

COURSE DESCRIPTION CARD – SPECIMEN

Faculty of Mechanical Engineering									
Field of study	Mechatronics						Degree level and programme type	Bachelor degree/ Master degree	
Specialization/ diploma path							Study profile		
Course name	Theory of solving innovation problems						Course code	MK1S07008	
							Course type	elective	
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	VII
	15							No. of ECTS credits	1
Entry requirements	TRIZ methodical toolset. Acquiring the ability to create new innovative ideas and solve engineering problems.								
Course objectives	Understanding the basic terminology in the area of creativity, creativity methods and new methods of creating innovation. Understanding the basic principles of creativity in future perspective. Teach students who to be more creative.								
Course content	Overcoming barriers in creative problem solving, vector of inertia - how to overcome it?, Stimulating imagination and creativity, methods of identifying and visualizing problems, methods of generating new ideas, review of creative thinking techniques, history of TRIZ, technical systems and their functions, Subsystems and supersystems, system approach, laws of technical systems development, striving for perfection - the Ideal End result, analysis of technical and physical contradictions, analysis of means to overcome contradictions, basics of removing technical / physical contradictions, 40 inventive tricks, algorithm for solving inventive tasks TRIZ.								
Teaching methods	Lecture								
Assessment method	written exam								
Symbol of learning outcome	Learning outcomes						Reference to the learning outcomes for the field of study		
LO1	is ready to think and act in an entrepreneurial manner						MK1_K05		
LO2	is ready to identify problems and solve dilemmas that arise when generating new technological solutions						MK1_K04		
LO3	identifies and analyzes key issues related to sources of creativity,						MK1_W01, MK1_W11		

LO4	knows and understands technical systems and their functions	MK1_U01	
LO5	defines and describes the basic issues related creative thinking, methods of creative problem solving	MK1_K05	
LO6			
Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed	
LO1	written exam	L	
LO2	written exam	L	
LO3	written exam	L	
LO4	written exam	L	
LO5	written exam	L	
LO6			
Student workload (in hours)		No. of hours	
Calculation	Participation in lectures	15	
	Preparation for passing lecture	9	
	Participation in consultation	1	
		TOTAL:	25
Quantitative indicators		HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation		16	0,5
Basic references	1. Ikovenko S. Współczesna Teoria Rozwiązywania Innowacyjnych Zadań, Novosimo Warszawa 2017r. 2. Cempel C., Inżynieria kreatywności w projektowaniu innowacji. Politechnika Poznańska 2013. 3. Proctor T., Twórcze rozwiązywanie problemów, Podręcznik dla menedżerów, GWP, Gdańsk 2002.		
Supplementary references	1. DeBono E., Myślenie równoległe, Wyd. Prima, Warszawa 1998. 2. Alder H., Inteligencja kreatywna, Wyd. Amber, Warszawa 2003. 3. Kelley T., Littman J., Sztuka innowacji, lekcja kreatywności z doświadczeń czołowej amerykańskiej firmy projektowej, MT Biznes, Warszawa 2009. 4. Michalewicz Z., Fogel D.B., Jak to rozwiązać czyli nowoczesna heurystyka, WNT, Warszawa 2006. 4. K. Robinson, Out of minds, learning to be Craetive, Wiley2017		
Organisational unit conducting the course		Date of issuing the programme	
Author of the	Jerzy Sienkiewicz, PhD	5.03.2020	

programme	translation by Izabela Senderacka, PhD	
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L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work,

S – seminar

Please notice!

Depending on number of students enrolled for the subject hours of tuition are as follows (for each 30 hours given in course description card):

1 – 2 students - 5 hours of tuition hours;

3 – 4 students - 8 hours of tuition;

5 – 6 students - 11 hours of tuition;

7 – 8 students - 15 hours of tuition;

9 and more students - hours of tuition given by a teacher as regular classes.