MODULAR EDUCATIONAL PROGRAM

6B11329 - "ORGANIZATION OF TRANSPORTATION, TRAFFIC AND TRANSPORT OPERATION»

2021-2022 academic year

CONTENT

1. Explanatory note
modular educational program in the specialty
6B11329- "Organization of transportation, traffic and operation of transport"

The modular educational program (MEP) is compiled on the basis of the “State Compulsory Standard of Higher Education of the Republic of Kazakhstan Bachelor's Degree. General Provisions, approved by the Decree of the Government of the Republic of Kazakhstan dated October 31, 2018 No. 604. The rule for organizing the educational process on credit technology of education, the Model curriculum of the educational program 6B11329 "Organization of transportation, traffic and operation of transport", approved by order of the Ministry of Education and Science of the Republic of Kazakhstan No. 425 dated 05.08.2016; in accordance with internal university documents with P.01.04/2012 "Regulations on the formation of the trajectory of students' learning", form No. 26 "The structure of the MEP".

The modules of the OOD block include disciplines of the compulsory component (OK) - 51 credits and elective components (EC) - 5 credits common to all educational programs of education, in the study of which the graduate must master the following competencies: knowledge of the laws of development of society and its socio-political , legal, economic, environmental foundations, as well as cultural and historical values, the foundations of computer science, language communication and understanding the principles of a healthy lifestyle, possession of information about the political life of the country.

The database block includes disciplines of university components, which is 38 credits; and elective components (EC) - 74 credits, which is 112 credits. The modules of these disciplines make it possible to form a set of key (research), subject and special competencies acquired by the graduate.

The PD block includes disciplines of university components, which is 22 credits; and an elective component (EC), which is 38 credits. The modules of these disciplines make it possible to form a set of key and special (developing, creative, organizational and methodological) competencies acquired by the graduate.

The criterion for the completion of the educational process is the development of 240 credits by the student.

The MOS consists of 18 modules.

When developing a modular educational program together with employers (IE "Akhmetzhanov", JSC "KTZ Express" - "KTZ South"), the following recommendations were taken into account:

Introduce disciplines into teaching "Road conditions and traffic safety","Fundamentals of forwarding services and "Technical means of organizing traffic".

Purpose and objectives of the modular educational program

Target - training of competitive specialists in the field of organization of transportation, movement and operation of transport who are able to organize the transportation process of passengers, organize service maintenance, organize highly efficient production of loading and unloading operations and warehouse operations based on the use of modern systems of machines, equipment, devices, computer technology.

Tasks:

- Formation of the main professional competencies of future specialists in the field of organization of transportation, traffic and operation of transport;
- Creation of prerequisites for independent search and research activities of students in the framework of the experiment at all its stages;
- Ability to work with scientific and technical information, use domestic and foreign experience in professional activities, systematize and summarize the information received.

The MEP of the educational program "Organization of transportation, traffic and operation of transport" allows you to form high personal and professional competencies among future specialists, a systematic approach to the organization, content and procedure for carrying out activities to manage the processes of transportation, traffic and operation

2. Graduate competency model

The sphere of professional activity is technology, organization, planning and management of the technical and commercial operation of transport systems, organization based on the principles of logistics of rational interaction between the modes of transport that make up a single transport system; organization of a system of relationships to ensure traffic safety in transport, a field of science and technology related to the operation, repair and maintenance of transport and transport-technological machines for various purposes (transport, hoisting-and-transport, special and other machines and their complexes), their units, systems and elements.

Graduate competence is formedtaking into account the needs and satisfaction of the labor market.

A graduate of this educational program is awarded an academic degree of a bachelor in the field of services under the educational program 6B11329 "Organization of transportation, traffic and transport operation."

The objects of professional activity of graduates are public and non-public transport enterprises engaged in the transportation of passengers and goods; traffic safety services of public and private transport enterprises; logistics services of industrial and trade organizations; forwarding enterprises and organizations; state transport inspection services, marketing services; production and marketing systems, organizations and enterprises of information support for production and technological systems; research and design organizations; higher and secondary specialized educational institutions; motor transport and auto-repair enterprises; company and dealer centers of automobile and repair plants; enterprises and organizations conducting their operation, storage, refueling,

The subjects of the professional activity of the bachelor in the educational program: 6B11329 - Organization of transportation, traffic and operation of transport, are technical devices and structures of transport enterprises, technological processes of their work, enterprises and organizations of the motor transport complex of various forms of ownership - users of transport services; logistics schemes of the transportation process, taking into account the transport management system; design-technological and scientific organizations; motor transport and auto-repair enterprises; company and dealer centers of automobile and repair plants; marketing and forwarding services.

Competences that a graduate should have after mastering the MEP:

Competencies in the field of languages:

Know:

– basic definitions in the field of languages that contribute to the formation of a highly educated personality with a broad outlook and a culture of speech;

– scientific vocabulary and scientific constructions of a technical profile;
– rules for producing texts of different genres;
– speech norms of the technical sphere of activity;
– basics of business communication.

Be able to:

– demonstrate knowledge of the documentation requirements adopted in professional communication;
– oral speech within professional topics;
– select the necessary information from foreign language sources.
– freely conduct a conversation on various topics;
– use reference literature in Kazakh, Russian and English (explanatory dictionaries, reference books, encyclopedias, including specialized terminology).

Master the skills:

– competent explanation in the state, Russian and English languages;
– competent preparation of current documentation in the state, Russian and foreign languages;
– building a constructive dialogue;
– expressing one's opinion in Kazakh, Russian and English from the point of view of a future specialist in the field of professional activity.
– trilingual education, which contributes to the formation of language competencies in future specialists in the field of information technology.

Competences of natural sciences:

Know:

- basic definitions in the field of natural sciences that contribute to the formation of a highly educated personality with a broad outlook and thinking;
- basic concepts of higher mathematics and their applications in various fields;
- fundamental concepts, laws and theories of classical and modern mathematics, techniques and methods for solving specific problems;
- mathematical methods, mathematical intuitions, mathematical cultures;
- the essence of the basic ideas, laws, theories of classical and modern physics in their internal relationship and integrity, the concept of physical laws, the limits of their applicability, which allows them to be effectively used in specific situations.

Be able to:

- build mathematical models, set mathematical problems, select appropriate mathematical methods and algorithms for solving the problem, apply numerical methods to solve the problem using modern computer technology;
- select appropriate mathematical methods and algorithms for solving the problem;
- apply numerical methods to solve the problem using modern computer technology;
- conduct high-quality mathematical research;
- Demonstrate knowledge and skills in the use of fundamental physical laws and theories, as well as methods of physical research;

- apply the basic laws and relationships of electrical circuits of direct, alternating and three-phase current for their analysis and calculation, read electrical diagrams and understand the purpose of the main components of electrical equipment;
- evaluate measurement errors and verify electrical measuring instruments,
- choose a semiconductor device and an integrated circuit to work in electronic circuits,
- using reference literature to solve generalized typical problems of the discipline (theoretical and experimental-practical educational problems) from various areas of physics features;
- solve professional problems;
- simulate physical situations using a computer;
- use methods for analyzing and evaluating the results of experiments.

Master the skills:

- solving professional problems;
- evaluating the degree of reliability of the results obtained using experimental or theoretical research methods;
- conducting a physical experiment;
- using the achievement of fundamental science for the successful study of general theoretical and special technical disciplines, the development of mathematical thinking and logic.

Socio-ethical competencies:

Know:

– social and ethical values based on public opinion, traditions, customs, social norms and focus on them in their professional activities;
– traditions and culture of the peoples of Kazakhstan;
- the basic methods of psychology and be able to use them in the practice of activity, taking into account its economic specifics;
– trends in the social development of society.

Be able to:

– comply with the norms of business ethics, possess ethical and legal standards of conduct;
– adequately navigate in various social situations;
– find compromises, correlate your opinion with the opinion of the team.

Master the skills:

– general education;
– work in a team, correctly defend their point of view, offer new solutions;
– striving for professional and personal growth.

Information and communication competencies:

Know:

– principles of building a modern operating system and system software;
– basic models, methods and tools used in computer systems to automate the solution of intellectual problems;
– theoretical and practical problems of computational informatics as a field of knowledge and practical human activity related to the need to analyze information;

– about trends in the development of microelectronics, about promising circuit solutions in the field of digital and analog technology;
– about the current state and trends in the development of computer architectures, computing systems, complexes and networks;
– about architecture and possibilities of microprocessor means;
– about the problems and directions of development of programming technology, about the main methods and means of design automation
– about software, about methods of organizing work in teams of software developers.

Be able to:

– identify problems of a technical, logical nature when analyzing specific situations for programming, suggest ways to solve them and evaluate the expected results;

– systematize and summarize information, prepare references and reviews on professional activities, edit, abstract, review texts; use basic and special methods of information analysis in the field of professional activity; develop and justify options for effective solutions;

- critically evaluate from different angles (production, motivational, institutional, etc.) the development trends of objects in the field of professional activity; apply the knowledge gained in the study of mathematics, physics;
- plan and conduct research, analyze and interpret the data obtained;
- analyze, program, design and operate software and hardware complexes and protection systems;
- use modern technical means necessary in engineering practice.

Master the skills:

– special technical terminology and vocabulary of the specialty, the skills of independent mastery of new knowledge, using modern educational technologies;
– professional argumentation in the analysis of standard situations in the field of future activities;
– work with technical documentation and literature for solving problems of computer technology and telecommunications;
– methods of mathematical, simulation and computer modeling of processes and devices of computer technology;
– organization of individual stages of the process of developing objects of professional activity.

Professional competencies:

Know:

-formation of a system of theoretical knowledge and practical skills on the main provisions for assessing transport security, the role of various modes of transport in the transport system of the country, region, organizing their interaction and integrated use;

- basic requirements of ESKD standards for drawings and diagrams; projection methods; general rules for constructing images;

- fundamentals of methods of structural, kinematic, power and dynamic analysis of mechanisms; principles of engineering calculationsoproducts for the strength of typical elements of products;

- the basics of the device of typical mechanisms and machines; the main methods for determining the kinematic characteristics of the links and the force factors acting on the links during the operation of the mechanism;

- fundamentals of the theory of electrical circuits of direct, alternating and three-phase current, the basics of the theory and the principle of operation of the transformer and electrical machines, the most important provisions of metrology and the basic methods of electrical measurements;

- the basics of the manifestation of the organization of the production process, labor rationing, scientific rationing and planning of the need for equipment, materials, labor costs; issues of calculation and evaluation of labor productivity, labor intensity, prime cost;

- the foundations of modern technologies for collecting, processing, presenting and transmitting information;

- basics of using information technology tools;
- functions and systems for organizing work on licensing and certification, legal framework and other legal acts of licensing and certification, the nature and content of licensing and certification abroad;
-transport characteristics of the main nomenclature of goods, factors affecting the cargo during transportation and storage, biochemical processes in the goods, types and purpose of shipping containers, packaging materials, the impact of the transport characteristics of the main nomenclature of goods on the organization of their transportation.
- general principles for managing the operational work of transport, based on the use of advanced technology and technology for the operation of individual transport facilities, taking into account the use of an automated control system, theoretical foundations for optimizing production processes;
- forms of transport interaction, general patterns of development of technical means and operation of transport modes, features of transport modes in a single transport system, technical and operational characteristics of transport modes;
- the basics and tasks of cargo and commercial work, methods for calculating the technical equipment of points of interaction, methods for choosing transport and technological systems for the delivery of goods;
- requirements for ensuring transport security for various categories of transport infrastructure facilities and vehicles.

Be able to:
- perform drawings of geometric constructions, projection drawings, axonometric projections, analyze and synthesize spatial forms;
- read and express technical thoughts with the help of a drawing;
- develop technological processes for designed and reconstructed transport devices and structures;
- develop and draw up longitudinal and transverse profiles of roads;
- develop and draw up diagrams of railway and transport hubs;
- develop and draw up road crossing schemes;
- perform technical and economic calculations
- use advanced industry, inter-sectoral and foreign experience;
- perform drawings of geometric constructions, projection drawings, perform axonometric projections, analyze and synthesize spatial forms;
- basics of strength calculationsogoods and design of machine parts, the sequence of product design and the main stages of design development;
- choose modes of transport, types of rolling stock, loading and unloading machines and devices, means of packaging, modes of transportation and storage, execution of transportation documents and unsafe shipments;
- use the terminology adopted in various sections of applied mechanics; choose analogues and prototypes of structures during design;
- apply the basic laws and ratios of electrical circuits of direct, alternating and three-phase current for their analysis and calculation, read electrical diagrams and understand the purpose of the main components of electrical equipment;
- systematize, generalize legal and economic information for use in professional, including entrepreneurial activities;
- analyze, summarize economic information and systematize safety standards for use in professional activities
- economically justify; solve issues related to the organization of the production process; develop standards for labor costs;
- create graphic information using basic graphic editors; create, process and graphically represent numerical information using spreadsheets;
- fill in documentation for issuing licenses, build and analyze situational tasks, determine schemes for compacted loading (optimal placement of packages) of wagons using a graphical-analytical method;

- use the acquired theoretical knowledge when choosing a mode of transport, types of rolling stock, loading and unloading machines and devices, means of packaging, modes of transportation and storage, execution of transportation documents and unsaved transportations, conducting examinations, ensuring the safety of transported goods and traffic safety;

- determine the structure and capacity of transport hubs.

- use the theoretical foundations of the discipline under study in a production environment;

- to create advanced technology for the operation of transport facilities using advanced methods of work;

- draw up kinematic diagrams of mechanisms and machines;

- to design rational schemes of mechanisms;

- make geodetic measurements related to the solution of typical construction tasks - detailed breakdowns of structures,

- perform calculations for the analysis and forecasting of passenger flows;

- develop train schedules, work schedules for passenger, passenger technical stations and railway stations;

- choose technical means that ensure the interaction of modes of transport; determine the structure and capacity of transport hubs;

- use the theoretical foundations of the discipline in the production environment; analyze and calculate the technical equipment of points of interaction; substantiate modes of interaction between modes of transport; choose transport and technological schemes for the delivery of goods;

- to solve the problems of choosing a system for the delivery of materials; find opportunities to improve the efficiency of transportation based on the logistics concept;

- prepare initial data on control objects for input into a computer network; work with hardware, operating systems and application programs as the basis for hardware and software of automated information systems;

- apply the logistics principles of transportation management;

- identify potential threats and actions that affect the security of transport infrastructure facilities and vehicles, transport, and ensure the implementation of transport security measures at these facilities, depending on its various levels.

Master the skills:

-have a professional interest in the transport system, as one of the most important components of the material and technical base of the country's economy;

- work with raster, two-dimensional and three-dimensional vector graphics software to use the basic functionality of modern graphic systems; organization of dialogue in graphic systems.

- engineering calculationsoComrade; design of mechanical devices inonecessary for the future
professional activity in their specialty;

- application of classical methods of applied mechanics to the analysis of mathematical models of formalized material objects;

- organization of the production process;

-methods of using modern information and communication technologies in the educational process;

- use methods to improve packaging and packaging of goods; use new specialized vehicles in warehouses; own loading and unloading equipment;

- identification of technological links between the elements of the transportation process; coordination of temporary modes of operation of modes of transport; organization of multimodal transportation;

- work with scientific and technical literature; independent search for scientific and technical information as the basis of professional activity;

- organization of the technological process of processing vehicles; choice of the type of transport and rational distribution of resources between interacting modes of transport; placement of devices for various modes of transport;

- own the basic methods, ways and means of planning and implementing transport security.

Special competencies:

Know:

-forms of interaction between different types of transport, general patterns;

-navigate and analytically perceive the phenomena of legal reality; use legal knowledge in practice;

-characterization and organization of loading and unloading operations and warehouse operations and their importance in the transportation process;

-the state of operation of vehicles in the Republic of Kazakhstan and abroad, their development, operational properties, indicators, assessment methods and ways to improve them.

- the main indicators and characteristics of the transport operation of the road, the features of the work of the road as a transport structure, the patterns of traffic flow;

- the state of operation of vehicles in the Republic of Kazakhstan and abroad, their development, operational properties, indicators, assessment methods and ways to improve them;

- the essence, goals and objectives of logistics, the object and subject of logistics, the basic concepts that logistics operates, the basic methods of logistics, the functions of logistics, the main tasks of logistics in the field of procurement, production and distribution, transportation, warehousing and sale, as well as methods for their solution;

- general principles about the devices and structures of stations, nodes and their elements in conjunction with the technology of work, the theory of calculation of these devices and modern methods for designing new and rebuilt stations and nodes, taking into account the latest achievements of science and technology, optimal methods of operation and interaction of railways with other modes of transport ;

- fundamentals of the legal framework in the field of labor protection and safety and production processes; the nature of hazardous and harmful production factors in processes related to the production, installation, operation and repair of production facilities;

- the essence of the theory of transport systems, familiarity with the methods of optimization of transport systems;

- general principles of passenger transportation management based on advanced technology and technology, theoretical foundations for optimizing the production processes of railway passenger stations, a system for organizing passenger flows on the railway network, taking into account the optimization of tasks when drawing up a formation plan;

- legislative acts and technical standards in force in transport, including traffic safety, working conditions and environmental issues, the basic principles of urban planning;

- safety of transport processes and equipment, operational condition of roads;

- the formation of students' scientific thinking, the ability to put into practice the provisions of the theory of TEA;

- regularities of traffic and methods of its research;

- theoretical foundations in the field of servicing passengers, cargo and luggage in transport;

- purpose, structure and fundamentals of the functioning of automated control systems in transport;

- the procedure for drawing up transportation plans and a record card for the implementation of the transportation plan, the rules for accepting for transportation and issuing goods to recipients, the procedure for filling out transportation documents, the conditions for transporting goods, the procedure for operating access roads, the procedure for drawing up acts, the presentation and consideration of claims.

Be able to:

-determine the importance of each mode of transport and the transport system as a whole, apply the principles of formation of a unified transport system;

- work with the texts of normative legal acts; solution of emerging situations from the position of law; work on oneself to develop an active life position;
- determine the importance of each mode of transport and the transport system as a whole;
- work with the texts of normative legal acts; solution of emerging situations from the position of law;
- organize highly efficient production of loading and unloading operations and warehouse operations based on the use of modern systems of machines and equipment;
- competently approach the analysis of the efficiency of the use of vehicles, master new designs of vehicles;
- conduct a survey of roads, assess the modes of movement of traffic flows and traffic safety;
- make decisions on the choice of optimal logistics channels, logistics chains and schemes, formulate requirements for transport;
- use the theoretical foundations of the discipline under study in production conditions;
- develop measures to improve the safety of production activities;
- to form ideas about the main characteristics of the transport hub and the processes occurring in it, the study of queuing systems;
- understand the meaning and content of basic legal concepts;
- organizetransport support in the implementation of foreign economic activity;
- use an integrated system for ensuring traffic safety in railway transport;
- apply the acquired theoretical knowledge in practice;
- determine the technical condition of the car as a whole, its units and systems, know how to troubleshoot;
- organize a survey of road conditions, intensity and flow of vehicles;
- to determine the possibility of using foreign experience in the organization of transportation of passengers, cargo and baggage on transport;
- work with the main theoretical provisions of the course, systems and methods of operation of automation, telemechanics and communication devices;
- work at automated workstations (AWP) of the main mass professions (input and output of information, interactive mode of work on personal computers);
- draw up applications for transportation, accounting and reporting documents, choose the conditions for the transportation of goods, determine the timing of loading, unloading and delivery of goods;
- assess traffic safety on the roads; identify and study emergency sections of roads;
- to analyze the materials of statistics of road traffic accidents;
- develop comprehensive engineering measures to improve conditions and ensure traffic safety in various road conditions;
- to determine the main malfunctions of the railroad switch;
- to create advanced technology for the design and reconstruction of railway stations and junctions;
- apply the principles of building terminal systems in an international transport expedition; work with transport documentation;
- organize the operation of the international delivery of goods in accordance with the logistics concept of the international delivery of goods;
- draw up applications for transportation accounting and reporting documents, choose conditions
- transportation of goods, determine the terms of loading, unloading and delivery of goods, draw up acts and claims.

Master the skills:

- innovative methods of development of technical means and operation of different types of transport;
- knowledge of the law, independently expand their horizons, develop the ability to law enforcement activities;

- to organize highly efficient production of RRP and warehouse operations based on the use of modern systems of machines, equipment, instruments, computer technology;
- use of vehicles, analysis and perception of information about transport systems;
- safety measures in transport;
- competently approach the analysis of the efficiency of the use of vehicles;
- inventory management methods, methods for optimizing logistics systems, methods for choosing logistics channels, logistics chains and schemes, methods for assessing the performance of an organization's logistics, methods for choosing logistics intermediaries;
- calculation of technical and operational work;
- the necessary skills to provide first aid;
- organize the transportation process of passengers, organize service;
- the basics of technical literacy and for solving problems in production;
- safety measures in transport;
- building a traffic schedule;
- theoretical foundations about the concepts and principles of automatic devices;
- filling out shipping documents.
- own methods for calculating and predicting traffic intensity, determine the level of traffic load;

Table 1. The sequence of mastering disciplines in the process of forming special competencies

No.	Competencies	The list of compulsory, elective disciplines and the sequence of their study for each learning path		Expected results
		List of disciplines	The sequence of their study (sem)	
one.	Specialcompetencies	Road conditions and traffic safety / Railway stations and junctions	6 semester	**Know:**general principles about the devices and structures of stations, nodes and their elements in conjunction with the technology of work, the theory of calculation of these devices and modern methods for designing new and rebuilt stations and nodes **Be able to:**use the theoretical foundations of the discipline under study in a production environment; create advanced technology for the design and reconstruction of railway stations and junctions **Master the skills:**analyze schemes of stations of all types; choose the most optimal options for the placement of station devices; design the longitudinal profile of the track, the transverse profile of the subgrade,
				Know: the basic principles of organizing the movement of trains and the main indicators of operational work. The main documents regulating the operation of the station, types of maneuvers, **Be able to:**determine the boundaries of circulation sections, layout schemes, draw up schemes for traction service of trains by locomotives, determine the number of combined trains, determine the methods of servicing the section, determine the idle time rates for local cars. **Master the skills:**special competencies corresponding to the main types of professional activity, formed in the course of a holistic educational process.
2.		Theory of traffic flows and their management / Transport service	7 semester	**Know**: general principles for managing the operational work of railways, based on the use of advanced equipment and technology, the work of individual railway departments, taking into account the use of an automated railway network management system **Be able to:**use an integrated system for ensuring traffic safety in railway transport; the procedure for qualification of permissible violations of the safety of train traffic and shunting work and its current state, the reasons causing violations of train traffic safety, requirements and norms of PTE **Master the skills:** the basics of technical literacy for solving problems in production, methods for determining the main safety indicators of automatic telephone exchanges; indicators of vehicle safety in operating

				conditions.
				Know: general principles for managing the operational work of railways, based on the use of advanced equipment and technology, the work of individual railway departments, taking into account the use of an automated railway network management system **Be able to:**use an integrated system for ensuring traffic safety in railway transport; the procedure for qualification of permissible violations of the safety of train traffic and shunting work and its current state, the reasons causing violations of train traffic safety, requirements and norms of PTE **Master the skills:** the basics of technical literacy for solving problems in production, methods for determining the main safety indicators of automatic telephone exchanges; indicators of vehicle safety in operating conditions.
3.		Technology and mechanization of loading and unloading operations / Mechanization of loading and unloading operations in railway transport	4 semester	**Know:**characterization and organization of loading and unloading operations and warehouse operations and their importance in the transportation process; measures to accelerate scientific and technological progress **Be able to:**organize highly efficient production of loading and unloading operations and warehouse operations based on the use of modern systems of machines, equipment, instruments, computer technology, which allow mechanizing and automating the entire transportation process in a complex manner , devices, computers.
				Knowcharacterization and organization of loading and unloading operations in railway transport and warehouse operations and their importance in the transportation process; measures to accelerate scientific and technological progress **Be able to:**organize highly efficient production of loading and unloading warehouse operations based on the use of modern systems of machines, equipment, computer equipment **Master the skills:** in the development of schemes for complex mechanization and automation of loading and unloading operations and warehouse operations using the specified means of mechanization and automation for a certain volume
4.		Fundamentals of freight forwarding services / Freight forwarding in	7 semester	**Know:**research activities in the field of control theory, development of new methods for research and design of transport network elements **Be able to**:perform the choice of rational approaches to assess and model the infrastructure of the transport system; determine the main indicators

		international transportation		characterizing the operation and development of transport systems **Master the skills:** methods and means of design, modeling, experimental study of elements of a single transport system
				Know: research activities in the field of control theory, development of new methods for research and design of transport network elements; **Be able to**:perform the choice of rational approaches to assess and model the infrastructure of the transport system; determine the main indicators characterizing the operation and development of transport systems **Master the skills:** methods and means of design, modeling, experimental study of elements of a single transport system
5.		Technical means of traffic management / Technology and organization of transportation	7 semester	**Know:** the formation of students' scientific thinking, the ability to put into practice the provisions of the theory of TEA. **Be able to:**determine the technical condition of the car as a whole, its units and systems, know how to troubleshoot **Master the skills:**transport safety equipment.
				Know:safety of transport processes and equipment, operational condition of roads. **Be able to:**explore the modes of movement of vehicles; conduct surveys of the UDS and identify deficiencies; develop comprehensive engineering measures to improve conditions and ensure traffic safety **Master the skills:**methods of organizing the transport process; methods of ensuring the safety of the transport process; traffic accident analysis methods
6.		Technology and mechanization of loading and unloading operations / Transport and cargo systems	4 semester	**Know:**characterization and organization of loading and unloading operations and warehouse operations and their importance in the transportation process; measures to accelerate scientific and technological progress **Be able to:**organize highly efficient production of loading and unloading operations and warehouse operations based on the use of modern systems of machines, equipment, instruments, computers, which allow mechanizing and automating the entire transportation process in a comprehensive manner **Master the skills:**to organize highly efficient production of RRP and warehouse operations based on the use of modern systems of machines, equipment, instruments, and computer technology.

				Knowcharacterization and organization of loading and unloading operations in railway transport and warehouse operations and their importance in the transportation process; measures to accelerate scientific and technological progress **Be able to:**organize highly efficient production of loading and unloading warehouse operations based on the use of modern systems of machines, equipment, computer equipment **Master the skills:** in the development of schemes for complex mechanization and automation of loading and unloading operations and warehouse operations using the specified means of mechanization and automation for a certain volume
7.		Transport legislation in road traffic / Rules and traffic safety	7 semester	**Know:**navigate and analytically perceive the phenomena of legal reality; use legal knowledge in practice; analyze, think **Be able to:**work with the texts of normative legal acts; solution of emerging situations from the position of law; work on yourself to develop an active life position. **Master the skills:** knowledge of the law, independently expand their horizons, develop the ability to law enforcement activities.
				Know:navigate and analytically perceive the phenomena of legal reality; use legal knowledge in practice **Be able to:**work with the texts of normative legal acts; solution of emerging situations from the position of law; work on yourself to develop an active life position. **Master the skills:** knowledge of the law, independently expand their horizons, develop the ability to law enforcement activities.
eight.		Ensuring cargo transportation / Transportation of goods on special conditions	8 semester	**Know:** the procedure for drawing up transportation plans and a record card for the implementation of the transportation plan, the rules for accepting for transportation and issuing goods to recipients, the procedure for filling out transportation documents, the conditions for transporting goods, the procedure for operating access roads, the procedure for drawing up acts, the presentation and consideration of claims. **Be able to:** draw up applications for transportation, accounting and reporting documents, choose the conditions for the transportation of goods, determine the terms of loading, unloading and delivery of goods, draw up acts and claims, about events **Master the skills:**methods and technological features of the organization and management of freight traffic; methods of design, optimization,

				operation and management of transport and technological cargo systems.
				Know: rules for the preparation of transportation plans and the implementation of the transportation plan, the rules for accepting for transportation and issuing goods to recipients, the procedure for filling out transportation documents, the conditions for transporting goods. **Be able to:** according to the transportation billing, draw up applications for transportation accounting and reporting documents, choose the conditions for the transportation of goods, determine the terms of loading, unloading and delivery of goods, draw up acts and claims, about events, **Master the skills:**filling out shipping documents.
9.		Construction and operation of the track / Design of access roads for industrial enterprises	8 semester	**Know**:familiarization with the operating conditions of vehicles, effective methods of using automotive operating materials, methods for obtaining them, and safety and environmental requirements when using various types of fuel and lubricants.. **Be able to:**rational use of automotive operating materials; own the methodology for calculating the need for resources of materials; possess practical skills in the application of regulatory materials for the organization of work on the technical operation of motor vehicles.
				Know:familiarization with the operating conditions of vehicles, effective methods of using automotive operating materials, methods for obtaining them, and safety and environmental requirements when using various types of fuel and lubricants.. **Be able to:**rational use of automotive operating materials; own the methodology for calculating the need for resources of materials; possess practical skills in the application of regulatory materials for the organization of work on the technical operation of motor vehicles.

Table 2. The sequence of mastering disciplines
social and professional interaction

Well	Supporting disciplines	Competencies	Expected Result
one	2	3	4
General education disciplines			
Required Component			
one	Information and Communication Technologies	Information and communication competencies	**Know:**economic and political factors in the development of information and communication technologies; features of various operating systems, architecture. **Be able to:**Odetermine the main trends in the field of information and communication technologies; use information resources to search and store information; work with spreadsheets, perform data consolidation, build graphs; apply methods and means of information protection. **Master the skills:**development of the database structure; designing and creating presentations; receiving data from the server; creating video files; work with smart-applications; work with services on the e-government website.
1.2	Kazakh (Russian) language	Competences in the field of languages	**Know:**features of the compositional and semantic organization of a scientific text; basic techniques for isolating the main information of a microtext; language forms of expression of various types of scientific text information for solving problems of educational and professional communication; principles of compiling texts of the main educational and scientific, scientific and professional genres. **Be able to:**formulate a theme, determine the language means of organizing the text and use them in the production of their own speech works; determine the types, volume and types of additional scientific information contained in the text; carry out text compression as a basis for structural and semantic processing: create samples of secondary genres (plan, theses, synopsis, annotation, abstract, review, review) by comprehending and transforming the source text; extract from the primary source (mass media, official documents and scientific literature in the specialty) the necessary information, describe, summarize and interpret it for educational purposes. **Master the skills:**extract the necessary information from the text, describe it, generalize and interpret it in the process of educational and professional communication; develop a system of communication skills; use special vocabulary in the main types of professional activities.
1.2	Foreign language	Competences in the field of languages	**Know:**vocabulary for communication within the framework of the subject under study; structure of the main types of texts. **Be able to:**communicate in a foreign language within the framework of the subject being studied; express their thoughts on the problem under discussion using a variety of language means. **Possess skills:**lexico-grammatical material on the subject; the ability to express their thoughts orally and in writing.
one	Modern history of Kazakhstan	Socio-ethical competencies	**Know:**subject, purpose and objectives of the course "Modern history of Kazakhstan", the main sources and historical research; the most important events of the 20th and early 21st centuries; the development

			of Kazakhstan during the period of civil confrontation and in the conditions of the Soviet system; important stages in the formation of sovereign and independent Kazakhstan are the main terms of historical science. **Be able to:**correlate general phenomena and single historical facts; independently work with sources and historiography, prepare abstracts, essays and presentations; analyze and be able to evaluate significant historical events; explain their causal relationships; think logically, freely discuss and defend one's own opinion; explain the meaning and significance of basic historical concepts. **Master the skills:**work with sources, historiography and materials of periodicals and the Internet; writing abstracts, reports and essays; preparing and making presentations; compiling comparative tables; performance of test and situational tasks; public speaking, discussion and debate.
2	Philosophy	Socio-ethical competencies	**Know:** the main stages, directions, teachings and problems of philosophy. **Be able to:** to think competently philosophically, which is manifested in the ability to independently think through the most important philosophical topics. **Master the skills:** the conceptual and categorical apparatus of philosophy, the skills of analytical reading of philosophical texts, critical thinking.
Selectable Component			
one	Fundamentals of Market Economy and Entrepreneurship / Fundamentals of Law and Anti-Corruption Culture	Competence of general education	**Know:** functions of money, causes of differences in the level of wages; main types of taxes; organizational and legal forms of entrepreneurship; types of securities; economic growth factors; current state of the theory and practice of entrepreneurial activity; the specifics of entrepreneurial activity; **Be able to:** give examples of factors of production and factor income, public goods, Kazakh enterprises of various organizational forms, global economic problems; describe the operation of the market mechanism, the main forms of wages and labor incentives, inflation, the main articles of the state budget of Kazakhstan, economic growth, use the basic terminology of modern entrepreneurship; use the methods of entrepreneurial activity; **Master the skills:** obtaining and evaluating economic information; family budgeting; evaluating one's own economic performance as a consumer, family member, and citizen.
			Know: the legislative framework for life safety and environmental control, as well as methods for identifying, eliminating the influence of harmful factors on humans and the environment, and providing comfortable conditions for human life and activities; **Be able to:** systematize safety standards for use in professional activities; choose methods of protection against dangers in relation to the scope of their professional activities and choose ways to ensure comfortable living conditions; **Own** skills: ensuring life safety in industrial, living conditions and in emergency situations, first aid

			Know: the essence of corruption and the reasons for its origin, the measure of moral and legal responsibility for corruption offenses. **Be able to:** own the skills of acquiring new knowledge about anti-corruption culture is a holistic interdisciplinary knowledge system.
one	Fundamentals of safety and life and ecology	Competence of general education	**Know:** the legislative framework for life safety and environmental control, as well as methods for identifying, eliminating the influence of harmful factors on humans and the environment, and providing comfortable conditions for human life and activities; **Be able to:** systematize safety standards for use in professional activities; choose methods of protection against dangers in relation to the scope of their professional activities and choose ways to ensure comfortable living conditions; **Master the skills:** ensuring life safety in industrial, living conditions and in emergency situations, first aid skills.
Basic disciplines			
University component			
one	higher mathematics	Competences of natural sciences	**Know:**theoretical foundations of metrology, regulatory and legal framework for metrological support; to study the elements of probability theory and mathematical statistics; study the elements of the theory of errors, gain skills in processing measurement results, assessing their accuracy and reliability. **Be able to:**apply technical and metrological legislation; work with regulatory documents; recognize conformity confirmation forms. **Master the skills:** methods of working with standard documentation for standardization and certification; revision of existing standards and other certification documents
one	Physics	Competences of natural sciences	**Know:**the most important physical laws and the connection of physical science with related fields; basic physical quantities and methods of their measurement; Methods for setting up and conducting an experiment. **Be able to:**correctly state and form known physical laws; apply the acquired knowledge to the analysis of the results of observations and measurements; - use all available physical devices; analyze and solve basic typical tasks; constantly and methodically competently develop their knowledge. Clearly and clearly express and express the information available on this problem and formulate a sequence of necessary actions to resolve it, analyze the opinions of colleagues on this problem in order to take them into account for making a high-quality and effective decision and its subsequent discussion in a wider circle of specialists and experts; independently acquire knowledge; use the acquired knowledge to solve new cognitive and practical problems. **Own skills:**use the basic physical principles of physics; basic measurement methods.
one	Descriptive geometry and engineering graphics	Professional competencies	**Know:**the main projection models for displaying space on a plane, the apparatus of two, three-sided complex drawing by G. Monge, the laws of formation of flat and spatial forms, methods for constructing their images, the main requirements of ESKD (Unified System for Design Documentation);

			Be able to:to execute schemes and drawings of AutoCAD on the basis of computer graphic system; read, solve problems for mutual belonging and mutual intersection of geometric shapes; determine the geometric shapes of simple parts from their images and perform these images both from nature and from the drawing of an assembly unit; read drawings of assembly units; **Master the skills:**practical work with drawing tools; reading images of objects, drawings of parts and assembly units of medium complexity; execution of sketches and working drawings of parts, assembly drawings and general arrangement drawings; measuring parts and setting dimensions on drawings of parts and assembly units; use of information and reference materials and sources; perception of design documentation as a production document; thinking in spatial terms.
2	Professional Kazakh (Russian) language	Competences in the field of languages	**Know:** scientific vocabulary and scientific constructions of a technical profile; rules for producing texts of different genres; speech norms of the technical sphere of activity; basics of business communication. **Be able to:**choose language means, build statements taking into account literary norms and the communicative situation; to isolate the logical and compositional structure of a scientific test, to master oral public statements (message, report), to analyze listened to public speeches; to carry out communication of a professional nature; use dictionaries and correctly interpret the information received from them about language units; reproduce the text read or listened to from the educational, professional, socio-cultural spheres, highlighting the necessary information and presenting it in a certain sequence. **Master the skills:** work with scientific and technical literature; independent search for scientific and technical information as the basis of professional activity; listening and fully understanding information orally presented at a normal pace, with subsequent transmission of its content; conducting dialogues-questions and dialogues of conversations.
2	Professionally oriented foreign language	Competences in the field of languages	**Know:**functional features of oral and written texts of a scientific and technical nature in the specialty; requirements for the execution of documentation adopted in professional communication; strategies of communicative behavior in situations of professional communication. **Be able to:**understand oral speech within professional topics; participate in the discussion of topics related to the specialty; independently prepare and make oral presentations on professional topics using multimedia technologies; extract the necessary information from foreign language sources created in various sign systems (text, table, graph, diagram, audiovisual series, etc.); annotate, summarize and state in the native language the main content of literature in the specialty, using a dictionary if necessary; write messages, articles, abstracts, abstracts on professional topics. **Own skills:**basic grammatical structures characteristic of oral and written professionally oriented communication;
2	Cargo science	Professional competencies	**Know:**transport characteristics of the main nomenclature of goods, factors affecting the cargo during transportation and storage, biochemical processes in the goods, types and purpose of shipping containers, packaging materials, the impact of the transport characteristics of the main nomenclature of goods on the organization of their transportation.

			Be able to:use the acquired theoretical knowledge when choosing a mode of transport, types of rolling stock, loading and unloading machines and devices, means of packaging, transportation and storage modes, execution of transportation documents and unsaved transportations, conducting examinations, ensuring the safety of transported goods and traffic safety; rational use of carrying capacity and capacity of the rolling stock. **Master the skills:**use of methods for improving the container and packaging of goods; use of new specialized vehicles in warehouses; own loading and unloading equipment.
2	Organization of transportation and traffic management	Professional competencies	**Know:**general principles of passenger traffic management, based on advanced technology and technology; theoretical foundations for optimizing the production processes of railway passenger stations **Be able to:**use the theoretical foundations of the discipline under study in a production environment; create advanced technology for the work of railway departments; make operational decisions on servicing passenger transportation, taking into account the efficient use of rolling stock; perform technical and economic calculations. **Master the skills**: organization of the transportation process of passengers, organization of service maintenance, perform calculations for the analysis and forecasting of passenger flows; build diagrams of passenger flows in long-distance, local and suburban communications; develop train schedules
2	Interaction of modes of transport	Professional competencies	**Know:**the state of operation of vehicles in the Republic of Kazakhstan and abroad, their development, operational properties, indicators, assessment methods and ways to improve them. **Be able to:**competently approach the analysis of the efficiency of the use of vehicles, master new designs of vehicles. **Master the skills:**have knowledge about the general laws and trends of technical equipment, methods of work and improvement of modes of transport, as well as ways and prospects for the development of the transport system of the Republic of Kazakhstan
Selectable Component			
2	Theoretical mechanics / Mechanics	Professional competencies	**Know:**basic concepts and axioms of mechanics; ways to transform the system of forces; conditions for the equilibrium of solid bodies under the action of forces; ways to set the movement of a point, its speed and acceleration; translational, rotational and plane movements of the body, complex movement of a point; main tasks of point dynamics; the geometry of the masses of the mechanical system; general theorems of dynamics; **Be able to:**schematize mechanical phenomena, presenting mechanical problems in absolute form; use mathematical methods in solving engineering problems; **Master the skills:** application of theoretical mechanics in their practical activities; applications of theoretical mechanics in other disciplines.
			Know: fundamentals of methods of structural, kinematic, power and dynamic analysis of mechanisms; principles of engineering calculations for the strength of typical elements of products. **Be able to:**basics of strength calculations and design of machine parts, the sequence of product design and the main stages of design development; primary skills in practical design and construction of

			mechanical devices. To form and develop the creative beginnings of the individual in the course of the course project and in-depth study of the course section in the process of independent work. **Master the skills:** engineering calculations; design of mechanical devices to the extent necessary for future professional activity in their specialty.
2	Geodesy / Engineering geodesy	Professional competencies	**Know:** methods of marking work, geodetic support for the construction of civil and industrial buildings. **Be able to:**apply linear structures, monitoring the deformations of structures, geodetic support of the cadastre. **Master the skills:**Methods of practical use of modern computers for information processing and the basics of numerical methods for solving engineering problems; Graphical methods for solving metric problems of spatial objects in drawings, methods of projection and representation of spatial forms on the projection plane.
2	Applied mechanics / Theory of machines and mechanisms	Professional competencies	**Know:**the basics of the device of typical mechanisms and machines; the main methods for determining the kinematic characteristics of the links and the force factors acting on the links during the operation of the mechanism; basic methods for studying the stress-strain state and performing calculations of the strength of typical elements; **Be able to:**use the terminology adopted in various sections of applied mechanics; choose analogues and prototypes of structures during design; perform engineering calculations and design simple standard mechanical devices, ensuring their performance; **Master the skills**: application of classical methods of applied mechanics to the analysis of mathematical models of formalized material objects.
			Know:the basics of the device of typical mechanisms and machines; the main methods for determining the kinematic characteristics of the links and the force factors acting on the links during the operation of the mechanism; basic methods for studying the stress-strain state and performing calculations of the strength of typical elements; methods of design and verification calculations of typical machine parts; **Be able to:**use the terminology adopted in various sections of applied mechanics; choose analogues and prototypes of structures during design; perform engineering calculations and design simple typical mechanical devices, **Master the skills**: application of classical methods of applied mechanics to the analysis of mathematical models of formalized material objects.
2	Fundamentals of electrical engineering and electronics / Fundamentals of electrical systems	Professional competencies	**Know:** Fundamentals of the theory of electrical circuits of direct, alternating and three-phase current, fundamentals of the theory and principle of operation of a transformer and electrical machines, the most important provisions of metrology and basic methods of electrical measurements. **Be able to:** apply the basic laws and relationships of electrical circuits of direct, alternating and three-phase current for their analysis and calculation, read electrical diagrams and understand the purpose of the main components of electrical equipment. **Master the skills**: basic methods of electrical measurements.
3	Unified transport	Professional	**Know:** forms of interaction between different types of transport, general patterns of development of

	system / General course of transport	competencies	technical means and operation of different types of transport, features of different types of transport in the Unified Transport System. **Be able to**: determine the importance of each mode of transport and the transport system as a whole, apply the principles of forming a unified transport system **Master the skills:** innovative methods of development of technical means and operation of different types of transport.
			Know: forms of interaction between different types of transport, general patterns of development of technical means and operation of different types of transport, features of different types of transport in the Unified Transport System. **Be able to**: determine the importance of each mode of transport and the transport system as a whole, apply the principles of forming a unified transport system **Master the skills:** innovative methods of development of technical means and operation of different types of transport.
3	Passenger transportation management / Organization of passenger transportation	Professional competencies	**Know:**general principles of passenger traffic management, based on advanced technology and technology; theoretical foundations for optimizing the production processes of railway passenger stations:. **Be able to:**use the theoretical foundations of the discipline under study in a production environment; create advanced technology for the work of railway departments; make operational decisions on servicing passenger transportation, taking into account the efficient use of rolling stock; perform technical and economic calculations. **Master the skills**: organization of the transportation process of passengers, organization of after-sales service, perform calculations for the analysis and forecasting of passenger flows; build diagrams of passenger flows in long-distance, local and suburban communications; develop train schedules
			Know:general principles of passenger traffic management, based on advanced technology and technology; building a train schedule; throughput determination. **Be able to:**use the theoretical foundations of the discipline under study in a production environment; perform technical and economic calculations. **Master the skills**: organization of the transportation process of passengers, organization of after-sales service, perform calculations for the analysis and forecasting of passenger flows; build diagrams of passenger flows in long-distance, local and suburban communications;
3	Fundamentals of entrepreneurial activity in transport / Economics of transport	Professional competencies	**Know:**the importance, content and effectiveness of the introduction of new technology, organization and planning of events. Methodology for measuring capital investments and annual operating costs. **Be able to:**justify economically; solve issues related to the organization of the production process; develop standards for labor costs; determine the volume and quality indicators of the enterprise, the need for a contingent of workers, the wage fund, labor productivity, the cost of work, profit, profitability, operating costs and reduced costs. **Master the skills:**knowledge of the basics of manifestation of the organization of the production

			process
3	Transport logistics / Transport and logistics infrastructure	Professional competencies	**Know:**the essence, goals and objectives of logistics, the object and subject of logistics, the basic concepts that logistics operates, the basic methods of logistics, the functions of logistics, the main tasks of logistics in the field of procurement, production and distribution, transportation, warehousing and sales. **Be able to:**make decisions on the choice of optimal logistics channels, logistics chains and schemes, formulate requirements for transport, as well as systems for storage and warehouse handling of goods in order to optimize logistics processes; **Master the skills:**inventory management methods, methods for optimizing logistics systems, methods for choosing logistics channels, logistics chains and schemes, methods for assessing the performance of an organization's logistics, methods for choosing logistics intermediaries.
			Know:logistical aspects of the functioning of production; information support of logistics; key and supporting functions of logistics systems; logistics design and management; logistic features of the formation and management of macrosystems; **Be able to:**offer quality manufacturing services; develop technological flow diagrams; manage the basic functions of the logistics information system in logistics. **Master the skills:** determining the logistics costs of transportation processes, determining the effectiveness of logistics systems, conditions, factors and criteria for optimizing the transport system.
3	Occupational safety in road transport / Occupational safety in railway transport	Professional competencies	**Know:** fundamentals of the legislative and legal framework in the field of labor protection and safety and production processes; the nature of hazardous and harmful production factors in processes related to the production, installation, operation and repair of production facilities; operating procedure. **Be able to:** develop measures to improve the safety of production activities; plan and implement measures to improve the sustainability of the production activities of business facilities **Master the skills:** the necessary skills to provide first aid, to ensure the safety and comfort of the working environment, to have knowledge of legal documents (by type of activity) that are mandatory.
			Know:regulatory documents on labor protection and health, the basics of professional hygiene, professional sanitation and fire safety; rules and regulations of labor protection, personal and industrial sanitation and fire protection **Be able to:**maintain documentation of the established sample on labor protection, observe the deadlines for its completion and storage conditions; use eco-bioprotective and fire-fighting equipment, means of collective and individual protection **Master the skills:** necessary skills to provide first aid.
4	State administration of road safety / Rules of technical operation and basics of traffic safety in railway transport	Professional competencies	**Know:**The main indicators and characteristics of the transport work of the road, the features of the work of the road as a transport structure, the patterns of movement of traffic flows. **Be able to:**Conduct road surveys, assess traffic patterns and traffic safety. **Master the skills:**identify potential threats and actions that affect the security of transport infrastructure facilities and vehicles; ensure the implementation of transport security measures at these facilities,

			depending on its various levels.
			Know:international and domestic regulatory documents regulating the requirements for BTS; vehicle classification; types of security of automatic telephone exchanges and sets of measures to ensure them; safety assessment methods **Be able to:**calculate safety distances and visibility distances when overtaking immediately and after waiting; build a dynamic corridor of single automatic telephone exchanges and road trains of various composition **Master the skills:**special terminology and vocabulary of this discipline; self-acquisition of new knowledge in the field of development of the theory and practice of vehicle safety.
4	Automated control systems (in transport) / Theoretical foundations of automated systems	Professional competencies	**Know:** purpose, structure and fundamentals of functioning of automated control systems in transport **Be able to:**work with the main theoretical provisions of the course, systems and methods of operation of automation, telemechanics and communication devices. **Master the skills:**monitor the implementation of tasks and schedules; use in the work of electronic computers for processing operational information; perform calculations of the norms of time for the performance of operations; perform calculations of the performance of transport facilities;
			Know:purpose, structure and fundamentals of functioning of automated control systems in railway transport **Be able to::**work at automated workstations (AWS) of the main mass professions (input and output of information, interactive mode of work on personal computers) **Master the skills:** filling out documentation using automated control systems in railway transport
	Major disciplines		
	University component		

2	Organization of cargo and commercial work	Professional competencies	**Know:**fundamentals and tasks of cargo and commercial work, methods for calculating the technical equipment of points of interaction, methods for choosing transport and technological systems for the delivery of goods. **Be able to:** use the theoretical foundations of the discipline in production conditions; analyze and calculate the technical equipment of points of interaction; substantiate modes of interaction between modes of transport; choose transport and technological schemes for the delivery of goods. **Master the skills**: the organization of the technological process of processing vehicles; the choice of the type of transport and the rational distribution of resources between the interacting modes of transport; the placement of devices for various modes of transport.
3	Ensuring traffic safety in transport	Professional competencies	**Know:** requirements for ensuring transport security for various categories of transport infrastructure facilities and vehicles; methods of engineering and technical means and transport security systems used at transport infrastructure facilities, the procedure for developing and implementing plans, ensuring transport security of facilities, transport infrastructure and vehicles. **Be able to:** identify potential threats and actions that affect the security of transport infrastructure facilities and vehicles, and ensure the implementation of transport security measures at these facilities, depending on its various levels **Master the skills:** own the basic methods, ways and means of planning and implementing transport security.
3	Fundamentals of technical operation of vehicles	Professional competencies	**Know:**the state of operation of vehicles in the Republic of Kazakhstan and abroad, their development, operational properties, indicators, assessment methods and ways to improve them. **Be able to:**competently approach the analysis of the efficiency of the use of vehicles, master new designs of vehicles. **Master the skills:**have knowledge about the general laws and trends of technical equipment, methods of work and improvement of modes of transport, as well as ways and prospects for the development of the transport system of the Republic of Kazakhstan
Selectable Component			
3	Vehicles / Transport and handling facilities	Professional competencies	**Know:**the state of operation of vehicles in the Republic of Kazakhstan and abroad, their development, operational properties, indicators, assessment methods and ways to improve them. **Be able to:**competently approach the analysis of the efficiency of the use of vehicles, master new designs of vehicles. **Master the skills:**have knowledge about the general laws and trends of technical equipment, methods of work and improvement of modes of transport, as well as ways and prospects for the development of the transport system of the Republic of Kazakhstan
			Know:the state of operation of vehicles in the Republic of Kazakhstan and abroad, their development, operational properties, indicators, assessment methods and ways to improve them. **Be able to:**competently approach the analysis of the efficiency of the use of vehicles, master new

			designs of vehicles. **Master the skills:**have knowledge about the general laws and trends of technical equipment, methods of work and improvement of modes of transport, as well as ways and prospects for the development of the transport system of the Republic of Kazakhstan
3	Metrology, standardization and quality management / Standardization, certification and technical measurements	Professional competencies	**Know:**theoretical foundations of metrology, regulatory and legal framework for metrological support; to study the elements of probability theory and mathematical statistics; study the elements of the theory of errors, gain skills in processing measurement results, assessing their accuracy and reliability. **Be able to:**apply technical and metrological legislation; work with regulatory documents; recognize conformity confirmation forms. **Master the skills:**methods of working with standard documentation for standardization and certification; revision of existing standards and other certification documents.
			Know:theory, means and types of measurements, metrological provision of standardization and certification, means and types of measurements, schemes of direct and indirect measurements, sources and classification of errors **Be able to:**use standards and other regulatory documents to ensure the quality of work performed; 2. plan and carry out metrological and certification tests. **Master the skills:**tools for analysis (modeling) of the project and solving typical problems of analysis and optimization; project management tools at all stages of its life cycle.
4	Geoinformatics of transport / Information technologies in transport	Professional competencies	**Know:**communication and its role in the organization of transport services; information support of the transport process; purpose and types of systems and means of communication in transport, their characteristics **Be able to:**use ACS as a tool for optimizing control processes in transport systems and their functions; algorithms for effective operational decision making. **Master the skills:** the structure and levels of construction of automated control systems in transport, the basics of data transmission; the concept of databases and data banks of automated control systems, the interaction of various modes of transport.
			Know:basic definitions of computer science, basic and composite data structures used in computer technology; the basics of the organization of modern computers and their general characteristics **Be able to:**work on a personal computer in the environment of one of the operating systems (Windows); **Master the skills:** preparation of documents using office software products (MS Word, MS Excel, MS Access, MS PowerPoint)
4	Examination of traffic accidents / Investigation of traffic accidents	Professional competencies	**know:**the main provisions of regulatory documents to ensure the organization of traffic; theoretical bases of the organization of the movement; the main ways to solve the problem of ensuring the safety and efficiency of road traffic; road accident analysis methods **be able to:**evaluate the consequences of the development of motorization; develop specific measures for the operational organization of traffic; make proposals on the organization of permanent, temporary and delayed parking of vehicles

			know:the main provisions of regulatory documents to ensure the organization of traffic; theoretical bases of the organization of movement. **be able to:**evaluate the consequences of the development of motorization; develop specific measures for the operational organization of traffic; make proposals on the organization of permanent, temporary and delayed parking of vehicles

Table 3. List of modules included in the educational program

Module No.	Module name	List of disciplines included in the module	Block	Semester	Volume of credits by discipline	form of control	Total credits modulo
Modular educational program							
M1	*Information and Communication Technologies*	Information and Communication Technologies (in English)	OOD OK	one	5	Exam	5
M2	*Mathematics*	higher mathematics	DB VK	one	5	Exam	thirteen
		Physics	DB VK	one	4	Exam	
		Descriptive geometry and engineering graphics	DB VK	2	3	Exam	
		Educational practice	DB VK	2	one	Differential standings	
M3	*Communicative*	Foreign language	OOD OK	1.2	10	Exam	twenty
		Kazakh (Russian) language	OOD OK	1.2	10	Exam	
M4	*Historical and social science*	Modern history of Kazakhstan	OOD OK	2	5	GE	eighteen
		Philosophy	OOD OK	4	5	Exam	
		Sociology	OOD OK	2	eight	Exam	
		Political science	OOD OK	2		Exam	
		Culturology	OOD OK	one		Exam	
		Psychology	OOD OK	one		Exam	
M5	*Economics and BZD*	Fundamentals of market economy and entrepreneurship / Fundamentals of safety and life and ecology	OOD VK	2	5	Exam	5
M6	*Physical education*	Physical education	OOD OK	1,2,3,4	eight	Differential standings	eight

M7	*Professional communicative*	Professional Kazakh (Russian) language	DB VK	3	3	Exam	6
		Professionally oriented foreign language	DB VK	4	3	Exam	
M 8	*Cargo science and organization of transportation*	Cargo science	DB VK	3	5	Exam	17
		Field trip I	DB VK	4	2	Differential standings	
		Organization of transportation and traffic management	DB VK	3	5	Exam	
		Interaction of modes of transport	DB VK	3	5	Exam	
M9	*Mechanics and electrical engineering*	Theoretical mechanics / Mechanics	BD KV	3	5	Exam	thirteen
		Applied mechanics / Theory of machines and mechanisms	BD KV	4	4	Exam	
		Fundamentals of electrical engineering and electronics / Fundamentals of electrical systems	BD KV	4	4	Exam	
M10	*Transport system*	Unified transport system / General course of transport	BD KV	5	5	Exam	sixteen
		Passenger transportation management / Organization of passenger transportation	BD KV	5	5	Exam	
		Transport logistics / Transport and logistics infrastructure	BD KV	6	6	Exam	
M11	*Business activities and road conditions*	Fundamentals of entrepreneurial activity in transport / Economics of transport	BD KV	5	5	Exam	thirteen
		Road conditions and traffic safety / Railway stations and junctions	BD KV	6	6	Exam	
		Field trip II	BD KV	6	2	Differential standings	
M12	*Vehicles*	Transport legislation in road traffic / Rules and traffic safety	PD KV	5	5	Exam	17
		Vehicles / Transport and handling facilities	PD KV	6	6	Exam	
		Metrology, standardization and quality management / Standardization, certification and technical measurements	PD KV	5	6	Exam	

M13	*Occupational health and safety*	Occupational safety in road transport / Occupational safety in railway transport	BD KV	5	6	Exam	sixteen
		Ensuring traffic safety in transport	BD KV	5	5	Exam	
		Fundamentals of technical operation of vehicles	BD KV	5	5	Exam	
M14	*Theory of traffic flows and Information Technology*	Theory of traffic flows and their management / Transport service	BD KV	7	5	Exam	15
		Technical means of traffic management / Technology and organization of transportation	BD KV	7	5	Exam	
		Geoinformatics of transport / Information technologies in transport	PD KV	7	5	Exam	
M15	*Transport expedition and expertise*	Fundamentals of freight forwarding services / Freight forwarding in international transportation	BD KV	7	5	Exam	14
		Examination of traffic accidents / Investigation of traffic accidents	PD KV	7	5	Exam	
		Ensuring cargo transportation / Transportation of goods on special conditions	PD KV	eight	4	Exam	
M 16	*Road safety*	State administration of road safety / Rules of technical operation and basics of traffic safety on the railway	BD KV	7	5	Exam	nineteen
		Automated control systems (in transport) / Theoretical foundations of automated systems	BD KV	eight	4	Exam	
		Construction and operation of the track / Design of access roads for industrial enterprises	PD KV	eight	3	Exam	
		Field trip III	PD KV	eight	5	Dif offset	
		Undergraduate practice	PD KV	eight	2	Dif offset	
M.17	*Military department*	Military department	DVO				
M18	*Final state certification*	Writing and defending a thesis (project) or preparing for a comprehensive exam		eight	12	Exam	12