GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00056306		
Field of study	Ocean Engineering		
Date of commencement of studies	October 2021	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	2	Language of instruction	Polish
Semester of study	4	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Faculty of Ocean Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Daniel Piątek	
	Teachers	dr inż. Daniel Piątek	

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

Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=9694

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	5.0	25.0	75

Subject objectives

Konowledge of the operation principles of hydrostatic drive of machines, widely applied in drive and control of ocean technology and ship equipment

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U03] can use computer-aided design, production and operation tools for ocean technology objects and systems	As part of the design of the hydraulic system, the student is able to create simple spreadsheets to facilitate calculations and use the sources of information available on the Internet	[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools
[K6_W06] has an organized knowledge on engineering methods and design tools allowing the conducting of projects within the construction and operation of ocean technology objects and systems	The student is able to optimize the functioning structure of the hydrostatic system	[SW3] Assessment of knowledge contained in written work and projects
[K6_U05] can formulate a simple engineering task and its specification within the range of design, construction and operation of ocean technology objects and systems	The student is able to design a hydrostatic system and select its elements	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject

Subject contents

LECTURES: Basic properties of the hydrostatic drive and control; displacement machines; working fluids; hydraulic flows of viscous fluid; drive and control elements; hydrostatic transmissions; classification and graphical symbols of hydrostatic system elements; pressure and flow intensity control valves; pumps and hydraulic motors used in hydrostatic drives; throttling control of hydraulic motor speed in the individual and group systems.

LABORATORY: Filters, conduits, joints, seals; flow in the straight conduit; determination of throttling valve characteristics; valves in hydraulic systems; characteristics of the overflow valves; slid directional valve; pumps and hydraulic motors; testing of the displacement pump energy efficiency.

Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	lecture - test	60.0%	50.0%
	laboratory - report	60.0%	50.0%
Recommended reading	Basic literature	1. Stryczek St.: Napęd hydrostatyczny, tom I Elementy, WNT W - wa. 2003 2. Stryczek St.: Napęd hydrostatyczny, tom II Układy, WNT W - wa. 2003 3. Szydelski Zb.: Napęd i sterowanie hydrauliczne, WKŁ WNT W - wa. 1999	
	Supplementary literature	1. Pizoń A.: Elektrohydrauliczne analogowe i cyfrowe układy automatyki, WNT WNT W - wa. 1995 2. Garbacik A.: Studium projektowania układów hydraulicznych, Ossolineum, Wrocław, W - wa. Kraków, 1997 3. Palczak E.: Dynamika elementów i układów hydraulicznych, Ossolineum, Wrocław, W - wa. Kraków, 1997 4. Paszota Z.: Aspects énergétiques des transmissions hydrostatiques, W.P.G. Gdańsk 2002.	
	eResources addresses	Adresy na platformie eNauczanie: Hydraulika siłowa urządzeń okrętowych - Wykład, OCE, sem 4, lato 2022/23, (PG_00056306) - Moodle ID: 27408 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=27408 Hydraulika siłowa urządzeń okrętowych - Wykład, OCE, sem 4, lato 2022/23, (PG_00056306) - Moodle ID: 27408 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=27408	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		