



Subject card

Subject name and code	Fundamentals of Machine Design I, PG_00055447						
Field of study	Podstawy konstrukcji maszyn II						
Date of commencement of studies	October 2023		Academic year of realisation of subject			2025/2026	
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	Faculty of Mechanical Engineering and Ship Technology -> Wydziały Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Artur Olszewski				
	Teachers		dr hab. inż. Artur Olszewski mgr inż. Tomasz Żochowski				
Lesson types	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_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)		Student is able to independently solve technical problems according to diagrams and guidelines provided in exercises and lectures.			[SU4] Ocena umiejętności korzystania z metod i narzędzi [SU1] Ocena realizacji zadania	
	[K6_W04] has organized and theoretically supported, advanced knowledge in the field of general mechanics, strength of materials, theory of mechanisms and machine dynamics, fluid dynamics, hydraulics and pneumatics, machine construction and engineering graphics		Student is able to independently prepare a computational model that is a certain representation of a real object.			[SW3] Ocena wiedzy zawartej w opracowaniu tekstowym i projektowym	
	[K6_U06] is able to identify and formulate specification of simple, practical engineering tasks, distinctive for mechatronics		Student is able to independently prepare a computational model, which is a certain representation of a real object.			[SU1] Ocena realizacji zadania	
	[K6_U07] is able to design elements of mechatronic systems taking into consideration given application and economic criteria, using appropriate methods, techniques and tools		Student is able to independently design a simple mechatronic device.			[SU1] Ocena realizacji zadania	
Subject contents	Course content – project During design classes, students work in groups to independently solve technical problems, developing their own device concepts and documentation. They analyze operating conditions, identify loads and hazards, create evaluation criteria, and select the best solution. During the design process, they utilize the knowledge and skills acquired during previous PKM classes. The design is carried out using CAD and FEM tools.						

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%
	Practical exercise	50.0%	25.0%
	Project	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	1. Design of a circular turntable cooperating with a robot manipulator. 2. Design of an electric trimmer system for an ultralight aircraft's control system. 3. Design of a window closing device.		
Practical activities within the subject	Not applicable		

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