



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Internal transport logistic

### Course

Field of study

Management and Production Engineering

Area of study (specialization)

Production Company Logistics

Level of study

First-cycle studies

Form of study

part-time

Year/Semester

2/4

Profile of study

general academic

Course offered in

Polish

Requirements

elective

### Number of hours

Lecture

12

Laboratory classes

Tutorials

8

Projects/seminars

10

Other (e.g. online)

### Number of credit points

3

### Lecturers

Responsible for the course/lecturer:

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Faculty of Mechanical Engineering

Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:

### Prerequisites

The student should have knowledge of the basics of internal logistics and working time standardization (operations, treatments, activities).

### Course objective

Acquainting with devices used in close transport, the way of describing internal transport as well as standardizing and designing transport systems.

### Course-related learning outcomes

Knowledge

Basic information on logistics in the enterprise.



### Skills

Logistics identification in the enterprise area. The ability to think logically, to use information obtained from literature and the Internet.

### Social competences

Student understanding the need to learn and acquire new knowledge.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

#### Lecture:

Case study summarizing the tasks carried out during the exercises. Completing 55% of correctly completed transport tasks.

#### Exercises:

Tasks related to the MTM standard performed in groups of 2.

#### Project:

The project is carried out in groups of 2. The condition for passing the project is:

- handing over the complete version of the project during the last class,
- correctly answers for min. 2 questions given by the teacher.

### Programme content

#### Lecture:

Influence of the form of production organization on internal transport. Design rules for material flow. Transport packaging. Classification of internal transport devices. Characteristics and application of cranes. Characteristics and application of transport carts. Characteristics and application of conveyors. Manipulators and robots used in transport. Health and safety regulations related to the operation of transport devices. Examples of the use of internal transport means. Material flow analysis - making material flow charts. Working time standards in internal transport (characteristics of the MTM standard). Times of transport cycles.

#### Exercises:

Material flow analysis (material flow chart, transport cycle chart). Application of the MTM standard to planning transport tasks.

#### Project:

Design classes include the development of an internal transport project for a selected manufacturing process (production hall or warehouse). The project includes: presentation of a description of the selected production area, selection of means of transport, determination of transport routes, calculation of transport cycle times with the use of working time standards.

### Teaching methods

#### Lecture:

Multimedia presentation illustrated with examples given on a blackboard, problem solving.



**Exercises:**

Application of the MTM standard to planning transport tasks. Calculating the efficiency of means of internal transport on the example of conveyors and forklift.

**Project:**

Solving tasks in a team. Brainstorm. Discussion.

**Bibliography**

Basic

1. Fijałkowski J., Internal transport in logistic systems, Publishing house of the Warsaw University of Technology, Warsaw, 2003.
2. Pfohl H-Ch., Logistic systems. Fundamentals of organization and management, Ed. Institute of Logistics and Warehousing, Poznań, 2001.
3. Korzeń Z., Logistics systems of handling and storage, Wyd. ILiM, Poznań, 1998.

Additional

1. Fertsch M., Logistyka Produkcji, Wyd. Institute of Logistics and Warehousing, Poznań 2003.
2. Pawlicki K., Transport in the enterprise. Machines and devices, School and Pedagogical Publishers, Warsaw, 1996.

**Breakdown of average student's workload**

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	30	1,0
Student's own work (literature studies, preparation for lecture, exercises, project, preparation for tests) <sup>1</sup>	45	2,0

<sup>1</sup> delete or add other activities as appropriate