POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Hydraulics and pneumatics

Course

Field of study	Year/Semester
Mechanical engineering	3/6
Area of study (specialization)	Profile of study
	general academic
Level of study	Course offered in
First-cycle studies	
Form of study	Requirements
full-time	compulsory

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
15	15	
Tutorials	Projects/seminars	

Number of credit points
2

Lecturers

Responsible for the course/lecturer:

dr inż. Adam Myszkowski

email: adam.myszkowski@put.poznan.pl

tel. +48 61 665 24 52

pok 616

Wydział Inżynierii Mechanicznej

ul. Piotrowo 3

60-965 Poznań

Responsible for the course/lecturer:

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Prerequisites

Basic in the field of machine science, machine parts, engineering graphics and other areas of education in the field of study. Ordered theoretical knowledge in the field of fluid mechanics, automation.

Course objective

Understanding the structure and operation of hydraulic and pneumatic drives as well as sub-assemblies and components used in them, acquiring knowledge about pumps, compressors, valves as well as hydraulic and pneumatic motors and actuators.

Course-related learning outcomes

Knowledge

Detailed knowledge of the principles of operation of hydraulic and pneumatic systems and drives, including the basics of fluid technology.

Skills

Planning and supervision as well as service to ensure reliable operation of machines and devices as well as conducting diagnostics of hydraulic and pneumatic drives.

Social competences

Collaboration and teamwork, taking on different roles and tasks.

Awareness of the social role of a technical university graduate, and in particular understands the need for formulation and communication to the public, in particular through the mass media, information and opinions on the achievements of technology and other aspects of engineering activities; endeavors to provide such information and opinions in a generally understandable way.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Assessment for the solution of laboratory tasks, assessment for the theoretical passing of the lecture part.

Programme content

-- Elements used in hydraulic and pneumatic drives,

- elements used in hydraulic and pneumatic control systems,

- compressed air preparation systems and hydraulic power supplies,

- hydraulic and pneumatic systems in automation,

- control of hydraulic and pneumatic drive parameters,

- practical applications of hydraulic systems and drives,

- practical applications of pneumatic systems and drives.

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Teaching methods

1. Lecture: multimedia presentation, presentation illustrated with examples given on a board, discussion and problem analysis.

2. Laboratory exercises: conducting experiments, practical exercises, solving tasks, discussion, teamwork.

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 hydraulic and pneumatic elements

2. Websites of manufacturers of hydraulic and pneumatic elements

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	5,0
Classes requiring direct contact with the teacher	30	1,0
Student's own work (literature studies, preparation for project preparation) [1]	20	1,0

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[1] delete or add other activities as appropriate