

## COURSE DESCRIPTION CARD – SPECIMEN

Faculty of Mechanical Engineering									
Field of study	Mechanics and Construction of Machinery							Degree level and programme type	Bachelor's degree
Specialization/ diploma path	common course							Study profile	Mechanics
Course name	Fundamentals of Mechanical Engineering I							Course code	IS-MER0058W
								Course type	obligatory
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	winter
	30	30						No. of ECTS credits	5
Entry requirements	Mathematics, Engineering graphics, Mechanics and strength of materials								
Course objectives	General knowledge of functional and design principles applied in mechanical engineering as well as their application to design machine elements, mechanisms and systems including basic calculations of strength and properly chosen materials.								
Course content	General principles of design. Norms and standards. Stress concentration, fracture toughness and fatigue. Allowable stresses, safety factor. Connections: strength and design. Threads. Bolts as axially loaded columns. Mechanical springs. Axes and shafts.								
Teaching methods	lecture, description, discussion, practice methods								
Assessment method	lecture – written exam or tests; classes– written exam or tests								
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study	
LO1	Student has a knowledge of functions and structural properties of machine elements and structures							MB1_W02	
LO2	Student is familiar with rules, methods and principles of designing machine elements and structures							MB1_W02	
LO3	Student can use technical literature, norms and standards as well as other sources of information applied in design							MB1_U07, MB1_U08	
LO4	Student can prepare and present results of an engineering problem							MB1_U09, MB1_U10	
LO5	Student has ability to develop his professional skills							M1_U06	
LO6	Student can design mechanical parts and systems. Can work individually and as a team member.							MB1_U07	
Symbol of	Methods of assessing the learning outcomes							Type of tuition during	

learning outcome		which the outcome is assessed	
L01	evaluating the student's reports and preparation for the classes, tests on the lecture content	L, C	
L02	evaluating the student's reports and preparation for the classes, tests on the lecture content	L, C	
L03	evaluating the student's reports and preparation for the classes	C	
L04	evaluating the student's reports and preparation for the classes, tests on the lecture content	L, C	
L05	evaluating the student's reports and preparation for the classes	C	
L06	evaluating the student's reports and preparation for the classes, tests on the lecture content	L,C	
<b>Student workload (in hours)</b>		<b>No. of hours</b>	
<b>Calculation</b>	lecture attendance	30	
	participation in classes, laboratory classes, etc.	30	
	preparation for classes, laboratory classes, projects, seminars, etc.	15	
	working on projects, reports, etc.	20	
	participation in student-teacher sessions related to the classes/seminar/project	4	
	implementation of project tasks	0	
	preparation for and participation in exams/tests	30	
	<b>TOTAL:</b>	<b>129</b>	
<b>Quantitative indicators</b>		<b>HOURS</b>	<b>No. of ECTS credits</b>
<b>Student workload – activities that require direct teacher participation</b>		<b>64</b>	<b>2.5</b>
<b>Student workload – practical activities</b>		<b>65</b>	<b>2.5</b>
<b>Basic references</b>	1. Shigley J.E., Mischke C.R., Budynas R.G.: Mechanical Engineering Design 2. Kurmaz L.W., Kurmaz O.L.: Podstawy konstruowania węzłów i części maszyn: podręcznik konstruowania. Wyd. Politechniki Świętokrzyskiej, Kielce, 2011		
<b>Supplementary references</b>	1. Darbyshire A.: Mechanical engineering: BTEC national engineering specialist units. Newnes, Amsterdam, 2010. 2.. Beer F.P., Johnston E.R. Jr., DeWolf J.T.: Mechanics of Materials		
<b>Organisational unit conducting the course</b>	Department of Fundamentals of Machine Design and Operation	<b>Date of issuing the programme</b>	
<b>Author of the programme</b>	Grzegorz Mieczkowski, Ph.D., Eng.	16.03.2021	

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

