

**Syllabus
of the elective component**

Integrated Transport Systems

Discipline	Integrated transport systems
Higher education level	second (master's degree)
Moodle course web-page	https://dl2022.khadi-kh.com/course/view.php?id=751
Educational component volume	4 credits (120 hours)
Final control form	test
Consultations	according to the schedule
Department	Transport Systems and Logistics Department
Language of teaching	English
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Educational Component Summary:

The purpose is to develop the skills of future specialists to manage integrated transport systems using modern methods of analysis, design and organization of interaction between transport systems of different countries and modes of transport, to manage cargo transportation and ensure the use of the most efficient routes and schemes of transport operation using the principles of its integration, to draw up a schedule of mainline transportation using relevant technological background and software.

The subject is the theoretical background of integration processes in transport systems of local, regional and state levels; methodological issues for organizing processes in integrated transport systems and assessing the quality of service for transport consumers

The main tasks of studying the academic discipline are:

- formation of a system of knowledge and skills to solve typical problems of transport systems;
- formation of skills in the analysis and synthesis of transport systems using the principles of their integration;
- studying the conventions, standards and other regulatory documents on the organization of international transportation, modern methods for developing integrated cargo delivery systems;
- development of skills to substantiate the economic feasibility of using the multimodal technologies in international transportation.

Prerequisites for studying the educational component:

Higher mathematics; Theory of Probability and Mathematical Statistics.

Competencies acquired by the applicant:

General competencies:

- ability to search, process and analyze information from various sources;
- ability to evaluate and ensure the quality of work performed;
- ability to conduct research at an appropriate level;

Special (professional) competencies:

- ability to research and manage the functioning of transport systems and technologies;
- ability to identify and apply promising directions for transport process modeling;
- ability to use modern technologies of freight forwarding;

- ability to manage freight transportation by types of transport.
- ability to model passenger and freight transport systems of the local and regional level, assess the quality and reliability of their operation, environmental parameters and traffic safety indicators, and improve the efficiency of such systems;
- ability to use the methods and approaches necessary to create cargo delivery systems and assess the level of logistics service.

Training results consist in acquiring the following skills:

- develop new and improve existing transport systems and technologies, determine development goals, existing limitations, performance criteria and areas of use;
- develop cargo and passenger transportation technologies by mode of transport based on research and relevant data;
- develop cargo delivery systems, evaluate and analyze the level of transport service for consumers;
- evaluate and analyze the level of logistics service for consumers of transport services.

Thematic plan

Theme №	Theme (L, PW, SEW)	Hours	
		full-time training	full-time training
1	L. Prerequisites for effective integration of international transport systems.	2	2
	PW. Assessment of the impact of changes in transport tariff and source of supply on the location of the production facility.	2	-
	SEW. International conventions on the carriage of goods by different modes of transport.	14	14
2	L. Analysis of processes in transport systems.	4	
	SEW. Development of regression models. Data forecasting based on a moving average.	14	14
3	L. Organization of technological interaction of transport modes.	2	-
	PW. Selection of the scheme of transportation of petroleum products.	2	-
4	L. Organization of main-line transportation.	4	-
	PW. Calculation of the optimal number of terminals and transportation distances.	2	2
	SEW. Technologies of main-line cargo transportation.	7	10
5	L. Feasibility of decisions on the organization of transportation.	4	-
	PW. Selection of the transport mode in the supply system.	2	-
6	L. Planning of transport development and traffic flows schemes in cities.	4	2
	PW. Evaluation of options for traffic management.	2	-
	SEW. Elements of the sustainable mobility concept.	14	16
7	L. Coordination and traffic flow management in cities and on intercity highways.	4	-
	PW. Determination of the level of transport service quality for the population.	2	2
	SEW. Simulation and analytical models of traffic flows.	14	14
8	L. Affreightment and transport insurance.	4	-
	PW. Determination of the location of the distribution warehouse in the served territory.	2	-

Theme №	Theme (L, PW, SEW)	Hours	
		full-time training	full-time training
9	L. Organization of warehouse facilities.	4	-
	PW. Evaluation of the capacity of logistics chains in the company's distribution system.	2	-
	SEW. Components of the warehouse area. Methods of calculating the warehouse area. Types of warehouses.	9	12
Sum	L	32	4
	PW	16	4
	SEW	72	112
Total		120	120

Teaching methods:

1) verbal:

1.1 traditional: lectures, explanations, talks, etc.;

1.2 interactive: discussions;

2) visual: illustration method, demonstration method;

3) practical (traditional): practical classes.

Evaluation system and requirements:

Ongoing achievements

1 The applicants' ongoing achievement in the performance of the both educational activities and self-education work while training is evaluated using a four-point scale with the further conversion into the 100-point scale. While evaluating all kinds of works provided by the educational program are taken into account.

1.1 Lectures are evaluated by determining the quality of specific tasks performance.

1.2 Practical classes are evaluated by the quality of performance of the tests or individual tasks, execution and design of the report on practical works.

2 The final evaluation of the discipline is determined as a sum of points on:

- passed standard tests, verbal questioning, attendance and communication activity level;

- in-class practical tasks execution and theoretical preparation.

Applicants' evaluation score scale according to the ongoing control is given in table 1.

Table 1 – Points distribution under the themes defining a final test score according to the discipline ongoing assessment

Ongoing assessment									Discipline total score
Theme 1	Theme 2	Theme 3	Theme 4	Theme 5	Theme 6	Theme 7	Theme 8	Theme 9	100
9	8	9	13	12	13	12	12	12	

Final estimation

1 The final test score is got by the applicant at the last double-lesson according to the discipline ongoing assessment. The condition to pass the test is not less than 60 points score.

2 Higher education applicants who have an ongoing assessment score less than 60 points can increase it at the last class by taking a combination of written and oral tests that comprise both answering 2 professionally-oriented question and a problem solution with

further commenting the work done or standard tests. The applicants who made the tasks previewed by the practical classes are allowed to pass the final test.

3 Extra-points are awarded to the applicants for participation in scientific events.

3.1 Extra-points are added to the achieved sum of points by the higher education applicant for the current educational activity.

3.2 The number of extra-points awarded for different types of individual tasks depends on their volume and importance:

- discipline prize-winning places on the at the international / all-ukrainian competition of scientific students' works – 20 points;

- discipline prize-winning places at all-Ukrainian olympiads – 20 points;

- participation in the international / all-Ukrainian competition of scientific students' works – 15 points

- participation in international / all-Ukrainian scientific conferences of students and young scientists – 12 points;

- participation in all-Ukrainian discipline competitions – 10 points

- participation in KhNAHU discipline competitions and scientific conferences – 5 points;

- implementation of individual scientific and research (educational and research) tasks of increased complexity – 5 points.

3.3 The number of extra points might not exceed 20 points.

4 The result of the study is evaluated on a two-point scale (passed/failed) according to table 2. The total score comprising the extra-points might not exceed 100 points.

Table 2 – Conversion of the score into national evaluation system

According to 100-point scale	According to the national scale
between 60 scores and 100 scores	Passed
less than 60 scores	Failed

Recognition of non-formal and informal training results

The procedure for the recognition of training results obtained in non-formal and informal education is regulated by [СТВНЗ-83.1-01:2021 «Визнання результатів неформальної та інформальної освіти»](#).

To recognise these results, an applicant should submit an application to the dean of the faculty and attach certificates and other documents confirming the competencies obtained. Based on the results of the application consideration, a subject-specific commission is established to review the submitted documents, interview the applicant and decide on the re-crediting of training results or the appointment of certification in the form of a final control (10 working days are given for preparation). Based on the results of the control, the commission assigns a final grade. If the applicant receives less than 60 points, the results of non-formal or informal education are not credited. When re-crediting training results in a discipline, the applicant is exempt from studying it.

Course policy:

- the course involves working in the team, the environment in the audience is friendly, creative, open to constructive criticism;

- the discipline requires mandatory attendance of lectures and practical classes, as well as self-education work;

- self-education work involves studying certain discipline themes, which are submitted in accordance with the program for self-education work, or have been considered briefly;

- all the tasks provided by the program must be completed within the prescribed time-frame;

- if the higher education applicant is absent for valid reasons, he/she passes the completed tasks during the self-education work and consultations provided by the teacher;
- while studying the course, higher education applicants should follow the rules of academic integrity set out in such documents: «Rules of academic integrity of participants of the KhNAHU Education process» (https://www.khadi.kharkov.ua/fileadmin/P_Standart/pologeniya/stvnz_67_01_dobroch_1.pdf), «Academic integrity. The text check of academic, scientific and qualification works for the plagiarism» (https://www.khadi.kharkov.ua/fileadmin/P_Standart/pologeniya/stvnz_85_1_01.pdf), «Moral and ethical code of participants of the KhNAHU educational process» (https://www.khadi.kharkov.ua/fileadmin/P_Standart/pologeniya/stvnz_67_01_MEK_1.pdf).
- in case of detecting the plagiarism, the applicant receives 0 points for the task and must retake the tasks provided in the syllabus;
- cheating during control works and examinations is prohibited (including mobile devices). Mobile devices are only allowed to be used during online testing.

Recommended literature:

1. Крикавський Є.В., Похильченко О.А., Фертч М. Логістика та управління ланцюгами поставок : навчальний посібник. Львів: Львівська політехніка, 2017. 804 с.
2. Нефьодов М.А., Очеретенко С.В. Логістика. Х.: ХНАДУ, 2013. 164 с.
3. Основи теорії транспортних процесів та систем : навч. посіб. / П.Ф. Горбачов, та ін. – Харків: ХНАДУ, 2015. – 192 с.
4. Смирнов І., Косарева Т. Транспортна логістика. К.: Центр навчальної літератури, 2018. 224 с.
5. Bowersox D., Closs D. Logistical Management: The Integrated Supply Chain Process. New Delhi: McGraw Hill Education, 2017. 752 p.
6. Настанови. Розробка та виконання плану сталої міської мобільності. Брюссель: Європейська Платформа PCMM, 2014. 152 с.
7. Посібник для досягнення Цілей Сталого Розвитку в сфері бізнесу. Нью-Йорк: Глобальна Ініціатива зі Звітності, Глобальний договір ООН, Всесвітня рада підприємців зі сталого розвитку, 2016. 30 с.
8. Про схвалення Національної транспортної стратегії України на період до 2030 року: Розпорядження Кабінету Міністрів України від 30.05.2018 № 430-р. : Офіційний портал Верховної Ради України. URL: <https://zakon.rada.gov.ua/laws/show/430-2018-%D1%80#n13>.
9. Горбачов П.Ф., Макарічев О.В., Немна Т.В., Свічинський С.В. Визначення закону розподілу критерію ефективності перевезень вантажів у міжнародному сполученні. *Комунальне господарство міст*. 2018. № 144 (2018). С. 15–23.
10. Горбачов П.Ф., Макарічев О.В., Немна Т.В., Свічинський С.В. Експериментальне дослідження прибутковості міжнародних автомобільних перевезень вантажів за разовими заявками. *Системи управління, навігації та зв'язку*. 2018. № 4 (50). С. 50–56.
11. Горбачов П.Ф., Свічинський С.В. Інтервальне моделювання потреб населення міст у перевезеннях громадським транспортом на основі функції розселення : монографія. Харків: ХНАДУ, 2016. 148 с.
12. Кочина А.А., Свічинський С.В., Макарічев О.В. Формування пасажиропотоків у приміському сполученні на автомобільному транспорті : монографія. Харків: ХНАДУ, 2021. 128 с.
13. Свічинський С.В. Оцінка ефективності прийнятих рішень. Вплив пандемії на мобільність: лекції IV Міжнародної освітньої школи зі сталої мобільності (Київ, Харків, 21-24 квітня 2021 року). К.: Екодія, 2021. С. 43–49.

Additional sources:

1. Асоціація міжнародних автомобільних перевізників України : офіційний веб-сайт. URL: <http://www.asmap.org.ua/>.
2. Центр транспортних стратегій : веб-сайт інформаційно-консалтингового центру «ЦТС». URL: <http://cfts.org.ua/>.
3. Верховна Рада України : офіційний веб-портал. URL: <http://rada.gov.ua/>.
4. Державна служби України з безпеки на транспорті : офіційний веб-сайт. URL: <http://dsbt.gov.ua>.
5. Економічна статистика / Зовнішньоекономічна діяльність : офіційний веб-сайт Державної служби статистики України. URL: http://www.ukrstat.gov.ua/operativ/menu/menu_u/zed.htm.
6. Council of Supply Chain Management Professionals : official web-site. URL: <http://cscmp.org/>.
7. Empowering Logistics: Competence, Network, Standard : official web-site of the European Logistics Association. URL: <http://www.elalog.eu/>.

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