

COURSE DESCRIPTION CARD – SPECIMEN

Faculty of Mechanical Engineering									
Field of study	ERASMUS+							Degree level and programme type	Bachelor's degree
Specialization/ diploma path								Study profile	
Course name	Fundamentals of Mechanical Engineering II							Course code	IS-FME-00161S
								Course type	
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	summer
	30		30	30				No. of ECTS credits	7
Entry requirements									
Course objectives	Understanding the construction and operation of the basic elements and machine assemblies. Become familiar with the methods of calculation and design methods of selection of machine elements. Acquisition of skills to design machines and their components. Planning, implementation and development of research results of selected components machines.								
Course content	Bearings and sliding bearings, clutch and brakes. Mechanical transmission: belt, chain, friction, toothed. Calculation of geometric, kinematic and strength components of mechanical transmissions. Fundamentals of the hydrostatic drive. Laboratory - the study of riveted joints, components susceptible, brakes, clutches and transmission of string. They balancing shafts. Basics of processing data. Error and measurement uncertainty. Project: design belt or gear transmission items using CAD method, Laboratories: Analysis of the mechanical properties of materials. Prepare element to strain guage test and fatigue test, do strain guage test, fatigue test, prepare scientific description fatigue test and compare results with FEM analysis.								
Teaching methods	Project: Students prepare a draft of the selected part using the analytical and numerical calculations in such a way that at certain points achieve this level of stress and strain. Laboratory: experimentations in groups under supervision of a teacher, lab reports preparing, problem solving								
Assessment method	laboratory classes – evaluation of reports, verification of preparation for classes, tests; project – project completion, presentation and discussion								
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study	
LO1	It has knowledge in conducting structural calculations							M1_W08, M1_W09	

	components and assemblies of machines		
LO2	Can determine the conditions for strength and stiffness and use them in the design of machine elements	M1_U19	
LO3	Able to perform the calculations required for the selection of standardized and catalog of machines	M1_U01, M1_U07, M1_U14, M1_U15	
LO4	Is able to design parts and assemblies machines	M1_U10, M1_U14, M1_U17	
LO5	He can work individually and in teams; He can estimate the time it takes to To accomplish the task assigned, the student is aware of the responsibility for own work and willingness to comply with the principles of teamwork	M1_U02, M1_K02, M1_K03	
LO6			
Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed	
LO1	printed design and final report, pre-lab tests, lab reports grading	P, LC	
LO2	printed design and final report, pre-lab tests, lab reports grading	P, LC	
LO3	printed design and final report	P	
LO4	printed design and final report	P	
LO5	pre-lab tests, lab reports grading	LC	
LO6			
Student workload (in hours)		No. of hours	
Calculation	participation in project classes	30	
	participation in project classes	45	
	participation in laboratory classes	30	
	preparation for laboratory classes	45	
	participation in student-teacher sessions	20	
	TOTAL:		
Quantitative indicators		HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation		80	2,5
Student workload – practical activities		150	4,5
Basic references	1. Shigley J.E., Mischke C.R., Budynas R.G.: Mechanical Engineering Design 2. Darbyshire A.: Mechanical engineering: BTEC national engineering specialist units. Newnes, Amsterdam, 2010		
Supplementary references	1. Beer F.P., Johnston E.R. Jr., DeWolf J.T.: Mechanics of Materials		
Organisational unit conducting the course	Department of Machine Construction and Maintenance	Date of issuing the programme	

Author of the programme	Piotr Tarasiuk PhD	17.03.2021
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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.