



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Technological machines design

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### Course

Field of study

Mechanical engineering

Area of study (specialization)

Technological machines design

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

3/6

Profile of study

general academic

Course offered in

Requirements

compulsory

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### Number of hours

Lecture

6

Tutorials

Laboratory classes

Projects/seminars

8

Other (e.g. online)

### Number of credit points

3

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### Lecturers

Responsible for the course/lecturer:

dr inż. Adam Myszkowski

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Wydział Inżynierii Mechanicznej

ul. Piotrowo 3

60-965 Poznań

Responsible for the course/lecturer:



### Prerequisites

Basic in the field of engineering graphics, strength of materials and other areas of education in the field of study. Theoretical knowledge in the field of study.

### Course objective

Expanding knowledge in the field of design and selection of components and elements of technological machines. Strengthening application skills, skills in performing engineering calculations. Acquiring the ability to independently shape the kinematic structures of machines and devices.

### Course-related learning outcomes

#### Knowledge

Detailed knowledge of machinery and equipment, including typical components and subassemblies, development trends of machinery and equipment, and manufacturing technologies with particular regard to mechanical technology.

Knowledge of the principles of operation of various types of drives and their transmission systems.

#### Skills

Conceptual work, analyzing kinematic structures, mapping and dimensioning of machine elements; designing and performing strength calculations of mechanical systems using computer aided design of machines.

#### Social competences

Collaboration and teamwork, taking on different roles and tasks.

Ability to map and dimension machine elements; designing and performing strength calculations of mechanical systems using computer aided design of machines.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

- Passing the project,
- Completion of acquired knowledge during the lecture.

### Programme content

- Designing and selecting elements of technological machines,
- requirements and restrictions for technological machines,
- basic design principles with particular regard to safety during their operation,
- reliability of technological machines,
- economic and ecological aspects of the design of technological machines,
- indicating the areas of acceptable solutions and effective solutions to the problem.



### Teaching methods

1. Lecture: multimedia presentation, presentation illustrated with examples given on a board, discussion and problem analysis.
2. Project: Presentation of issues, problem solving, discussion, teamwork, consultation.

### Bibliography

#### Basic

1. Napęd hydrostatyczny, Stryczek S., Wydawnictwa Naukowo-Techniczne, Warszawa 1997
2. Napęd i sterowanie pneumatyczne, Szenajch W., Wydawnictwa Naukowo-Techniczne, Warszawa 1997
3. Napędy i Sterowania hydrauliczne i pneumatyczne, Tomasiak E., Wydawnictwo Politechniki Śląskiej, Gliwice 2001

#### Additional

1. Catalogs of manufacturers of machine elements.
2. Websites of machine and device manufacturers.

### Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	14	1,0
Student's own work (literature studies, preparation for project preparation) <sup>1</sup>	61	2,0

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