



## 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 2026	Academic year of realisation of subject				2027/2028	
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	Division of Marine Auxiliary Machinery -> Institute of Naval Architecture -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Wojciech Litwin					
	Teachers						
Lesson types	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	Course content – lecture 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						

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>
Practical activities within the subject	Not applicable

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