



## Subject card

Subject name and code	Fundamentals of Machine Design, PG_00060538							
Field of study	Naval Architecture and Offshore Structures							
Date of commencement of studies	October 2024	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	2	Language of instruction			English			
Semester of study	4	ECTS credits			4.0			
Learning profile	general academic profile	Assessment form			assessment			
Conducting unit	Institute of Ocean Engineering and Ship Technology -> Faculty of Mechanical Engineering and Ship Technology							
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Wojciech Litwin						
	Teachers							
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM	
	Number of study hours	30.0	15.0	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	5.0		50.0		100	
Subject objectives	Student should have principles knowledge in Machine Elements Design							
Learning outcomes	Course outcome	Subject outcome			Method of verification			
	[K6_U05] can formulate a simple engineering task and its specification within the range of design, construction and operation of ocean technology objects and systems	The student has basic knowledge of machine design			[SU3] Assessment of ability to use knowledge gained from the subject			
	[K6_W03] has knowledge of hydromechanics, thermodynamics, machine design, ecology, materials science necessary to understand the principles of construction and operation of ocean engineering facilities and equipment	The student has basic knowledge of machine design			[SW3] Assessment of knowledge contained in written work and projects			
Subject contents	1. Design, types and calculations of permanent fastening machine elements. 2. Design, types and calculations of screw joints. 3. Design, types and calculations of hub and shaft fastening. 4. Design of shafts and axles. 5. Springs. 6. Design, types and calculations of ball and roller bearings. 7. Sliding bearings. 8. Gears. 9. Angular, planetary and worm gears. 10. Chain gears. 11. Belt gears.							
Prerequisites and co-requisites	Principles knowledge of technical drawing and mechanics.							
Assessment methods and criteria	Subject passing criteria	Passing threshold			Percentage of the final grade			
	test	60.0%			100.0%			
Recommended reading	Basic literature	1. Dietrich M.: Podstawy Konstrukcji Maszyn, tomy 1,2 i 3 2. Kochanowski M.: Wybrane zagadnienia z Podstaw Konstrukcji Maszyn, skrypt PG 2002r. 3. Dobrzański J.: Rysunek Techniczny Maszynowy 4. Spotts M. F., Design of Machine Elements, Prentice Hall						
	Supplementary literature	no						
	eResources addresses	Adresy na platformie eNauczenie:						

Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"><li>1. Ball and roller bearings, drawing, types, calculations method.</li><li>2. Sliding bearings, drawing, types, explain P, V, PV, calculations procedure, PV diagram.</li><li>3. Gears types.</li><li>4. Planetary gears, description and drawing.</li><li>5. Worm gear, properties, description, schematic.</li></ol>
Work placement	Not applicable