



Subject card

Subject name and code	Machines Design 2, PG_00049769						
Field of study	Power Engineering, Power Engineering, Power Engineering, Power Engineering, Power Engineering						
Date of commencement of studies	October 2020		Academic year of realisation of subject		2021/2022		
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		English		
Semester of study	4		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. Jacek Łubiński				
	Teachers		dr hab. inż. Jacek Łubiński				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	15.0	0.0	45
	E-learning hours included: 0.0						
	Adresy na platformie eNauczanie: Machines Design 2 (PG_00042059) 21-22 - Moodle ID: 24191 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=24191						
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	45		9.0		21.0	75
Subject objectives	Improvement and development of skills in machine design. Introduction to complex design problems.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_W04		Consolidated knowledge and skills in multiple areas of technology.		[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects		
	K6_U01		Skills in compiling of complex models of technical problems, data searching and gathering for the purpose of the solution of the problem at hand. Selection and use of mathematical models for shaping and verification of machine components.		[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools		
Subject contents	Bearings (rolling and sliding), advanced calculations in bolted connection design, shaft design, notch influence in fatigue stress, Hub shaft connections, couplings and brakes						
Prerequisites and co-requisites	Completed courses in: Machine Design 1, Geometry and Technical Drawing, Engineering Mechanics, Materials Technology						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	tests		60.0%		100.0%		
Recommended reading	Basic literature		Mechanical Engineering Handbook (European edition) Fundamentals of Machine Design Industry standards on engineering graphics, technical drawing (machine), standard machine components (e.g. bolts, bearings, prismatic keys) Manufacturers' catalogues of ready - made machine components available on commercial basis Technical Drawing handbook				

	Supplementary literature	The Fabric of Reality, David Deutsch A Brief History of Time, Stephen Hawking The Axemaker's Gift, James Burke, Robert Ornstein Catch 22, Joseph Heller The Trial, Franz Kafka Animal Farm, George Orwell
	eResources addresses	Machines Design 2 (PG_00042059) 21-22 - Moodle ID: 24191 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=24191
Example issues/ example questions/ tasks being completed	Bearings (rolling and sliding) - selection and life assessment of roller element bearings, advanced calculations in bolted connection design - axial, fatigue loading of bolts shaft design - shaping of shaft on the basis of fatigue stress evaluation, notch influence in fatigue stress - stress cumulation evaluation hub shaft connections - shaping and calculation check of connections couplings and brakes	
Work placement	Not applicable	