



Subject card

Subject name and code	QUALITY ENGINEERING, PG_00057046						
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	Part-time studies	Mode of delivery			at the university		
Year of study	3	Language of instruction			Polish		
Semester of study	6	ECTS credits			6.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Management Engineering and Quality -> Faculty of Management and Economics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Elwira Brodnicka					
	Teachers	dr inż. Elwira Brodnicka					
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		0.0		0.0	32
Subject objectives	Presentation of Quality Engineering concept based both on the experiences of Polish School of Quality and international achievements.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[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		Student can take advantage of specialized statistical software (eg. Minitab) to support management processes using methods of quality engineering		[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU1] Assessment of task fulfilment		
	[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 process improvement with the use of quality engineering methods - in particular Six Sigma.		[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge		

Subject contents	<p>LECTURE: Introduction - basic definitions, credit conditions Measuring system Statistical methods in assessing the quality of the process The ability and stability of the process Traditional and new tools for quality engineering Six Sigma as an innovative approach in process improvement Quality costs TEST</p> <p>LABORATORY: LABORATORY 1 - INTRODUCTION; LABORATORY 2 - CHARACTERISTICS OF MEASURING EQUIPMENT LABORATORY; LABORATORY 3 - MEASUREMENT SYSTEM ASSESMENT - measurement LABORATORY 4 - MEASUREMENT SYSTEM ASSESMENT - Minitab LABORATORY 5 - STATISTICAL PROCESS CONTROL - measurement LABORATORY 6 - STATISTICAL PROCESS CONTROL - Minitab LABORATORY 7 - ELECTRICAL PARAMETERS CONTROL LABORATORY 7 - LAB SESSION MAKE-UP LABORATORY 8 - TEST</p>														
Prerequisites and co-requisites															
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="456 824 794 853">Subject passing criteria</th> <th data-bbox="799 824 1137 853">Passing threshold</th> <th data-bbox="1142 824 1481 853">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 860 794 889">test of laboratory</td> <td data-bbox="799 860 1137 889">60.0%</td> <td data-bbox="1142 860 1481 889">30.0%</td> </tr> <tr> <td data-bbox="456 893 794 922">test of lecture</td> <td data-bbox="799 893 1137 922">60.0%</td> <td data-bbox="1142 893 1481 922">35.0%</td> </tr> <tr> <td data-bbox="456 927 794 956">raport</td> <td data-bbox="799 927 1137 956">60.0%</td> <td data-bbox="1142 927 1481 956">35.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	test of laboratory	60.0%	30.0%	test of lecture	60.0%	35.0%	raport	60.0%	35.0%
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Recommended reading	Basic literature	<p>Keller, P., 2023. The Six SIGMA Handbook, Sixth Edition: A Complete Guide for Green Belts, Black Belts, and Managers at All Levels, MCGRAW HILL BOOK CO.</p> <p>George, L. M, Maxey, J. Rowlands, D.T. 2004. The Lean Six SIGMA Pocket Toolkit: A Quick Reference Guide to Nearly 100 Tools for Improving Quality and Speed, McGraw-Hill Education Ltd</p>													
	Supplementary literature	Not required													
	eResources addresses	Adresy na platformie eNauczenie: Inżynieria Jakości _NST_2025 - Moodle ID: 45134 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=45134													
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> 1. Evaluation of the measurement system 2. Application of ISHIKAWA; PARETO diagram 3. Applications of SPC methodology 4. Application of 5 WHY form 														
Work placement	Not applicable														

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