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	Project	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	7.0	83.0	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; Analiza 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 and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
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	not relevant
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

1. Actions resulting from the use of SPC charts

2. Elements of the Robust Design methodology

3. The importance of measurement in the assessment of process variability

4. Elements of technical drawing

5. Process variability analysis6. Analysis of the measurement system

Work placement	Not applicable

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