



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Handling and storage devices [N1Trans1>ŚTBiM]

### Course

Field of study

Transport

Year/Semester

1/1

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

18

Laboratory classes

0

Other

0

Tutorials

0

Projects/seminars

0

### Number of credit points

2,00

### Coordinators

dr hab. inż. Michał Śledziński

michal.sledzinski@put.poznan.pl

### Lecturers

### Prerequisites

High school level mathematics. Fundamentals of physics - mechanics. Basic knowledge in the field of engineering.

### Course objective

Gaining basic engineering knowledge in the field of statics, in particular in the field of construction of transport machines

### Course-related learning outcomes

Knowledge:

The student has an ordered, theoretically founded general knowledge of technology, transport systems and various means of transport

The student knows the basic techniques, methods and tools used in the process of solving tasks in the field of transport, mainly of an engineering nature engineering

Skills:

The student is able to assess the computational complexity of algorithms and transport problems

Student is able to make a critical analysis of the functioning of transport systems and other technical solutions and to evaluate these solutions, including: is able to effectively participate in the technical inspection and assess the transport task from the point of view of non-functional requirements, has the ability to systematically conduct functional tests

Social competences:

The student can think and act in an entrepreneurial way, incl. finding commercial applications for the created system, taking into account not only business benefits, but also social benefits of the conducted activity

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:

Written test at the last lecture class. Evaluation criteria: for each question there is a certain number of points to be scored. On this basis, the percentage score of the colloquium is calculated. Grading scale: up to 49% - 2.0, from 50% - 3.0, from 60% - 3.5, from 70% - 4.0, from 80% - 4.5, from 90% - 5.0. Additional grades based on additional tasks to be solved in a group or individual solution.

### Programme content

1. The role of material handling and storage devices in modern logistics.
2. System of loading units.
3. Components of means of transport: tie rods, pulleys, wheels, hooks, drums, ratchets, rails, brakes. Lifts, selected structures.
4. Transport carts. Cranes and cranes: design features, general characteristics.
5. Conveyors in short-term transport.
6. Lifting mechanism; components, calculations.
7. Driving mechanism of the transport machine; elements of the drive system; calculations.

### Course topics

none

### Teaching methods

Lecture: multimedia presentation. Individual or group case studies.

### Bibliography

Basic

1. Raczyk R. Środki transportu bliskiego i magazynowania, Poznań, WPP 2009
2. Korzeń Z. Logistyczne systemy transportu bliskiego i magazynowania, Poznań, ILiM 98
3. Kijewski J. in. Maszynoznawstwo, Warszawa, WSiP 1993

Additional

1. Kozak B. Części maszyn z elementami mechaniki technicznej, Warszawa WSiP 2000
2. Piątkiewicz A. in. Dźwignice, Warszawa 1977
3. Skrzymowski W. Żurawie przeładunkowe Budowa i eksploatacja, Krosno, KABE 2006
4. Braum Z. Obsługa suwnic, Krosno, KABE 1999

### Breakdown of average student's workload

|   | Hours | ECTS |
|---|-------|------|
| Total workload  | 43    | 2,00 |
| Classes requiring direct contact with the teacher   | 18    | 1,00 |
| Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation) | 25    | 1,00 |