



Subject card

Subject name and code	Fundamentals of Machine Design I, PG_00055447						
Field of study	Mechatronics						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2024/2025		
Education level	first-cycle studies	Subject group			Obligatory subject group in the field of study Subject group related to scientific research in the field of study		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	3	Language of instruction			Polish		
Semester of study	5	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Machine Design and Vehicles -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Artur Olszewski				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	0.0	30.0	0.0	30
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours		Self-study	SUM	
	Number of study hours	30	8.0		37.0	75	
Subject objectives	A student achieves basis of machine design, construction and maintenance.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_W04] has organized and theoretically supported knowledge in terms of general mechanics, strength of materials, theory of mechanisms and machine dynamics, fluid dynamics, hydraulics and pneumatics, machine construction and engineering graphics						
	[K6_U07] is able to design elements of mechatronic systems taking into consideration given application and economic criteria, using appropriate methods, techniques and tools						
	[K6_U05] is able to use properly chosen tools to compare design solutions of elements and mechatronics systems according to given application and economic criteria (e.g. power demand, speed, costs)						
	[K6_U06] is able to identify and formulate specification of simple, practical engineering tasks, distinctive for mechatronics						
Subject contents	LECTURE Mechanical transmission and drive systems. Friction clutches and brakes. Sealings. Data bases. Basis of tribology: friction in machines - advantages and disadvantages. Holistic theory in phenomena of tribological systems. Fluid lubrication. Sliding bearings. Basis of hydrostatic drive. Machine maintenance and reliability. Safety. Diagnostics. EXERCISES Mechanical transmissions and drive systems. Clutches and brakes. Sliding bearings. Optimization. DESIGNING Designing of simple drive systems. Engineering calculations. Technical drawings. Optimization.						
Prerequisites and co-requisites	Knowledge in field of Engineering drawing Knowledge in field of Mechanics Knowledge in field of Strength of materials Knowledge in field of Metrology						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Oral exam	50.0%	50.0%
	Project	50.0%	25.0%
	Practical exercise	50.0%	25.0%
Recommended reading	Basic literature	Knowledge in field of Engineering drawing Knowledge in field of Mechanics Knowledge in field of Strength of materials Knowledge in field of Metrology	
	Supplementary literature	1. Fundamentals of machine design - lectures and problems - series of handbooks, edited by GUT 2. Kochanowski M.: Podstawy konstrukcji maszyn. Wybrane zagadnienia. Gdańsk: P. Gdańska 2002. 3. Pokojski J.: Systemy doradcze w projektowaniu maszyn. Warszawa: Wyd. N-T 2005.	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		