

Subject card

Subject name and code	Fundamentals of Automatics - laboratory classes , PG_00201107						
Field of study	Marine Hydrography						
Date of commencement of studies	October 2027		Academic year of realisation of subject		2028/2029		
Education level	Bachelor's studies		Subject group		Obligatory subject group in the field of study Subject group related to practical vocational preparation		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		1.0		
Learning profile	practical		Assessment form		credit		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. inż. Bogdan Žak				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	12.0	0.0	0.0	12
	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	12		1.0		12.0	25
Subject objectives	To impart knowledge of the construction and principle of operation of automatic control systems.To learn the methods of testing the dynamics of automatic control systems and to master the methods of testing the stability and quality of regulation.To develop the ability to determine the dynamic characteristics of linear systems and determine the dynamic properties of the object on their basis.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[HML3-U18] is able to work individually and in team, manage the work of the team, in particular comply with health and safety regulations and ergonomics		is able to: - interact and work in a laboratory group; - observe health and safety rules during practical activities		[SU2] presentation/project/paper/report		
	[HML3-U01] is able to plan and conduct experiments, including computer simulations, interpret the results obtained and draw conclusions		is able to: - describe the behavior of a controlled object and a control system in the time and frequency domains; - present practical examples of basic control systems; - perform measurements to determine the dynamic characteristics of automatic control systems and evaluate their stability and control quality		[SU2] presentation/project/paper/report		
Subject contents	Study of the dynamic characteristics of UAR in the time domain. Study of dynamic characteristics of UARs in the frequency domain. Study of the stability of systems and the evaluation and quality correction of UARs.						
Prerequisites and co-requisites							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	entrance and report	51.0%	100.0%
Recommended reading	Basic literature	1. BEŃSKI J., KICIŃSKI W., ŻAK B.: Automatics. Part III. Laboratory exercises. AMW, Gdynia 1990. 2. KACZOREK T.: Fundamentals of control theory. WNT, Warsaw 2005. 3. KITOWSKI Z.: Automatics. Accounting exercises. AMW, Gdynia 1989.	
	Supplementary literature	OGATA K.: Modern Control Engineering. Wiley and Sons, 2013.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Types of dynamic characteristics; Dynamic characteristics of basic members; Conditions of system stability; Criteria of system stability; Methods of evaluating the quality of regulation; Methods of UAR correction; Types of correction members.		
Work placement	Not applicable		

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