



Subject card

Subject name and code	Fundamentals of Control Systems, PG_00060646						
Field of study	Transport and Logistics						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2025/2026		
Education level	first-cycle studies	Subject group			Obligatory subject group in the field of study 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	3	ECTS credits			5.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Institute of Naval Architecture -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Mohammad Ghaemi					
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	15.0	0.0	0.0	60
	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	60		6.0		59.0	125
Subject objectives	The objective is to learn the fundamentals of control theory and the structures and elements of basic automation systems, as well as general information about control system design.						
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 capable of formulating a simple engineering problem and its specification in the field of design and application of automatic control systems.			[SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools		
	[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 possesses organized knowledge in the field of simple automatic control systems, which is necessary for understanding their potential applications in transportation systems.			[SW1] Assessment of factual knowledge		

Subject contents	<p>1. Introduction and basic concepts</p> <p>2. Classification of control systems</p> <p>3. Modeling of dynamic systems and description of elements of automatic control systems</p> <p>4. Types of mathematical models of dynamic systems: differential equation, transmittance, block diagram, linearization</p> <p>5. Transition function and time characteristics</p> <p>6. Feedback</p> <p>7. Analysis of time-domain and frequency-domain control systems</p> <p>8. Stability of linear control systems</p> <p>9. Controllers</p>														
Prerequisites and co-requisites	<p>Pre-requisite subjects:</p> <p>1. Mathematics</p> <p>2. Physics</p>														
Assessment methods and criteria	<table border="1" data-bbox="453 1061 1492 1211"> <thead> <tr> <th data-bbox="453 1061 794 1093">Subject passing criteria</th> <th data-bbox="794 1061 1139 1093">Passing threshold</th> <th data-bbox="1139 1061 1492 1093">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="453 1093 794 1151">Colloquium for credit from exercises</td> <td data-bbox="794 1093 1139 1151">51.0%</td> <td data-bbox="1139 1093 1492 1151">30.0%</td> </tr> <tr> <td data-bbox="453 1151 794 1182">Colloquium for credit from lecture</td> <td data-bbox="794 1151 1139 1182">56.0%</td> <td data-bbox="1139 1151 1492 1182">40.0%</td> </tr> <tr> <td data-bbox="453 1182 794 1211">Lab. reports</td> <td data-bbox="794 1182 1139 1211">51.0%</td> <td data-bbox="1139 1182 1492 1211">30.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Colloquium for credit from exercises	51.0%	30.0%	Colloquium for credit from lecture	56.0%	40.0%	Lab. reports	51.0%	30.0%
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Work placement	Not applicable	

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