



Subject card

Subject name and code	Hydraulic Drive Control, PG_00055515						
Field of study	Mechanical Engineering						
Date of commencement of studies	October 2021	Academic year of realisation of subject			2023/2024		
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			5.0		
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 hab. inż. Paweł Śliwiński				
	Teachers		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	30.0	15.0	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	5.0		45.0		125
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_W08] possesses basic knowledge including the methodology of designing machine parts, mechanical devices, selection of construction materials, manufacturing and operation, with the lifetime cycle				[SW1] Assessment of factual knowledge		
	[K6_U07] is able to design a typical construction of a mechanical device, component or a testing station using appropriate methods and tools, adhering to the set usage criteria				[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools		
	[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				[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools		
Subject contents	<p>LECTURE:</p> <p>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.</p> <p>LABORATORY:</p> <p>Measurement of characteristics of motors, valves and directional valves. Measurement of fluid's viscosity and contamination level.</p>						
Prerequisites and co-requisites	Hydraulics and pneumatics						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	laboratory	56.0%	34.0%
	test after lecture	56.0%	66.0%
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		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		