University of Gdańsk

Subject card

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|---|---|---|---|
| Subject name and code | Lean in logistics , PG_00198990 | | |
| Field of study | Economics | | |
| Date of commencement of studies | October 2026 | Academic year of realisation of subject | 2028/2029 |
| Education level | Bachelor's studies | Subject group | Obligatory subject group in the field of study<br>Optional subject group<br>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 | 3 | Language of instruction | Polish |
| Semester of study | 5 | 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 | 15.0 | 0.0 | 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**

Understanding the fundamentals of Lean philosophy and its application in logistics processes to eliminate waste and improve operational efficiency.

Identifying and analyzing waste (muda) in supply chains and implementing Lean tools such as 5S, Kaizen, and Value Stream Mapping (VSM).

Developing skills in optimizing logistics processes using Lean principles.

Preparing for the implementation of a culture of continuous improvement in logistics processes and systems.

| Learning outcomes | Course outcome | Subject outcome | Method of verification |
|---|---|---|---|
| | [EKONL3_W08] has an advanced knowledge of the processes of changing elements, enterprises and whole structures of economic organisations, as well as the processes of changing social institutions, knows what their causes, course, scale, consequences are and what the influence of external stakeholders is on them | Student knows the logistics strategies in companies and supply chains related to philosophies like lean, agile, leagile, and processes related to shaping and change of strategy. | [SW4] test/exam - oral or written |
| | [EKONL3_K04] is willing to think and act in an entrepreneurial manner; adapts to new situations and conditions, takes on the challenges of creative thinking, is resilient in the face of failure, is able to identify risks and assess the risks of failure | The student understands the importance of a continuous improvement culture and can work to optimize processes. | [SK5] implementation of a problem task |
| | [EKONL3_W09] has an advanced knowledge of the evolution of theories describing economic entities and organisations as well as public institutions, and has an advanced knowledge of functional links within them | The student has knowledge of the fundamental principles of Lean philosophy and its application in logistics. | [SW4] test/exam - oral or written |
| | [EKONL3_K05] correctly identifies, diagnoses and resolves professional dilemmas and different options for solutions | The student demonstrates openness to change and a willingness to take initiatives that enhance organizational performance. | [SK5] implementation of a problem task |
| | [EKONL3_U07] is able to participate in analyses and evaluations of alternative solutions to economic and social problems and to choose the methods and instruments to resolve them rationally | The student can select appropriate Lean tools for specific logistics problems and propose improvement actions. | [SU5] implementation of a problem task |
| | [EKONL3_U02] is able to use the knowledge of theory and data to analyse concrete economic and social processes and phenomena and to analyse these phenomena using methods developed in economics, finance and management sciences | The student is able to assess the suitability of a given method for solving a specific problem related to the execution of logistics processes, apply it, evaluate the results, and propose optimization actions. | [SU5] implementation of a problem task |
| | [EKONL3_U08] has the ability to observe, understand and analyse economic and social phenomena and processes using appropriate scientific methods | The student is able to analyze logistics processes to identify waste and indicate potential areas for improvement. | [SU5] implementation of a problem task |
| | [EKONL3_W06] has an advanced knowledge of selected methods and tools, including statistical and econometric techniques, for describing economic agents and structures as well as social institutions and the processes taking place in them | The student knows the tools and methods used in the Lean approach, such as 5S, Kaizen, and VSM, and can explain their use in the supply chain. | [SW4] test/exam - oral or written |
| | [EKONL3_U03] is able to analyse the causes and course of specific economic and social processes and phenomena, and accurately analyse these phenomena using adequate methods and tools economic and social | Student can assess the effectiveness of implemented lean practices and propose further optimization needs including preparing a project in teams of 2-3 people in the field of project management, which is discussed and approved during consultations with the lecturer and then presented during classes | [SU2] presentation/project/paper/ report<br>[SU5] implementation of a problem task |

<table>
<tr><td>Subject contents</td><td>1. Introduction to Lean Philosophy origins, principles, and benefits in logistics<br>2. Methodologies, techniques, and tools of Lean, Agile, and Leagile: 5S, Kaizen and continuous improvement of logistics processes, Lean Six Sigma, Kanban<br>3. Value Stream Mapping (VSM) in logistics<br>4. Inventory management according to Lean principles elimination of excess, Just-in-Time; Lean in warehousing<br>5. Lean in reverse logistics and TPM (Total Productive Maintenance)<br><br>Any doubts regarding the issues discussed during classes can be discussed during consultations.<br><br>To receive a passing grade, you must score at least 51% of the total points in the practical section and 51% in the project section. The final grade is based on the total points from both the practical and project sections.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Basic knowledge in microeconomics<br><br>Basic knowledge in management, including process management</td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>project</td><td>51.0%</td><td>50.0%</td></tr>
<tr><td>test</td><td>51.0%</td><td>50.0%</td></tr>
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</td></tr>
<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>Szmelter, A. (2012). Wykorzystanie koncepcji Six Sigma w logistyce zaopatrzenia. Torun Business Review, Article 11 11.<br><br>Goldsby T, Martichenko R., Lean Six Sigma Logistics: Strategic Development to Operational Success, JRoss Publishing, https://epdf.tips/lean-six-sigma-logistics-strategic-development-to-operational-success.html<br>Szmelter-Jarosz, A., Abdi, H., & Nozari, H. (2024). Closed-loop supply chain management (CLSCM) in the circular economy. Journal of Business and Future Economy, 1, Article 1.<br>Szmelter, A. (2013). Jidoka jako przykład kaizenowskich technik minimalizacji kosztów logistycznych przedsiębiorstw produkcji masowej. Zeszyty Naukowe Uniwersytetu Gdańskiego. Ekonomika Transportu i Logistyka, Article 46. http://ekonom.ug.edu.pl/web/download.php?OpenFile=1181</td></tr>
<tr><td>Supplementary literature</td><td>Bąk, D. (2022). Metody i narzędzia Lean Management w zarządzaniu szpitalem studia przypadków. Zeszyty Naukowe Ochrony Zdrowia, Zdrowie Publiczne i Zarządzanie, 20(2), 3446. https://doi.org/10.4467/20842627oz.22.008.17641<br><br>Cvetić, B., Vasiljevic, D., Novaković, J., & Đorđević, A. (2021). Lean Supply Chain: Take an Opportunity to do More with Less. 15(2), 275281. https://doi.org/10.31803/TG-20210429120854<br><br>Kruczek, M., & Żebrucki, Z. (2011). Doskonalenie struktury łańcucha dostaw z wykorzystaniem koncepcji Lean. Logistyka.<br><br>Koza, A., & Łapuńka, I. (2014). Lean Manufacturing jako koncepcja usprawniania procesów w logistyce produkcjicase study. Logistyka, 5892-5902.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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