

GDAŃSK UNIVERSITY

Subject card

Subject name and code	System Diagnostics, PG_00047515								
Field of study	Automatic Control, Cybernetics and Robotics								
Date of commencement of studies	February 2023		Academic year of realisation of subject			2023/2024			
Education level	second-cycle studies		Subject group			Optional 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			English			
Semester of study	2		ECTS credits			1.0			
Learning profile	general academic profile		Assessment form			assessment			
Conducting unit	Department of Decision Systems and Robotics -> Faculty of Electronics, Telecommunications and Informatics								
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Mariusz Domżalski						
	Teachers	dr inż. Mariusz Domżalski							
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	t	Seminar	SUM	
	Number of study hours	0.0	0.0	0.0	15.0		0.0	15	
	E-learning hours included: 0.0								
Learning activity and number of study hours	Learning activity	Participation in classes includ plan	I didactic Participation in ed in study consultation hours		n Iours	Self-study		SUM	
	Number of study hours	15		2.0		8.0		25	
Subject objectives	The aim of the project is to acquaint students with the practical problems and methods of processes and systems diagnostic based on exemplary detailed / practical tasks.								

Learning outcomes	Course outcome	Subject outcome	Method of verification				
	[K7_U03] can design, according to required specifications, and make a complex device, facility, system or carry out a process, specific to the field of study, using suitable methods, techniques, tools and materials, following engineering standards and norms, applying technologies specific to the field of study and experience gained in the professional engineering environment	Student is able to design systems for solving diagnostic problems.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment				
	[K7_U21] can individually carry out an in-depth analysis of controlling, diagnostics and signal processing problems; and, to an advanced extent, is able to individually design, tune and operate automatic regulation, control and robotics systems; and use computers to control and monitor dynamic systems	Student is able to analyze and design control systems used in monitoring and diagnostics problems.	[SU5] Assessment of ability to present the results of task [SU2] Assessment of ability to analyse information				
	[K7_W21] Knows and understands, to an advanced extent, methods and techniques of design and operation of automatic control systems, control and robotics systems, as well as the use of computers in the control and monitoring of dynamic objects	Student knows the principles of design and operation of diagnostic systems.	[SW3] Assessment of knowledge contained in written work and projects				
	[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.	Student understands the principles of operation of diagnostic systems.	[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge				
	[K7_U01] can apply mathematical knowledge to formulate and solve complex and non-typical problems related to the field of study by:n- appropriate selection of source information and its critical analysis, synthesis, creative interpretation and presentation,n- application of appropriate methods and toolsn	Student uses mathematical knowledge to solve practical problems in the field of diagnostics.	[SU3] Assessment of ability to use knowledge gained from the subject				
Subject contents	 Explanation of exemplary diagnostic issues discussed within the scope of the subject. Individual analysis of a given tasks. Development of a proposed solution to a given diagnostic problem, and preparation of a presentation of the obtained results. 						
Prerequisites and co-requisites							
Assessment methods	Subject passing criteria	Passing threshold	Percentage of the final grade				
Recommended reading	Interview Completion and acceptance 100.0% Basic literature • Z. Kowalczuk, System Diagnostics - course notes • Korbicz J., Kościelny J.M., Kowalczuk Z., Cholewa W. (Red.): Diagnostyka procesów. Modele, metody sztucznej inteligencji, zastosowania – Warszawa: Wydawnictwa Naukowo-Techniczne, 2002 • Korbicz J., Kościelny J.M., Kowalczuk Z., Cholewa W. (Eds.): Fauli Diagnosis: Models, Artificial Intelligence, Applications – Berlin: Springer, 2004						
	Supplementary literature						
	eResources addresses Adresy na platformie eNauczanie:						
Example issues/ example questions/ tasks being completed	Fault detection and diagnosis in industrial systems (eg. in DC electric motors). Machine learning systems in image classification problems.						
Work placement	Not applicable						