

## 。 GDAŃSK UNIVERSITY OF TECHNOLOGY

## Subject card

Subject name and code	QUALITY ENGINEERING, PG_00061340								
Field of study	Engineering Management								
Date of commencement of studies	October 2022		Academic year of realisation of subject			2024/2025			
Education level	first-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	3		Language of instruction			Polish			
Semester of study	5		ECTS credits			6.0			
Learning profile	general academic profile		Assessment form			assessment			
Conducting unit	Katedra Inżynierii Zarządzania i Jakości -> Faculty of Management and Economics								
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Piotr Grudowski						
	Teachers		dr inż. Elwira Brodnicka						
			dr Mateusz Muchlado						
			dr hab. inż. Piotr Grudowski						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	:t	Seminar	SUM	
	Number of study hours	30.0	0.0	30.0	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	60		7.0			150	
Subject objectives	Presentation of the concept of Quality Engineering based on the experiences of the Polish School of Quality and international achievements.								
Learning outcomes	Course outcome		Subject outcome				Method of verification		
	[K6_W13] has a basic knowledge of the design, modelling and optimisation of technical processes and systems		The student has knowledge of modeling, design and optimization of processes using quality engineering methods - in particular Six Sigma.			[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge			
	[K6_U08] analyses engineering and managerial solutions in decision-making processes, taking into account pro-quality and pro- environmental aspects, as well as safety of work processes		The student is able to use specialized statistical software (eg MiniTab) to support process management using quality engineering methods.			[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment			

Subject contents								
	LECTURE: Introduction to the subject. Concepts of process variability, stability and capability. Basic quantitative data analysis tools. Classification and identification of quality problems. The essence of the Six Sigma program. Organization of the team; roles in the team and in the environment. DMAIC methodology.							
	LABORATORIUM: Podstawy metrologii i rysunku technicznego; Walidacja narzędzi pomiarowych; Analiz Systemu Pomiarowego (MSA); Statystyczna Kontrola Procesu (SPC), Narzędzia i metody identyfikacji przyczyn powstawiania niezgodności, Analiza prawdopodobieństwa wystąpienia i skutków ryzyka związanego z produktem niezgodnym							
Prerequisites and co-requisites								
Assessment methods	Subject passing criteria	Passing threshold	Percentage of the final grade					
and criteria	Interim lab. test	60.0%	30.0%					
	Reports	60.0%	35.0%					
	Final test	60.0%	35.0%					
Recommended reading	Basic literature	Piotr Grudowski, Włodzimierz Przybylski, Mieczysław Siemiątkowski, Inżynieria jakości w technologii maszyn, Wydawnictwo Politechniki Gdańskiej, 2006.						
		Adam Hamrol Zarządzanie i inżynieria jakości Wydawnictwo Naukowe PWN, 2018.						
		Piotr Grudowski, Ewa Leseure, LSS Plutus - Lean Six Sigma dla małych i średnich przedsiębiorstw, WNT, 2013.						
	Supplementary literature							
	eResources addresses	Adresy na platformie eNauczanie: Inżynieria Jakości (Zima 24/25) - Moodle ID: 40290 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=40290						
Example issues/ example questions/ tasks being completed								
	<ol> <li>Actions resulting from the use of SPC charts</li> <li>Elements of the Robust Design methodology</li> <li>The importance of measurement in the assessment of process variability</li> <li>Elements of technical drawing</li> </ol>							
	5. Process variability analysis6. Analysis of the measurement system							
Work placement	Not applicable							

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