



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Drives of technological machines [N2MiBM1>NMT]

Course

Field of study

Mechanical Engineering

Year/Semester

1/2

Area of study (specialization)

–

Profile of study

general academic

Level of study

second-cycle

Course offered in

polish

Form of study

part-time

Requirements

compulsory

Number of hours

Lecture

10

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

10

Number of credit points

3,00

Coordinators

Lecturers

dr inż. Wojciech Ptaszyński

wojciech.ptaszynski@put.poznan.pl

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:

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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	30	3,00
Classes requiring direct contact with the teacher	20	0,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	10	0,00