



Subject card

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|---|---|--|-------------------------------------|------------|--|---------|-----|
| Subject name and code | Engineering surveying, PG_00041524 | | | | | | |
| Field of study | Civil Engineering | | | | | | |
| Date of commencement of studies | February 2023 | Academic year of realisation of subject | | | 2023/2024 | | |
| Education level | second-cycle studies | Subject group | | | Optional subject group | | |
| Mode of study | Full-time studies | Mode of delivery | | | at the university | | |
| Year of study | 1 | Language of instruction | | | English | | |
| Semester of study | 2 | ECTS credits | | | 3.0 | | |
| Learning profile | general academic profile | Assessment form | | | assessment | | |
| Conducting unit | Department of Geodesy -> Faculty of Civil and Environmental Engineering | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | mgr inż. Mariusz Chmielecki | | | | | |
| | Teachers | mgr inż. Mariusz Chmielecki | | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 15.0 | 0.0 | 0.0 | 15.0 | 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 | 5.0 | | 40.0 | | 75 |
| Subject objectives | understand advanced engineering surveying methods and its possibilities, use selected surveying instruments and applying them form measurements, ability to interpret and use surveying results in civil engineering practice, geodetic instrument accuracy determination. | | | | | | |
| Learning outcomes | Course outcome | Subject outcome | | | Method of verification | | |
| | [K7_K03] can think and act creatively and enterprisingly and works for society | can think and act creatively and enterprisingly | | | [SK5] Assessment of ability to solve problems that arise in practice | | |
| | [K7_W13] has knowledge on state of the art methods on knowledge acquisition, filtration, processing and analysis | has knowledge of modern methods of data acquisition as well as their filtration, processing and analysis | | | [SW1] Assessment of factual knowledge | | |
| | [K7_K05] can manage a team in a responsible way, regarding the rules of occupational safety and health | knows how to lead a team in a responsible manner | | | [SK5] Assessment of ability to solve problems that arise in practice | | |
| | [K7_W15] has deep and adequate knowlege of civil engineering, within offered specialization and profile | has an organized and in-depth knowledge of the field of construction, within the offered specialties and diploma profiles | | | [SW1] Assessment of factual knowledge | | |
| | [K7_U06] is able to choose proper tools (measuring, analytical or numerical) to solve engineering problems, to acquire, filtrate, proces and analyse data | can choose the tools (measurement, analytical or numerical) to solve engineering problems, acquire, filter, process and analyze data | | | [SU1] Assessment of task fulfilment | | |
| Subject contents | Introduction to topographic surveys: methods and instruments. Advanced geodetic surveying, precise monitoring methods in civil engineering and construction. Local, global, horizontal and vertical datum systems. Coordinates, projections and transformation. Global Navigation Satellite Systems (GPS, Glonass, Galileo): architecture, functions, precise measurement techniques, geodetic receivers and its application in engineering surveying. Active Geodetic Networks, ASG-EUPOS: architecture, networking structure, functions, services, data processing. Geodetic Laser Scanning: idea, measurements, instruments, data processing. Bathymetric surveys: methods, idea, instruments, data acquisition and processing. Integrated Engineering Geodesy Surveys: structure monitoring, movements of constructions, analysys, practical solutions. Data teletransmission systems in engineering surveying: digital and analog emission, binary transmission, ASCII codes. Fundamentals of GIS. | | | | | | |
| Prerequisites and co-requisites | | | | | | | |

| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
|--|---|--|-------------------------------|
| | Surveys and Mathcad | 100.0% | 30.0% |
| | Midterm colloquium | 50.0% | 70.0% |
| Recommended reading | Basic literature | A. Łyszkowicz, S. Łyszkowicz: Surveying, Oficyna Wydawnicza Politechniki Warszawskiej, 2010. W. G. Crowford. Construction Surveying and Layout, Publishing Inc., 2003 Illinois Department of Transportation Bureau of Design and Environmental, Surveying Manual, 2003. (available in internet) | |
| | Supplementary literature | Department of the US Army, Engineering and Design NAVSTAR Global Positioning System Surveying, US Department of Defence, 2003 (available in internet). J. Wahr, Geodesy and Gravity, Samizdat Press, 1996 (available in internet). International Hydrographic Organization, Manual on Hydrography, Monaco, 2005. (available in internet). J. Bossy, W. Graszka, M. Leonczyk, ASG-EUPOS The Polish Contribution to the EUPOS Project, Symposium on GNSS, 2008 (available in internet). | |
| | eResources addresses | Adresy na platformie eNauczanie: | |
| Example issues/ example questions/ tasks being completed | <ol style="list-style-type: none"> 1. Levelling, parts of a level, levelling an instrument. 2. Measuring the elevations, staking out the elevations. 3. What is a levelling line, how to conduct it. 4. How to calculate an levelling line. 5. Parts of total station. 6. How to measure a construction's deviations from vertical plane. | | |
| Work placement | Not applicable | | |