,0	48,0	16,0	16,0	16,0	42,0	3,0	3,0																140
PT 4	Theoretical Mechanics. p.1		2	C	2,0	60,0	32,0	16,0		16,0	28,0			2,0	2,0														169
	Theoretical Mechanics. p.2	3		G	5,0	150,0	80,0	48,0		32,0	70,0				5,0	5,0													169
PT 5	Technology of Construction Materials and Materials Science	4		C	6,0	180,0	80,0	48,0	32,0		100,0						5,0	6,0											143
PT 6	Theory of Mechanisms and Machines		4	C	3,0	90,0	48,0	32,0		16,0	42,0						3,0	3,0											151
PT 7	Strength of Materials	4		C	5,0	150,0	80,0	48,0	16,0	16,0	70,0						5,0	5,0											166
PT 8	Machine Parts		5	C	4,0	120,0	48,0	16,0	16,0	16,0	72,0													3,0	4,0			166	
PT 9	Numerical Methods and Basics of Optimization	5		C	3,0	90,0	48,0	16,0	16,0	16,0	42,0													3,0	3,0			140	
PT 10	Fundamentals of CAD	4		G	3,0	90,0	48,0	16,0	16,0	16,0	42,0						3,0	3,0										140	
PT 11	Fundamentals of Mechanical Engineering Technology	6		G	3,0	90,0	36,0	24,0	12,0		54,0												3,0	3,0				146	
PT 12	Fundamentals of Occupational Safety and Health	7		R	3,0	90,0	32,0	16,0	16,0		58,0														2,0	3,0		144	
PT	Practical Training*		6		6,0	180,0					180,0																		
PT	Pre-graduation Practice*		8		6,0	180,0					180,0																		6,0
	Attestation*				6,0	180,0					180,0																		6,0
2	Optional educational components				94,0	2820,0	1244,0	346,0	188,0	122,0	1576,0	2,0	3,0			10,0	11,0	5,0	5,0	18,0	21,0	19,0	19,0	16,0	19,0	20,0	16,0		

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
2.1	Profile training				49,0	1470,0	656,0	346,0	188,0	122,0	814,0	2,0	3,0			10,0	11,0	5,0	5,0	3,0	4,0	6,0	6,0	9,0	10,0	12,0	10,0	
2.1.1	Discipline block 01 "Automobiles and Tractors"				49,0	1470,0	656,0	346,0	188,0	122,0	814,0	2,0	3,0			10,0	11,0	5,0	5,0	3,0	4,0	6,0	6,0	9,0	10,0	12,0	10,0	
OP1.1	Entry into the specialty. Introductory practice		1	R	3,0	90,0	32,0	32,0			58,0	2,0	3,0															152
OP1.2	Numerical calculation methods for cars and tractors	3		C	5,0	150,0	80,0	32,0	32,0	16,0	70,0					5,0	5,0											152
OP1.3	The Construction of Automobiles and Tractors and their Analysis, p.1		3	R	6,0	180,0	80,0	48,0	32,0		100,0					5,0	6,0											152
	The Construction of Automobiles and Tractors and their Analysis, p.2	4		CW	5,0	150,0	80,0	32,0	32,0	16,0	70,0							5,0	5,0									152
OP1.4	Theory and Design of Automobiles and Tractors, p.1	5		G	4,0	120,0	48,0	16,0	16,0	16,0	72,0									3,0	4,0							152
	Theory and Design of Automobiles and Tractors, p.2	6		G	6,0	180,0	72,0	36,0	24,0	12,0	108,0											6,0	6,0					152
OP1.5	Production Technology of Automobiles and Tractors	7		CP	4,0	120,0	64,0	32,0	32,0		56,0													4,0	4,0			152
OP1.6	Basics of the Construction Optimization of Automobiles and Tractors	7		P	6,0	180,0	80,0	48,0		32,0	100,0													5,0	6,0			152
OP1.7	Vibrations and vibration protection in the car and tractor construction	8			4,0	120,0	50,0	30,0		20,0	70,0															5,0	4,0	152
OP1.8	Mathematical models and basics of automation for cars and tractors	8			3,0	90,0	40,0	20,0	20,0		50,0															4,0	3,0	152
OP1.9	Electrical equipment of cars and tractors		8		3,0	90,0	30,0	20,0		10,0	60,0															3,0	3,0	152
2.1.2	Discipline block 02 "Automated Design of All Terrain Vehicles"				49,0	1470,0	656,0	346,0	150,0	160,0	814,0	2,0	3,0			10,0	11,0	5,0	5,0	3,0	4,0	6,0	6,0	9,0	10,0	12,0	10,0	
OP2.1	Entry into the specialty. Introductory practice		1	R	3,0	90,0	32,0	32,0			58,0	2,0	3,0															153
OP2.2	Fundamentals of object-oriented programming	3		CW	5,0	150,0	80,0	32,0	32,0	16,0	70,0					5,0	5,0											153
OP2.3	The Construction of All Terrain Vehicles (ATV), p.1		3	R	6,0	180,0	80,0	48,0	32,0		100,0					5,0	6,0											153
	The Construction of ATV, p.2	4		R	5,0	150,0	80,0	32,0	32,0	16,0	70,0							5,0	5,0									153
OP2.4	The Theory of ATV	5		G	4,0	120,0	48,0	16,0	16,0	16,0	72,0									3,0	4,0							153
OP2.5	Special questions of ATV theory	6		G	6,0	180,0	72,0	36,0	12,0	24,0	108,0											6,0	6,0					153
OP2.6	Special systems of ATV	7		R	4,0	120,0	64,0	32,0	16,0	16,0	56,0													4,0	4,0			153
OP2.7	Design and calculation of ATV, p.1	7		C	6,0	180,0	80,0	48,0		32,0	100,0													5,0	6,0			153
	Design and calculation of ATV, p.2	8			4,0	120,0	50,0	30,0		20,0	70,0															5,0	4,0	153
OP2.8	Fundamentals of ATV automation	8			3,0	90,0	40,0	20,0	10,0	10,0	50,0															4,0	3,0	153
OP2.9	Electrical equipment of ATV		8		3,0	90,0	30,0	20,0		10,0	60,0															3,0	3,0	153
2.1.3	Discipline block 03 "Machines and Mechanisms of Oil and Gas Industry"				49,0	1470,0	656,0	454,0	74,0	128,0	814,0	2,0	3,0			10,0	11,0	5,0	5,0	3,0	4,0	6,0	6,0	9,0	10,0	12,0	10,0	
OP3.1	Entry into the specialty. Introductory practice		1	R	3,0	90,0	32,0	32,0			58,0	2,0	3,0															150
OP3.2	Information Technologies and Programming	3		CW	5,0	150,0	80,0	48,0	32,0		70,0					5,0	5,0											150
OP3.3	Hydraulics, Hydraulic and Pneumatic Drives		3	C	6,0	180,0	80,0	48,0	16,0	16,0	100,0					5,0	6,0											150
OP3.4	Fundamentals of Underground Hydraulics and Filtration Theory	4		CW	5,0	150,0	80,0	48,0	16,0	16,0	70,0							5,0	5,0									150
OP3.5	Fundamentals of the Theory of Hydraulic Machines Workflow	5		C	4,0	120,0	48,0	48,0			72,0									3,0	4,0							150
OP3.6	Machines and Equipment for Drilling Oil and Gas Wells, p.1	6		G	6,0	180,0	72,0	48,0		24,0	108,0											6,0	6,0					150

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
	Machines and Equipment for Drilling Oil and Gas Wells. p.2	7		C	4,0	120,0	64,0	48,0		16,0	56,0													4,0	4,0			150	
OP3.7	Machines and Equipment for Oil and other Hydrocarbons Mining. p.1	7		CP	6,0	180,0	80,0	64,0		16,0	100,0													5,0	6,0			150	
	Machines and Equipment for Oil and other Hydrocarbons Mining. p.2	8			4,0	120,0	50,0	30,0		20,0	70,0															5,0	4,0	150	
OP3.8	Hydraulic and pneumatic superchargers	8			3,0	90,0	40,0	20,0	10,0	10,0	50,0															4,0	3,0	150	
OP3.9	Systems of automatic control of hydropneumatic systems		8		3,0	90,0	30,0	20,0		10,0	60,0															3,0	3,0	150	
2.1.4	Discipline block 04 "Lifting-and-Shifting, Road, Building, Land-Reclamation Machines and Equipment"				49,0	1470,0	656,0	316,0	264,0	76,0	814,0	2,0	3,0				10,0	11,0	5,0	5,0	3,0	4,0	6,0	6,0	9,0	10,0	12,0	10,0	
OP4.1	Entry into the specialty. Introductory practice		1	R	3,0	90,0	32,0	32,0			58,0	2,0	3,0															149	
OP4.2	Microcontrollers in lifting, transport and storage systems		3	C	6,0	180,0	80,0	32,0	48,0		100,0					5,0	6,0											149	
OP4.3	Fundamentals of object-oriented programming	3		CW	5,0	150,0	80,0	32,0	32,0	16,0	70,0					5,0	5,0											149	
OP4.4	Design of production processes in integrated CAD / AEC CAD systems	4		G	5,0	150,0	80,0	16,0	64,0		70,0							5,0	5,0									149	
OP4.5	Calculations and Modeling in Lifting-and-Shifting Machines (LSM)	5		CP	4,0	120,0	48,0	16,0	32,0		72,0									3,0	4,0							149	
OP4.6	Constructive elements of LSM and warehouses	6		CP	6,0	180,0	72,0	48,0		24,0	108,0											6,0	6,0					149	
OP4.7	Technology of production of LSM structures and warehouses	7		G	4,0	120,0	48,0	32,0		16,0	72,0													3,0	4,0			149	
OP4.8	Lifting machines and technical means of logistics. p.1	7		G	6,0	180,0	96,0	48,0	48,0		84,0													6,0	6,0			149	
	Lifting machines and technical means of logistics. p.2	8		G	4,0	120,0	50,0	20,0	20,0	10,0	70,0															5,0	4,0	149	
OP4.9	Build-and-Road Machines (BRM)	8		G	3,0	90,0	40,0	20,0	10,0	10,0	50,0															4,0	3,0	149	
OP4.10	Technical equipment and automation of warehouses		8	G	3,0	90,0	30,0	20,0	10,0		60,0																3,0	3,0	149
2.1.5	Discipline block 05 "Equipment for Food, Processing and Chemical Production"				49,0	1470,0	656,0	368,0	116,0	172,0	814,0	2,0	3,0				10,0	11,0	5,0	5,0	3,0	4,0	6,0	6,0	9,0	10,0	12,0	10,0	
OP5.1	Entry into the specialty. Introductory practice		1	R	3,0	90,0	32,0	16,0		16,0	58,0	2,0	3,0															154	
OP5.2	Information technologies in engineering	3		CW	5,0	150,0	80,0	32,0	48,0		70,0					5,0	5,0											154	
OP5.3	Fundamentals of the Thermodynamics		3	C	6,0	180,0	80,0	48,0		32,0	100,0					5,0	6,0											154	
OP5.4	Processes and Apparatuses of Chemical Technology. p.1	4		CP	5,0	150,0	80,0	32,0	32,0	16,0	70,0							5,0	5,0									191	
	Processes and Apparatuses of Chemical Technology. p.2	5		C	4,0	120,0	48,0	16,0	16,0	16,0	72,0									3,0	4,0							191	
OP5.5	Technological Equipments of Chemical Production	6		C	6,0	180,0	72,0	48,0		24,0	108,0											6,0	6,0					154	
OP5.6	Technological Equipments of Processing and Food Production	7		C	4,0	120,0	64,0	48,0		16,0	56,0														4,0	4,0		154	
OP5.7	Installation, operation and repair of equipment	7		C	6,0	180,0	80,0	48,0		32,0	100,0														5,0	6,0		154	
OP5.8	Calculation and design of machines and apparatuses in food, processing and chemical industries	8			4,0	120,0	50,0	30,0	10,0	10,0	70,0																5,0	4,0	154

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
OP5.9	Design theory of reactors and devices in food, processing and chemical industries	8			3,0	90,0	40,0	30,0		10,0	50,0															4,0	3,0	154
OP5.10	Automated control of objects and processes		8		3,0	90,0	30,0	20,0	10,0		60,0															3,0	3,0	358
2.1.8	Profiled discipline package 08 "Automated and robotic complexes in mechanical engineering."				49,0	1470,0	656,0	374,0	154,0	128,0	814,0	2,0	3,0			10,0	11,0	5,0	5,0	3,0	4,0	6,0	6,0	9,0	10,0	12,0	10,0	
OP8.1	Entry into the specialty. Introductory practice		1	R	3,0	90,0	32,0	32,0			58,0	2,0	3,0															146
OP8.2	Microprocessor and Software Automation		3	CW	5,0	150,0	80,0	32,0	32,0	16,0	70,0					5,0	5,0											146
OP8.3	Computer Technologies in engineering	3		R	6,0	180,0	80,0	48,0	32,0		100,0					5,0	6,0											146
OP8.4	Measurement technology and instruments	4		R	5,0	150,0	80,0	32,0	32,0	16,0	70,0							5,0	5,0									146
OP8.5	Fundamentals of automation systems design	5		G	4,0	120,0	48,0	32,0		16,0	72,0									3,0	4,0							146
OP8.6	Automated metal-cutting equipment and robotic systems in mechanical engineering	6		G	6,0	180,0	72,0	48,0	12,0	12,0	108,0											6,0	6,0					146
OP8.7	Automated electric drive	7		C	4,0	120,0	64,0	32,0	16,0	16,0	56,0													4,0	4,0		146	
OP8.8	Technology of automated machine-building production	7		CW	6,0	180,0	80,0	48,0		32,0	100,0													5,0	6,0		146	
OP8.9	Programming of processing on machines with numerical program control	8			4,0	120,0	50,0	30,0	10,0	10,0	70,0														5,0	4,0	146	
OP8.10	CAM/CAE Systems	8			3,0	90,0	40,0	20,0	10,0	10,0	50,0														4,0	3,0	146	
OP8.11	Flexible production systems		8		3,0	90,0	30,0	20,0	10,0		60,0															3,0	3,0	146
2.1.9	Discipline block 09 "Mechatronic Systems of Vehicles"				49,0	1470,0	656,0	362,0	154,0	140,0	814,0	2,0	3,0			10,0	11,0	5,0	5,0	3,0	4,0	6,0	6,0	9,0	10,0	12,0	10,0	
OP9.1	Entry into the specialty. Introductory practice		1	R	3,0	90,0	32,0	32,0			58,0	2,0	3,0															153
OP9.2	Fundamentals of object-oriented programming	3		CW	5,0	150,0	80,0	32,0	32,0	16,0	70,0					5,0	5,0											153
OP9.3	Vehicle designs		3	R	6,0	180,0	80,0	48,0	32,0		100,0					5,0	6,0											153
OP9.4	Components of mechatronic systems, p.1	4		R	5,0	150,0	80,0	32,0	32,0	16,0	70,0							5,0	5,0									153
	Components of mechatronic systems, p.2	5		G	4,0	120,0	48,0	32,0		16,0	72,0									3,0	4,0							153
OP9.5	Special questions of vehicle theory	6		G	6,0	180,0	72,0	36,0	12,0	24,0	108,0											6,0	6,0					153
OP9.6	Design and Calculation of Vehicles	7		CW	6,0	180,0	80,0	48,0		32,0	100,0													5,0	6,0		153	
OP9.7	Means of microprocessor devices development for mechatronic systems, p.1	7		C	4,0	120,0	64,0	32,0	16,0	16,0	56,0													4,0	4,0		153	
	Means of microprocessor devices development for mechatronic systems, p.2	8			4,0	120,0	50,0	30,0	10,0	10,0	70,0															5,0	4,0	153
OP9.8	Basics of Automation for Vehicles	8			3,0	90,0	40,0	20,0	10,0	10,0	50,0															4,0	3,0	153
OP9.9	Electrical Equipment of Vehicles		8		3,0	90,0	30,0	20,0	10,0		60,0															3,0	3,0	153
2.2	Optional student disciplines of the profile preparation according to the list				34,0	1020,0	456,0				564,0										12,0	13,0	10,0	10,0	4,0	5,0	8,0	6,0
2.3	Optional student disciplines from the general university catalog of disciplines				11,0	330,0	132,0				198,0										3,0	4,0	3,0	3,0	3,0	4,0		
OD1	Discipline 1		5		4,0	120,0	48,0				72,0									3,0	4,0							
OD2	Discipline 2		6		3,0	90,0	36,0				54,0											3,0	3,0					

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
OD3	Discipline 3		7		4,0	120,0	48,0				72,0														3,0	4,0		
Total for education period					240,0	7200,0	3068,0				4132,0	28,0	30,0	28,0	30,0	26,0	30,0	28,0	30,0	26,0	30,0	24,0	30,0	24,0	30,0	22,0	30,0	
Hours per week												28,0	30,0	28,0	30,0	26,0	30,0	28,0	30,0	26,0	30,0	24,0	30,0	24,0	30,0	22,0	30,0	
Number of exams												4	5	5	5	2(+3)	2(+3)	4(+1)	3(+1)									
Number of tests												3	3	2	3	3	2(+1)	3	2(+1)									
Number of course projects (works)																1	1	(1)	1									
Numbers of disciplines per semester												7	8	7	8	5	4	7	4									

Individual tasks	
C	Calculated task
CG	Calculated and graphic task
R	Report
CP	Course project
CW	Course work

Approved by the Academic Council of NTU "KhPI"
 PROTOCOL № _____ from _____ 202__

Vice-rector of Scientific-and-Pedagogical Work

 Signature Full name
Gennadii KHRYPUNOV

Head of the educational program
 Sectoral engineering

 Signature Full name
Serhii DOBROTVORSKII

Director of the Director of Education and
 Science Institute of Mechanical Engineering
 and Transport

name of the Institute

 Signature Full name
Vitalii IEPIFANOV

Acting Head of the Department of
 Automotive and Tractor Engineering

name of department

 Signature Full name
Ievhen PELIPENKO

Head of the Department of Information
 Technologies and Systems of Wheeled and
 Tracked Vehicles named after A. Morozov

name of department

 Signature Full name
Dmytro VOLONTSEVYCH

Head of the Department of Hydraulic
 Machines named after G.F. Proskura

name of department

 Signature Full name
Andrii ROGOVYI

Head of the Department "Lifting and transport
 machines and equipment"

name of department

 Signature Full name
Valentyn KOVALENKO

Head of the Department of Chemical
 engineering and industrial ecology

name of department

 Signature Full name
Valerii SHAPOREV

Head of the Department of Mechanical
 Engineering Technology and Metal-Cutting
 Machines

name of department

 Signature Full name
Oleksandr PERMYAKOV

* Practices and attestations are carried out by graduating

CONTENT of CURRICULUM

for the training of the first (bachelor) level:
by specialty

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Sectoral Engineering

Number in order	Discipline title	Total amount				Department code
		ECTS creits	Hours	Semester		
				Exam	Test	
1	2	3	4	5	6	7
1	Obligatory educational components	146,0	4380,0			60,83%
1.1	General training	79,0	2370,0			54,11%
GT 1	History and Culture of Ukraine	4,0	120,0	2		310
GT 2	Philosophy	3,0	90,0	3		307
GT 3	Jurisprudence	3,0	90,0		4	306
GT 4	History of Science and Technology	3,0	90,0			310
GT 5	Vocational Language	9,0	270,0	2	1	273
GT 6	Foreing Language	4,0	120,0		7-8	275
GT 7	Ukrainian as a foreign language	10,0	300,0		3-6	273
GT 8	Higher Mathematics p.1	6,0	180,0	1		170
	Higher Mathematics p.2	6,0	180,0	2		170
	Higher Mathematics p.3	4,0	120,0	3		170
	Higher Mathematics p.4	3,0	90,0	4		170
GT 9	Physics p.1	5,0	150,0	1		168
	Physics p.2	5,0	150,0	2		168
	Physics p.3	3,0	90,0	3		168
GT 10	Chemistry	4,0	120,0	2		192
GT 11	Ecology	3,0	90,0		2	144
GT	Physical education	4,0	120,0		1 - 6	302
1.2	Professional training	67,0	2010,0			45,89%
PT 1	Enterprise Economy	3,0	90,0		7	201
PT 2	Descriptive Geometry, Engineering and Computer Graphics	6,0	180,0	1		163
PT 3	Fundamentals of Informatics	3,0	90,0	1		140
PT 4	Theoretical Mechanics, p.1	2,0	60,0		2	169
	Theoretical Mechanics, p.2	5,0	150,0	3		169
PT 5	Technology of Construction Materials and Materials Science	6,0	180,0	4		143
PT 6	Theory of Mechanisms and Machines	3,0	90,0		4	151
PT 7	Strength of Materials	5,0	150,0	4		166
PT 8	Machine Parts	4,0	120,0		5	166
PT 9	Numerical Methods and Basics of Optimization	3,0	90,0	5		140
PT 10	Fundamentals of CAD	3,0	90,0	4		140
PT 11	Fundamentals of Mechanical Engineering Technology	3,0	90,0	6		146
PT 12	Fundamentals of Occupational Safety and Health	3,0	90,0	7		144
PT	Practical Training*	6,0	180,0		6	
PT	Pre-graduation Practice*	6,0	180,0		8	
	Attestation*	6,0	180,0			
2	Optional educational components	94,0	2820,0			39,17%
2.1	Profile training	49,0	1470,0			52,13%
2.1.1	Discipline block 01 "Automobiles and Tractors"	49,0	1470,0			
OP1.1	Entry into the specialty. Introductory practice	3,0	90,0		1	152
OP1.2	Numerical calculation methods for cars and tractors	5,0	150,0	3		152
OP1.3	The Construction of Automobiles and Tractors and their Analysis, p.1	6,0	180,0		3	152
	The Construction of Automobiles and Tractors and their Analysis, p.2	5,0	150,0	4		152
OP1.4	Theory and Design of Automobiles and Tractors, p.1	4,0	120,0	5		152
	Theory and Design of Automobiles and Tractors, p.2	6,0	180,0	6		152
OP1.5	Production Technology of Automobiles and Tractors	4,0	120,0	7		152
OP1.6	Basics of the Construction Optimiza-tion of Automobiles and Tractors	6,0	180,0	7		152
OP1.7	Vibrations and vibration protection in the car and tractor construction	4,0	120,0	8		152
OP1.8	Mathematical models and basics of automation for cars and tractors	3,0	90,0	8		152
OP1.9	Electrical equipment of cars and tractors	3,0	90,0		8	152
2.1.2	Discipline block 02 "Automated Design of All Terrain Vehicles"	49,0	1470,0			
OP2.1	Entry into the specialty. Introductory practice	3,0	90,0		1	153
OP2.2	Fundamentals of object-oriented programming	5,0	150,0	3		153
OP2.3	The Construction of All Terrain Vehicles (ATV), p.1	6,0	180,0		3	153
	The Construction of ATV, p.2	5,0	150,0	4		153
OP2.4	The Theory of ATV	4,0	120,0	5		153
OP2.5	Special questions of ATV theory	6,0	180,0	6		153
OP2.6	Special systems of ATV	4,0	120,0	7		153
OP2.7	Design and calculation of ATV, p.1	6,0	180,0	7		153
	Design and calculation of ATV, p.2	4,0	120,0	8		153
OP2.8	Fundamentals of ATV automation	3,0	90,0	8		153
OP2.9	Electrical equipment of ATV	3,0	90,0		8	153
2.1.3	Discipline block 03 "Machines and Mechanisms of Oil and Gas Industry"	49,0	1470,0			
OP3.1	Entry into the specialty. Introductory practice	3,0	90,0		1	150
OP3.2	Information Technologies and Programming	5,0	150,0	3		150
OP3.3	Hydraulics, Hydraulic and Pneumatic Drives	6,0	180,0		3	150
OP3.4	Fundamentals of Underground Hydraulics and Filtration Theory	5,0	150,0	4		150
OP3.5	Fundamentals of the Theory of Hydraulic Machines Workflow	4,0	120,0	5		150
OP3.6	Machines and Equipment for Drilling Oil and Gas Wells, p.1	6,0	180,0	6		150
	Machines and Equipment for Drilling Oil and Gas Wells, p.2	4,0	120,0	7		150
OP3.7	Machines and Equipment for Oil and other Hydrocarbons Mining, p.1	6,0	180,0	7		150
	Machines and Equipment for Oil and other Hydrocarbons Mining, p.2	4,0	120,0	8		150
OP3.8	Hydraulic and pneumatic superchargers	3,0	90,0	8		150
OP3.9	Systems of automatic control of hydropneumatic systems	3,0	90,0		8	150
2.1.4	Discipline block 04 "Lifting-and-Shifting, Road, Building, Land-Reclamation Machines and Equipment"	49,0	1470,0			

1	2	3	4	5	6	7
OP4.1	Entry into the specialty. Introductory practice	3,0	90,0		1	149
OP4.2	Microcontrollers in lifting, transport and storage systems	6,0	180,0		3	149
OP4.3	Fundamentals of object-oriented programming	5,0	150,0	3		149
OP4.4	Design of production processes in integrated CAD / AEC CAD systems	5,0	150,0	4		149
OP4.5	Calculations and Modeling in Lifting-and-Shifting Machines (LSM)	4,0	120,0	5		149
OP4.6	Constructive elements of LSM and warehouses	6,0	180,0	6		149
OP4.7	Technology of production of LSM structures and warehouses	4,0	120,0	7		149
OP4.8	Lifting machines and technical means of logistics, p.1	6,0	180,0	7		149
	Lifting machines and technical means of logistics, p.2	4,0	120,0	8		149
OP4.9	Build-and-Road Machines (BRM)	3,0	90,0	8		149
OP4.10	Technical equipment and automation of warehouses	3,0	90,0		8	149
2.1.5	Discipline block 05 "Equipment for Food, Processing and Chemical Production"	49,0	1470,0			
OP5.1	Entry into the specialty. Introductory practice	3,0	90,0		1	154
OP5.2	Information technologies in engineering	5,0	150,0	3		154
OP5.3	Fundamentals of the Thermodynamics	6,0	180,0		3	154
OP5.4	Processes and Apparatuses of Chemical Technology, p.1	5,0	150,0	4		191
	Processes and Apparatuses of Chemical Technology, p.2	4,0	120,0	5		191
OP5.5	Technological Equipments of Chemical Production	6,0	180,0	6		154
OP5.6	Technological Equipments of Processing and Food Production	4,0	120,0	7		154
OP5.7	Installation, operation and repair of equipment	6,0	180,0	7		154
OP5.8	Calculation and design of machines and apparatuses in food, processing and chemical industries	4,0	120,0	8		154
OP5.9	Design theory of reactors and devices in food, processing and chemical industries	3,0	90,0	8		154
OP5.10	Automated control of objects and processes	3,0	90,0		8	358
2.1.8	Profiled discipline package 08 "Automated and robotic complexes in mechanical engineering."	49,0	1470,0			
OP8.1	Entry into the specialty. Introductory practice	3,0	90,0		1	146
OP8.2	Microprocessor and Software Automation	5,0	150,0		3	146
OP8.3	Computer Technologies in engineering	6,0	180,0	3		146
OP8.4	Measurement technology and instruments	5,0	150,0	4		146
OP8.5	Fundamentals of automation systems design	4,0	120,0	5		146
OP8.6	Automated metal-cutting equipment and robotic systems in mechanical engineering	6,0	180,0	6		146
OP8.7	Automated electric drive	4,0	120,0	7		146
OP8.8	Technology of automated machine-building production	6,0	180,0	7		146
OP8.9	Programming of processing on machines with numerical program control	4,0	120,0	8		146
OP8.10	CAM/CAE Systems	3,0	90,0	8		146
OP8.11	Flexible production systems	3,0	90,0		8	146
2.1.9	Discipline block 09 "Mechatronic Systems of Vehicles"	49,0	1470,0			
OP9.1	Entry into the specialty. Introductory practice	3,0	90,0		1	153
OP9.2	Fundamentals of object-oriented programming	5,0	150,0	3		153
OP9.3	Vehicle designs	6,0	180,0		3	153
OP9.4	Components of mechatronic systems, p.1	5,0	150,0	4		153
	Components of mechatronic systems, p.2	4,0	120,0	5		153
OP9.5	Special questions of vehicle theory	6,0	180,0	6		153
OP9.6	Design and Calculation of Vehicles	6,0	180,0	7		153
OP9.7	Means of microprocessor devices development for mechatronic systems, p.1	4,0	120,0	7		153
	Means of microprocessor devices development for mechatronic systems, p.2	4,0	120,0	8		153
OP9.8	Basics of Automation for Vehicles	3,0	90,0	8		153
OP9.9	Electrical Equipment of Vehicles	3,0	90,0		8	153
2.2	Optional student disciplines of the profile preparation according to the list	34,0	1020,0			36,17%
2.3	Optional student disciplines from the general university catalog of disciplines	11,0	330,0			11,7%
OD1	Discipline 1	4,0	120,0		5	
OD2	Discipline 2	3,0	90,0		6	
OD3	Discipline 3	4,0	120,0		7	
	Total for education period	240,0	7200,0			