



Syllabus of the Educational Component
Program of the Academic Discipline



Educational Practice «Introduction to Profession»

Shtcialty

274 – Automobile transport

Інститут

Institute of Education and Science in
Mechanical Engineering and Transport

Educational program

Motor vehicles and motor car industry

Кафедра

Car and Tractor Industry (152)

Level of education

Bachelor's level

Тип дисципліни

Special (professional), Mandatory

Semester

1

Мова викладання

English, Ukrainian

Lecturer and course developer



Oleh Ahapov

Oleh.Ahapov@khpi.edu.ua

Candidate of Technical Sciences, Associate Professor, Associate Professor of the Automobile and Tractor Engineering Department of KhPI National Technical University

Work experience – 14 years of educational and pedagogical work, 20 years of practical work in a specialty. Author of 70 scientific and educational and methodological works. Leading lecturer in the following disciplines: ‘Theory and basics of car design’, ‘Basics of operation, maintenance of cars at service stations’, ‘Modern petrol stations and charging terminals’, ‘Calculation and theoretical substantiation of the design of car systems and components’.

[More about the lecturer on the department's website](#)

General information

Annotation

The discipline belongs to the educational components of the program from the cycle of special (professional) training. The material introduces various aspects of the future specialty, the role of motor transport in the country's economy, the structure of rolling stock, as well as the infrastructure of enterprises that service this transport.

Purpose of the Discipline

Formation in students of a system of ideas about the importance and necessity of the disciplines studied at the university to acquire scientific and professional knowledge and skills in the field of motor transport, aimed at the use in the national economy of new economic and organizational systems that ensure the possibility of using motor transport with rational material and energy costs.

Format of Classes

Lectures, independent work, introductory practice, consultations. Final control – credit.

Competencies

GC 4. Ability to act socially responsibly and consciously.

PC 8. Ability to organize the effective operation of motor transport facilities, their systems and elements.

Learning Outcomes

LO 1. Have conceptual scientific and practical knowledge necessary for solving specialized complex tasks of motor transport, critically evaluate relevant theories, principles, methods, and concepts.

LO 2. Communicate fluently in the state and foreign languages orally and in writing when discussing professional issues.

LO 3. Apply specialized software, information and communication technologies to study models of transport objects and processes, performance properties of vehicles, perform engineering and technical-economic calculations, create design documentation and solve other tasks of motor transport.

LO 5. Solve tasks of forming labor resources and professional development of personnel; identify reserves for improving the efficiency of employees of motor transport facilities.

LO 6. Make effective decisions, analyze and compare alternative options taking into account goals and constraints, quality assurance issues, as well as technical, economic, legislative and other aspects.

LO 7. Analyze information obtained from research results, generalize, systematize, and use it in professional activities.

LO 8. Understand and apply in professional activity regulatory and legislative acts of Ukraine, international normative documents, Rules of Technical Operation of Motor Transport of Ukraine, instructions and recommendations for operation, repair and maintenance of vehicles, their systems and elements.

LO 9. Analyze and evaluate motor transport objects, their systems and elements.

LO 12. Develop, design and implement in production documentation on technological processes of operation, repair and maintenance of vehicles, their systems and other instructional guidelines, rules and methods.

LO 16. Organize the operation of vehicles, their systems and elements.

LO 18. Develop technologies of production processes at all stages of the life cycle of motor transport facilities.

LO 20. Collect and analyze diagnostic information about the technical condition of vehicles.

LO 25. Present research results and professional activities to specialists and non-specialists, justify one's position.

Scope of the Discipline

Total volume – 90 hours (3 ECTS credits): Lectures – 32 hours, Independent work – 58 hours

Prerequisites

Successful completion of the course requires knowledge at the level of secondary school (college).

Features of the Discipline, Teaching Methods and Technologies

Lectures are held interactively using multimedia technologies; introductory practice takes place at leading enterprises of the industry with visits to automobile museums.

Program of the Academic Discipline**Lecture Topics**

- Topic 1. History of NTU "KhPI" and its organizational structure
- Topic 2. Features of production activity of motor transport and professional requirements for higher education specialists
- Topic 3. Fundamentals of the transport process
- Topic 4. Development of road transport
- Topic 5. Internal combustion engine (ICE)
- Topic 6. Development of automobile engineering
- Topic 7. Structure of motor transport
- Topic 8. Ensuring the operability of vehicles
- Topic 9. Technical operation of cars as a science and academic discipline
- Topic 10. Concept of branded servicing of vehicles
- Topic 11. Modern auto center and its structure
- Topic 12. Traditional and alternative fuels. Environmental safety.
- Topic 13. Technical and operational characteristics of the car
- Topic 14. Basic provisions of technical operation of the car
- Topic 15. Electric vehicles
- Topic 16. Gas stations and charging terminals for electric vehicles

Laboratory Work

Not provided.

Practical Work

Not provided.

Independent Work

Students are also recommended additional materials (videos, articles) for self-study and analysis.

Literature and Study Materials

1. Gillespie T. D. Fundamentals of Vehicle Dynamics. Revised Edition. – Warrendale, PA : SAE International, 2021. – 519 c.
2. Stone R. Introduction to Internal Combustion Engines. – London: Red Globe Press, 2017. – 516 p
3. Heisler, Heinz. Fundamentals of Automobile Technology: Engines and Systems. Society of Automotive Engineer, 1998. – 783 p.

4. Robert Bosch GmbH. Bosch Automotive Handbook. – Hoboken, NJ : John Wiley & Sons, 2022. – 2048 p

5. Featherstone, M., Thrift, N., Urry, J. Car Troubles. – London : Routledge, 2017. – 256 p.

6. Nelson, J. D., Mulley, C., Ison, S. (eds.). Elgar Encyclopedia of Transport and Society. – Cheltenham, UK : Edward Elgar Publishing, 2025. – 784 p.

7. Gimblett, R. The Car. – New York : Pegasus Books, 2023. – 368 p.

8. Urry, J., Kingsley, D. After the Car. – Cambridge, UK : Polity Press, 2010. – 224 p. |

Assessment and grading

Criteria for assessment of student performance, and the final score structure	Grading scale		
	Total points	National	ECTS
100% of the final grade consists of the results of the assessment in the form of a test (40%) and continuous assessment (60%).	90–100	Excellent	A
	82–89	Good	B
	75–81	Good	C
	64–74	Satisfactory	D
	60–63	Satisfactory	E
Test: written assignment with 3 questions and an oral report.	35–59	Unsatisfactory	FX
Continuous assessment: 2 online modules (30% each).		(requires additional learning)	
	1–34	Unsatisfactory (requires F repetition of the course)	

Norms of academic integrity and course policy

The student must adhere to the Code of Ethics of Academic Relations and Integrity of NTU "KhPI": to demonstrate discipline, good manners, kindness, honesty, and responsibility. Conflict situations should be openly discussed in academic groups with a lecturer, and if it is impossible to resolve the conflict, they should be brought to the attention of the Institute's management.

Regulatory and legal documents related to the implementation of the principles of academic integrity at NTU "KhPI" are available on the website: <http://blogs.kpi.kharkov.ua/v2/nv/akademichna-dobrochesnist/> |

Approval

Approved by

30.08.2025

Head of the department
Oleksii REBROV

30.08.2025

Guarantor of the
educational program
Andrii KOZHUSHKO

