Silabus educational component of the UA (elective discipline)

Name of the discipline:	Logistics engineering of lifting, construction and road machines
Level of higher education:	second (master)
Course page in Moodle:	https://dl.khadi.kharkov.ua/course/view.php?id=3084
The volume of the	4 credits (120 hours)
educational component	
Form of final control	Offset
Consultations:	on schedule
Name of the department:	Department of construction and road machines
	named after A.M. Kholodov
Language of instruction:	English
Course leader:	Razarenov Leonid V, PhD, Associate Professor
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Logistics engineering of lifting, construction and road machines

Summary of the educational component:

The aim is to provide students with knowledge of logistics in the operation of construction and road equipment, and the ability to independently solve typical problems in the maintenance and repair of machinery and equipment, provision of materials.

Subject: Preparation and development of students' skills for independent solution of logistics functions and typical tasks in the field of logistics in road construction.

The main objectives of the discipline are:

- substantiation and presentation of the unified theoretical and methodological foundations of logistics in the operation of lifting, construction and road machines;

- study of the main logistics indicators;
- acquisition of theoretical knowledge of cargo flow management;

- mastering the skills of logistics thinking to optimize cargo flows and develop logistics systems and mechanisms;

- coordination of transportation services for consumers according to their orders;
- acquisition of theoretical knowledge of cargo flow management.
- Developing skills in organizing independent research work and presenting research results.

Prerequisites for the educational component:

Higher mathematics, Theoretical mechanics, Quality of machines, Road machines, Operation and maintenance of construction and road machines.

Competencies acquired by the applicant:

General competencies:

- Ability to use information and communication technologies;
- Ability to search, process and analyze information from various sources;
- Ability to adapt and act in a new situation;
- Ability to generate new ideas (creativity);
- Ability to work in a team.

Special (professional) competencies:

Ability to create, improve and apply quantitative mathematical, scientific and technical methods and computer software tools, apply a systematic approach to solving engineering problems of industrial engineering, in particular, in conditions of technical uncertainty.

Awareness of the perspective tasks of modern production aimed at meeting the needs of consumers, knowledge of trends in the innovative development of industry technologies.

Ability to use knowledge in solving problems of improving the quality of lifting and transport, construction, road, land reclamation machinery and equipment and its control.

Learning outcomes:

Know and understand the processes of industrial engineering, have the skills to use them in practice.

Prepare production and operate industrial engineering products throughout their life cycle.

Knowledge and understanding of mechanics and mechanical engineering and prospects for their development.

Analyze engineering objects, processes and methods.

Skills in solving problems to improve the quality of lifting and transport, construction, road, land reclamation machinery and equipment.

Thematic plan

		Number of	
Topic	Name of tonics (IK IR PR S7 SR)	hours	
		ocular	extram
INU			ural
	LK Logistics in engineering. General characteristics of transport	1	
1	PRCalculation of technical and operational indicators of	4	
•	transport processes	-	
	SRIntroduction. Historical process of development of logistics.	10	
2	LK.Organization of cargo transportation	2	
	PR Calculation of technical and operational indicators of various	4	
2	types of transportation routes	-	
	SR Main indicators of logistics engineering	12	
3	LK Logistics concept of transport on construction site	2	
	PR PR Optimization of pendulum routes	2	
	with reverse idle	2	
	SR Types of transport vehicles	12	
	LK Selection of routes and indicators of transport logistics for the	2	
4	provision of materials for road construction		
4	PRCalculation of operating costs for cargo transportation	<u>2</u>	
	SR Brand service	10	
5	LKTransport and forwarding logistics services. Characteristics of	2	
	individual elements of transport logistics		
	PR Calculation of the parameters of the PZM stock	2	
	management system of the operating enterprise.	2	
	SR Basic principles and methods of calculation of transport		
	operations. Mobile vehicles for maintenance and repair of BDM	10	
	and PTM		

6	LK Transport support of foreign economic agreements	2	
	SR Logistics system and method of providing spare parts for BDM	12	
	LK Logistics in the provision of spare parts and components for the fleet of the road enterprise	2	
	PR Calculation of provision of spare parts	2	
	SR Foreign method of delivery of spare parts	8	
8	LK Transport logistics for maintenance of BDM and provision of fuel and lubricants	2	
	SR Foreign method of supplying fuel and lubricants	8	
9	LKConclusions.Problems and prospects of transport development.Summarizing the results Overview of the course of the lecture	1	
	SR Logistics in providing enterprises with new machines	6	
Toget her	LK	16	
	PR	16	
	SR	88	

Individual educational and research task (if available):

Teaching methods:

MH1 - verbal method (lecture, conversation, educational discussion, explanation, story); MH2 - practical method (practical classes, laboratory classes, exercises, situational tasks, writing letters and articles, business and role-playing games, trainings);

MH3 - visual method (method of illustrations, method of demonstrations, independent observation);

MH4 - work with educational and methodical literature, search for information on the task; MH5 - video method in combination with the latest information technologies and computer-based learning tools (distance, multimedia, web-based, etc.);

MH 6 - independent work;

MH9 - case study method.

Forms and methods of assessment

FMO2 - final control (semester exam, term paper);

- FMO3 oral control (conversation);
- FMO5 test control;

FMO7 - practical examination (defense of practical works).

Evaluation system and requirements:

Current academic performance

1 The current performance of applicants for the performance of educational activities in the classroom and for the performance of independent work is assessed using a fourpoint grading scale with subsequent conversion to a 100-point scale.

1.1 Lecture classes are evaluated by determining the quality of specific tasks.

1.2 Laboratory classes are evaluated by the quality of the reports on the implementation of laboratory work.

2The assessment of the current progress of higher education applicants is carried out at each laboratory lesson on a four-point scale ("5", "4", "C", "2") and recorded in the academic record.

-"excellent": the applicant has flawlessly mastered the theoretical material, demonstrates deep knowledge of the relevant topic or discipline, the main provisions;

- "good": the applicant has mastered the theoretical material well, knows the main aspects of the primary sources and recommended literature, reasonably presents it; has practical skills, expresses his thoughts on certain problems, but makes certain inaccuracies and errors in the logic of the presentation of theoretical content or in the analysis of practical content;

- "satisfactory": the applicant has basically mastered the theoretical knowledge of the subject or discipline, is oriented in the primary sources and recommended literature, but unconvincingly answers, confuses concepts, hesitates to answer additional questions, does not have stable knowledge; answering questions of a practical nature, shows inaccuracy in knowledge, is unable to evaluate facts and phenomena, to relate them to the future profession;

- "unsatisfactory": the applicant has not mastered the educational material of the topic (discipline), does not know scientific facts, definitions, is almost not oriented in primary sources and recommended literature, there is no scientific thinking, practical skills are not formed. **3The final** score for the current activity is recognized as the arithmetic mean of points for each lesson, for individual work, current control works according to the formula:

$$K^{nomov} = \frac{K1 + K2 + \ldots + Kn}{n},$$

where K^{nomov} is the final assessment of success based on the results of the current control;

K1, K2, ..., Kn- assessment of the success of the *n* current control measure; *n*-number of current control measures.

Scores are converted into points according to the conversion scale (Table 1).

 Table 1- Conversion of the average score for the current activity into a multi-point scale

4-point	100-point	4-point	100-point	4-point	100-point	4-point	100-point
scale	scale	scale	scale	scale	scale	scale	scale
5	100	4,45	89	3,90	78	3,35	67
4,95	99	4,4	88	3,85	77	3,3	66
4,9	98	4,35	87	3,80	76	3,25	65
4,85	97	4,3	86	3,75	75	3,2	64
4,8	96	4,25	85	3,7	74	3,15	63
4,75	95	4,20	84	3,65	73	3,1	62
4,7	94	4,15	83	3,60	72	3,05	61
4,65	93	4,10	82	3,55	71	3	60
4,6	92	4,05	81	3,5	70	from 1.78 to 2.99	from 35 to 59
						reassem	bly
4,55	91	4,00	80	3,45	69	from 0 to 1.77	from 0 to 34
4,5	90	3,95	79	3,4	68	re-examination	

Final evaluation

1 A higher education student receives a credit at the last class of the discipline based on the results of the current assessment. The average grade for the current activity is converted into points on a 100-point scale, according to the conversion table (Table 1). Higher education applicants who have a current average grade in the discipline below "3" (60 points) in the last class can increase their current score by taking tests in the discipline.

Assessment of knowledge of applicants by testing is carried out on a scale:

- "Excellent": at least 90% of correct answers;

- "Very good": from 82% to 89% of correct answers;

- "Good": from 74% to 81% of correct answers;

- "Satisfactory": from 67% to 73% of correct answers;

- "Satisfactory enough": from 60% to 66% of correct answers;

- "Unsatisfactory": less than 60% of correct answers.

2 The condition for receiving credit is:

- working off all missed classes;

- the average current grade in the discipline is not lower than "3" (60 points).

3 Additional points are awarded for individual independent work and participation in scientific events.

3.1 Additional points are added to the sum of points gained by the applicant for higher education for current educational activities (for disciplines, the final form of control for which is a test), or to the final grade in the discipline, the final form of control for which is an exam.

3.2 The number of additional points awarded for different types of individual tasks depends on their volume and significance:

- prizes in the discipline at the international / all-Ukrainian competition of scientific student works - 20 points;

- prize places in the discipline at the national competitions - 20 points;

- participation in the international / all-Ukrainian competition of scientific student works - 15 points

- participation in international/national scientific conferences of students and young scientists - 12 points;

- participation in national competitions in the discipline - 10 points

- participation in Olympiads and scientific conferences of KhNADU in the discipline - 5 points;

- performance of individual research (educational and research) tasks of increased complexity - 5 points.

3.3 The number of additional points cannot exceed 20 points.

4 The learning outcome is evaluated (select the required):

- on a two-point scale (passed/not passed) according to Table 2;

The final score together with additional points cannot exceed 100 points.

On a 100-point scale	On the national scale			
from 60 points to 100 points	enrolled			
less than 60 points	unaccounted for			

Table 2 - Scale of points conversion to the national evaluation system

Policy of the course:

- the course involves teamwork, the environment in the classroom is friendly, creative, open to constructive criticism;

- mastering the discipline involves mandatory attendance of lectures and practical classes, as well as independent work;

- independent work involves the study of individual topics of the discipline, which are submitted in accordance with the program for independent study, or were considered briefly;

- all tasks provided by the program must be completed in due time;

- if the applicant for higher education is absent from classes for a valid reason, he/she presents the completed tasks during independent preparation and consultation of the teacher;

- laboratory works must be defended no later than one week before the start of the examination session *(indicated if available)*;

(https://www.khadi.kharkov.ua/fileadmin/P_Standart/pologeniya/stvnz_85_1_01.pdf), "Moral and ethical code of participants in the educational process of KNADU

(https://www.khadi.kharkov.ua/fileadmin/P_Standart/pologeniya/stvnz_67_01_MEK_1.p df).

- in case of detection of the fact of plagiarism, the applicant receives 0 points for the task and must repeat the tasks provided in the silabus;

- cheating during tests and exams is prohibited (including using mobile devices). Mobile devices are allowed to be used only during on-line testing.

1. Recommended literature:

1 Краснокутський В.М. Експлуатація будівельних і дорожніх машин; навчальний посібник / В.М. Краснокутський, В.Б Косолапов, Разарьонов Л.В. Х.: ХНАДУ. 2012. 352С

2 Аврунин Г.А. Эксплутация гидравлического оборудования строительных и дорожных машин: (учебное пособие) / Г. А. Аврунин, И. Г. Кириченко, В. Б. Самородов; под ред. Г. А. Аврунина. – Х.: ХНАДУ, 2013. – 438с.

3. Хмара Л.А. та др. Автомобільні дороги: Будівництво, ремонт, машини та механізми для виконання робіт. / Навчальний посібник. Л.А. Хмара, О.С. Шипілов, В.Д. Мусійко, М.П. Кузьмінець, - К.;Д.: НТУ, 2011 – 416 С.

4. Хмара Л.А. Дорожні машини: Машини для будівництва, ремонту та утримання автомобільних доріг: навч. посібник. Ч.ІІ / Л. А. Хмара, О. С. Шипілов, В. Д. Мусійко [та ін.]. - Київ-Дніпропетровськ: НТУ . – 2013.-399 с.

5. Глогусь О. Логістика: Навч. посібник — Тернопіль: Економічна думка 1998.– 166 с.

6. Донченко О. О. Міжнародні перевезення, опорний конспект лекцій. — К.: Видавничий центр КНЕТЕУ, 2004. — 110 с.

7. Кальченко А. Г. Логістика: Підручник. — К.: КНЕУ, 2004. — 284 с.

8. Левковець П. Р., Зеркалов Д. В., Мельніченко О. І., Казаченко О. Г. Управління автомобільним транспортом: Навч. посіб. / За ред. Д. В. Зеркалова. — К.: Арістей, 2006. — 416 с.

2. Supporting literature

2.1. Машина Н. І. Математичні методи в економіці: Навч. посіб. — К.: ЦНЛ, 2003. — 148 с.

2.2 Окландер М. А. Промислова логістика: Навч. посібник. — К.: ЦНЛ, 2004. — 222 с.

2.3 Савенко В. Я., Гайдукевич В. А. Транспорт і шляхи сполучення: Підручник. — К.: Арістей, 2006. — 256 с.

3. Additional sources

1. НТБ ХНАДУ (м. Харків, вул. Ярослава Мудрого, 25) [електронний ресурс]. (http://library.khadi.kharkov.ua/)

2. Гідравлічні машини та гідроагрегати (http://www.kpi.kharkiv.edu/gdm)

 3. Комп'ютерне
 моделювання
 систем
 та
 процесів
 (http://

 https://ela.kpi.ua/handle/123456789/42195)

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4. Література по логистиці (www.logistics.ru).

5. Сайт кафедри БДМ ХНАДУ (http://portal.khadi.kharkov.ua).

6. https://dl.khadi.kharkov.ua/course/view.php?id=3084

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