GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Hydraulics and Pneumatics, PG_00040191		
Field of study	Mechanical Engineering, Mechanical Engineering		
Date of commencement of studies	October 2020	Academic year of realisation of subject	2022/2023
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study Subject group related to scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	English
Semester of study	5	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Leszek Osiecki	
	Teachers	dr hab. inż. Leszek Osiecki dr inż. Marcin Bąk	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	15.0	0.0	0.0	45

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	45	9.0	46.0	100

Subject objectives

Acquainting with physical phenomena, the basics of design and operation of hydraulic and pneumatic drive and control systems

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_U07	The student acquires knowledge about the principles of operation, application and exploitation of hydraulic and pneumatic drive and control systems	[SU3] Assessment of ability to use knowledge gained from the subject
K6_W08	The student acquires knowledge about the principles of operation, application and exploitation of hydraulic and pneumatic drive and control systems	[SW1] Assessment of factual knowledge

Subject contents

LECTURE:Structure of hydraulic and pneumatic drive and control. Properties of working fluid and air. System pressure losses and their calculation. Flows through the slots. Basic elements and hydrostatic and pneumatic systems of machines: pumps, motors, actuators, valves, filters, accumulators, compressed air units. Basic calculations of hydraulic and pneumatic drive systems.LABORATORIES:Practical familiarization with the structure and operation of hydraulic and pneumatic elements, as well as self-assembly of basic systems

Prerequisites and co-requisites

Physics

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Final exam	56.0%	66.0%
Laboratory pass	56.0%	34.0%

Recommended reading	Basic literature	J.A. Sullivan. Fluid Power Theory and Application. J.E. Johnson. Hydraulics for Engineering Technology A. Esposito. Fluid Power with Applications
	Supplementary literature	R. Dindorf, P. Woś. Development of Hydraulic Power Systems
	eResources addresses	Adresy na platformie eNauczanie: Hydraulics and Pneumatics - Moodle ID: 25215 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=25215 Hydraulics and Pneumatics - Moodle ID: 25215 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=25215
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	