



## Subject card

Subject name and code	Fundamentals of Machine Design II, PG_00039373						
Field of study	Medical and Mechanical Engineering, Mechanical and Medical Engineering						
Date of commencement of studies	October 2020		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	3		Language of instruction		Polish		
Semester of study	5		ECTS credits		7.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Zakład Konstrukcji Maszyn i Inżynierii 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	30.0	30.0	0.0	30.0	0.0	90
	E-learning hours included: 0.0						
	Additional information: in the event of a pandemic: - exercises and lectures - via ZOOM						
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	90		10.0		75.0	175
Subject objectives	Presenting principles of designing and selection of basic elements, elements of driving systems also, used in the mechanical systems. Acquainting with their basic computational models.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	K6_U05	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_W07	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_W09	Not applicable. (Within the next semester of the subject - PKMIII.)	[SW3] Assessment of knowledge contained in written work and projects
	K6_U07	Not applicable. (Within the next semester of the subject - PKMIII.)	[SU1] Assessment of task fulfilment
	K6_U08	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
Subject contents	<p>Lecture and tutorials: calculations and recommendations for the design of shafts and axles. Rolling bearings - selection. Fatigue strength. Elements of driving system (couplings, mechanical gear transmissions). Flexible elements.</p> <p>Design: preliminary project of a simple mechanical device. Formulating the need, creating concepts, defining requirements, creating assessment criteria, selecting the best concept. Selection of standardised elements. Creating engineering documentation.</p>		
Prerequisites and co-requisites	Mathematics, Physics, Engineering graphics, Mechanics, Strength of materials, Materials science, Technology, Metrology, Machine science, Machine design I		
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	<p>1. Kochanowski R.: Wały i osie - Wykład z Podstaw Konstrukcji Maszyn z ćwiczeniami rachunkowymi. Wyd. Politechniki Gdańskiej.</p> <p>2. Maciakowski R., Majewski W.: Sprzęgła - Wykład z Podstaw Konstrukcji Maszyn z ćwiczeniami rachunkowymi. Wyd. Politechniki Gdańskiej.</p> <p>3. Kochanowski M.: Podstawy konstrukcji maszyn z rysunkiem technicznym. Wyd. Politechniki Gdańskiej, Gdańsk 1998.</p> <p>4. Druret K., Kochanowski M., Romanowski P.: Łożyska toczne. Wyd. Politechniki Gdańskiej.</p>	
	Supplementary literature	1. Sikora J., Maciakowski R.: Przekładnie zębate geometria i kinematyka zazębienia - Wykład z Podstaw Konstrukcji Maszyn z ćwiczeniami rachunkowymi. Wyd. Politechniki Gdańskiej.	
	eResources addresses	<p>Adresy na platformie eNauczanie:</p> <p>Podstawy konstrukcji maszyn II - W, C, P, IMM, I st., sem. VI, zima 2022-23 (PG_00039373) - Moodle ID: 27147</p> <p><a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=27147">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=27147</a></p>	

Example issues/ example questions/ tasks being completed	
Work placement	Not applicable