University of Gdańsk

Subject card

Subject name and code	Lean Six Sigma, PG_00200439		
Field of study	Logistics and Mobility		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2026/2027
Education level	Master's 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	full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	English
Semester of study	2	ECTS credits	2.0
Learning profile	academic	Assessment form	credit
Conducting unit	Department of Logistics -> Faculty of Economics -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Agnieszka Szmelter-Jarosz	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	15.0	0.0	15.0	0.0	30

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	30	0.0	20.0	50

Subject objectives

Familiarizing students with logistics management techniques used in international corporations (some of the techniques are also appropriate for the area of quality management).

Familiarizing students with the most popular tools used in the field of logistics process engineering.

Familiarizing students with qualitative and quantitative methods of assessing logistics processes within the Six Sigma and lean management methodology.

Acquisition by students of practical skills in the use of Lean Six Sigma techniques, especially data analysis

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

1. Lean Management and Kaizen - introduction

2. Types of waste

3. Value stream mapping and map analysis

4. Overview of tools and techniques (Kanban, Poka Yoke, Jidoka, 5S, QFD, others)

5. DMAIC cycle

6. Define phase - SIPOC, VoC

7. Measure phase - meausres, CtQ, variable measurements

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

9. Improve phase - introduction, DOE, techniques of generating ideas, planning and implementing improvements, standardization of the process

10. Control phase - introduction, control cards, process auditing

11. Final test

Any doubts regarding the issues discussed will be dispelled during the consultation.

<table>
<tr><td>Prerequisites and co-requisites</td><td colspan="3">A. Formal requirements

The positive grade obtained from the subject:

Managerial Decisions in Logistics

B. Prerequisites

Basic knowledge of logistics and business processes

Computer skills in a Windows environment

Basic knowledge of MS Excel</td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>assessments of tasks</td><td>51.0%</td><td>50.0%</td></tr><tr><td>test</td><td>51.0%</td><td>50.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">Szmelter A., The impact of complexity on shaping logistics strategies in global supply chains, Journal of Economics & Management, 2017, Vol. 28, no. 2, s. 74-89.

Harry M., Schoeder R., Six Sigma: The Breakthrough Management Strategy Revolutionizing the World's Top Corporations, Currency, 2006 (first and next editions)

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)</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">The Council for Six Sigma Certification, Six Sigma: A Complete Step-by-Step Guide: A Complete Training & Reference Guide for White Belts, Yellow Belts, Green Belts, and Black Belts, 2018</td></tr>
<tr><td>eResources addresses</td><td colspan="2"></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3"></td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
</table>

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