GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	QUALITY ENGINEERING, PG_00061406		
Field of study	Engineering Management		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2026/2027
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study Subject group related to scientific research in the field of study
Mode of study	Part-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	exam
Conducting unit	Department Of Management Engineering And Quality -> Faculty Of Management And Economics -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Piotr Grudowski	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	16.0	0.0	16.0	0.0	0.0	32

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	32	7.0	111.0	150

Subject objectives

Analyzes production processes using quantitative and qualitative methods, making a critical assessment of them allowing for continuous improvement of quality

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W07] analyzes in an advanced way management processes in the technical, legal, economic, financial and social context	uses advanced methods currently used in quality engineering to analyze and evaluate production processes	[SW1] Assessment of factual knowledge
[K6_U05] designs innovative solutions for complex management processes, using appropriate methods and techniques	designs innovative pro-quality solutions for processes using advanced analytical methods	[SU4] Assessment of ability to use methods and tools

Subject contents

LECTURE
Introduction to the subject
The concepts of variability, stability and process capability
Basic quantitative data analysis tools
Classification and identification of quality problems
The essence of the Six Sigma program
Team organization; roles in and around the team
DMAIC methodology
LABORATORY
Fundamentals of metrology and technical drawing
Validation of measurement tools
Measurement System Analysis (MSA)
Statistical Process Control (SPC)
Tools and methods for identifying the causes of non-compliance
Analysis of the probability of occurrence and consequences of the risk associated with a non-compliant product

Prerequisites and co-requisites

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Test</td><td>60.0%</td><td>25.0%</td></tr>
<tr><td>Exam</td><td>60.0%</td><td>50.0%</td></tr>
<tr><td>Work in groups</td><td>60.0%</td><td>25.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>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</td></tr>
<tr><td>Supplementary literature</td><td>.</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">Actions as a result of the use of SPC cards
Elements of the Robust Design methodology
The importance of measurement in the assessment of process variability
Elements of technical drawing
Variation analysis in the process
Measurement system analysis</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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