

。 GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00056134								
Field of study	Mechatronics								
Date of commencement of studies	October 2023		Academic year of realisation of subject			2025/2026			
Education level	first-cycle studies		Subject group						
Mode of study	Full-time studies		Mode of delivery			at the university			
Year of study	3		Language of instruction			Polish			
Semester of study	6		ECTS credits			2.0			
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. Aleksander Kniat						
	Teachers								
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	roject Seminar		SUM	
	Number of study hours	15.0	0.0	15.0	0.0		0.0	30	
	E-learning hours included: 0.0								
Learning activity and number of study hours	Learning activity Participation ir classes include plan		n didactic ed in study	Participation in consultation hours		Self-study		SUM	
	Number of study hours	30		0.0		0.0		30	
Subject objectives	Presentation of motions' limitations of a 6 joints arm of industrial robot.								
Learning outcomes	Course outcome Subject outcome Method of verification								
	[K6_W11] has knowledge about the life cycle of mechatronic systems and objects		understands an industrial robot's construction and knows how to use it in practical applications			[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation			
	[K6_W10] has knowledge about development trends in the field of engineering and technology sciences and scientific disciplines: Mechanical Engineering, Automation, Electronics, Electrical Engineering and Space Technologies, adequate for Mechatronics curse		understands principles of an industrial robot functioning			[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation			
	[K6_U05] is able to use properly chosen tools to compare design solutions of elements and mechatronics systems according to given application and economic criteria (e.g. power demand, speed, costs)		is able to assess if an industrial robot can be applied in particular task (power, speed, accuracy etc.)			[SU2] Assessment of ability to analyse information			
	[K6_U06] is able to identify and formulate specification of simple, practical engineering tasks, distinctive for mechatronics		does simple task with an industrial robot			[SU1] Assessment of task fulfilment			
	[K6_W08] knows and understands design and production processes of elements and simple mechatronic devices		knows how to prepare the control program for an industrial robot			[SW3] Assessment of knowledge contained in written work and projects			
Subject contents	 Kinematics of an arm of industrial robot (recall), Generating tool path (CAM program), Transforming a tool path into a control program in robot's language (using simulator), Singularities (definition, symptoms), Methods to resolve singularities. 								

Prerequisites and co-requisites	basic knowledge about automation and kinematics							
	ability to use programs which visualize scenes in 3D space							
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade					
		60.0%	100.0%					
Recommended reading	Basic literature	Honczarenko Jerzy, "Roboty przemysłowe", WNT 2011 Groover Mikell P., "Industrial Robotics Technology, Programming and Applications", International Edition, McGraw-Hill, 1987						
	Supplementary literature	Pires Norberto J., "Industrial Robots Programming", Springer-Verlag GmbH 2006						
	eResources addresses Adresy na platformie eNauczanie:							
Example issues/ example questions/ tasks being completed								
Work placement	Not applicable							

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