



## Subject card

Subject name and code	Fundamentals of Machines Design 2, PG_00041792						
Field of study	Ocean Engineering						
Date of commencement of studies	October 2021		Academic year of realisation of subject		2023/2024		
Education level	first-cycle studies		Subject group		Optional subject group 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		4.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Marine Mechatronics -> Faculty of Ocean Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Wojciech Litwin				
	Teachers		dr hab. inż. Wojciech Litwin				
			dr inż. Wojciech Leśniewski				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	30.0	0.0	0.0	0.0	45
	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	45		10.0		45.0	100
Subject objectives	The student should acquire basic knowledge of mechanical engineering regarding bearings and power transmissions (gears).						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U04] has self-education skills in order to improve professional qualifications, is ready to work in industrial environment, adheres to HSE rules and regulations				[SU1] Assessment of task fulfilment		
	[K6_U06] in compliance with a formulated specification and with the aid of appropriate tools and methods, is able to complete a simple engineering task within the range of design, construction and operation of ocean technology objects and systems				[SU3] Assessment of ability to use knowledge gained from the subject		
	[K6_W03] has a basic knowledge on hydromechanics, thermodynamics, machine construction, ecology, materials science and electronics necessary to understand the construction and operation principles of ocean technology objects and equipment				[SW1] Assessment of factual knowledge		
Subject contents	Lecture and exercises 1. Design, types and calculations of sliding bearings 2. Design, types and calculations of spur, helical, bevel and worm gears. 3. Design, types and calculations of chain gears 4. Design, types and calculations of belt gears. 5. Ball and roller bearings – calculations under axial and radial load.						
Prerequisites and co-requisites	Principles knowledge of technical drawing and mechanics.						
	Principles knowledge of Machine Design (first part).						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	exam	50.0%	50.0%
	exam	50.0%	50.0%
Recommended reading	Basic literature	Spotts M. F., Design of Machine Elements, Prentice Hall 2011	
	Supplementary literature	none	
	eResources addresses	Adresy na platformie eNauczanie: Podstawy Konstrukcji Maszyn II - semestr zima - rok 2023/24 - Moodle ID: 21156 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=21156">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=21156</a> Podstawy Konstrukcji Maszyn II - semestr zima - rok 2023/24 - Moodle ID: 21156 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=21156">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=21156</a>	
Example issues/ example questions/ tasks being completed	1. Prepare the picture of planetary gear and describe how it works.  2. Lubrication systems of gears – describe.  3. Describe construction, prepare a drawing and describe advantages and disadvantages of worm gears.		
Work placement	Not applicable		