



Subject card

Subject name and code	, PG_00069973						
Field of study	Mechanical Engineering						
Date of commencement of studies	February 2025	Academic year of realisation of subject				2025/2026	
Education level	second-cycle studies	Subject group					
Mode of study	Full-time studies	Mode of delivery				at the university	
Year of study	2	Language of instruction				English	
Semester of study	3	ECTS credits				4.0	
Learning profile	general academic profile	Assessment form				assessment	
Conducting unit	Division of Biomaterials Technology -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Magdalena Jażdżewska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	60.0	0.0	0.0	60
	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	60		7.0		33.0	100
Subject objectives	The course aims to provide students with fundamental knowledge of tribology, including the principles of tribological testing and the evaluation of friction and wear behaviour of engineering materials. Students will acquire an understanding of friction, wear, and lubrication mechanisms, and develop the ability to select appropriate test methods and tribological equipment for specific engineering applications.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_K82] is equipped to participate actively in lectures, seminars and laboratory classes conducted in foreign language		Understands laboratories conducted in English.		[SK2] Assessment of progress of work		
	[K7_K81] is able to cooperate in international team at her/his own university, during work placement and during study abroad		Can use English to communicate in an international team.		[SK4] Assessment of communication skills, including language correctness		
	[K7_U82] is able to proficiently obtain and process information related to field of study and academic environment in foreign language at B2+ level of the Common European Framework of Reference for Languages (CEFR)		Obtains and processes information in English regarding the field of study and the academic community.		[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject		
	[K7_U81] is able to communicate with ease in foreign language at B2+ level of the Common European Framework of Reference for Languages (CEFR) in everyday life, in academic and professional environments		Can use English to communicate fluently.		[SU1] Assessment of task fulfilment		

Subject contents	<p>Course content – laboratory</p> <p>The following topics will be covered during the course:</p> <ul style="list-style-type: none"> • fundamentals of tribology mechanisms of friction, wear, and lubrication, • classification and characteristics of tribological materials, • testing methods and experimental setups for the evaluation of tribological properties, • influence of microstructure, surface layer, and coatings on wear resistance, • analysis and interpretation of tribological test results in the context of engineering applications, • modern methods for reducing friction and wear in mechanical systems. 		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Report on completed tasks.	56.0%	100.0%
Recommended reading	Basic literature	<ul style="list-style-type: none"> • Stachowiak G.W., Batchelor A.W., <i>Engineering Tribology</i>, Elsevier • Czichos H., <i>Tribology: A Systems Approach to the Science and Technology of Friction, Lubrication and Wear</i>, Elsevier • Wierzchoń T., Burakowski T., <i>Inżynieria powierzchni metali</i>, WNT 	
	Supplementary literature	Current scientific publications from journals, e.g.. <i>Wear, Tribology International, Surface and Coatings Technology</i>	
	eResources addresses		
Example issues/ example questions/ tasks being completed	<ul style="list-style-type: none"> • Methods for measuring the coefficient of friction and wear rate of materials, • Influence of the surface layer and coatings on tribological properties, • Tribological testing of materials used in machine friction pairs, • Material selection strategies aimed at minimizing friction and wear. 		
Practical activities within the subject	Not applicable		

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