

GRADUATE MODEL

7M11301 – “Organization of transportation, traffic and operation of transport”

1 Description of OP

The educational program of specialty 7M11301 – “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) at all levels of education (Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 31, 2018 No. 604, as amended and supplemented 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).

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 of 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:

Training of specialists for implementations scientific, pedagogical and practical activities in the field of organizing transportation, movement and operation of transport at industrial and railway enterprises

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 spheres of production and consumption, government bodies in the field of transport and communications, design, survey and research institutes, bureaus, firms, educational institutions, etc. various forms of ownership.

5 Objects of professional activity

The objects of professional activity of graduates are: transport, transport equipment and technologies used in various industries, railway and road transport.

6 Subjects of professional activity

The subjects of professional activity are: motion control systems; life support systems; equipment for the manufacture, testing and disposal of transport equipment; equipment for maintenance and repair of transport equipment; control and measuring instruments for the manufacture and operation of transport equipment; equipment for automating the work processes of transport equipment.

7 Types of professional activities

“Master of Science” in specialty 7M11301 – “Organization of transportation, traffic and operation of transport” can perform the following types of professional activities:

- production and management;
- scientific research;
- pedagogical;
- organizational and technological;
- design

8 Functions of professional activity

The main functions of the professional activities of graduates are: teaching disciplines in undergraduate programs in educational organizations, researcher, designer, mechanic, station manager; as the head of government bodies of industrial enterprises; researcher and teacher in educational organizations.

9 Areas of professional activity

Areas of professional activity include:

- improving the design of transport vehicles and equipment;
- comprehensive mechanization and automation of transport equipment and technological processes;
- establishing and ensuring optimal operating modes of transport vehicles and equipment.

10 General and professional competencies

10.1 General competencies:

- Solve psychological problems of management activities;
- Carry out educational activities in higher professional educational institutions on the basis of psychological and pedagogical principles;
- Manage the development and implementation of creative ideas in professional activities;
- Carry out intercultural communication in industrial, scientific and pedagogical activities.

10.2 Basic competencies

- Carry out scientific work within the framework of professional activities;
- Carry out research work within the framework of professional activities;
- Develop measures for organizing transportation at industrial railway transport;
- Develop measures to organize the movement of industrial and railway transport;
- Manages control over the operation of industrial and railway transport;
- Apply modern methods of research and optimization of transport processes.

10.3 Professional competencies:

- Carry out research work within the framework of professional activities;
- Develop measures for organizing transportation at industrial railway transport;
- Develop measures to organize the movement of industrial and railway transport;
- Manages control over the operation of industrial and railway transport;
- Apply modern methods of research and optimization of transport processes.

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
KK1	Solve psychological problems management activities	Understands the psychological essence of management activities	Analyzes the psychological characteristics of management effectiveness	Possesses basic socio-psychological management methods	Possesses research and evaluation skills individually - psychologically their properties subjects of management	Organizes group work based on the principles of team building	Prevents professional risks in management activities	Resolves conflict situations in the production team	Motivates management subjects to develop personal growth
KK2	Realize educational work activity in higher professional educational establishments on basis psychologically principles	Organizing t process training in higher professional educational establishments	Designs pedagogically th process in university	Defines ways organizations and carrying out educational educationally th process in university	Implements diagnostics results educational activities students in university	Conducts correction results educational activities students in university	Implements interaction With professional community and with everyone interested by both parties education	Predicts results pedagogical activities	Uses ICT for activation And knower ny activities you teaching at university
KK3	Realize scientific work within professional ny activities	Develops scientific plan research	Selects necessary methods research	Processes received results research	Analyzes received results research	Makes up reports By results scientific research th activities	Is results scientific research, articles reports conferences	Uses technologies at carrying out scientific research	Designs documentation Iyu on receiving patent And rights on intelligence nal actually there is
KK4	Lead development	Effectively applies	Uses methods	Organizes group	Implements motivation A	Uses informational	Organizes innovative	Develops scenarios	Organization I'm accepting

	and implementation	methods	And	active	work	on	stimulation	nd	technologies	How	search	V	communicative	strategic
	creative ideas	V	technologies	generating	basis		e effective		efficient		conditions		interactions	to their
	professional		creative	creative	processes		creative		means		creative		at implementation	decisions on
	ny		activities in	ideas	And	group	activities		extensions		management		solutions	basis
	activities		region	options	their	speakers	workers		borders					creative
			development	solutions	V	principles			creative					O
			And											

		management	within specific events	formation teams For production creative ideas.		employee thinking			manager that
KK5	Carry out intercultural communication Yu V production -noy and scientific-pedagogical activities	Carry out annotation, abstracting and presentation in a foreign language of the main content of scientific texts (articles) by specialties	Uses basic terminology of the specialty oral And written statements for organizing foreign language professional communication	Analyzes the necessary information from foreign language sources, created V various iconics systems V typical situations professional -but-business communication	Translates scientific, technical, socio-political And etc., materials correspondence With foreign organizations , A Also materials conferences, etc.	Processes the audited text, allowing the formation of speech experience in situations of foreign language professional scientific pedagogical communication	Fluently carries out oral communication in the specialty in monologue and dialogic form, taking into account complex exchange of information	Independently carries out professional development within the framework of foreign language communication based on modern technologies	Uses socialization Iyu And self-realization Ho winter cultural tool communication in the modern multicultural world
KK6	Realize research work within the professional framework activities	Develops plan researcher what kind of work	Performs patent searches on research topics in information retrieval systems databases	Creates a description of the proposed innovation and draws up security documents documentation	Develops mathematical models of the processes under study in applied modeling programs	Implements mathematical models in modern software environments	Analyzes the theoretical dependencies of the processes under study	Establishes the correspondence of theoretical dependencies with the results of experimental studies	Develops We study methods of engineering calculations processes
KK7	Develop measures for organizing transportation in industrial and railway transport	Explores the system of organizing car flows on railway transport	Determines the need for the development of the transport network, rolling stock, transportation organization	Predicts quantitative and qualitative indicators of the transportation organization system	Develops projects for carrying out necessary activities related to the organization of transportation	Applies research methods and program development related to transportation organization	Optimizes the system for organizing car flows at railway transport	Performs technical work regulation on transport	Has the skills to apply the fundamentals of research methods and development of programs related to the organization her transportation

KK8	Develop EventsBy	Performs analysis state of transport	Determines the need for transport development	Identifies needs for transport development	Predicts development regionalAnd	Evaluates economic efficiencyvarious	Justifieschoice routeschemes	Developseffective organization schemes	Applies techniques event development
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	organizations movement industrial about and railway transport	security and cities and regions	networks, traffic organization and transportation technologies	networks, traffic management technologies	interregional transport systems	options for organizing transport traffic	organizing traffic with using algorithms and programs for calculating the technological process	movement of vehicles to ensure traffic safety in various conditions	related to provision of safety of traffic movements
KK9	Manages the operation control of industrial and railway transport	Explores methods for assessing the transport and operational qualities of tracks messages	Analyzes economic laws, operating at transport enterprises, their application in a market economy	Develops technical conditions and rules for the rational operation of vehicles	Applies management and regulation methods, performance criteria to specific types of vehicles	Implements licensing and certification of transport services in relation to specific types of transport equipment	Optimizes methods for making decisions about rational forms maintaining and restoring operational performance of vehicles	Uses technologies and forms of organization of diagnostics, technical service and repair of transport vehicles and equipment	Applies computer technology and the basics of information technology in accounting and assessing the economic efficiency of operating work transport
KK10	Apply modern methods of research and optimization of transport processes	Explores technological operations in transport processes	Carries out measures to optimize transport processes	Determines the need for development of transport processes	Develops network methods and models planning in logistics and transport and technological schemes for industrial and railway enterprises	Optimizes developed network models in logistics and transport and technological schemes	Predicts the development of competitiveness of transport systems	Is results of optimization of transport processes	Use a rational development and marketing strategy to transport enterprises

12 Information about disciplines

No.	Name of the discipline	Brief description of the discipline	Number of credits	Molded competencies (codes)
1 Cycle of basic disciplines				
1.1 University component				
Psychological and pedagogical module			20	
1	History and philosophy of science	The course “History and Philosophy of Science” forms a culture of scientific thinking among undergraduates, develops analytical abilities in research, and provides theoretical and practical knowledge necessary for a future scientist. This course introduces the problems of the phenomenon of science as a subject of special philosophical analysis, forms knowledge about history and theory Sciences; patterns of development of science and the structure of scientific knowledge.	4	KK2
2	Foreign language	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. The course is focused on the formation of intercultural and communicative competence in the process of foreign language vocational education.	4	KK5
3	Higher education pedagogy	The discipline studies modern trends in humanization and democratization of the educational process in higher education, new technologies of teaching and upbringing, and focuses on the individual and creative style of pedagogical activity. The course is presented in sections: modern paradigm of higher education, methodology of pedagogical science, theory of learning in higher schools. The course is aimed at developing the professional and pedagogical culture of a high school teacher	3	KK2
4	Psychology of management	The discipline is focused on the formation of systemic representations and understanding of the psychological essence	4	KK1

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		<p>management activities; mastery of basic socio-psychological management methods; development of motivation for personal growth.</p> <p>The course examines the methodological foundations of management psychology, socio-psychological problems of management and ways to solve them, and the fundamentals of managerial psychology.</p> <p>The course is aimed at improving the culture of management activities</p>		
5	Pedagogical practice	<p>Pedagogical practice is focused on preparing undergraduates for teaching activities in the relevant specialty.</p> <p>In practice, undergraduates get acquainted with the specific conditions of the educational process at the university, the requirements that real teaching activities impose on the teacher; acquire the skills of developing educational and methodological documentation and didactic teaching aids; designing and conducting classes, curatorial hours and extracurricular activities.</p>	5	KK2
1 Cycle of basic disciplines 1.2 Component of choice				
	Module methods of scientific and experimental research		15	
6	<p>Basic scientific research</p> <p>//Methodology of scientific research</p>	<p>The discipline develops undergraduate research skills; introduces undergraduates to scientific knowledge and contributes to their successful research work.</p> <p>The course is presented in sections: fundamentals of scientific research, scientific and technical creativity, stages of scientific research work.</p> <p>The course is aimed at developing knowledge in the field of scientific research among undergraduates.</p> <p>The discipline aims to study methods of conducting scientific research. Develops the methodological skills of undergraduates when performing research work.</p> <p>The course is presented in sections: morphological analysis when solving</p>	5	KK6

		design tasks, associative methods for activating creative thinking, methods for conducting theoretical and experimental research. The course is aimed at developing knowledge in the field of scientific research methodology among undergraduates.		
7	<p>Fundamentals of developing mathematical models for solving transport problems</p> <p>//Mathematical modeling of the operation of technical devices of railway transport</p>	<p>The discipline aims to obtain theoretical and practical knowledge in the field of development of mathematical models.</p> <p>The course includes sections: the concept of a mathematical model; structural and functional models; formulating a mathematical problem; intelligent and digital methods for compiling mathematical models.</p> <p>Studying the course develops practical skills in mathematical modeling, and the ability to apply intelligent digital methods for developing mathematical models</p> <p>//The discipline aims to obtain theoretical and practical knowledge in the field of modeling and research of technical devices on the railway.</p> <p>The course includes sections: simulation modeling, linear programming, dynamic programming; intelligent digital methods for developing mathematical models</p> <p>Studying the course develops the ability to compose mathematical models of the operation of technical devices and apply modern programs for studying mathematical models</p>	5	KK7
8	<p>Operations Research in Transport Processes</p> <p>//Optimization of transport tasks in railway transport</p>	<p>The discipline involves the study of modern methods and techniques for finding the best solutions to research problems. Includes consideration of the fundamentals of linear and dynamic programming, queuing theory, inventory theory, and network planning.</p> <p>//The discipline is intended to develop master's students' skills in choosing optimal solutions by analyzing the objective function of the problem under study. Includes study sections</p>	5	KK10

		optimization problems of linear programming (simplex method, transport problem). Optimization of the transport network on the network diagram. Methods for optimizing mathematical models in the organization of transportation.		
2 Cycle of major disciplines				
2.1 University component				
Module Teaching and Management Methodology			10	
9	Creative management	The discipline forms the basis of theoretical and practical training of masters in making non-trivial management decisions. The discipline is based on the study of the theory and algorithm for solving inventive problems The course is aimed at developing skills in using the potential of an individual participating in the process of creating an intellectual product.	5	KK4
10	Methods of teaching technical disciplines	Discipline is the basis for the methodological training of a higher school teacher. The course is presented in sections: development of educational and methodological documentation based on the regulatory framework for organizing the educational process of a university; setting results-oriented learning goals. The course is focused on developing the skills to conduct classes in technical disciplines using modern teaching technologies	5	KK2
Module Technological processes in transport			16	
eleven	Technology for developing transport schemes	The discipline aims to study industrial enterprises - the master plan, the machinery and equipment used, types of vehicles. The course includes the following sections: General plan and transport complexes on the surface of quarries; Calculation of a belt conveyor. The course is focused on the development of transport schemes for industrial transport by calculating the contact schedule for train movement at an industrial enterprise.	6	KK8

12	Methods and models of network planning in logistics	<p>The discipline forms the basis of theoretical training aimed at improving the effective form and quality of transport services provided on the principles of logistics.</p> <p>The course is presented in sections: formation of basic concepts of network diagrams, models of work and events in logistics; analysis of economic and mathematical models and methods.</p> <p>The course is focused on optimizing work using network planning methods and models.</p>	5	KK10
13	Modern application programs for modeling transport processes	<p>The discipline aims to gain skills in the application of programs in scientific research and performing engineering calculations</p> <p>The course includes the following sections: variables, vectors and matrices, data entry in the Scilab environment, programming in the MathCad environment.</p> <p>Studying the course develops the ability to use modern software tools aimed at solving mathematical problems and performing engineering calculations.</p>	5	KK6
Transport systems module			23	
14	Organization and processing of experiment results	<p>The discipline develops undergraduates' skills in organizing and processing the results of experimental research.</p> <p>The course is presented in sections: fundamentals of the theory of random errors and methods for estimating random errors in measurements; methods of graphical processing of measurement results; methods for selecting empirical formulas; regression analysis.</p> <p>The course is aimed at developing knowledge in the field of experimental theory among undergraduates.</p>	6	KK7
15	Forecasting development and assessing the competitiveness of transport systems	<p>The discipline is aimed at increasing the horizons of undergraduates in determining the quality of their training.</p> <p>The course is presented in sections: methodological foundations of forecasting transport processes; Principles of planning and marketing in transport; ways to increase the competitiveness and technical level of transport vehicles.</p> <p>The study of the course is focused on the formation of relevance and goal setting for completing the dissertation work.</p>	5	KK9

16	Practice research skaya	The course is aimed at studying the theoretical, methodological and technological achievements of domestic and foreign science, consolidating practical skills in applying modern methods of scientific research, processing and interpreting experimental data in dissertation research. Research practice develops the ability to analyze and critically evaluate the results of one's own scientific research, as well as leading specialists in the relevant field. areas of research.	12	KK3
3 Master's student's research work and final certification				
Module Final and scientific work			36	
17	Scientific research telskaya Job student, including interns And completing a master's thesis dissertation (NIRM)	The purpose of the research work is the integration of the educational process with the development of the professional field of activity in the areas of master's training to ensure the formation of scientific research thinking, the development of innovative thinking and creative potential, professional excellence; ability to practically carry out scientific research, experimental work in the scientific field related to the direction of the master's thesis, decision professional tasks.	24	KK3
18	Registration and defense of master's thesis dissertations	The purpose of preparing and defending a master's thesis is to summarize the results of an independent study by a master's student of one of the current problems of a specific specialty corresponding to the branch of science, which has internal unity and reflects the progress and results of development chosen topic, as well as preparation for public defense and obtaining an academic master's degree.	12	KK3

Supervisor UPONurmaganbetova

G.S.

Head department PT Askarov

B.Sh.