



## Subject card

|   |   |  |   |                                     |         |  |     |
|---|---|--|---|-------------------------------------|---------|--|-----|
| Subject name and code                       | Geodesy II, PG_00044799   |  |   |                                     |         |  |     |
| Field of study                              | Geodesy and Cartography   |  |   |                                     |         |  |     |
| 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<br>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                            |                                     |         | 7.0  |     |
| Learning profile                            | general academic profile  |  | Assessment form                         |                                     |         | exam   |     |
| Conducting unit                             | Department of Geodesy -> Faculty of Civil and Environmental Engineering   |  |   |                                     |         |  |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor  |  | prof. dr hab. inż. Waldemar Kamiński    |                                     |         |  |     |
|   | Teachers  |  |   |                                     |         |  |     |
| Lesson types and methods of instruction     | Lesson type   | Lecture  | Tutorial                                | Laboratory                          | Project | Seminar  | SUM |
|   | Number of study hours   | 30.0   | 30.0                                    | 15.0                                | 0.0     | 0.0  | 75  |
|   | 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   | 75   |   | 10.0                                |         | 90.0   | 175 |
| Subject objectives                          | Teaching the students how to make geodetic measurements using the polar method and calculations of observation results. |  |   |                                     |         |  |     |

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| Learning outcomes               | Course outcome  | Subject outcome   | Method of verification                |
|                                 | [K6_U11] is able to develop geodetic documentation and perform individually as well as in a group, field and field surveying surveys  | The student can perform measurements and calculations as well as prepare a technical report from obtained measurements using the polar method.  | [SU1] Assessment of task fulfilment   |
|                                 | [K6_U14] can apply the necessary skills to conduct independent work in the field of topographic surveys along with the elaborating of results, geodetic investment service, surveying and inventory measurement, photogrammetry and remote sensing, and making the maps and elaborations for legal purposes including delimitation and subdivision of real estate   | The student can perform a map using the C-Geo program.  | [SU1] Assessment of task fulfilment   |
|                                 | [K6_W06] has a well-grounded knowledge and understands geodesy concepts including the main methods of obtaining data about space together with the surveying and computational methods, which from the one hand are compatible with the current legal status and from the other hand refer to measurements on the plane and cover the use of modern geodetic instruments, with taking into account the curvature of the Earth and the impact of gravity on the manner of measurements and results | The student knows the rules of elaborating the results of geodetic observations on various reference surfaces (ellipsoid, sphere, plane).   | [SW1] Assessment of factual knowledge |
|                                 | [K6_U06] can solve geodetic tasks and select measurement methods for typical engineering tasks including the curvature of the Earth and the impact of gravity   | The student can perform a Helmert transformation as well as a transformation with two adjustment points. The student can calculate the mean error of the situational detail using the instruments with different of accuracy measurement. | [SU1] Assessment of task fulfilment   |
| Subject contents                | Coordinates' transformation. Trigonometric leveling. The national (Polish) system of spatial references. Conducting the measurements using the polar method and electronic tachymeters. Digital map creation.   |   |                                       |
| Prerequisites and co-requisites | The knowledge obtained from the Geodesy I subject   |   |                                       |
| Assessment methods and criteria | Subject passing criteria  | Passing threshold   | Percentage of the final grade         |
|                                 | laboratories - creation of map using the polar method   | 100.0%  | 20.0%                                 |
|                                 | exercises – performance of 5 tasks  | 100.0%  | 20.0%                                 |
|                                 | exam  | 50.0%   | 60.0%                                 |
| Recommended reading             | <p>Basic literature</p> <ol style="list-style-type: none"> <li>1. Beluch J. 2008, Praca zbiorowa pod redakcją Józefa Belucha. <b>Ćwiczenia z geodezji II</b>. Uczelniane Wydawnictwa Naukowo Dydaktyczne, Kraków.</li> <li>2. A. Jagielski, <b>GEODEZJA II</b>. Kraków 2003.</li> <li>3. E. Osada. <b>Geodezja</b>. Oficyna Wydawnicza Politechniki Wrocławskiej. Wrocław 2002.</li> <li>4. E. Osada. <b>Geodezyjne pomiary szczegółowe</b>. UxLAN. Wrocław 2014</li> </ol>                       |   |                                       |

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|  | Supplementary literature  | <p>1.A.Skórczyński. <b>Niwelacja trygonometryczna w pomiarach szczegółowych</b>. Wydawnictwa Politechniki Warszawskiej. Warszawa 1993.</p> <p>2.A.Skórczyński. <b>Lokalna triangulacja i trilateracja</b>. Wydawnictwa Politechniki Warszawskiej. Warszawa 1992.</p> <p>3.A.Piatek. <b>Geodezyjne dalmierze elektromagnetyczne i tachymetry elektroniczne. Cz. I i II</b>. PPWK Warszawa Wrocław 1992</p> |
|  | eResources addresses  | Adresy na platformie eNauczanie:  |
| Example issues/<br>example questions/<br>tasks being completed | <p>Present the coordinate transformation algorithm using the Helmert method.</p> <p>Describe the technology of setting up a detailed horizontal geodetic network.</p> <p>Present a system of spatial references in Poland.</p> <p>Describe the technology of map making using the polar method.</p> <p>Calculate the coordinates of the transfer point.</p> |   |
| Work placement   | Not applicable  |   |

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