GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Basics of automation, PG_00055281
Field of study	Design and Construction of Yachts

Date of commencement of studies	October 2021	Academic year of realisation of subject	2022/2023
Education level	first-cycle 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	4	ECTS credits	3.0
Learning profile	practical profile	Assessment form	assessment

Conducting unit	Institute of Ocean Engineering and Ship Technology -> Faculty of Mechanical Engineering and Ship Technology

Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Mohammad Ghaemi
	Teachers	mgr inż. Damian Jakowski dr inż. Mohammad Ghaemi

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	0.0	0.0	0.0	45
	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	45	10.0	20.0	75

Subject objectives	The aim is to get acquainted with the basis of control theory and with the structures and elements of basic automation systems, as well as general information on the design of control systems.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	K6_W04	The student is able to assess usefulness of typical methods and tools applied in engineering to select the proper method and tool for solving the simple problems in the range of control system	[SW1] Assessment of factual knowledge
	K6_U05	The student is able to formulate simple engineering problems and its specification in the range of control system	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject

Subject contents	
	1. Introduction and basic concepts
	2. Classification of control systems
	3. Modeling of dynamical systems and description of elements of automation systems
	4. Types of mathematical models of dynamical systems: differential equation, transfer function, block diagram, linearization
	5. Transition function and time characteristics
	6. Feedback
	7. Analysis of control systems in the plot of time and in the plot of frequency
	8. Stability of linear control systems
	9. Regulators
Prerequisites and co-requisites	Prerequesties:1. Mathematics, 2. Physics

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Exercises	51.0%	34.0%
	Lecture	56.0%	66.0%

Recommended reading	Basic literature	Nise N. S., Control System Engineering, 8th Edition, John Whiley & Sons Inc., 2019.
	Supplementary literature	- Friedland B., Control System Design, McGraw Hill Co., 1986. - Ogata K., Modern Control Engineering, 4th edition, Prentice-Hall, 2009. - Raven, F. H., Automatic control engineering, McGraw Hill Co., 1986.
	eResources addresses	Podstawowe https://enauczanie.pg.edu.pl/moodle/course/view.php?id=29730 - The course page on the e-learning platform of GUT Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	
Work placement	Not applicable