



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Maintenance of transport means [S2Trans1E-TrZ>UŚT]

Course

Field of study

Transport

Year/Semester

1/1

Area of study (specialization)

Sustainable Transport

Profile of study

general academic

Level of study

second-cycle

Course offered in

english

Form of study

full-time

Requirements

compulsory

Number of hours

Lecture

15

Laboratory classes

15

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

KNOWLEDGE: Basic knowledge of physics, material science and technical mechanics, as well as the basics of construction and operation of transport means, to the extent enabling the clarification of issues related to the maintenance of transport means. **SKILLS:** The ability to use scientific and technical literature in the scope of the above-mentioned knowledge, in English and Polish, and the ability to use this knowledge in learning methods and principles of maintaining means of transport. **SOCIAL COMPETENCES:** Awareness of ensuring the proper condition and safety of the used means of transport during their intended use in the social environment.

Course objective

To acquaint students with the terminology, theoretical foundations of the maintenance of transport means, in technical and non-technical aspects, in particular with the most important methods and principles as well as practical ways of maintaining means of transport.

Course-related learning outcomes

Knowledge:

1. The student has ordered and theoretically founded general knowledge related to key issues in the

field of transport engineering

2. The student has advanced and detailed knowledge of the processes occurring in the life cycle of transport systems

Skills:

1. The student is able to plan and conduct experiments, including measurements and simulations, interpret the obtained results and draw conclusions as well as formulate and verify hypotheses related to complex engineering problems and simple research problems

2. The student is able - when formulating and solving engineering tasks - to integrate knowledge from various areas of transport (and, if necessary, also knowledge from other scientific disciplines) and apply a systemic approach, also taking into account non-technical aspects

Social competences:

The student understands that in the field of transport engineering, knowledge and skills very quickly become obsolete

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

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The learning outcomes of theoretical education are verified with a written test, covering the general issues taught, concerning the maintenance of transport means, and detailed methods and techniques for the implementation of processes related to their maintenance. Practical skills, acquired during the implementation of laboratory exercises, are checked on the basis of laboratory classes reports.

The threshold for passing the knowledge of the subject is 50% of the points obtained from the written exam, covering all the issues specified in the course program.

Programme content

1. Terminology related to the maintenance of transport means. Explanation of the essence and necessity of maintaining technical objects, in particular means of transport, operational nomenclature, operational (technical) availability factor.
2. Maintenance as an operation subsystem, factors influencing the consumption, durability and reliability of transport means, servicing of means of transport, service networks, authorized network and independent services.
3. Assessment of the condition of transport means by diagnostic methods and possible condition of these means. Parametric (functional) and symptomatic diagnostics. Comprehensive diagnostics - lines, stands and diagnostic instruments. Assessment of the condition of parts of transport means using non-destructive testing methods.
4. Handling of means of transport means. Justification of the handling, its genesis and goals. Systems, types and organizational methods of servicing. Service outsourcing, handling of fleet of transport means, fleet client, service contract.
5. Repair of transport means. The genesis of repairs. Types of repairs and their organizational forms. Operational structure of the major repair. Spare parts and their types. Repair kits. Regeneration of parts of transport means and possibilities of its use.
6. Service facilities for means of transport. Service and repair plants, their equipment and design basics. Garages and parking spaces for means of transport. Types of garages and parking spaces, and the requirements for them.
7. Formal and legal aspects of the maintenance of transport means. Registration and deletion. Scrapping - recycling and utilization of transport means and their components. Warranty conditions and complaints about servicing of transport means.

Teaching methods

1. Lectures with multimedia presentation.
2. Sets of videos illustrating the essence of particular methods of maintaining means of transport and specific examples of their application.
3. Laboratory classes - performing the tasks given by the teacher, practical exercises in laboratories: diagnostic, handling and repair ones.

Bibliography

Basic

1. Bonick A., Newbold D.: A Practical Approach to Motor Vehicle and Maintenance. Taylor and Francis Group, London, 2011.
2. Royston M.: Railway Maintenance Vehicles and Equipment. Amberley Publishing. Gloucestershire (UK), 2018.
3. Kinnison H.; Aviation Maintenance Management. McGraw-Hill Education-Europe, 2012.
4. Knott P.: An Introductory Guide to Motor Vehicle Maintenance: Light Vehicles. EMS Publishing, London, 2010.
5. Geitner F.K., Blach H.: Machinery Components Maintenance and Repair, Vol. 3. Gulf Professional Publishing, 2019.
6. Moubray J.: Realibility-Centred Maintenance. Elsevier Science and Technology, 1998.
7. Maintenance and repair of Motor Vehicle; A Practical Introduction Manual. International Labour Office Publishing, Geneva, 1998.
8. Bray Don E., Stanley Roderic K.: Nondestructive Evaluation: A Tool in Design, Manufacturing and Service, McGraw-Hill, New York, 1998.
9. Livesey W.A., Robinson A.: The Repair of Vehicle Bodies. Elsevier, London, New York, Tokyo, 2005.

Additional

1. Smirnova O.V.: Building a Sustainable Transportation Infrastructure for Low-Term Economic Growth. IGI Global, Hershey PA, USA, 2019..

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	20	1,00