GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Metrology, PG_00060634		
Field of study	Transport and Logistics		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2023/2024
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 Marine Auxiliary Machinery -> Institute of Naval Architecture -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Kazimierz Czapczyk	
	Teachers	dr inż. Joanna Grzelak dr inż. Kazimierz Czapczyk dr inż. Jacek Nakielski	

Lesson types and methods of instruction

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_U03] is able to use computer methods to support the design, development and operation of transport means 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.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment
[K6_W06] has established knowledge of engineering methods and design tools enabling the implementation of projects in the field of construction and operation of transport means 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.	[SW1] Assessment of factual knowledge

Subject contents

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
	Laboratory	100.0%	50.0%
	Lecture	60.0%	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. Makieła: 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	Adresy na platformie eNauczanie: Metrologia - laboratorium (IBO, TiL) - Moodle ID: 37753 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=37753 Metrologia - wykład (IBO, TiL) - Moodle ID: 37754 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=37754	
Example issues/ example questions/ tasks being completed	Dimensional analysis of the mechanisms.Types of shaft and hole fits.Methods and measuring instruments.		
Work placement	Not applicable		

Document generated electronically. Does not require a seal or signature.