



Subject card

Subject name and code	Metrology, PG_00060529						
Field of study	Naval Architecture and Offshore Structures						
Date of commencement of studies	October 2026	Academic year of realisation of subject			2026/2027		
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	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Division of Automation and Marine Energy -> 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	dr inż. Joanna Grochowalska					
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	15.0	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		25.0	75
Subject objectives	Getting acquainted with the basic principles of metrology and preparation for measuring mechanical quantities with the analysis of the results.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W06] has an organized knowledge on engineering methods and design tools allowing the conducting of projects within the construction and operation of ocean technology objects and systems		[K6_U05] is able to plan an experiment in the field of measuring basic operating parameters of mechanical devices using specialized equipment, interpret the results and draw appropriate conclusions.		[SW1] Assessment of factual knowledge		
	[K6_U03] can use computer-aided design, production and operation tools for ocean technology objects and systems		[K6_W11] has knowledge in the field of design, technology and production of machine parts, metrology and quality control, knows and understands methods of measurement and calculation of basic quantities describing the operation of mechanical systems, knows basic computational methods used to analyze experimental results.		[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools		
Subject contents	Course content – lecture Basic concepts of metrology. Methods, errors and uncertainty of measurements. Tolerance and fits of lengths and angles. Methods of dimensional analysis. Principles of interchangeability of machine parts. The accuracy of the workmanship of the items. Elements of product geometry specification, tolerance of shape, direction and position. Characteristics of the geometrical structure of the surface of objects. Principles of geometric tolerance. Standards and measuring instruments. Coordinate measuring machine and measuring systems. Automation of measurements.						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Lecture		60.0%		50.0%		
	Laboratory		100.0%		50.0%		

Recommended reading	Basic literature	1. W. Jakubiec, J. Malinowski: Metrologia wielkości geometrycznych. WNT, Warszawa 2004 2. S. Białas: Metrologia techniczna z podstawami tolerowania wielkości geometrycznych dla mechaników. Oficyna wydawnicza PW, Warszawa 2006 3. Pr. zb. pod red. Z. Humienny: Specyfikacje geometryczne wyrobów. WNT, Warszawa 2004 4. S. Adamczak, W. Makiela: Metrologia w budowie maszyn. WNT, Warszawa 2004 5. P. Paczyński: Metrologia techniczna. Przewodnik do wykładów, ćwiczeń i laboratoriów. Wyd. PP, Poznań 2003.
	Supplementary literature	1. E. Ratajczyk: Współrzędnościowa technika pomiarowa. OWPW, Warszawa 2005 2. J. Jezierski: Analiza tolerancji i niedokładności pomiarów w budowie maszyn. WNT Warszawa 2003 3. A. Boryczko: Podstawy pomiarów wielkości mechanicznych. Wydawnictwo PG, Gdańsk 2010 4. A. Meller, P. Grudowski: Laboratorium metrologii warsztatowej i inżynierii jakości. http://www.wbss.pg.gda.pl , podręczniki (format PDF).
	eResources addresses	
Example issues/ example questions/ tasks being completed	Dimensional analysis of the mechanisms.Types of shaft and hole fits.Methods and measuring instruments.	
Practical activities within the subject	Not applicable	

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