



Subject card

Subject name and code	Cintrol in Transport, PG_00060665						
Field of study	Sterowanie w transporcie						
Date of commencement of studies	October 2023		Academic year of realisation of subject		2025/2026		
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	5		ECTS credits		5.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Division of Marine Auxiliary Machinery -> Institute of Naval Architecture -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Konrad Marszałkowski				
	Teachers		dr inż. Konrad Marszałkowski				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	30.0	0.0	60
	E-learning hours included: 0.0						
	eNauczanie source addresses: Moodle ID: 1817 Sterowanie w transporcie https://enauczanie.pg.edu.pl/2025/course/view.php?id=1817						
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	60		5.0		60.0	125
Subject objectives	The aim of the course is to introduce students to the basic and most important principles of regulation, control and monitoring of a ship's engine room, together with a detailed discussion of issues related to the technique of measuring electrical and non-electrical quantities.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_U05] can formulate a simple engineering task and its specification in the field of design, maintenance and operation of transport means and systems	The student is able to use basic knowledge in the field of hydromechanics, thermodynamics, machine design, materials science, electrical engineering, and environmental protection, enabling him to understand the basics of construction and operation of water transport means.	[SU1] Ocena realizacji zadania [SU4] Ocena umiejętności korzystania z metod i narzędzi [SU5] Ocena umiejętności zaprezentowania wyników realizacji zadania [SU3] Ocena umiejętności wykorzystania wiedzy uzyskanej w ramach przedmiotu [SU2] Ocena umiejętności analizy informacji
	[K6_W04] has well established knowledge in the field of computer science, electronics, automation and control, information technology and computer graphics, useful for understanding the possibilities of applying them in transport	The student is able to use basic knowledge in the field of computer science, electronics, control, information technology, computer graphics, enabling its application in transport.	[SW3] Ocena wiedzy zawartej w opracowaniu tekstowym i projektowym [SW2] Ocena wiedzy zawartej w prezentacji [SW1] Ocena wiedzy faktograficznej
	[K6_K01] is aware of the need for continuous improvement in the field of the profession and knows the possibilities of further education	The student describes the characteristics of sustainable development and is able to relate them to the design and operation of the transport system.	[SK4] Ocena umiejętności komunikacji, w tym poprawności językowej [SK5] Ocena umiejętności rozwiązywania problemów występujących w praktyce [SK2] Ocena postępów pracy
	[K6_U02] can work individually and in a team, communicate using various techniques in a professional environment, as well as document, analyze and present the results of his work; can estimate the time needed to complete a given task	The student is able to develop and present independently developed results of the analysis of existing solutions used in control systems used in transport.	[SU5] Ocena umiejętności zaprezentowania wyników realizacji zadania [SU2] Ocena umiejętności analizy informacji [SU1] Ocena realizacji zadania
Subject contents	Course content – lecture		
	1. Automation of marine power plants.2. Dynamics of the ship's propulsion system.3. Logic control - switching systems and relays. Goal logic.4. Programmable controllers and their programming.5. Controlling the ship's propulsion system - servomechanisms, regulating valves.6. Angular speed regulators, remote control of the drive system, control of multi-propulsion and multi-engine drive systems.7. Measuring converters, types and classification.8. Position and displacement converters. Angular velocity transducers.9. Force, pressure and temperature transducers.10. Flow and level transmitters for liquids and gases.11. Control of components of marine engine rooms - temperature control of cooling water and lubricating agent.12. Adjustment of the fuel system.13. Control of engine start and stop.14. Start-up and control of a ship power plant.		
Prerequisites and co-requisites	Course content – project		
	1. Automation of marine power plants.2. Dynamics of the ship's propulsion system.3. Logic control - switching systems and relays. Goal logic.4. Programmable controllers and their programming.5. Controlling the ship's propulsion system - servomechanisms, regulating valves.6. Angular speed regulators, remote control of the drive system, control of multi-propulsion and multi-engine drive systems.7. Measuring converters, types and classification.8. Position and displacement converters. Angular velocity transducers.9. Force, pressure and temperature transducers.10. Flow and level transmitters for liquids and gases.11. Control of components of marine engine rooms - temperature control of cooling water and lubricating agent.12. Adjustment of the fuel system.13. Control of engine start and stop.14. Start-up and control of a ship power plant.		
Assessment methods and criteria			
	Subject passing criteria	Passing threshold	Percentage of the final grade
		60.0%	60.0%
Assessment methods and criteria		60.0%	40.0%

Recommended reading	Basic literature	1. Domachowski Z., Ghaemi M. (2007). Okrętowe układy automatyki. Gdańsk. Wydawnictwo Politechniki Gdańskiej. 2. Lisowski J. (1981). Statek jako obiekt sterowania automatycznego. Gdańsk. Wydawnictwo Morskie. 3. Soldek J. (1985). Automatyzacja statków. Gdańsk. Wydawnictwo Morskie.
	Supplementary literature	1. Wojnowski W.: Okrętowe silownie spalinowe. Morski Instytut Rybacki. Gdynia 1991. Część II.
	eResources addresses	
Example issues/ example questions/ tasks being completed	1. Regulator, block structure, application 2. Methods of measuring linear and angular displacements 3. Preparation of marine piston engine for start-up 4. Servomechanism - principle of operation	
Practical activities within the subject	Not applicable	

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