



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Organization of Supporting Processes [S1I|Zarz1>OPPom]

### Course

Field of study

Engineering Management

Year/Semester

2/4

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

polish

Form of study

full-time

Requirements

elective

### Number of hours

Lecture

15

Laboratory classes

0

Other (e.g. online)

0

Tutorials

15

Projects/seminars

0

### Number of credit points

3,00

### Coordinators

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prof. PP

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### Lecturers

### Prerequisites

The student starting this subject should have knowledge of the basics of business operations, design of technological processes, basics of machine construction and organization of production. He should also be able to obtain information from sources indicated by the teacher and be ready to cooperate within a team.

### Course objective

Acquiring by the student the knowledge (systematics and methodology) needed to shape processes supporting the implementation of basic processes in the enterprise

### Course-related learning outcomes

Knowledge:

The student describes the functions of reliability, durability, and moral wear of machines, as well as the principles of handling technical objects [P6S\_WG\_15].

The student identifies methods, techniques, tools, and materials used in maintenance and warehouse management [P6S\_WG\_16].

The student characterizes industrial technologies used in maintenance processes, including TPM (Total

Productive Maintenance), RCM (Reliability Centered Maintenance), and Maintenance 4.0 [P6S\_WG\_17]. The student explains the basic principles of safety and hygiene in the context of maintenance and warehouse management [P6S\_WG\_18]. The student has knowledge about quality management and conducting business activities in the aspect of maintenance [P6S\_WK\_02].

#### Skills:

The student analyzes technological processes and production systems, considering their systemic, organizational, and economic aspects [P6S\_UW\_11].

The student critically evaluates maintenance processes and warehouse work organization, using measures and indicators of efficiency [P6S\_UW\_13].

The student identifies and solves design tasks related to maintenance, including management of spare parts and consumables [P6S\_UW\_14].

The student applies methods to solve problems in the area of maintenance and warehouse management [P6S\_UW\_15].

The student designs the organization of auxiliary processes, including functional-spatial layouts of warehouses and transport systems [P6S\_UW\_16].

#### Social competences:

The student independently searches for and utilizes educational resources to develop competencies in the field of maintenance and warehouse management [P6S\_KK\_01].

The student substantively contributes to projects related to the organization of auxiliary processes, considering legal, economic, and organizational aspects [P6S\_KO\_01].

The student is aware of the importance of a systemic approach in creating efficient auxiliary processes, considering technical and economic aspects [P6S\_KO\_02].

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

#### Formative assessment:

a) tutorials: assessment of current progress of task implementation

b) lectures: answers to questions about the content of previous lectures,

#### Summative rating:

a) tutorials: presentation of reports on exercises performed (arithmetic average of partial grades);

b) lectures: The pass a test questions, scored on a two-point scale of 0, 1. Passing threshold: 50% of the points.

### Programme content

#### Lecture:

1) Maintenance: a) reliability (reliability functions), durability, moral wear; systems, methods, principles of operating technical facilities as well as workshop tools and aids; b) maintenance in the life cycle of the machine; c) tendencies to improve the process of technical systems service (TPM, RCM, Maintenance 4.0); d) management of spare parts and consumables; e) measures and indicators for assessing the efficiency of technical facilities and maintenance.

2) Warehouse management: a) functions and types of warehouses, b) storage program and size of the warehouse, c) means of transport and storage facilities, d) functional and spatial arrangements of warehouses, methods of storage; e) classification and technical solutions of transport systems in warehouses; f) organization of warehouse work.

#### Tutorials:

Calculation of KPIs (e.g. MTBF, MTTR, ...), analysis of an emergency event, reporting an emergency event by the operator, instructions for replacing parts by a technical department / operator (e.g. OPL), checklist of machine receipt after repair, selection of means of transport and warehouse equipment, warehouse work instructions

Project: Designing a selected element of the support process (maintenance, warehouse management)

### Teaching methods

1) Lecture: multimedia presentation, illustrated with examples on the board.

2) Tutorials: multimedia presentation illustrated with examples given on a blackboard and performance

of tasks given by the teacher - practical exercises.

3) Project: discussion of proposals for solutions to design issues and presentation on the forum

## Bibliography

Basic:

Jasiulewicz-Kaczmarek M., Mazurkiewicz D., Wyczółkowski R., 2023. Strategie i metody utrzymania ruchu, PWE

Legutko S., Eksploatacja maszyn, Wydawnictwo Politechniki Poznańskiej, Poznań 2007

Kolman M (red)., Zarządzanie magazynem Zapasy, WMS, Lean, Bezpieczeństwo, Wydawnictwo: Wiedza i Praktyka 2019

Antosz K., METODYKA MODELOWANIA OCENY I DOSKONALENIA KONCEPCJI LEAN MAINTENANCE,

Politechnika Rzeszowska, Rzeszów 2019

Jasiulewicz-Kaczmarek M., Piechowski M., Drożyner P. 2014. Zastosowanie narzędzi IT i regałów automatycznych do zarządzania częściami zamiennymi - studium przypadku, Logistyka 4/2014 s. 3926 - 3935

Jasiulewicz-Kaczmarek M., Sustainable maintenance assessment model of enterprise technical infrastructure. Wydawnictwo Politechniki Poznańskiej, Poznań 2019

Additional:

Antosz K., Maintenance - identification and analysis of the competency gap, Eksploatacja i Niezawodność - Maintenance and Reliability 2018; 20 (3): 484-494,  
<http://dx.doi.org/10.17531/ein.2018.3.19>.

Losta A., Wybrane aspekty komputerowego wspomaganie zarządzania eksploatacją i utrzymaniem ruchu. Oficyna Wydawnicza Polskiego Zarządzania Produkcją, Opole 2012

Journals:

Inżynieria & Utrzymanie Ruchu Zakładów Przemysłowych,  
Służby Utrzymania Ruchu,  
Logistyka

## Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,00
Classes requiring direct contact with the teacher	35	1,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	40	1,50