



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	Knowledge 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		