GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Hydraulic Drive and Control, PG_00039978		
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	Optional subject group 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	Polish
Semester of study	6	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Department of Mechanics and Mechatronics -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Piotr Patrosz	
	Teachers	dr inż. Piotr Patrosz dr hab. inż. Paweł Śliwiński dr inż. Paweł Załuski	

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	45.0	0.0	30.0	0.0	0.0	75
	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	75	8.0	17.0	100

Subject objectives

Knowlege of operation and design principles of hydrostatic and hydrodynamic drive and control systems. Knowledge of properties of system components.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U05] is able to plant an experiment within the range of measuring the basic operating parameters of mechanical devices using a specialized equipment, interpret the results and reach the correct conclusions	The student acquires knowledge about the phenomena occurring during the operation of hydrostatic and hydrodynamic drive and control systems of machines and the methodology of measuring the operating parameters of these systems.	[SU3] Assessment of ability to use knowledge gained from the subject
[K6_W08] possesses basic knowledge including the methodology of designing machine parts, mechanical devices, selection of construction materials, manufacturing and operation, with the lifetime cycle	The student acquires knowledge about the construction of hydrostatic and hydrodynamic drive and control systems of machines and the principles of their design and about their components.	[SW1] Assessment of factual knowledge

Subject contents

LECTURE:

Structure and characteristics of hydraulic elements: pumps, motors, valves and other components. Construction and features of hydrodynamic coupling and transmission. Contamination and filtration of hydraulic fluid. Examples of hydraulic drive systems in vehicles, heavy machinery and tools. Measuring devices.

LABORATORY:
Measurement of characteristics of motors, valves and directional valves. Measurement of fluid's viscosity and contamination level.

Prerequisites and co-requisites

Hydraulics and pneumatics

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	laboratory	56.0%	30.0%
	test after lecture	56.0%	70.0%
Recommended reading	Basic literature	1. Osiecki A.: Hydrostatyczny napęd maszyn. WNT, Warszawa 2014 2. Stryczek S.: Napęd hydrostatyczny. WNT, Warszawa 1990 3. Szydelski Z.: Pojazdy samochodowe. Napęd i sterowanie hydrauliczne. WKŁ Warszawa, 1993. 4. Lipski J., Zwolak E., Balas W.: Hydrauliczne urządzenia środków transportu. WKŁ Warszawa, 1980.	
	Supplementary literature	1. Balawender A. i inni: Laboratorium napędów hydraulicznych. Część 1. Podstawy hydrauliki. Gdańsk 1996	
	eResources addresses	Adresy na platformie eNauczanie: Napęd i sterowanie hydrauliczne 2023, W, L, - PG_00039978 - Moodle ID: 30569 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=30569	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		