University of Gdańsk

Subject card

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 Optional subject group 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
[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 [SW1] oral statement/ conversation/discussion [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 [SU2] presentation/project/paper/ report [SU4] test/exam - oral or written [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 [SU2] presentation/project/paper/ report [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 [SK2] presentation/project/paper/ report [SK4] test/exam - oral or written [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 [SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report

Subject contents	**1. The managerial decision-making process in logistics** • Areas of managerial decision-making in logistics • Optimisation versus sub-optimisation • Corporate decision-making process • Models in the enterprise • Types of models • Examples of models • Decision models • Components of a decision-making model • Stages in the construction of a decision-making model • Example of the construction of an optimisation model **2. Linear programming theory** • Features of linear programming models • Construction of a logistic optimisation model • Algorithm for using the SOLVER tool • Possibilities of using the SOLVER tool **3. Examples of linear programming models** • Optimal selection of the production assortment • Integer linear programming • Other possible constraints in linear programming • The dieting problem • Graphical method for solving a linear programming model • Duality in linear programming • Transport problem • Balanced and unbalanced transport problem • Route blockage problem in a transport problem • Transport problem with transshipment (mediator problem) • The allocation problem **4. Network programming theory** • Selected concepts of graph theory • Graphical illustration of a graph **5. Examples of network programming models - case studies** • Transport model with transhipment • Shortest route model • Equipment exchange model • Maximum flow model 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
Assessment test	51.0%	70.0%
Project	51.0%	30.0%

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

	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 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 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 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 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 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 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 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 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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