University of Gdańsk

Subject card

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| Subject name and code | Managerial Decisions in Logistics, PG_00199364 | | | | | | |
| Field of study | Economics | | | | | | |
| Date of commencement of studies | October 2026 | | Academic year of realisation of subject | | 2027/2028 | | |
| Education level | Master'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 | 2 | | Language of instruction | | Polish | | |
| Semester of study | 3 | | ECTS credits | | 5.0 | | |
| Learning profile | academic | | Assessment form | | credit | | |
| Conducting unit | Department of Logistics -> Faculty of Economics -> Rector | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr Beata Chmiel | | | | |
| | Teachers | | | | | | |
| Lesson types | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 0.0 | 30.0 | 0.0 | 30.0 | 0.0 | 60 |
| | 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 | 60 | | 0.0 | | 65.0 | 125 |
| Subject objectives | To introduce students to the basic methods of optimisation decision support used in logistics and to impart skills for their practical use. | | | | | | |

| Learning outcomes | Course outcome | Subject outcome | Method of verification |
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| | [EKONMU2_W08] has an in-depth knowledge of processes occurring in enterprises and economic organisations and with related areas, as well as of processes of change in public institutions; knows methods of research on the regularities governing these changes, taking into account the influence of external stakeholders on them | The student has an in-depth knowledge of the logistical processes taking place in enterprises. | [SW4] test/exam - oral or written<br>[SW1] oral statement/ conversation/discussion<br>[SW2] presentation/project/paper/ report |
| | [EKONMU2_U04] can forecast and model complex economic and social processes using quantitative and qualitative methods and tools developed by economic sciences (including statistics and econometrics) | The student is able to model complex logistical processes using methods and quantitative tools developed by the economic sciences. | [SU1] oral statement/conversation/ discussion<br>[SU2] presentation/project/paper/ report<br>[SU4] test/exam - oral or written<br>[SU8] observation of student's independent or team work |
| | [EKONMU2_U13] can manage teamwork as well as interact and work in a team (including in an international environment) assuming a leading role in it | The student is able to interact and work in a team, assuming various roles in the team, including a leading role. | [SU1] oral statement/conversation/ discussion<br>[SU2] presentation/project/paper/ report<br>[SU8] observation of student's independent or team work |
| | [EKONMU2_K03] inspires and organises preparation of economic and social projects, following the idea of sustainable development, reconciling legal, economic, ecological, political and social requirements | The student inspires and organises the preparation of economic projects. | [SK1] oral statement/conversation/ discussion<br>[SK2] presentation/project/paper/ report<br>[SK4] test/exam - oral or written<br>[SK8] observation of student's independent or team work |
| | [EKONMU2_W06] has an in-depth understanding of statistical and econometric methods and tools for describing and modelling macro- and microeconomic economic structures and public institutions, as well as the processes taking place within them. | The student is familiar with methods and tools for modelling logistical decision-making situations. | [SW4] test/exam - oral or written<br>[SW1] oral statement/ conversation/discussion<br>[SW2] presentation/project/paper/ report |

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| Subject contents | **1. The managerial decision-making process in logistics**<br><br>• Areas of managerial decision-making in logistics<br>• Optimisation versus sub-optimisation<br>• Corporate decision-making process<br>• Models in the enterprise<br>• Types of models<br>• Examples of models<br>• Decision models<br>• Components of a decision-making model<br>• Stages in the construction of a decision-making model<br>• Example of the construction of an optimisation model<br><br>**2. Linear programming theory**<br><br>• Features of linear programming models<br>• Construction of a logistic optimisation model<br>• Algorithm for using the SOLVER tool<br>• Possibilities of using the SOLVER tool<br><br>**3. Examples of linear programming models**<br><br>• Optimal selection of the production assortment<br>• Integer linear programming<br>• Other possible constraints in linear programming<br>• The dieting problem<br>• Graphical method for solving a linear programming model<br>• Duality in linear programming<br>• Transport problem<br>• Balanced and unbalanced transport problem<br>• Route blockage problem in a transport problem<br>• Transport problem with transshipment (mediator problem)<br>• The allocation problem<br><br>**4. Network programming theory**<br><br>• Selected concepts of graph theory<br>• Graphical illustration of a graph<br><br>**5. Examples of network programming models - case studies**<br><br>• Transport model with transhipment<br>• Shortest route model<br>• Equipment exchange model<br>• Maximum flow model<br><br>Any doubts regarding the issues discussed during classes can be discussed during consultations. |
| Prerequisites and co-requisites | Basic knowledge of logistics. |
| Assessment methods and criteria | |

| Subject passing criteria | Passing threshold | Percentage of the final grade |
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| Assessment test | 51.0% | 90.0% |
| Project | 51.0% | 10.0% |

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| Recommended reading | Basic literature | 1. L. Reszka: *Decyzje menedżerskie w logistyce*. Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 2019<br>2. M. Chaberek: *Ład logistyczny w gospodarowaniu*. Wydawnictwo Uniwersytetu Gdańskiego Gdansk 2020.<br>3. *Badania operacyjne w przykładach i zadaniach* pod red. K. Kukuły, Wydawnictwo Naukowe PWN, Warszawa 2014 |

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| | Supplementary literature | 1. L. Reszka: *Decision making process in the management of logistics support system* [W:] C. Mańkowski, L. Reszka (red.): *Modelowanie procesów i systemów logistycznych*, cz. XXII Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 2021, s. 167-176<br>2. L. Reszka: *Multicriteria optimization methods in logistics on the example of warehouse location*, "Journal of Positive Management", vol. 9, nr 3/2018, Toruń 2018, ISSN: 2083-103X, s. 3-16<br>3. L. Reszka: *The Applicability of the Simos Method to Determination of Weights In Optimal Multicriteria Decision Making In Logistic*s [W:] M. Chaberek, L. Reszka (red.): *Modelling of Logistics Processes and Systems*, part XVII Research Journal of the University of Gdańsk Transport Economics and Logistics vol. 66. Gdańsk University Press, Gdańsk 2017, ISSN: 2544-3224, e-ISSN 2544-3232, s. 81-88<br>4. L. Reszka: *Koniunkcja logistyki i optymalizacji* [W:] *Acta Universitatis Nicolai Copernici*. Nauki Humanistyczno-Społeczne, Zeszyt 407. Zarządzanie XXXIX Wydawnictwo Uniwersytetu Mikołaja Kopernika. Toruń 2012, ISSN 1689-8966, ISSN 0860-1232, s. 109-118<br>5. L. Reszka: *Modelowanie procesu optymalizacyjnego w logistyce przedsiębiorstwa* [W:] M. Chaberek, L. Reszka (red.): *Modelowanie procesów i systemów logistycznych*, cz. XII. Zeszyty Naukowe Uniwersytetu Gdańskiego. Ekonomika Transportu i Logistyka, nr 46 Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 2013, ISSN 0208-4821, s. 101-111<br>6. L. Reszka: *Optymalizacja harmonogramu wymiany sprzętu jako zadanie logistyczne* [W:] M. Chaberek, L. Reszka (red.): *Modelowanie procesów i systemów logistycznych*, cz. XI. Zeszyty Naukowe Uniwersytetu Gdańskiego. Ekonomika Transportu i Logistyka, nr 42 Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 2012, ISSN 0208-4821, s. 189-196<br>7. L. Reszka: *Solver jako narzędzie rozwiązywania logistycznych problemów optymalizacyjnych* [W:] Roczniki Naukowe Wyższej Szkoły Bankowej w Toruniu, nr 10 (10) 2011, Wyższa Szkoła Bankowa w Toruniu, Toruń 2011, ISSN 1643-8175, s. 321-336<br>8. L. Reszka: *Model maksymalnego przepływu jako przykład narzędzia optymalizacji procesów logistycznych w mieście* [W:] M. Chaberek, L. Reszka (red.): *Modelowanie procesów i systemów logistycznych*, cz. x. Zeszyty Naukowe Uniwersytetu Gdańskiego. Ekonomika Transportu Lądowego, nr 40 Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 2011, ISSN 0208-4821, s. 229-235<br>9. L. Reszka: *Optymalizacja hurtowej sieci dystrybucyjnej jako zadanie logistyczne*. [W:] D. Rucińska (red.): Studia nad transportem i logistyką. Zeszyty Naukowe Uniwersytetu Gdańskiego. Ekonomika Transportu Lądowego, nr 25. Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 2003, ISSN 0208-4821, s. 219-225 |
| | eResources addresses | |
| Example issues/ example questions/ tasks being completed | - | |
| Work placement | Not applicable | |

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