

Course title		Logistics and Mobility Modelling						ECTS code		14.3.EE.SZ.3580		
								ECTS credits		4		
Name of unit administrating study		KL		Field of study		Economics		Field of specialisation		L&M;		
Teaching staff		Cezary Mańkowski, Associate Professor										
Number of hours												
Lectures	0	Classes	0	Tutorials	0	Laboratory	30	Seminars	0	Language classes	0	
Forma aktywności							Year&Type of studies*		1 SS2,			
Hours with the participation of the academic teacher (including office hours, exams, others):							Semester:		1,			
Hours without the participation of the academic teacher (student's self-study, homeworks):							Type of course:		obligatory			
Total number of hours:						0	Language of instruction:		English			
Teaching form		in-class learning										
Teaching methods		Work in computer laboratories, Individual projects, Case studies,										
Prerequisites (required courses and introductory requirements)												
Required courses		No requirements										
Introductory requirements		General knowledge on menageral economics										
Assessment method, forms and criteria												
Assessment method		Course completion (graded)										
Assessment criteria		Development of a graphic EPC model of a selected logistics or mobility process and written description of the model according to the EPC terminology. The main assessment criteria include: 1) correctness of the graphic model and its written description; 2) complexity of the model ; 3) no absence in the classes.										
Course objectives												
The objective of the course is to complement the implementation of selected learning objectives in terms of knowledge, skills and social competence in the area of logistics and mobility modelling.												
Learning outcomes												
Knowledge		E2_W08		Student knows statistical and econometric methods and tools for description and macro- and microeconomic modelling of economic structures and public institutions and processes occurring in them, in relation to logistics and mobility								
Verification of learning outcomes - Knowledge												
Outcomes		written exam	oral exam	test	essay/paper /portfolio	tasks/ homeworks	individual presentation	group presentation	classroom activities	classroom discussion	individual project	group project
E2_W08											X	
Skills		E2_U04		Student can forecast and model complex economic and social processes using quantitative and qualitative methods and tools developed by economic sciences (including statistics and econometrics), in relation to logistics and mobility								
Verification of learning outcomes - Skills												
Outcomes		written exam	oral exam	test	essay/paper /portfolio	tasks/ homeworks	individual presentation	group presentation	classroom activities	classroom discussion	individual project	group project
E2_U04											X	
Attitudes		E2_K05		Student correctly identifies, diagnoses and solves dilemmas and alternative solutions								

		related to the profession, in relation to logistics and mobility									
Verification of learning outcomes - Attitudes											
Outcomes	written exam	oral exam	test	essay/paper /portfolio	tasks/ homeworks	individual presentation	group presentation	classroom activities	classroom discussion	individual project	group project
E2_K05										X	
Course contents											
1. Structure of logistics and mobility processes Main ontologies, processualism, eventism, reism, relationism, systemism, architectures of business processes (ARIS, CIM OSA, Zachman's framework), logistics and mobility processes, structure, elements, quantitative and qualitative parameters 2.Development of EPC model of logistics or mobility process Methods and tools of logistics or mobility process modelling. Constructing a model of a selected logistics or mobility process according to the EPC standard of modelling 3.Analysis of logistics or mobility process model Heuristics, benchmarking, simulation, time/cost/quality analysis 4.Improvement of logistics or mobility process Vision, redesigning, reengineering 5.Presentation and discussion on the model of improved logistics or mobility process Presentation, estimation, discussion											
Recommended reading lists											
Literature obligatory: 1) Rosing M., A-W. Scheer, H. Scheel: The Complete Business Process Modeling Handbook. Body of Knowledge from Process Modeling to BPM (Volume 1). Morgan Kaufmann, Waltham 2015. Available HERE 2) Mańkowski C.: Ontological Foundations for Business Logistic Process Modeling. "Railway Transport and Logistics" 2007, no 2, p. 30-38. Available HERE 3) Mańkowski C.: Architectures of logistics processes and systems, Transport Economics and Logistics, Gdańsk University Press, vol. 68, 2017, p. 25-38. Available HERE 4) Mańkowski C., Chałupowicz J.: Managing maritime container ports' sustainability: a reference model. "Sustainability", MDPI, vol. 13, nr 18, 2021, p. 1-15. Available HERE Additional sources: 1) A.-W. Scheer: ARIS-Business Process Modeling. Springer Verlag, Berlin 2000 2) J. Mendling: Metrics for process models. Springer Verlag, Berlin 2008 3) http://supply-chain.org/ http://www.ariscommunity.com http://www.softwareag.com http://www.idef.com http://www.wonderware.com											
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* SS1- undergraduate studies * SS2 - graduate studies * SDang - doctoral studies
 ** MSG - International Economic Relations