

**Subject card**

<b>Subject name and code</b>	Lean Six Sigma, PG_00200439						
<b>Field of study</b>	Logistics and Mobility						
<b>Date of commencement of studies</b>	October 2026	<b>Academic year of realisation of subject</b>			2026/2027		
<b>Education level</b>	Master's studies	<b>Subject group</b>			Obligatory subject group in the field of study Subject group related to scientific research in the field of study		
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	1	<b>Language of instruction</b>			English		
<b>Semester of study</b>	2	<b>ECTS credits</b>			2.0		
<b>Learning profile</b>	academic	<b>Assessment form</b>			credit		
<b>Conducting unit</b>	Department of Logistics -> Faculty of Economics -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		dr Agnieszka Szmelter-Jarosz				
	<b>Teachers</b>						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	0.0	15.0	0.0	15.0	0.0	30
	E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	<b>Number of study hours</b>	30		0.0		20.0	50
<b>Subject objectives</b>	<p>Familiarizing students with logistics management techniques used in international corporations (some of the techniques are also appropriate for the area of quality management).</p> <p>Familiarizing students with the most popular tools used in the field of logistics process engineering.</p> <p>Familiarizing students with qualitative and quantitative methods of assessing logistics processes within the Six Sigma and lean management methodology.</p> <p>Acquisition by students of practical skills in the use of Lean Six Sigma techniques, especially data analysis</p>						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[LMMU2_K04] is ready to think and act in an entrepreneurial manner; adapts to new situations and conditions; undertakes challenges of creative thinking; acquires resilience to failures; can assess risks and threats and find ways of counteracting their effects	The student solves complex problems in the field of business process engineering The student is able to work in a group to solve a problem	[SK5] implementation of a problem task [SK8] observation of student's independent or team work
	[LMMU2_W11] knows the detailed principles of establishing and developing forms of individual entrepreneurship, using the knowledge of economics, finance, management, logistics and mobility	The student knows the basic elements of the Lean Six Sigma methodology The student has in-depth knowledge of the methods, techniques and tools used in business process engineering, including those used in Lean Six Sigma	[SW4] test/exam - oral or written
	[LMMU2_U05] uses (legal, professional, ethical) normative systems and can effectively solve complex economic and social problems in logistics and mobility using them	The student is able to apply the known methods, techniques and tools to solve the problem. The student analyses quantitative and qualitative data in order to identify the problem, its causes and how to solve it	[SU5] implementation of a problem task [SU8] observation of student's independent or team work
	[LMMU2_W10] knows the terms and principles of protection of industrial property and copyright, and understands the necessity of management of intellectual property resources	The student knows the principles of business process management based on lean management	[SW4] test/exam - oral or written
	[LMMU2_U15] can independently expand and improve acquired knowledge and skills in logistics and mobility; is open to new ideas and techniques; tends to learn using any accessible method and to interact with other participants of the learning process	The student is able to choose the method, technique and tools to solve the problem in the field of business process engineering based on the Lean Six Sigma methodology	[SU5] implementation of a problem task [SU8] observation of student's independent or team work
Subject contents	<ol style="list-style-type: none"> <li>1. Lean Management and Kaizen - introduction</li> <li>2. Types of waste</li> <li>3. Value stream mapping and map analysis</li> <li>4. Overview of tools and techniques (Kanban, Poka Yoke, Jidoka, 5S, QFD, others)</li> <li>5. DMAIC cycle</li> <li>6. Define phase - SIPOC, VoC</li> <li>7. Measure phase - measures, CtQ, variable measurements</li> <li>8. Analyze phase - introduction, typical tools and methods of data analysis (Pareto diagram, FMEA analysis, statistical analysis), evaluation of process stability, data distribution, process capability, correlation, regression, data stratification and segmentation</li> <li>9. Improve phase - introduction, DOE, techniques of generating ideas, planning and implementing improvements, standardization of the process</li> <li>10. Control phase - introduction, control cards, process auditing</li> <li>11. Final test</li> </ol> <p>Any doubts regarding the issues discussed will be dispelled during the consultation.</p>		

Prerequisites and co-requisites	<p><b>A. Formal requirements</b></p> <p>The positive grade obtained from the subject:</p> <p>Managerial Decisions in Logistics</p> <p><b>B. Prerequisites</b></p> <p>Basic knowledge of logistics and business processes</p> <p>Computer skills in a Windows environment</p> <p>Basic knowledge of MS Excel</p>											
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="456 640 794 667">Subject passing criteria</th> <th data-bbox="799 640 1137 667">Passing threshold</th> <th data-bbox="1142 640 1481 667">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 674 794 701">assessments of tasks</td> <td data-bbox="799 674 1137 701">51.0%</td> <td data-bbox="1142 674 1481 701">50.0%</td> </tr> <tr> <td data-bbox="456 707 794 734">test</td> <td data-bbox="799 707 1137 734">51.0%</td> <td data-bbox="1142 707 1481 734">50.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	assessments of tasks	51.0%	50.0%	test	51.0%	50.0%
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Recommended reading	<p>Basic literature</p> <p>Supplementary literature</p> <p>eResources addresses</p>	<p>Szmelter A., The impact of complexity on shaping logistics strategies in global supply chains, Journal of Economics &amp; Management, 2017, Vol. 28, no. 2, s. 74-89.</p> <p>Harry M., Schoeder R., Six Sigma: The Breakthrough Management Strategy Revolutionizing the World's Top Corporations, Currency, 2006 (first and next editions)</p> <p>Peter S. Pande, Robert P. Neuman, and Roland Cavanagh, The Six Sigma Way: How to Maximize the Impact of Your Change and Improvement Efforts, McGraw Hill; 2nd edition (January 7, 2014)</p> <p>The Council for Six Sigma Certification, Six Sigma: A Complete Step-by-Step Guide: A Complete Training &amp; Reference Guide for White Belts, Yellow Belts, Green Belts, and Black Belts, 2018</p>										
Example issues/ example questions/ tasks being completed												
Work placement	Not applicable											

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