

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	29
OP3.1	Dynamics of Hydropneumatic Systems of Oil and Gas Industry	1		CW	6,0	180,0	80,0	48,0	16,0	16,0	100,0	5,0	6,0							150
OP3.2	Pumping and Compressor Stations of Main Oil and Gas Pipelines	1		CG	6,0	180,0	96,0	64,0	32,0		84,0	6,0	6,0							150
OP3.3	Technical Equipment and Technology of Well Repair	2		CG	6,0	180,0	96,0	64,0		32,0	84,0			6,0	6,0					150
OP3.4	Improving the Efficiency of Oil and Gas Production	2	2	CP	6,0	180,0	96,0	64,0		32,0	84,0			6,0	6,0					150
2.1.4	Profiled discipline package 04 "Lifting-and-Shifting, Road, Building, Land-Reclamation Machines and Equipment"				24,0	720,0	368,0	176,0	96,0	96,0	352,0	11,0	12,0	12,0	12,0					
OP4.1	Construction and road machines	1		CG	6,0	180,0	80,0	32,0	48,0		100,0	5,0	6,0							149
OP4.2	Special cranes	1		CW	6,0	180,0	96,0	48,0	16,0	32,0	84,0	6,0	6,0							149
OP4.3	Elevators and escalators	2		CG	6,0	180,0	96,0	48,0	16,0	32,0	84,0			6,0	6,0					149
OP4.4	Continuous transport machines	2	2	CW	6,0	180,0	96,0	48,0	16,0	32,0	84,0			6,0	6,0					149
2.1.6	Profiled discipline package 06 "Equipment of chemical productions and enterprises of building materials"				24,0	720,0	368,0	224,0	48,0	96,0	352,0	11,0	12,0	12,0	12,0					
OP6.1	Methods of Ensuring the Reliable Operation of Machines and Apparatus of Chemical Production	1		C	6,0	180,0	80,0	48,0		32,0	100,0	5,0	6,0							154
OP6.2	Machines and Apparatus of Chemical Enterprises	1		CP	6,0	180,0	96,0	48,0	32,0	16,0	84,0	6,0	6,0							154
OP6.3	Special Equipment and Processes of Inorganic Chemistry		2	C	4,0	120,0	64,0	48,0		16,0	56,0			4,0	4,0					154
OP6.4	Special Equipment and Processes of Organic Chemistry	2		CP	4,0	120,0	64,0	48,0		16,0	56,0			4,0	4,0					154
OP6.5	Research Methods, Diagnostics, Monitoring of Technical Condition of Machines and Devices of Chemical Productions	2		C	4,0	120,0	64,0	32,0	16,0	16,0	56,0			4,0	4,0					154
2.1.7	Profiled discipline package 07 "Equipment for processing and food production"				24,0	720,0	368,0	208,0	48,0	112,0	352,0	11,0	12,0	12,0	12,0					
OP7.1	Methods of Ensuring the Reliable Operation of Machines and Devices of Processing and Food Production	1		C	6,0	180,0	80,0	48,0		32,0	100,0	5,0	6,0							154
OP7.2	Machines and Apparatus of Processing and Food Enterprises	1		CP	6,0	180,0	96,0	48,0	32,0	16,0	84,0	6,0	6,0							154
OP7.3	Fundamentals of Industrial Construction and Sanitary Engineering		2	C	3,0	90,0	48,0	32,0		16,0	42,0			3,0	3,0					154
OP7.4	Special Equipment for Agricultural Processing	2		CP	5,0	150,0	80,0	48,0		32,0	70,0			5,0	5,0					154
OP7.5	Research Methods, Diagnostics, Monitoring of Technical Condition of Machines and Devices of Processing and Food Productions	2		C	4,0	120,0	64,0	32,0	16,0	16,0	56,0			4,0	4,0					154
2.1.8	Profiled discipline package 08 "Automated and robotic technological complexes in mechanical engineering"				24,0	720,0	368,0	192,0	48,0	128,0	352,0	11,0	12,0	12,0	12,0					
OP8.1	Automated Process Control Systems	1		CG	6,0	180,0	80,0	48,0		32,0	100,0	5,0	6,0							146
OP8.2	Integrated Process Design Systems	1		CP	6,0	180,0	96,0	48,0	16,0	32,0	84,0	6,0	6,0							146
OP8.3	Automated Training Systems for Control Programs	2	2	CP	6,0	180,0	96,0	48,0	16,0	32,0	84,0			6,0	6,0					146
OP8.4	Progressive Methods of Materials Processing	2		CG	6,0	180,0	96,0	48,0	16,0	32,0	84,0			6,0	6,0					146
2.1.9	Profiled discipline package 09 "Mechatronic Systems of Vehicles"				24,0	720,0	368,0	192,0		176,0	352,0	11,0	12,0	12,0	12,0					

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	29			
OP9.1	Special Questions of MTWV Design and Calculation	1		CG	6,0	180,0	80,0	48,0		32,0	100,0	5,0	6,0							153			
OP9.2	Designing of Vehicles Mechatronic Systems	1		CW	6,0	180,0	96,0	48,0		48,0	84,0	6,0	6,0							153			
OP9.3	CAD Mechatronic Vehicle Systems	2	2	CP	6,0	180,0	96,0	48,0		48,0	84,0			6,0	6,0					153			
OP9.4	Special Questions of All Terrain Vehicles Design and Calculation	2		CG	6,0	180,0	96,0	48,0		48,0	84,0			6,0	6,0					153			
2.2	Optional student disciplines of the profile preparation according to the list (the list is attached)				12,0	360,0	144,0	48	48	48	216,0	3	4	6	8					140			
Total for education period					90,0	2700,0	832,0	272,0	128,0	208,0	1868,0	26,0	30,0	26,0	30,0		30,0						
Hours per week												26,0		26,0									
Number of exams												3(+1)		3(+2)									
Number of tests												3		3		1							
Number of course projects (works)												1		1									
Numbers of disciplines per semester												7,0		8,0									

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 №4 from 27 of April 2022

Vice-rector of Scientific-and-Pedagogical Work

Signature Full name **Gennadiy KHRYPUNOV**

Head of the educational program Sectoral engineering

Signature Full name **Oleksii REBROV**

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

Signature Full name **Vitalii IEPIFANOV**

Head of the Department of Information Technologies and Systems of Wheeled and Tracked Vehicles named after O.O.Morozov
name of department

Signature Full name **Dmytro VOLONTSEVYCH**

Head of the Department of Automotive and Tractor Engineering
name of department

Signature Full name **Oleksii REBROV**

Head of the Department Lifting and transport machines and equipment
name of department

Signature Full name **Valentyn KOVALENKO**

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

Signature Full name **Andrii ROGOVYI**

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

Signature Full name **Oleksandr PERMYAKOV**

Head of the Department of Chemical engineering and industrial ecology
name of department

Signature Full name **Oleksii SHESTOPALOV**

List of optional student disciplines of the profile training

Number in order	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	1 course				2 course					
							Total	including			Semesters		Semesters							
		Lectures	Laboratory works	Practical studies				1	2		3	4	Number of weeks in the semester							
		20		20		20		16												
		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	29
2.2	Optional student disciplines of the profile																			
OPT1	Test Methods and Certification Basics	1		R	4,0	120,0	48,0	32,0	16,0		72,0	3,0	4,0							152
OPT2	Ergonomics and Habitability of All Terrain Vehicles (ATV)		1	R	4,0	120,0	48,0	48,0			72,0	3,0	4,0							153
OPT3	Hydropneumatic automation of oil and gas equipment		1	CG	4,0	120,0	48,0	32,0		16,0	72,0	3,0	4,0							150
OPT4	WMS. Warehouse management system		1	CG	4,0	120,0	48,0	16,0	32,0		72,0	3,0	4,0							149
OPT5	Technological Complexes of Enterprises Building Materials, Products and Constructions		1	C	4,0	120,0	48,0	32,0		16,0	72,0	3,0	4,0							154
OPT6	Biochemical and Microbiological Bases of Food and Fermentation Technology		1	C	4,0	120,0	48,0	32,0	16,0		72,0	3,0	4,0							154
OPT7	Devices and Systems of Machine Automation		1	R	4,0	120,0	48,0	32,0		16,0	72,0	3,0	4,0							146
OPT8	Manufacturability of Self-propelled Machines		2	R	4,0	120,0	48,0	32,0		16,0	72,0			3,0	4,0					152
OPT9	Prospects for the Development of Self-propelled Vehicles	2		C	4,0	120,0	48,0	32,0		16,0	72,0			3,0	4,0					152
OPT10	Automatic Adjustment in ATV	2			4,0	120,0	48,0	16,0	32,0		72,0			3,0	4,0					153
OPT11	Special Systems of ATV		2		4,0	120,0	48,0	32,0		16,0	72,0			3,0	4,0					153
OPT12	Modeling of non-Newtonian fluid flow		2	CG	4,0	120,0	48,0	32,0	16,0		72,0			3,0	4,0					150
OPT13	Design of volumetric hydraulic machines and hydraulic drives of oil and gas fields	2		CG	4,0	120,0	48,0	32,0		16,0	72,0			3,0	4,0					150
OPT14	Information and control systems		2	R	4,0	120,0	48,0	16,0	32,0		72,0			3,0	4,0					149
OPT15	Cable cranes and cable cars	2		CG	4,0	120,0	48,0	32,0	16,0		72,0			3,0	4,0					149
OPT16	Maintenance of Technological Equipment of Chemical Productions	2		C	4,0	120,0	48,0	32,0		16,0	72,0			3,0	4,0					154
OPT17	Energy and Resource Saving in Chemical Technology	2		C	4,0	120,0	48,0	32,0		16,0	72,0			3,0	4,0					154
OPT18	Certification of Equipment and Food Products	2		C	4,0	120,0	48,0	32,0		16,0	72,0			3,0	4,0					154
OPT19	Refrigeration Equipment and Food Storage Technologies	2		C	4,0	120,0	48,0	32,0		16,0	72,0			3,0	4,0					154
OPT20	Special Energy Efficient Technologies	2		C	4,0	120,0	48,0	32,0		16,0	72,0			3,0	4,0					146
OPT21	Electrical Measuring Equipment	2		C	4,0	120,0	48,0	32,0	16,0		72,0			3,0	4,0					146
OPT22	Theory of Automatic Control	2		C	4,0	120,0	48,0	16,0	32,0		72,0			3,0	4,0					153
OPT23	Monitoring and Telemetry of Mechatronic Systems	2		C	4,0	120,0	48,0	32,0		16,0	72,0			3,0	4,0					153