



Subject card

Subject name and code	Adaptive Control, PG_00064542						
Field of study	Automatic Control, Cybernetics and Robotics						
Date of commencement of studies	February 2027	Academic year of realisation of subject			2027/2028		
Education level	second-cycle studies	Subject group			Optional subject group Specialty subject group 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	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Department of Automatic Control -> Faculty of Electronics Telecommunications and Informatics -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Piotr Kaczmarek				
	Teachers		dr inż. Piotr Kaczmarek				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	15.0	0.0	30
	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	30		4.0		16.0	50
Subject objectives	Presentation of principles and basic techniques of adaptive control						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_U02] can perform tasks related to the field of study as well as formulate and solve problems applying recent knowledge of physics and other areas of science		Can implement a selected adaptive controller		[SU1] Assessment of task fulfilment		
	[K7_W03] knows and understands, to an increased extent, the construction and operating principles of components and systems related to the field of study, including theories, methods and complex relationships between them and selected specific issues - appropriate for the curriculum		Knows and understands the structure and the principle of operation of adaptive control systems Knows and understands selected adaptive control algorithms, which include algorithms with the direct and indirect adaptation Knows and understands system identification algorithms and their role in adaptive control		[SW2] Assessment of knowledge contained in presentation		
Subject contents	Course content – lecture 1. Introduction 2. System identification 3. Adaptive pole placement controller 4. Stochastic self-tuning regulators 5. Dual control 6. Adaptive feedforward controllers 7. Analysis of adaptive systems 8. Implementation of adaptive systems						
Prerequisites and co-requisites	Knowledge of discrete-time control theory						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Implementation of selected adaptive controller		60.0%		100.0%		

Recommended reading	Basic literature	K. J. Astrom, B. Wittenmark, Adaptive Control, Addison-Weasley, 1995
	Supplementary literature	S. Sastry, M. Bodson, Adaptive Control: Stability, Convergence and Robustness, Prentice Hall 1994
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Practical activities within the subject	Not applicable	

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