Institute of Mechanical Engineering, Materials Science & Transport

Specialist Program: Ground transportation vehicles

Field of Studies: "Lifting, construction and road equipment and machinery"

Years of studies: 5

Language of instruction: Russian

№	Subject	Hours	Credits
	Compulsory courses Block1		
	Block 1 Disciplines (modules)		
1	**Basic part**		
1.1	History	108	3
1.2	Philosophy	/252	/7
1.3	Foreign language	/288	/8
1.4	Economic Theory***	108	3
1.5	Mathematics	/432	/12
1.6	Physics	/360	/10
1.7	Computer Science	144	4
1.8	Chemistry	108	3
1.9	Rule of Law and Modernity	108	3
1.10	Theoretical Mechanics	/252	/7
1.11	Life Safety	108	3
1.12	Materials Science	72	2
1.13	Technology of structural materials	144	4
1.14	Engineering Graphics (drafting)	144	4
1.15	Descriptive geometry and computer graphics	116	/6
1.16	Mechanism and Machine Theory	144	4
1.17	Strength of materials	216	6
1.18	Machine parts and basic design	/216	/6
1.19	Hydraulics and hydropneumatic drive	144	4
1.20	Thermodynamics and heat transfer	108	3
1.21	Metrology, Standardization and Certification	108	3
1.22	Electrical Engineering, Electronics and Electric Propulsion	108	3
1.23	Physical Education and Sports	72	2
1.24	Disciplines (modules) of	2800	80

	specialization No. 1 - "Hoisting - transport, building, road facilities and equipment		
1.25	Construction and protective-finishing materials	108	3
1.26	Operational materials	72	2
1.27	Basics of scientific research	108	3
1.28	Reliability of mechanical systems	108	3
1.29	Automated design systems for lifting-transport, construction, road facilities and equipment	108	3
1.30	Designs of lifting-transport, construction, road facilities and equipment	108	3
1.31	Hoisting machines and equipment	144	4
1.32	Continuous transport machinery and equipment	144	4
1.33	Construction and road building machinery and equipment	180	5
1.34	Structural mechanics and metal structures of handling and road-building machinery	108	3
1.35	Energy installations of lifting-transporting, building and road building machinery and equipment	72	2
1.36	Electrical equipment for lifting, building and road building machinery and equipment	180	5
1.37	Production technology of lifting-transport, building and road facilities and equipment	144	4
1.38	Operation of hoisting and handling, construction, road facilities and equipment	108	3
1.39	Designing of lifting-transport, building and road facilities and equipment.	252	7
1.40	Introduction to specialisation	72	2
1.41	Production organisation and planning	108	3
1.42	Hydraulic drive of land vehicles	108	3

1.43	Repair and recycling of lifting-transport, building and road facilities and equipment	108	3
1.44	Dynamics of lifting-transport, building and road facilities and equipment	180	5
1.45	Testing of hoisting and handling, construction and road facilities and equipment	72	2
1.46	Computer aided design	180	5
1.47	Transport technological means for construction, repair and maintenance of roads	108	3
	TOTAL on basic part	7020	195
	Variative part	756	21
2.1	History of Science and Engineering	72	2
2.2	Applied vibration theory: theory of construction vibration engineering	180	5
2.3	Technical fundamentals of machine building	180	5
2.4	Control systems for technological machines	108	3
2.5	Optimising the organisation of building and road construction machine fleets	144	4
2.6	3D modelling and foundation of CAD	72	2
	Elective courses	1084	21
3.1	Fundamentals of transport machine design	144	4
3.2	Industrial safety	/144	4
3.3	Military training	/144	4
3.4	Constructional mechanization	144	4
3.5	Integrated mechanization of loading and unloading operations	/144	4
3.6	Military Training	/144	4
3.7	Running gear for lifting, building and road building equipment	180	5
3.8	Organization of service maintenance of lifting-transporting, construction, road facilities and equipment	/180	5

3.9	Construction, road building machinery working processes and automation	180	5
3.10	Conveying and lifting manipulators and robots	/180	5
3.11	Technological facilities for building products	108	3
3.12	Maintenance of hydraulic equipment for lifting, construction and road building machinery and equipment	108	3
3.13	Military training	/108	
3.14	Playing sports	/328	
3.15	Wellness physical culture	/328	
	Total for variative unit		
	Total for Block C.1		
	Block 2 Practices, including research work		
	Compulsory part of Block 2	216	6
	Educational (orientation) internship		
	Varianative part of Block 2	1512	42
	Educational (industrial-technological) practice	216	6
	Professional (operational) internship	216	6
	Operational (design) internship	216	6
	Industrial (pre-diploma) internship	648	18
	Research work	216	6
	Block C.3 State Final		
	Examination	540	15
	TOTAL for the speciality	11128	300
	Elective courses	252	
	Mobile hydraulic systems diagnostics and repair	72	
	Metal Structures of Lifting Machines and Equipment: Technical Inspection and Repair	72	