GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Fundamentals of medical constructions, PG_00055756		
Field of study	Mechanical and Medical Engineering		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2022/2023
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	2	Language of instruction	Polish
Semester of study	4	ECTS credits	9.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Zakład Konstrukcji Maszyn i Inzynierii Medycznej -> Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Rafał Gawarkiewicz	
	Teachers	dr inż. Rafał Gawarkiewicz	

Lesson types and methods of instruction							
	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	45.0	30.0	15.0	15.0	0.0	105
	E-learning hours included: 0.0						
	Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=6371						
	Additional information: in the event of a pandemic: - exercises and lectures - via ZOOM - design classes - via ZOOM or eNauczanie PG (https://enauczanie.pg.edu.pl/moodle/course/view.php?id=11089)						

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	105	10.0	110.0	225

Subject objectives	Presenting principles of designing and selection of basic elements used in the mechanical systems. Acquainting with their basic computational models.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W07] he/she is able to design, manufacture and utilize machine parts and technical devices, he/she can prepare a technical documentation	Student identifies phenomena in elements of machines. Student creates computational models used in machine design. Student analyses and selects suitable computational models of separable and inseparable joints. Student identifies loadings and stress states at critical places of analyzed machine elements, and estimates their safety. Student draws engineering drawings with the help of the CAD software.	[SW1] Assessment of factual knowledge
	[K6_U07] he/she is able to identify the problem and list simple engineering tasks to solve this problem in practice, he/she is able to critically analyze the proposed technical solutions and conclude whether these solutions can be implemented to solve problems related to design of mechanical devices and mechanical-medical devices	Student identifies phenomena in elements of machines. Student creates computational models used in machine design. Student analyses and selects suitable computational models of separable and inseparable joints. Student identifies loadings and stress states at critical places of analyzed machine elements, and estimates their safety.	[SU1] Assessment of task fulfilment
	[K6_U05] he/she is able to use analytic and modelling methods to formulate and solve engineering tasks related to the mechanical-medical area	Student identifies phenomena in elements of machines. Student creates computational models used in machine design. Student analyses and selects suitable computational models of separable and inseparable joints. Student identifies loadings and stress states at critical places of analyzed machine elements, and estimates their safety.	[SU1] Assessment of task fulfilment
	[K6_U08] he/she is able to assess whether proposed methods and tools can be used in practice to solve simple engineering task related to machine design, manufacturing and utilization	Student identifies phenomena in elements of machines. Student creates computational models used in machine design. Student analyses and selects suitable computational models of separable and inseparable joints. Student identifies loadings and stress states at critical places of analyzed machine elements, and estimates their safety.	[SU3] Assessment of ability to use knowledge gained from the subject
	[K6_W09] he/she has basic knowledge related to numerical methods and engineering software used to analyze, model and design a given mechanical system	The student starts working with CAD software in which it is possible to carry out mechanical simulations.	[SW3] Assessment of knowledge contained in written work and projects
Subject contents	Lecture and tutorials: calculations and recommendations for the design of shafts and axles. Rolling bearings - selection. Fatigue strength. Elements of driving system. Flexible elements. Design: preliminary design of a simple mechanical device and detailing, basics of creating technical documentation.		
Prerequisites and co-requisites	Mathematics, Physics, Engineering graphics, Mechanics, Strength of materials, Materials science, Technology, Metrology, Machine science		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Oral exam	50.0%	25.0%
	Written exam	50.0%	75.0%
Recommended reading	Basic literature	1. Kochanowski R.: Wały i osie - Wykład z Podstaw Konstrukcji Maszyn z ćwiczeniami rachunkowymi. Wyd. Politechniki Gdańskiej. 2. Maciakowski R., Majewski W.: Sprzęgła - Wykład z Podstaw Konstrukcji Maszyn z ćwiczeniami rachunkowymi. Wyd. Politechniki Gdańskiej. 3. Kochanowski M.: Podstawy konstrukcji maszyn z rysunkiem technicznym. Wyd. Politechniki Gdańskiej, Gdańsk 1998. 4. Druret K., Kochanowski M., Romanowski P.: Łożyska toczne. Wyd. Politechniki Gdańskiej.	

	Supplementary literature	Not applicable.
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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