



Subject card

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|---|---|--|-------------------------------------|------------|---|--|-----|
| Subject name and code | Metrology, PG_00060634 | | | | | | |
| Field of study | Transport and Logistics | | | | | | |
| Date of commencement of studies | October 2024 | Academic year of realisation of subject | | | | 2024/2025 | |
| 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 | Zakład Wyposażenia Okrętu -> Institute of Ocean Engineering and Ship Technology -> Faculty of Mechanical Engineering and Ship Technology | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr inż. Kazimierz Czapczyk | | | | | |
| | Teachers | dr inż. Kazimierz Czapczyk mgr inż. Agnieszka Barszczewska dr inż. Joanna Grzelak dr inż. Joanna Grochowalska | | | | | |
| 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_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 | | |
| | [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. | | | [SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools | | |
| 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 |
|--|--|--|-------------------------------|
| | 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 | Adresy na platformie eNauczanie: Metrologia - wykład - TiL semestr letni 2024/2025 - Moodle ID: 44941 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=44941 | |
| 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 | | |

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