

**Al-Farabi Kazakh National University**  
**Higher School of Economics and Business**  
**Syllabus**  
**(TGS 3310) Transport and freight system**  
**Fall semester 2020-2021 academic year**  
**on the educational program "Logistics"**

Code of discipline	Name of discipline	Numbers of hours				Number of credits	SIWT
		SIW	Lec	Pract	Lab		
TGS 3310	Transport and freight system	56	15	15	-	2(5)	4
<b>Academic information about the course</b>							
Type of training	Type/nature of the course	Types of lectures	Types of seminars (practical) lessons		Number of SIW	Form of final control	
mixed	basic/elective	classical, explanation, research, visualization. interactive	discussion, expert opinion, case study. conversation, interactive sessions, consultation, study		3	traditional written on the basis of «Oqylyq»	
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<b>Academic presentation of the course</b>							
<b>Purpose of the discipline</b>	<b>Expected learning outcomes (LO)</b>	<b>Indicators of LO achievement (IA)</b>					
students will have the opportunity to form ability to design new and reconstruction of existing warehouses using an assessment of the economic efficiency of the proposed solutions to optimize the functioning of transport and cargo systems	As a result of studying the discipline, the student will be able to: LO 1 – explain the structure and functions of transport and cargo systems, the specifics of their work on various modes of transport based on methods;  LO 2 – own a methodology for assessing the effectiveness of economic indicators of the	In the course of studying the discipline, the student must:  IA 1.1 – substantiate the basic concepts, theoretical provisions and categories in the field of mechanization of handling and storage operations for operational and long-term planning of the terminal systems; IA 1.2 – substantiate the principles of logistics which should be followed when creating transport and cargo systems; IA 1.3 – classify transport and cargo complexes based on types of transport and characteristics of goods; IA 1.4 – classify the device, principles of operation and technical and operational characteristics of the main machines used in transport and warehouse complexes (TSK); IA 1.5 – substantiate the basic conditions for the preparation, transshipment, storage and transportation of various goods by rail, road and water transport IA 1.6 – to streamline the main means of mechanization of handling and storage operations for goods of various nomenclature and physical and mechanical properties based on kinematic parameters;  IA 2.1 – simulate logistics systems and perform calculations for making management decisions for various types of transport;					

	<p>transportation of goods based on the parameters that determine the choice of the mode of transport in freight transport;</p> <p>LO 3 –apply the methods of a feasibility study when making a decision on the development of a transport and warehouse complex on the basis of technical and economic calculations of mechanization and automation of loading and unloading operations;</p> <p>LO 4 – to form a unified technical policy in the field of organization of cargo transportation, commercial work in the field of cargo transportation and customs brokerage activities based on tariffs and settlement and freight charges;</p>	<p>IA 2.2 – apply modern and promising technological processes for the processing of various goods in warehouses, systems of loading and unloading machines and equipment based on the determination of the required amount of technical means;</p> <p>IA 2.3 – calculate the main parameters and planning the work of transport and cargo systems</p> <p>IA 2.4 – select the type, technical equipment and determine the main parameters of a complex mechanized and automated warehouse at a railway station, on the access roads of enterprises and organizations on the basis of real cargo flows and station operation technology</p> <p>IA 2.5 – to compare the main indicators characterizing the operation and development of transport systems: indicators of technical equipment, network development, transportation, technical and operational work;</p> <p>IA 3.1 – to evaluate the effectiveness of the applied handling and warehouse technological processes based on the analysis of a set of technical, operational and economic indicators</p> <p>IA 3.2 – perform calculations of the main parameters of transport and cargo complexes;</p> <p>IA 3.3 –to evaluate the effectiveness of the use of various options for complex mechanization and automation of loading and unloading operations for given conditions, including during reconstruction, examination of projects of warehouses, points of loading and unloading goods at stations and organizations;</p> <p>IA 3.4 – analyze the work of loading and unloading fronts on access roads and develop measures to improve their functioning in order to improve the performance of the station;</p> <p>IA 3.5 – analysis of the state and dynamics of quality indicators of systems for organizing the transportation of passengers, cargo, cargo luggage and baggage using modern research methods;</p> <p>IA 4.1 – optimize the use of the throughput and processing capacity of transport infrastructure, technical means and advanced technologies in order to reduce the cost of transportation, ensure their efficiency;</p> <p>IA 4.2 – apply calculation formulas for determining the geometric dimensions of the warehouse, the length and throughput of cargo fronts;</p> <p>IA.4.3 – to plan loading and unloading operations at stations and terminals to ensure comprehensive automation of reloading processes, as well as to reduce the downtime of wagons during cargo operations and ensure the safety of goods based on the use of high-performance machines and devices, automation equipment and computers;</p>
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	<p>LO 5 – to develop rational transport and technological schemes for the delivery of goods based on the principles of logistics, unified technological processes of work of transport nodes.</p>	<p>IA 4.4 – draw up transportation plans, schedules of movement of vehicles, goods - transport, warehouse, and other documents;</p> <p>IA 5.1 – development of generalized solutions to the problem, analysis of these options, forecasting the consequences, finding compromise solutions in conditions of multi-criteria, uncertainty;;</p> <p>IA 5.2 –to create models of the processes of functioning of transport and technological systems and traffic flows based on the principles of logistics, allowing to predict their properties;</p> <p>IA 5.3 – development of economically feasible proposals for the development and reconstruction of transport hubs based on specialization by types of communications, the use of new technical means, automated control systems, improvement of technological processes;</p> <p>IA 5.4 – design technological reloading and warehouse processes at enterprises and retail chains based on an economic feasibility study.</p>
<p>Prerequisites Postrequirements</p>	<p>OL1205 Basics of Logistics, TL3302 Transport Logistics OPTS 4306 Basics of transport service designing, BPTS Business planning of transport system</p>	
<p>Literature and resources</p>	<p>1. Zhuravlev N.P., Malikov O.B. Transport and cargo complexes: Textbook. allowance. - M.: Route, 2016.-- 232 p.</p> <p>2. Boyko N.I., Cherednichenko S.P. Transport and cargo systems and warehouses: textbook / N.I. Boyko, S.P. Cherednichenko. - Rostov n / a.: Phoenix, 2007.-- 400 p.</p> <p>3. Transport and cargo systems. Textbook / A.S. Balalae, I.A. Baburova, A. Yu. Kostenko. - Khabarovsk: Publishing house of FVGUPS, 2015.-- 101 p.</p> <p>4. Complex mechanization and automation of loading and unloading operations: Textbook / Ed. Timoshina A.A. and Machulsky I.I.-M.: Route, 2013.- 400 p.</p> <p><b>Internet resources:</b></p> <p>1. Abdikerimov, G.S. Logistic management of cargo transportation and terminal and warehouse activities [Text]: A textbook for specialists / G.S. Abdikerimov, S.Yu. Eliseev, V.M. Nikolashin, A.S. Sinitsyna, O.B. Malikov // M: FGBOU "Educational-methodical / center for education in railway transport". - 2013.-- 428 p. <a href="https://e.lanbook.com/reader/book/59016/#1">https://e.lanbook.com/reader/book/59016/#1</a></p> <p>2. Balalae A.S., Leontiev R.G. Transport and logistics interaction in multimodal transportation: monograph. - M.: FGBOU "Educational-methodical center for education in railway transport", 2012. - 268 p. - <a href="http://e.lanbook.com/view/book/58896/page58/">http://e.lanbook.com/view/book/58896/page58/</a></p> <p>3. Design of loading and unloading devices and warehouses: Method. instructions / compiled by V.A. Bolotin, E.K. Korovyakovsky, N.G. Yankovskaya.- SPb.: FSBEI HPE PGUPS, 2015.- 38 p.</p> <p>Available online: Additional educational material and Internet sources used to complete the assignments of lectures, seminars, CDS, will be available on your page in the Univer.kaznu system.</p>	
<p>Academic policy of the course in the context of University moral and ethical values</p>	<p>All students receive online training. The terms of completing the online course modules must be strictly observed in accordance with the schedule of studying the discipline. <b>ATTENTION!</b> Failure to meet the deadline results in loss of points!</p> <p>Academic value:</p> <ul style="list-style-type: none"> <li>- completing tasks lectures/seminars and self-directed learning needs to have independent, creative nature:</li> <li>- plagiarism, forgery, use of cheat sheets, cheating at all stages of control are not allowed;</li> <li>- students with disabilities can receive counseling at the e-mail address – sh.mad@mail.ru, The Univer.kaznu system.</li> </ul>	

The politics of educational assessment and evaluation	<p><b>Criteria-based assessment:</b> boundary controls and exams are evaluated in accordance with the descriptors (checking the formation of competencies)</p> <p><b>Summative assessment:</b> active participation in the class, performing special creative tasks.</p>
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Calendar (schedule) for the implementation of the course content

Week / Data	Topic title	LO	IA	Number of hours	The maximum score	Form of knowledge assessment	Form of the lesson/ platform
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**Module 1 - The structure and functions of transport and freight logistics systems**

1	<p><b>1.Lecture-explanation.</b> Transport and cargo systems in supply chains</p>	LO 1	IA 1.1. IA 1.2	1		- preview - discussion of the main issues	- video lecture in the univer.kaznu system - zoom webinar
	<p><b>1. Seminar lesson-discussion.</b> Principles of logistics in supply chains.</p>	LO 1	IA 1.1. IA 1.2	1	15	- group discussion	- web session on the ZOOM platform
2	<p><b>2. Lecture-explanation.</b> Structure and functions of transport logistics systems.</p>	LO 1	IA 1.3	1		- discussion of the main issues - solution of tests	- video lecture in the univer.kaznu system - zoom webinar
	<p><b>2. Seminar lesson-discussion.</b> Systematic approach to the organization of transportation and the concept of logistics.</p>	LO 1	IA 1.3 IA 1.4	1	15	-discussion of test results	- web session on the ZOOM platform
3	<p><b>3. Classical lecture.</b> The importance of loading and unloading machines.</p>	LO 1	IA 1.4 IA 1.5	1		- preview - problem solving	- video lecture in the univer.kaznu system - zoom webinar
	<p><b>3. Seminar lesson-</b> writing. Purpose and classification of loading and unloading machines..</p>	LO 1	IA 1.4 IA 1.5	1	15	- academic essay	- Email

	<b>SIWT:</b> consultation on the implementation of SIW 1.	LO 1	IA 1.1 IA 1.2 IA 1.3 IA 1.4 IA 1.5			Consultation	online consultation in Zoom / consultation in WhatsApp chat/ correspondence through email
4	<b>4. Lecture-research.</b> Lifting machines as a part of transport systems.	LO 1	IA 1.4. IA 1.5	1		- preview - argumentation-discussion based on the recommended literature and web resources - drawing up a test form	- video lecture
	<b>4. Interactive seminar lesson.</b> Purpose, classification and scope of lifting machines.	LO 1	IA 1.3. IA 1.4. IA 1.5	1	15	- group video watching - questions answers on the material seen	- web session on the ZOOM platform
5	<b>5. Lecture - explanation.</b> Transport and cargo complexes for perishable goods.	LO 1	IA 1.5. IA 1.6.	1			
	<b>5. Seminar lesson - case.</b> Conditions for the transportation and storage of perishable goods.	LO 1	IA 1.5. IA 1.6	1	15		
	<b>SIWT:</b> protection of SIW 1 <b>SIW 1.</b> Streamline the main means of mechanization of handling and storage operations for goods of various nomenclature and physical and mechanical properties based on kinematic parameters (for example in warehouse);	LO 1	IA 1.1 IA 1.2 IA 1.3 IA 1.4 IA 1.5 IA 1.6			25	analytical report and presentation of results
<b>Midterm 1</b>					<b>100</b>		
<b>Module 2 – Technical equipment of transportation and freight systems</b>							
6	<b>6. Lecture-research.</b> Technical tools for	LO 2	IA 2.1 IA 2.2	1		- justification-discussion	- in the univer.kaznu system

	transport and cargo systems.					based on the recommended literature - determinant test - discussion of test results	- zoom webinar
	<b>6.Seminar study-research.</b> Purpose and classification of technical equipment of transport systems.	LO 2	IA 2.1 IA 2.2	1	15	1.Determination of the required amount of technical means  2. Determination of the required amount of labor	- web session on the ZOOM platform
	<b>7. Lecture conference</b> Systematic approach to the organization of cargo transportation	LO 2	IA 2.2 IA 2.3 IA 2.4 IA 2.5	1		- justification-discussion: - assessment methods	- web session on the ZOOM platform
7	<b>7. Seminar- conversation</b> Production and transport logistics systems	LO 2	IA 2.2 IA 2.3 IA 2.4 IA 2.5	1	15	- justification-discussion: - assessment methods  - Determination of the main technical and economic indicators and selection of the best TTS option	- web session on the ZOOM platform
8	<b>8. Lecture-visualization.</b> Mechanized and automated warehouses.	LO 3	IA 3.4 IA 3.5	1		- justification-discussion: - assessment methods	- in the univer.kaznu system  - zoom webinar

	<b>8.Seminar session-consultation.</b> The structure and organization of work of modern warehouses.	LO 3	IA 3.4 IA 3.5	1	15	discussion and consultation of students solving problems  - time calculation for mechanized loading and unloading of goods from wagons	- web session on the ZOOM platform
	<b>SIWT:</b> consultation on the implementation of SIW 1.  <b>SIW2</b> Determination of the required number of loading and unloading machines and mechanisms	LO2 LO3	IA 2.1- IA 2.5 IA 3.1- IA3.5				online consultation in Zoom / consultation in WhatsApp chat/ correspondence through email
9	<b>9. Lecture - explanation.</b> Automation of management of transport vehicles.	LO 3	IA 3.1 IA 3.4 IA	1		-discussion - justification-discussion	- web session on the ZOOM platform
	<b>9.Seminar-conference.</b> The concept of automation of production processes.	LO 3	IA 3.1 IA 3.4	1	15	- Determination of tariff distance and calculation of delivery time	- in the univer.kaznu system  - zoom webinar
10	<b>10.Lecture-explanation.</b> Transport complexes for package and piece loads.  Transport and cargo complexes for bulk and dry bulk cargoes of closed storage.	LO 3	IA 3.2 IA 3.3 IA 3.4	1		- discussion of students' presentations on the supply function of the enterprise	- web session on the ZOOM platform
	<b>10.Seminar lesson-case.</b> Methods of transportation	LO 3	IA 3.2 IA 3.3 IA 3.4	1	15	- Discussion of research results	- web session on the ZOOM platform

	and storage of package goods and piece-cargo.					- determination of the geometric dimensions of the warehouse - determination of the length and capacity of cargo fronts	
	<b>SIWT:</b> protection of SIW 2 <b>SIW 2.</b> Determination of the required number of loading and unloading machines and mechanisms (for example, transportation route Kazakhstan).	LO2 LO3	IA 2.1- IA 2.5 IA 3.1- IA3.5		25	Problem solving, analytical report and presentation of results.	loading by students of the completed assignment into the system of univ.kaznu / distance courses
<b>Midterm examination</b>					<b>100</b>		
<b>Module 3 – Bases for designing transportation and freight complexes</b>							
11	<b>11.Classical lecture.</b> Organization of loading and unloading and transport and storage operations based on logistics principles.	LO 4	IA 4.1	1		- discussion of the main issues	- web session on the ZOOM platform
	<b>11.Seminar lesson-conversation.</b> Tariffs and calculation of freight charges.	LO 4	IA 4.1 IA 4.2	1	15	- preview - problem solving	- web session on the ZOOM platform
12	<b>12.Lecture-explanation.</b> Automation of document flow and accounting of goods in warehouses	LO 4	IA 4.3 IA 4.4	1		- preview - justification-discussion based on the recommended literature and web resources	- video lecture - in the univ.kaznu system - zoom webinar
	<b>8. Seminar lesson - case.</b>	LO 4	IA 4.3 IA 4.4	1	15	Case solution	- web session on the ZOOM platform



	Transport and shipping documents						
	<b>SIWT:</b> consultation on the implementation of SIW 3 <b>SIW 3</b> Drawing up a route of transportation of cargo in mixed traffic with the participation of an intermodal operator.	LO4 LO5	IA 4.1-4.4 IA 5.1-5.4				online consultation in Zoom / consultation in WhatsApp chat/ correspondence through email
13	<b>13. Lecture-research.</b> Transportation routing. Types of routes. Freight stations and terminals	LO 5	IA 5.1 IA5.2	1		- preview - test solution - discussion of test results	- video lecture - in the univer.kaznu system - zoom webinar
	<b>13. Seminar - discussion.</b> Calculating the number of routes, drawing up a routing schedule and determining the efficiency of route transportation	LO 5	IA 5.1 IA 5.2	1	15	-solution of tests -discussion of test results - Transportation of goods on special terms.	- web session on the ZOOM platform
14	<b>14.Lecture-explanation.</b> Fundamentals of designing transport complexes.	LO 5	IA 5.3 IA 5.4	1		- preview - justification-discussion based on tabular work	- video lecture - in the univer.kaznu system - zoom webinar
	<b>14. Seminar - research.</b> The composition of the project of the transport and cargo complex.	LO 5	IA 5.3 IA 5.4	1	15	Academic essay	Email
15	<b>15. Lecture-explanation.</b> Economic feasibility studies in the design of transport and cargo complexes	LO 5	IA 5.1 IA 5.3 IA 5.4	1		- preview - determinant test - discussion of test results	- in the univer.kaznu system - zoom webinar

	<b>15. Seminar - discussion.</b> Calculation of loading and unloading fronts	LO 5	IA 5.1 IA 5.3 IA 5.4	1	15	argumentation-discussion	- web session on the ZOOM platform
	<b>SIWT:</b> protection of SIW 3 <b>SIW 3.</b> Terminal and logistics center project. Sea container terminal project. Project of a transshipment warehouse at a railway station.	LO 1-5	IA 1.1- IA 5.4		25	-test questionnaire ; - colloquium game demonstrating the use of basic terms, provisions of the topics of the course	loading by students of the completed assignment into the system of univer.kaznu / distance courses
<b>Midterm 2</b>					<b>100</b>		
<b>Exam</b>					<b>100</b>		

Dean, doctor of Economics

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