



Subject card

Subject name and code	QUALITY ENGINEERING, PG_00057046						
Field of study	Engineering Management						
Date of commencement of studies	October 2021	Academic year of realisation of subject			2023/2024		
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	Katedra Inżynierii Zarządzania i Jakości -> 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_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.		[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects		
	[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		[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools		
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</p> <p>TESTLABORATORY: LABORATORY 1 - INTRODUCTION LABORATORY 2 - CHARACTERISTICS OF MEASURING EQUIPMENT LABORATORY 3 - EVALUATION OF THE MEASUREMENTS SYSTEM LABORATORY 4 - STATISTICAL PROCESS CONTROL LABORATORY 5 - INSTALLATION OF DEMONSTRATOR LABORATORY 6 - CONTROL OF ELECTRICAL PARAMETERS LABORATORY 7 - TEST LABORATORY 8 - PASS A LABORATORY</p>						

Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	raport	60.0%	35.0%
	test of lecture	60.0%	35.0%
	test of laboratory	60.0%	30.0%
Recommended reading	Basic literature	Harry M., Schroeder R.: Six Sigma. Wykorzystanie programu jakości do poprawy wyników finansowych. Oficyna Ekonomiczna. Kraków 2001. Pande P. S., Neuman R. P., Cavanagh R. R.: Six Sigma. Sposób poprawy wyników nie tylko dla firm takich jak GE czy Motorola. Liber s. c. Warszawa 2003 Greber T.: Statystyczne sterowanie procesami doskonalenie jakości z pakietem Statistica, Kraków 2001	
	Supplementary literature	Not required	
	eResources addresses	Adresy na platformie eNauczanie: Inżynieria Jakości_NST - Moodle ID: 36614 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=36614">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=36614</a>	
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> <li>1. Application of Ishikawa diagram</li> <li>2. Application of PARETO diagram</li> <li>3. Applications of SPC methodology</li> <li>4. Application of 5 WHY form</li> </ol>		
Work placement	Not applicable		