



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Logistics for operating of technical systems [N1Log2>LEST]

Course

Field of study
Logistics

Year/Semester
4/7

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
part-time

Requirements
compulsory

Number of hours

Lecture
8

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
8

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

The student starting this subject should have general knowledge of the basics of logistics, production processes, and machine construction and operation. He should also be able to obtain information from the indicated sources and be ready to cooperate as part of a team

Course objective

Providing students with basic knowledge in the logistics of machinery and equipment operation necessary for the correct design and implementation of machinery and equipment maintenance systems in logistics, and developing students' ability to solve problems in the field of technical system operation

Course-related learning outcomes

Knowledge:

1. has a basic knowledge of construction, technology and logistics related techniques [P6S_WG_01]
2. The student has basic knowledge of logistics and its specific issues related to the operation and management of technical systems in operation [P6S_WG_05]
3. has knowledge of the principles of design and implementation of machine maintenance systems [P6S_WK_06]

4. has knowledge of modern methods, techniques and tools for managing the maintenance of machinery and equipment in logistics [P6S_WK_07]

Skills:

1. has the ability to design and build a system for maintaining machinery and equipment and its implementation in the enterprise, taking into account the areas of logistics [P6S_UW_07]
2. is able to put into practice management and improvement instruments for maintaining machinery and equipment in logistics [P6S_UW_03]

Social competences:

1. understands that knowledge and skills in the field of logistics of technical systems operation is depreciating very quickly and is aware of lifelong learning [P6S_KK_02]
2. is willing to cooperate in a team on solving problems within the scope of logistics of machine and device maintenance [P6S_KR_02]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Knowledge acquired during the lecture is verified by one 45-minute colloquium carried out during the 8th lecture. colloquium consists of 5 open questions and 5 test questions, variously scored. Total points to get 100. Passing threshold: 50% of points. Final issues on the basis of which questions are prepared will be sent to students by e-mail using the university e-mail system

Skills acquired as part of the project classes are verified on the basis of the developed project. Total points to get 100. Passing threshold: 50% of points.

Programme content

The program covers the logistics of the use and operation of technical systems: classic (reactive), preventive (planned and preventive), prognostic (proactive) and intelligent (in Industry 4.0)

Course topics

Lecture: Basic concepts, introduction to operational logistics. Factors in selecting machinery and equipment. Machine operation documentation. Types and characteristics of maintenance and repair work. Machine maintenance systems - the classic system. TPM - Total Productive Maintenance. RCM - Reliability Centered Maintenance. Intelligent maintenance system in Industry 4.0 and 5.0. Division of labor in operational logistics. Material management in operational logistics. Structure of the operational logistics subsystem. Time horizons for planning maintenance functions. Maintenance cycles, components, transfer of cycles to maintenance plans. Planning maintenance work and the demand for production capacity. Spare parts supply logistics for maintenance work. Classification of failure causes. Selection of maintenance systems, use of ABC/XYZ analysis in operational logistics.

Project: Students design a machine maintenance system for a machinery park specified by the instructor.

Teaching methods

1. Lecture: multimedia presentation, illustrated with examples on the board. Thematic videos from YouTube.
2. Project: team implementation of a design task - design of a machine maintenance system.

Bibliography

Basic:

1. Frań J., Zarządzanie i logistyka eksploatacji maszyn, Wydawnictwo Naukowe Politechniki Poznańskiej, Poznań 2021.
2. Strategie i metody utrzymania ruchu. Praca zbiorowa: Jasiulewicz Kaczmarek M., Mazurkiewicz D., Wyczółkowski R.. Polskie Wydawnictwo Ekonomiczne. 2023.
3. Legutko S., Eksploatacja maszyn, Wydawnictwo Politechniki Poznańskiej, Poznań 2007.
4. Słowiński B., Inżynieria eksploatacji maszyn, Wydawnictwo Naukowe Politechniki Koszalińskiej, Koszalin 2014.
5. Gulati R., Maintenance and Reliability Best Practices. Wydawca: Industrial Press, Incorporated, 2020.

Additional:

1. Szelerski M.W., O utrzymaniu ruchu w zakładach produkcyjnych. Wydawnictwo Kabe. Krosno. 2023.
2. Witczak R., Utrzymanie ruchu Zorientowane na Niezawodność. RCM w teorii i praktyce. Wydawnictwo: Konsultant RCM Robert. 2025.
3. Kacperak M., Szymaniec Sł., Utrzymanie ruchu w przemyśle Informatyka i cyberbezpieczeństwo, Diagnostyka przemysłowa, Praktyka. Wydawnictwo PWN. Warszawa 2020.
4. Stephens M. P., Productivity and Reliability-Based Maintenance Management. Purdue University Press. West Lafayette Indiana, USA, 2022.
5. <https://uslugirozwojowe.parp.gov.pl/wyszukiwarka/uslugi/podglad?id=3107753>

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	16	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	34	1,00