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**
			30					**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	Case studies, computer laboratory classes, project group								
Assessment method	Evaluation of the project, presentation on the group the project and defence, test based of background								

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	**-**
LO3	Can use Vensim to strategic modelling and business dynamics.	**-**

LO4	Practical use causal loop diagrams, cause-and-effect relationships	**-**
	Social competence: the graduate is ready to	**-**
LO5	Communicate and work in small groups.	**-**
LO6	Use principles and ethical standards.	**-**

Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed
LO1	test and evaluating the student's project	
LO2	test and evaluating the student's project	
LO3	evaluating the student's project	
LO4	evaluating the student's project	
LO5	evaluating the student's project	
LO6	evaluating the student's project	

Student workload (in hours)		No. of hours
Calculation	Participation in the laboratory classes	30
	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	No. of ECTS credits
Student workload – activities that require direct teacher participation	**30**	**1**
Student workload – practical activities	**110**	**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	D r Andrzej Pawluczuk	22.02.2022

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