



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Technological machines drives

Course

Field of study

Mechanics and Mechanical Engineering

Area of study (specialization)

Level of study

Second-cycle studies

Form of study

full-time

Year/Semester

2/3

Profile of study

general academic

Course offered in

polski

Requirements

compulsory

Number of hours

Lecture

15

Laboratory classes

Tutorials

Projects/seminars

15

Other (e.g. online)

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

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Responsible for the course/lecturer:

Prerequisites

Basic knowledge on the construction of technological machines, automation and construction. Skills in logical thinking, the use of information obtained from the Internet and catalog data.

Course objective

Understanding the construction, elements and principles of selection of electro-mechanical drives for technological machines.

Course-related learning outcomes

Knowledge

The student should characterize the basic types of drives of technological machines. The student should



know the basic methods of selecting elements of technological machine drives. The student should know the basic characteristics of drives.

Skills

The student is able to determine the drive requirements for the technological task. The student is able to independently design the technological machine drive scheme. Student is able to choose the engine himself for a given technological task.

Social competences

The student can work in a group. The student is aware of the possibilities of modern technological machine drives. The student is able to use the catalog data of producers of technological drive components.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Credit based on a test consisting of five general questions. Credit in the case of a correct answer to min. 3 questions

Project: Credit based on the assessment for the implementation of the individual design of the drive selection for the indicated technological machine.

Programme content

Lecture:

1. Division and types of drives of technological machines
2. Characteristics of DC motors, asynchronous and synchronous
3. Characteristics of linear motors
4. Types of work and selection of engines for particular types of work
5. Characteristics of mechanisms for converting rotational motion into feed motion and ways of their selection
6. Characteristics of guides used in technological machines and methods of their selection
7. Special gears used in drives of technological machines

Project:

Individual project containing:

- motion characteristics of the designed element of the technological machine,
- initial selection of engine and transmission,
- determination of drive load characteristics throughout the entire duty cycle,



- checking the engine for non-heating condition
- selection of guides.

Teaching methods

Lecture illustrated by multimedia presentations

Bibliography

Basic

1. Kosmol. J.: Serwonapędy obrabiarek sterowanych numerycznie, WNT Warszawa 2004.
2. Mierzejewski J., Serwomechanizmy obrabiarek sterowanych numerycznie, WNT, Warszawa 1977.
3. Müller L.: Zębate przekładnie obiegowe. Wydawnictwo Naukowe PWN, 1996

Additional

1. Marciniak T.: Przekładnie ślimakowe walcowe, Wydawnictwo naukowe PWN 2006.
2. www.hiwin.com – katalogi śrub kulowych, prowadnic tocznych i innych elementów napędów maszyn.
3. www.boschrexroth.com – katalogi napędów elektrycznych, pneumatycznych i hydraulicznych

Breakdown of average student's workload

	Hours	ECTS
Total workload	45	2,0
Classes requiring direct contact with the teacher	30	
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	15	

¹ delete or add other activities as appropriate