

COURSE DESCRIPTION CARD

Bialystok University of Technology Faculty of Engineering Management									
Field of study	Management							Degree level and programme type	first degree/ second degree
Specialisation/ diploma path	-							Study profile	-
Course name	Strategic modelling and business dynamics							Course code	IS-FM-00091S
								Course type	elective
Forms and number of hours of educational activities	L	C	LC	P	SW	FW	S	Semester	summer
	15		15					No. of ECTS credits	5
Entry requirements									
Course objectives	Students get knowledge in the area of system dynamics method and its relation to market, management and research. They will able to build models and use causal loop diagrams, stock and flow diagrams, table functions, and equations to represent and illustrate cause-and-effect relationships. They gain knowledge how avoids mistakenly interpreting symptoms as causes. Student will analyse and understand strategic business, as well as find long-term solutions and avoid 'fire-fighting' behaviour. Students in pair using Vensim will able to model chosen simulation in relation to strategic management area.								
Course content	1. Introduction to system dynamics and systems thinking. 2. System thinking and simulation in strategic management. 3. Principles for formulating dynamic system modeles. 4. Structure of a dynamic system model. 5. Introduction to Vensim software. 6. Strategic modelling with Vensim. 7. System dynamics perspective in the case of pharmaceutical market dynamics and strategic planning. 8. New approach to simulation modelling.								
Teaching methods	Lecture, Case studies, computer laboratory classes, project group								
Assessment method	Evaluation of the project, presentation on the group the project and defence, tests based on lectures								
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study	
	Knowledge: the graduate knows and understands							-	
LO1	Obtain knowledge about the system dynamics methods.							-	
LO2	Understand the relation in the economy and business in perspective of system dynamics and can build own simulation.							-	
	Skills: the graduate is able to							-	

L03	Can use Vensim to strategic modelling and business dynamics.	-
L04	Practical use causal loop diagrams, cause-and-effect relationships	-
	Social competence: the graduate is ready to	-
L05	Communicate and work in small groups.	-
L06	Use principles and ethical standards.	-
Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed
L01	Test on lecture content	
L02	Test on lecture content /evaluating the student's project	
L03	evaluating the student's project	
L04	evaluating the student's project	
L05	evaluating the student's project	
L06	evaluating the student's project	
Student workload (in hours)		No. of hours
Calculation	Participation in the lectures	15
	Participation in the laboratory classes	15
	Preparation for the laboratory	30
	Elaborating the project/students-teacher consultation	35
	Presentation and prepare to pass the module	30
	TOTAL:	125
Quantitative indicators		HOURS
Student workload – activities that require direct teacher participation		1
Student workload – practical activities		4
Basic references	1. Garcia J.M., Theory and Practical Exercises of System Dynamics, Spain, 2017 2. Garcia J.M., Common mistakes in System Dynamics, Spain, 2019 3. Sterman J. D., Business Dynamic. Systems Thinking and Modeling for a Complex Worlds, Irwin McGraw-Hill, 2000	
Supplementary references	1. Forrester J.W., Industrial Dynamics, Pegasus Communications, Waltham, 1999 2. Warren K., Strategic Management Dynamics, Wiley, 2008, 3. Paich M., Peck C., Valant J., Pharmaceutical market dynamics and strategic planning: a system dynamics perspective, System Dynamics Review, vol 27, No 1, 2011 4. Morecroft J. D.W., Strategic Modelling and Business Dynamics, Wiley, 2007	
Organisational unit conducting the course	Department of Management, Economics and Finance	Date of issuing the programme
Author of the programme	Andrzej Pawluczuk, PhD	22.02.2022

L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work, S – seminar