



Subject card

| | | | | | | | |
|---|---|--|---|-------------------------------------|--|------------|-----|
| Subject name and code | Metrology II, PG_00056027 | | | | | | |
| Field of study | Electrical Engineering | | | | | | |
| Date of commencement of studies | October 2022 | | Academic year of realisation of subject | | 2023/2024 | | |
| Education level | first-cycle studies | | Subject group | | | | |
| Mode of study | Full-time studies | | Mode of delivery | | at the university | | |
| Year of study | 2 | | Language of instruction | | Polish | | |
| Semester of study | 3 | | ECTS credits | | 2.0 | | |
| Learning profile | general academic profile | | Assessment form | | assessment | | |
| Conducting unit | Department of Metrology and Information Systems -> Faculty of Electrical and Control Engineering | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr inż. Marek Wołoszyk | | | | |
| | Teachers | | dr inż. Michał Ziółko | | | | |
| | | | dr inż. Ariel Dzwonkowski | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 0.0 | 0.0 | 30.0 | 0.0 | 0.0 | 30 |
| | 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 | 30 | | 2.0 | | 18.0 | 50 |
| Subject objectives | Introduce students with the methods and tools for measuring electrical quantities | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | K6_W05 | | The student prepares multiple measurement results (measurement series). The student takes measurements of basic electrical parameters and prepares their results. The student performs measurements of RLC parameters using bridge methods and specialized instruments. The student uses an electronic oscilloscope. The student analyzes the operation of basic electronic analog measuring systems. The student analyses the recorded waveforms with the use of computer technique. | | [SW3] Assessment of knowledge contained in written work and projects | | |
| | K6_U02 | | The student takes measurements individually or as part of a team. The student prepares and documents the results using various techniques. The student controls the completion of the task within the prescribed time. | | [SU1] Assessment of task fulfilment | | |
| | K6_K02 | | The student directs the work of the team or within the team takes measurements, documents them or prepares the results. | | [SK5] Assessment of ability to solve problems that arise in practice | | |
| Subject contents | LABORATORY Analysis of measurement data. Calibration. Measurement of RLC parameters. Oscilloscope measurement. Power measurement of three phase circuits. Measurement of sinusoidal and distorted waveforms. Analog signal processing for measurement. Computer processing of measurement signals. Measurement of ground earth resistance and the fault loop impedance. Magnetic measurement. | | | | | | |
| Prerequisites and co-requisites | Basic knowledge of electrical engineering and electrical circuit analysis. Knowledge of the Metrology I course. | | | | | | |

| | | | |
|--|---|---|-------------------------------|
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | Practical exercise | 60.0% | 100.0% |
| Recommended reading | Basic literature | 1. Praca zbiorowa (red. Swędrowski L.): METROLOGIA. Skrypt do laboratorium. Wydawnictwo Politechniki Gdańskiej, 2009. | |
| | Supplementary literature | 1. Chwaleba A., Poniński M., Siedlecki A.: Metrologia elektryczna. WNT, 2010. 2. Tumański S.: Technika pomiarowa. WNT, 2016. 3. Lisowski M.: Podstawy metrologii. Oficyna Wydawnicza Politechniki Wrocławskiej, 2011. | |
| | eResources addresses | Adresy na platformie eNauczanie: METROLOGIA II [ET][2023/24] - Moodle ID: 32120 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32120 | |
| Example issues/ example questions/ tasks being completed | 1. Explain the concepts of median and modal values. 2. Measurement error of insensitivity in a Wheatstone bridge. 3. The methods used for the LPS measurements. | | |
| Work placement | Not applicable | | |