COURSE DESCRIPTION CARD - SYLLABUS

Course name
Logistics for operating of technical systems [S1Log2>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
full-time

Requirements
compulsory

Number of hours

Lecture
15

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
15

Number of credit points

2,00

Coordinators

prof. dr hab. inż. Józef Frąś
jozef.fras@put.poznan.pl

Lecturers

Prerequisites

he 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. is able to put into practice management and improvement instruments for maintaining machinery and equipment in logistics [P6S_UW_03]
2. 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]]

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 the field of operation logistics. Factors of choosing machines and devices. Machine operation documentation. Types and characteristics of maintenance and repair works. Systems of caring for the machine park - classic. TPM - Total Productive Maintenance. RCM - Reliability Centered Maintenance. Intelligent maintenance system in Industry 4.0 and 5.0.
Division of works in operational logistics. Materials management of
exploitation logistics. Construction of the operation logistics subsystem. Time horizons for planning maintenance functions. Renovation cycles, components, transferring cycles to renovation plans. Renovation planning and demand for production capacity. Supply logistics for spare parts for repairs. Classification of the causes of failure. Selection of care systems, use of ABC / XYZ analysis in operational logistics
Project: Students design a system for maintaining machines in the machine park defined by the teache

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. Frąś 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.Ramesh Gulati: 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.Matthew P. Stephens.: 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	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	20	1,00