

GRADUATE MODEL

6B11301 “Organization of transportation, traffic and operation of transport”

1 Description of OP –educational program 6B11301 “Organization of transportation, traffic and operation of transport” was developed on the basis of the following regulatory documents:

Law of the Republic of Kazakhstan “On Education” dated July 27, 2007 No. 319-III ZRK, with amendments and additions dated March 31, 2021 No. 24-VII.

Model rules for the activities of educational organizations of relevant types (Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 30, 2018 No. 595, with amendments and additions dated December 24, 2020 No. 539).

State compulsory education standards (SCES) corresponding to all levels of education (Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 31, 2018 No. 604, with amendments and additions dated May 5, 2020 No. 182).

Rules for organizing the educational process on credit technology of education (Order of the Minister of Education and Science of the Republic of Kazakhstan dated April 20, 2011 No. 152, as amended and supplemented dated October 12, 2018 No. 563).

Industry framework of qualifications in the direction of “Railway Transport” (Minutes of the meeting of the industry commission on social partnership and regulation of social and labor relations in the field of railway transport of the Ministry of Internal Affairs of the Republic of Kazakhstan on approval of the project were approved “Industry qualification framework in the field of railway transport”, No. 1, 06.27.2019; Association of legal entities “Union of Transport and Logistics Organizations and Associations “Kazlogistics” (Union of Transport Workers of Kazakhstan).

Professional standard “Transport and forwarding services” (Order of the Deputy Chairman of the Board of the National Chamber of Entrepreneurs of the Republic of Kazakhstan “Atameken” No. 239 dated 09/06/2018).

Qualification reference book for positions of managers, specialists and other employees, approved by order of the Minister of Labor and Social Protection of the Population of the Republic of Kazakhstan dated December 30, 2020 No. 553.

A modular educational program is a comprehensive document that defines the goals, objectives and results of education, the structure and content of working curricula and programs, methods and methods for their implementation, educational, methodological and resource support for the educational process and criteria for assessing the educational achievements of students.

2 Objectives of the Educational Program:The purpose of the EP is to train specialists for organizing transportation and operating transport

3 Objectives of the Educational Program:

- implement in practice the democratic principles of educational management process,expand academic freedom and opportunities in higher education institutions;
- ensure adaptation of higher education in the specialty and scientific research to the changing needs of society and the achievements of scientific thought;
- ensure recognition of the level of training of specialists in other countries;
- ensure higher mobility of graduates in changing labor market conditions

4 Areas of professional activity

The sphere of professional activity of graduates is the sphere of material production, which includes a set of means, methods and methods of human activity aimed at solving complex problems related to the organization of traffic in transport, modeling and design of vehicle traffic, the study of processes and patterns of organizing operational work on the basis of modern management and marketing; improving the process of transportation and interaction between modes of transport based on logistics principles, as well as research activities aimed at increasing the efficiency of using transport in a market economy.

5 Objects of professional activity

The objects of professional activity of graduates are enterprises and departments of transport, regional transport authorities and state transport inspections, freight forwarding enterprises and organizations.

6 Subjects of professional activity

The subjects of professional activity of graduates are technical devices and structures of transport enterprises, technological processes of their work, industrial enterprises and organizations - users of transport services; warehousing and auxiliary transport activities, auxiliary activities during transportation, other auxiliary services during transportation, freight forwarding services.

7 Types of professional activities

“Bachelor in the field of services” in the educational program 6B11301 – “Organization of transportation, traffic and operation of transport” can perform the following types of professional activities:

- organizational and technological activities: organization of work on the design of management methods; ensuring safety in various conditions; organizing the work of a team of performers, taking into account different opinions and making management decisions; compromise solutions taking into account various requirements (cost, quality, deadlines and safety) for different types of planning and determining optimal solutions; operation of vehicles and systems;

- production and management activities: assessment of production and non-production costs to ensure traffic safety; assessment of production and non-production costs for the development of transport and technological systems for the delivery of cargo, passengers, luggage, mail and monitoring their operation; quality control of technological processes, materials and finished products; metrological verification of means for measuring product quality indicators; carrying out measures for standardization and certification of reloading machines and equipment, technologies for their manufacture and repair.

- calculation and design activities: development of plans for the development of transport enterprises, traffic management systems; determining the goals and objectives of the project, taking into account various factors when building the structure of their relationships and identifying priority areas for solving problems; development and analysis of options for solving problems, predicting consequences, planning and implementation of projects; development of designs for machines and equipment, taking into account technological, design, aesthetic, economic and

other parameters; use of information technology in the selection of materials, transport equipment and equipment;
- service and operational: development and implementation of technology for providing services for the registration of transportation of goods, cargo luggage, passengers; provision of advertising and information activities on transport; proper maintenance of technical devices and structures in transport to ensure the safety of the transportation process.

8 Functions of professional activity

The main functions of graduates' professional activities are: organization, management and logistics; marketing and industry management; design; service and operation.

9 Areas of professional activity

Areas of professional activity include:

- development of measures to improve logistics management systems in transport;
- selection and effective use of transport equipment, equipment and other means for the implementation of production processes;
- forming the project goal, solving transport problems, criteria and indicators for achieving the goal, building the structure of their relationships;
- organization and effective implementation of various transport and technological systems for the delivery of goods and passengers, luggage and mail based on the application of modern methods of marketing and management;
- performance or organization of performance of services specified in the forwarding agreement related to the transportation of goods by one or more modes of transport.

10 General and professional competencies

10.1 General competencies:

- Apply the basic provisions of the Constitution and legislation of the Republic of Kazakhstan, interaction mechanism substantive and procedural law in public relations and professional activities in the field of anti-corruption;

- Perform calculations when designing/organizing production processes;
- Organize the production process, understanding physical and chemical processes;
- Carry out analysis, planning and conduct of business activities of economic entities;
- Possess cognitive linguistic and cultural complexes for solving professional problems;
- Develop design documentation for the design of technical objects;
- Count on the strength, stability, reliability of mechanisms and machines, equipment and structures during design and operation.

10.2 Basic competencies:

- Carry out organizational and technological activities in railway and industrial transport;
- Carry out production and management activities in railway and industrial transport;
- Perform calculation and design activities on railway and industrial transport;
- Carry out service and operational activities on railways
industrialtransport.

10.3 Professional competencies:

- Carry out organizational and technological activities in railway and industrial transport;
- Carry out production and management activities in railway and industrial transport;
- Perform calculation and design activities on railway and industrial transport;
- Carry out service and operational activities on railways
industrialtransport.

11 Matrix for correlating learning outcomes in the educational program as a whole with the competencies being developed

CodeQC	Key competencies	Learning Outcomes (LO)							
		RO 1	RO 2	RO 3	RO 4	RO 5	RO 6	RO 7	RO 8
QC 1	<p>Apply basic provisions Constitution and legislation RK, mechanism interaction material and procedural rights in public relationships and professional activities in the field counteraction corruption</p>	<p>Orients in operation legislation Weszelju implementation protection of rights and legal interests personalities; assistance maintaining law and order in society; solutions practical tasks in social legal sphere And professional Noah activities</p>	<p>Understands the role anti-corruption ny culture personalities, corruption behavior, legal and ethical responsibility for corruptdeeds</p>	<p>Analyzes events actions with points of view legal regulation</p>	<p>Work with sources rights, regulate current questions, Related professional ny activities</p>	<p>Guided in your activities rights responsibilities both man and citizen, fixed ive Kazakh And international ohm legislation you</p>	<p>It has formed wow civil position on towards corruption as negative social phenomenon threatening national security states</p>	<p>Reveals Problems, emerging V everyday activities, Related rights corrupt mi delinquentiyam i</p>	<p>Apply basic provisions Constitution RK, provisions current legislation va of Kazakhstan, mechanism interaction I am material And procedurally government rights public relationships and professional Noah activities in sphere countering corruption</p>
QC 2	<p>Make calculations during design/ organizations production processes</p>	<p>Produces mathematically th calculation at development design th/</p>	<p>Picks up suitable no professional Noah activities</p>	<p>Produces practical recommendations based carried out mathematically</p>	<p>Selects methods mathematically th modeling I'm here for the solution</p>	<p>Uses methods mathematical oh statistics for processing materials</p>	<p>Attracts to identify natural scientific essence problems,</p>	<p>Applies basic theoretical provisions mathematicians when deciding</p>	<p>Owens basic techniques and mathematically by our methods, giving</p>

		technologically th documentation	mathematically methods algorithms problem solving	th analysis	specific professional nal tasks	research	emerging at the entrance professional Noah activities, and their solutions suitable	engineering task-oriented practice	opportunity realize solution wide class of problems scientific researcher
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							th mathematical h apparatus		whom, applied character
QC 3	Organize industrial process, understanding physico-chemical processes	Applies laws of physics and chemistry at decision applied challenges in the industry	Applies modern physical measuring devices, realizing essence physical chemical processes, flowing in them	Selects optimal modes work production nogo equipment given parameters	Implements control for exploitation technologically Wow equipment, devices, understanding happening wherein physical chemical processes	Analyzes happening physical chemical processes in production this cycle	Choose applies suitable and methods modeling physical, chemical and technologically their processes	Combines theories practice for solutions engineering tasks	Own: skills applications laws fundamental oiphysics, chemistry physical chemical devices for problem solving professional Noah activities
QC 4	Realize analysis, planning and management entrepreneurially th activities business owners subjects	Implements calculation of technical economic indicators activities business owners subjects	Analyzes state funds production, necessary For implementation professional Noah activities	Implements organizational O- economically yui material preparation production	Calculates economically Yu efficiency b production Noah activities	Finds / generates commercially promising e scientifically technical ideas with a purpose their commercialization	Conducts research market and its segmented for the purpose identifying commercially promising niche for implementation goods services	Evaluates efficiency b capital investment Yeni possible risks implementation innovative x projects	Develops business models followed by their transformation ivbusiness- plans
QC 5	Own cognitive linguoculturological European complexes for solutions professional tasks	Lines up yours verbal and nonverbal behavior public, professional noah and	Applies various linguistic speech facilities adequately social factors	Right intonationally draws up speech professional nogo communicative nogakta,	Perceives aurally I comply next level messages business, informational feet	Logically builds separate statements in order to semantic professional ny	Analyzes informational y sources, necessary For execution communication these tasks	Follower but states thoughts, reasoning, information when writing letters official,	Implements speech activities in According to tasks communications, speech situation,

		scientific areas communication	situations professional of a special nature	relying on lexical terminologically skuyu adequacy And grammatically Yu	professional nogo character	communication And	professional Noah activities	professional nogo character	personal features as a partner representative another cultures character flow
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				correctness					communication
QC 6	Develop design documentation during design technical objects	Applies laws and technical objects to make their images	Solves metric and positional tasks. For drawing up a projection drawing	Defines geometrically forms by their images at decision design of their tasks	Develops a package of design documents for the manufacture of the product	Performs blueprints parts, assembly units, complexes and kits	Reads drawings of parts, assembly units, complexes and kits	Uses information and reference materials, regulatory documents, standards for development design documents	Uses IT – technologies when developing design documents
QC 7	Count on the strength, stability, reliability of mechanisms and machines, equipment and structure during design and operation	Draws up conditions of equilibrium. And technical movements of objects and their interaction by the action of forces	Defines kinematically and dynamic characteristics of mechanisms and cars	Draws up calculation schemes for real cars. And designs	Applies reference normative and technical documentation	Uses modern computing methods for carrying out object calculations designed	Defines experimental data necessary for rate strength and reliability of mechanisms	Applies criteria for performance of parts and machine components. For calculation, designed and I	Makes up reporting design documentation. And operation objects
QC 8	Carry out organizational and technological activities on railway and industrial transport	Organize work on designing methods for managing transport and intelligent systems	Develops activities for ensuring work safety in various conditions of the transport process	Organizes events for ensuring the safety of the transportation process using innovative and intelligent systems	Organizes the work of a team of performers railway and industrial enterprises	Makes management decisions on organizing transportation movement and operation of transport	Develops compromise solutions taking into account various requirements: cost, quality, deadlines and safety of work on transport	Carries out development and makes decisions for different types of planning and determining optimal solutions with changes in information flows on transport	Organizes the operation of vehicles and intelligent systems
QC 9	Carry out production and management activities at railway and industrial transport	Evaluates production and non-production costs to ensure security movement	Estimates production and non-production development costs transport and technological	Estimates the costs of developing transport and technological systems delivery of passengers and cargo	Develops transport and technological systems delivery of industrial goods, passengers and cargo luggage	Implements control for delivery of industrial cargo, passengers and cargo luggage	Carries out quality control of technological processes, materials and finished products	Performs metrological verification of quality indicator measuring instruments products	Carries out activities for standardization and certification of reloading machines and equipment,

				luggage					
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			x delivery systems industrialcargo						technologies for their manufacture and repair
QC 10	Perform calculation and design activities in railway and industrial transport	Develops plans for the development of transport enterprises	Implementsdet ermination of goals and objectives of the calculation and design transport activities	Developsorgan ization systems traffic in enterprises	Develops the structure of projects, their relationships and identifies priority areas for solving problems	Implementsdev elopment and analysis of options for solving transport problems	Implementspla nning and implementatio n of projects for railway and industrial transport	Developsmachi ne projects and equipment taking into account technological, design, aesthetic, economic x and other parameters	Selects materials for transport equipment and equipment using information technology
QC ele ven	Carry out service and operational activities in railway and industrial transport	Providing services for registration of transportation of industrial goods using information services	Providing services for registration of transportation of passengers and cargo luggage on railway transport using information s technologies	Organizes operational maintenance of technical devices and structures in transport	Ensures the safety of the transportation process in transport	Providessafety of transportation of passengers and cargo luggage railway transport	Organizes service and maintenance work with access roads	Organizes information and service work with passengers on railway transport	Provides advertising and information transport activities

12 Information about disciplines

No.	Namediscipline s	Brief description of the discipline	Number of credits	Formed competencies (codes)
OOD – General education disciplines			56	
OK 1.1 Required component			51	
General Education Module 1			38	
1	Modern history of Kazakhstan	<p>The discipline provides objective historical knowledge about the main stages of the history of modern Kazakhstan, allows students to form a scientific worldview and civic position.</p> <p>Contains sections: the period of civil and political confrontation in Kazakhstan; implementation of the Soviet model of state building; contradictions and consequences of Soviet reforms in Kazakhstan in the second half of the twentieth century; history of the second half of the 20th - early 21st centuries.</p> <p>The course is aimed at developing in students a general worldview about the history of Kazakhstan, the role of history and historical science in the context of certain historical stages.</p>	5	KK1
2	Philosophy	<p>The purpose of the discipline is to form a philosophical culture and rational thinking of a future specialist, a correct understanding of the essence of modern ideological problems, their sources and theoretical solutions, as well as the principles and ideals that determine the goals, means and nature of people's activities.</p> <p>Main sections: the place and role of philosophy in the life of society and man; stages of development of world and Kazakh philosophy; problems of philosophy; philosophical theories and methods, problems of modern domestic and world philosophy</p> <p>Studying the course develops a specialist's ability to conduct discussions on philosophical questions, apply the acquired knowledge in life situations and in the analysis of social phenomena.</p>	5	KK1
3	Foreign language	<p>The goal of the discipline is to increase the level of proficiency in a foreign language, and mastery of the level of communicative competence to solve social and communicative problems in various fields of everyday life, cultural, professional and scientific.</p> <p>The content of the program is aimed at developing intercultural communicative competence in the process of foreign language vocational education at the level of basic sufficiency and at the level of basic standardization.</p> <p>The subject content of the discipline is presented in the form of cognitive-linguocultural complexes, consisting of communicative spheres, speech topics and typical situations of professional communication.</p>	10	KK5

4	Kazakh (Russian) language	<p>Training in the discipline “Kazakh language” is aimed at improving language, speech, and communicative competencies. The objectives of the training are to improve the language abilities of students, develop skills in four types of speech activities (speaking, listening, reading, writing). The content of the discipline is aimed at enhancing and systematizing knowledge of the Russian language in relation to the socio-political, socio-cultural and professional spheres, and teaching the stylistic norms of the Russian language.</p> <p>Training in the Russian Language discipline is aimed at improving language, speech, and communicative competencies. The objectives of the training are to improve the language abilities of students, develop skills in four types of speech activities (speaking, listening, reading, writing). The content of the discipline is aimed at activating and systematizing knowledge of the Russian language in relation to the socio-political, socio-cultural and professional spheres, for teaching the stylistic norms of the Russian language.</p>	10	<p>KK5</p> <p>KK5</p>
5	Information and communication technologies	<p>Considers questions about the role of ICT in key sectors of social development and standards in the field of ICT, prospects for the development of ICT. Studies the architecture of computer systems, operating systems, networks and telecommunications. Studies the basics and methods of using Internet technologies, cloud and mobile technologies, multimedia technologies, Smart technologies and e-technologies. Understand how to implement and solve problems based on choosing the most acceptable modern information and communication technologies</p>	5	KK2
6	<p>Module of socio-political knowledge Sociology</p> <p>Political science</p> <p>Cultural studies</p>	<p>Gives an idea of society as a social system, of social structure and social stratification, of socialization and social and personal identity, of deviation, social control and social sanctions, of social institutions and their functioning in modern societies, of social development and social change, of methodology and methods of sociological research of society. Interpret subject knowledge (concepts, ideas, theories); use scientific methods and research techniques; explain the nature of situations in various areas of social communication; carry out research activities; analyze various situations in terms of correlation with the value system.</p> <p>Gives an idea of the nature of politics, its main categories, political power, the political system of society, its main institutions, political regimes, types of electoral systems, political culture and forms of political behavior, political ideology and political consciousness, political development and political modernization, and the nature of political leadership, about world politics and international relations in the context of globalization</p> <p>Gives an idea of the phenomenon of culture, the importance of cultural knowledge in the life of modern society, the history of the formation of world culture and civilization, the formation of basic cultural concepts, problems of the development of modern culture, domestic culture, its place in the system of world culture and civilization.</p>	8	KK1

7	Physical Culture	Physical culture is an essential component of holistic personal development. One of the important social functions of physical education in the process of teaching students is the focus on the formation of physical fitness of the student's personality and the ability to use a variety of means of physical culture, sports and tourism to preserve and strengthen health, psychophysical preparation and self-preparation for the student's future professional activity. During the training process, all students are divided according to health status into basic, preparatory, special (physical therapy) and sports group	8	
CC1.1 University component			5	
General Education Module 2			5	
8	Fundamentals of Law Module, Ecology, Fundamentals of Anti-Corruption Culture	The module is the foundation of the legal culture of engineering and technical activities of graduates. Includes studying the discipline of the foundations of law, the foundations of anti-corruption culture and ecology. The course is aimed at studying the basic provisions of the Constitution and legislation of the Republic of Kazakhstan, as well as the mechanism of interaction between substantive and procedural law in professional activities in the field of anti-corruption and the principles of rational environmental management.	5	KK1
DB – Basic disciplines			112	
CC2.1 University component			56	
Natural Sciences Module			16	
9	Mathematics	The discipline forms the basis of theoretical training for bachelors and is the foundation of engineering and technical training and training of specialists The course contains sections: elements of analytical geometry, differential and integral calculus, differential equations, series, elements of probability theory. The study of mathematics is aimed at developing knowledge and practical skills of modern mathematics in general, as a logically coherent system of theoretical knowledge.	6	KK2 + KK10
10	Physics	The discipline forms the basis of theoretical training for bachelors and is the foundation of engineering and technical activities of graduates. The course is presented in sections: mechanics, molecular physics and thermodynamics, electricity and magnetism, optics, quantum physics, atomic nucleus and elementary particles. The course is aimed at developing students' physical worldview as the basis for general and natural scientific thinking.	5	KK3
eleven	Educational practice	The discipline aims to: familiarize students with the areas of activity of the enterprise, types, functions and tasks of future professional activity. The course is presented in sections: introduction to rolling stock of various types of transport; safety, health and environmental issues. The course is focused on applying the acquired knowledge in solving specific problems in the field of transportation organization	5	KK8
Module Professional languages and entrepreneurship			22	
12	Basics of Economics	Discipline will teach about The goal is to form a system of knowledge among students	5	KK4

		<p>economic patterns of development of society and problems of its effective functioning. The course is presented in sections:</p> <ol style="list-style-type: none"> 1. The main problems of economic development of society; 2. The mechanism of functioning of a modern market economy; 3. Problems of the national economy; 4. World economy and international economic relations. 		
13	Engineering entrepreneurship, marketing and business planning	<p>The discipline provides the formation of basic knowledge and practical skills for carrying out entrepreneurial activities, conducting marketing research, and developing a business plan for an innovative project.</p> <p>The course is aimed at mastering the technique of generating business ideas and their commercialization, approaches to market segmentation and product positioning, methods for assessing the effectiveness of capital investments and possible risks of project implementation, skills for presenting a business plan for an innovative project</p>	6	KK4
14	Professionally oriented Kazakh (Russian)/foreign language	<p>Training in the discipline “Professionally-oriented Kazakh language” is aimed at mastering basic general scientific terminology, terms by specialties to the extent of the lexical minimum, and also knowledge of the types of communicative organization of scientific texts representing the main topics. The content of the discipline presupposes mastery of the ability to implement transformation of ways of expressing typical values; to form knowledge of the rules for including syntactic units in a communicative act.</p> <p>Training in the discipline “Professionally Oriented Russian Language” is aimed at mastering basic general scientific terminology, specialty terms to the extent of the lexical minimum, as well as knowledge of the types of communicative organization of scientific texts that represent the main topics.</p> <p>The content of the discipline involves mastering the skills to transform the ways of expressing standard meanings; to form knowledge of the rules for including syntactic units in a communicative act.</p> <p>Training in the discipline “Professionally Oriented Foreign Language” of the course is focused on developing students’ ability to communicate in a foreign language in specific professional, business, scientific fields and situations, taking into account the characteristics of professional thinking.</p> <p>The subject content of the discipline is presented in the form of cognitive-linguocultural complexes, consisting of spheres, topics, subtopics and typical situations of professional communication.</p> <p>The discipline is studied in integration with special disciplines in order to acquire special skills based on professional and linguistic knowledge.</p>	5	KK5 KK5 KK5
15	Production practice 1	<p>The discipline aims to: consolidate and deepen theoretical knowledge and study the production structure of the enterprise.</p> <p>The course is presented in sections: regulations on the railway station; TPA and local instructions for the reception and departure of trains; technological process of the station.</p> <p>The course is focused on developing measures to ensure safety in various conditions and at various stages of the transport process.</p>	6	KK8

	Module Professionally oriented		19	
16	applied mechanics	Discipline is partly theoretical training of bachelors and is the foundation of engineering and technical activities of graduates. The course is presented in sections: theoretical mechanics, strength of materials, machine parts, theory of mechanisms and machines The course is aimed at developing fundamental skills in students knowledge necessary to understand mechanical phenomena and scientific principles of research and design	6	KK6
17	General transport course	The discipline aims to familiarize students with the basics of their future profession. The course involves the study of various types of transport: railway, road, sea, inland waterway, air, pipeline, industrial, urban, specialized and non-traditional. The course is aimed at developing students' knowledge in the field of transport and intelligent transport systems	5	KK8 + KK11
18	Rules of technical operation and security transport	The discipline aims to study regulatory documents regulating the operational work of railway transport and study the fundamentals of organizing safe work. The discipline includes the following sections: railway structures - track, locomotive and carriage, station, power supply; fundamentals of safety of the transportation process. The course is focused on the procedure for classifying permissible traffic safety violations, requirements and standards of technical regulations.	8	KK6+ KK8
	KV2.2 Component of choice		56	
	Module Basic		20	
19	Engineering graphics // Descriptive geometry	Discipline is the foundation technical training bachelors and is the foundation of engineering and technical activities. The course is presented in sections: general information about performing graphic work, descriptive geometry, basics of technical drawing. The course study is focused on developing students' skills spatial thinking, acquisition of theoretical knowledge and practical skills in reading and writing design documents.	5	KK6
20	Electrical engineering and electronics fundamentals // Basics of electrical systems	The discipline ensures the formation of the student's basic knowledge necessary for his activities in the field of electrical systems. Studies electrical and magnetic circuits, direct and alternating current circuits, three-phase circuits, transformers, electrical machines, electrical measuring instruments, as well as electronics elements and devices. Forms the necessary knowledge of basic electrical laws and methods of analysis of electrical, magnetic and electronic circuits; basics of electrical safety	5	KK11
21	Metrology, standardization and quality management // Standardization, certification and technical measurements	The discipline forms the basis of theoretical training for bachelors and is the foundation of engineering and technical activities of graduates. The course is presented in sections: Metrology, standardization and quality management. The course is aimed at developing a theoretical basis for students to improve their skills in solving a range of quality problems in mechanical engineering. Basics of interchangeability and technical parameters,	5	KK6+KK9

		standardization and quality management.		
22	The engineering geodesy // Applied geodesy	The discipline studies the organization of topographic and geodetic work to create a geodetic and survey justification. The course includes sections: shapes and dimensions of the earth, methods of geodetic measurements, as-built surveys based on the results of construction of objects, removal of design data on the ground using electronic geodetic instruments and GNSS technologies. The objective of the discipline is to prepare students for production, technical and design activities.	5	KK4+KK10
Transport Process Maintenance Module			20	
23	Unified transport system // Interaction of modes of transport	The discipline forms the basis of training and is the foundation of knowledge in the transport specialty. The course is presented in sections: General characteristics of transport; Main indicators of transport performance; Types and physical and mechanical properties of cargo; Comprehensive theory of technical operation of transport. Studying the discipline will prepare you for scientific and practical activities in the field of vehicles and a unified intelligent transport system. The discipline forms the basis of training and is the foundation of knowledge in the transport specialty. The course is presented in sections: interaction of modes of transport in a unified intelligent transport system; classification characteristics; physical basis of machine failures; assessment of quality and technical level. Studying the discipline will prepare you for scientific and practical activities in the field of vehicles and a unified intelligent transport system.	5	KK8+KK9 KK8+KK9
24	Transport logistics // Fundamentals of transport and forwarding service	The discipline examines issues of practical implementation of logistics management, problems of organizing logistics services at an enterprise. The course is presented in sections: transport process and its elements; Transport logistics support. Foreign experience in the development of logistics systems using intelligent transport systems. The objective of the discipline is to calculate the cost of transportation based on available data, using intelligent transport systems. The discipline consists of providing the necessary general transport training for engineers to manage transportation processes. The course is presented in sections: the importance of freight forwarding services in the transport process; regulatory framework for transport and forwarding services; Documentation of cargo delivery using electronic document management. The objective of the discipline is to understand the basic principles of organization and management of the transportation process, the use of basic programs of electronic document of turnover.	5	KK8+KK9 KK8+KK9
25	Technological processes of loading unloading operations and warehouse	The discipline forms the basis of theoretical training for bachelors and is the foundation for graduates of our specialty. The main direction of the course is focused on the following sections of the transport and cargo system, advanced technologies and scientific organization of loading and	5	KK10+KK11

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	transport // Integrated mechanization and automation of cargo operations	unloading works. The discipline is studied in integration with special disciplines in order to acquire special skills based on professional knowledge and their importance in the transportation process. The discipline forms the basis of theoretical training for bachelors and is the foundation for graduates of our specialty. The course study covers the sections of automation and mechanization with the use of modern technologies in warehousing, machine control and the acquisition of new design skills. The discipline is studied in integration with special disciplines in order to acquiring special skills related to the work of automated warehouses.		KK10+KK11
26	Basics of calculation of technological processes for railway transport // Fundamentals for assessing the effectiveness of technological schemes in industrial transport	The discipline aims to study the technological schemes of transport of industrial enterprises. The course is presented in sections: technological diagrams of main types of transport industrial enterprises: mining, metallurgical, mechanical engineering; methodology for calculating technical and economic indicators of modes of transport used in technological schemes of the transport process. The discipline is devoted to the study of methods for calculating technical and economic indicators of transport processes. The course includes the following sections: basics of choosing a mode of transport; calculation of technical indicators of the main types of transport; methodology for calculating capital costs for organizing the transportation process by mode of transport; methodology for calculating operating costs by mode of transport; type selection technique transport by comparison of technical and economic indicators.	5	KK9+KK10 KK9+KK10
Module Preparing the transport process			16	
27	Construction and operation of the track // Operation of access roads	The discipline forms students' ideas about the railway track from the condition on which the continuity and safety of train traffic depends. The course is presented in sections: upper and lower structures of railway tracks; basics of railway operation; monitoring the condition of railway tracks. The study of the course is focused on developing students' knowledge in the field of design and operation of the track. The discipline develops students' understanding of access roads as a complex engineering structure depending on the condition on which the safety of freight trains depends. The course is presented in sections: upper structure of access roads; lower structure of access roads; organization and classification of track work. The course is aimed at developing students' knowledge in the field of operating access roads.	6	KK10 KK7+KK10
28	Organization of cargo and commercial work	The discipline studies the basics of cargo and commercial operations and cargo transportation technology. The course is presented in sections: technical means of cargo and commercial work,	5	KK8 + KK11

	// Rules for the transportation of goods on industrial transport	<p>progressive automated methods for organizing transportation, constructing tariffs and the organizational structure for managing cargo and commercial work. The course is focused on developing knowledge and skills in the field of organizing cargo and commercial work.</p> <p>The discipline studies the technical conditions for placing and securing cargo, the procedure and conditions for the transportation of liquid cargo and dangerous goods.</p> <p>The course is presented in sections: technical means of cargo work, progressive automated methods of organizing transportation, modern methods of transport and forwarding services for enterprises, transportation of goods in direct, intermodal and international communications</p> <p>The course is focused on developing knowledge in the field of cargo transportation by industrial transport.</p>		KK10+KK11
29	<p>Operations management</p> <p>// General plan and transport of the enterprise</p>	<p>The discipline is devoted to the study of one of the main components of the transportation process - operational work in railway transport.</p> <p>The course is presented in sections: organization of local work, technical regulation of operational work of railway sections and divisions, traffic schedules, throughput and carrying capacity.</p> <p>The discipline is studied in integration with special disciplines in order to acquire special skills related to operational work.</p> <p>The study of the discipline is aimed at master planning of industrial enterprises, taking into account technological transport processes.</p> <p>The course is presented in sections: design of a master plan and transport of industrial enterprises; master plan and transport: open-pit mining, metallurgical plants.</p> <p>The course is focused on methods for assessing various layout schemes and enterprises engaged in mining and processing of minerals</p>	5	<p>KK8</p> <p>KK8+KK10</p>
Cycle of major disciplines			60	
University component			27	
Module Ensuring vehicle reliability			eleven	
thirty	Systemtrain traffic control	<p>The study of this discipline is aimed at students gaining knowledge about the organization of train traffic, management and regulation of this process.</p> <p>The course is presented in sections: motion control process trains, automation of information support for train dispatchers, principles and basic techniques of work in dispatch control of train traffic, composition and technical characteristics of the main dispatcher systems centralization</p>	6	KK9
31	Productionpractice 2	<p>Industrial practice gives the student the opportunity to generalize and systematize his knowledge in the field of fundamental and applied sciences and direct it to independently solve a set of management problems for specialists.</p> <p>The course is aimed at consolidating the theoretical knowledge acquired by students during their studies at the university, acquiring practical skills and production experience in specialty.</p>	5	KK10

	Module Organization of transportation and labor protection		16	
32	Occupational Health and Safety vital activity	<p>The discipline is aimed at acquiring theoretical knowledge in the field of labor protection and life safety.</p> <p>The course is presented in sections: regulations in the field of occupational safety and health, industrial accidents, electrical and fire safety, protection of the population during emergencies.</p> <p>The discipline develops students' skills in reducing professional risks and increasing the sustainability of economic facilities in emergencies.</p>	5	KK11
33	Transportation organization and management movement	<p>The discipline is aimed at the efficient use of transport, taking into account the volume of work.</p> <p>Contents of the main sections: organization of work of railway and transport hubs; management of car flows on the railway network; train schedule; intelligent train traffic control systems.</p> <p>The discipline develops students' skills in organizing and managing transport and using intelligent traffic control systems on railways.</p>	6	KK8+KK9
34	Pre-diploma practice	<p>Pre-graduation practice develops practical knowledge and skills with more in-depth study of the transportation process, methods of organizing train traffic and vehicle safety, application of the acquired knowledge when performing diploma design and professional activities</p> <p>The course is aimed at the ability to obtain source materials for the development of a thesis, the basic technical solutions of the thesis agreed with the enterprise work.</p>	5	KK11
	Component of choice		33	
	Module Professional organizational		16	
35	Rolling stock and train traction //Fundamentals of transport and technical means	<p>The discipline is aimed at developing a holistic understanding of the rolling stock of railway transport</p> <p>Contents of the main sections: classification and design diagrams of traction rolling stock; traction characteristics of locomotives; Maintenance and repair of locomotives.</p> <p>The discipline develops students' skills in using various types of rolling stock and the basic principles of optimal train control using digital technologies.</p> <p>The discipline is aimed at developing a comprehensive understanding of the design of rolling stock and the technology of using railways in industrial production.</p> <p>The course consists of the following sections: industrial transport locomotives; types of diesel locomotive transmissions; traction characteristics of locomotives; train motion equation; intelligent locomotive control systems.</p> <p>The discipline develops practical skills in performing traction calculations and using intelligent locomotive control systems.</p>	6	KK8 KK8
36	Basics of railway station design	<p>The discipline is intended to study methods for designing mainline railway stations and junctions.</p> <p>The course consists of the following sections: general regulations for railway design, separate points, classification of stations, purpose of stations, operation of a marshalling yard, operation of a hump and calculation of a hump process</p>	5	KK10

	// Fundamentals of designing transport devices and structures	The discipline is designed to study methods for designing industrial railway stations. The course consists of the following sections: general regulations for the design of devices and structures, development of projects for the construction of new and reconstruction of existing railway lines. earthwork design canvases, selection and design of station diagrams. selection and placement of station elements.		KK10
37	Passenger transportation management // Special types of industrial transport	The study of this discipline is aimed at gaining knowledge about the organization of train traffic, management and regulation of this process. The course is presented in sections: motion control process trains, automation of information support for train dispatchers, composition and technical characteristics of the main dispatch centralization systems. The course is aimed at developing students' knowledge in the field of passenger transportation management The discipline aims to study special types of industrial transport. The course is presented in sections: main types and classification of special types of transport; technical and economic requirements for special types of transport; conveyor transport; cable cars and monorails; pneumatic container and pneumatic transport; hydraulic transport. The course is aimed at developing students' knowledge in the field of special types of industrial transport.	5	KK11 KK11
Module Automation of communication systems			17	
38	Survey and design of railways // Fundamentals of industrial railway design	The discipline is the basis for practical mastery of the design and calculation methods of new and reconstructed railways. The course consists of sections: engineering surveys, design of plan and longitudinal profile, determination of railway capacity, routing, calculation and placement of culverts, construction of train schedules. The discipline is the basis for practical mastery of design and calculation methods for access roads. The course consists of sections: engineering surveys, design of plan and longitudinal profile, determination of railway capacity, routing, calculation and placement of culverts, calculations of construction costs and operating costs of access roads.	6	KK6+KK10 KK10
39	Innovative technologies in transportation organization //Automated control systems in industrial	The discipline aims to study modern technologies for automating transport technological processes. The course is presented in sections: information technologies in the transportation process. transportation process management technology, modern development trends. Intelligent innovative technologies in transport. The objective of the discipline is to acquire skills in working at automated workstations for railway workers. transport, application of intelligent innovative technologies in railway transport. The discipline is devoted to the study of automation means for transport, loading and unloading processes and electronic document management at industrial enterprises.	5	KK8+KK9 KK8+KK11

	transport	The course is presented in sections: automation of technical and commercial inspection; automation equipment for main types of transport; automation of loading and unloading operations; automation of document flow and interaction with automated control systems. The discipline develops skills in document automation and interaction with automated control systems.		
40	Automation, telemechanics and communications // Alarm, centralization, blocking and communication	The discipline develops students' understanding of the operation of automation, telemechanics and communications devices, as well as innovative and intelligent PBX systems. The course is presented in sections: classification of railway automation, telemechanics and communications systems; electrical centralization; dispatch centralization; automatic and semi-automatic blocking; mechanization and automation of hump humps. The course is aimed at developing students' knowledge in the field of automation, telemechanics and communications. The discipline gives students an idea of the operation of devices that ensure traffic safety using innovative and intelligent systems. The course is presented in sections: classification of alarm systems, centralization, blocking and communication; electrical and route-relay centralization; automatic and semi-automatic blocking; systems for technical diagnostics and monitoring of signaling systems. The course is aimed at developing students' knowledge in the field of signaling, centralization, blocking and communications.	6	KK6+KK11 KK11
Module Final certification			12	
41	Writing and defending a thesis (project) or preparation and passing of a comprehensive exam	The purpose of preparing and defending a thesis (project) is to summarize the results of the student's independent research into one of the current problems of a specific specialty corresponding to the industry, having internal unity and reflecting the progress and results of the development of the chosen topic, as well as to be competent in the field of organization and management of vehicles; V design, selection and rational modes of operation of transport facilities and systems; in the field of labor legislation.	12	KK11

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