University of Gdańsk

Subject card

Subject name and code	Fundamentals of Automatics - laboratory classes , PG_00201107		
Field of study	Marine Hydrography		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2027/2028
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 Żak	
	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-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
[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

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

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>entrance and report</td><td>51.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>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.</td></tr>
<tr><td>Supplementary literature</td><td>OGATA K.: Modern Control Engineering. Wiley and Sons, 2013.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">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.</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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