GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Surveying I (team project), PG_00061805		
Field of study	Geodesy and Cartography		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2025/2026
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	7.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department Of Geodesy -> Faculty Of Civil And Environmental Engineering -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Marek Zienkiewicz	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	25.0	20.0	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

The aim of the course is to provide the knowledge of the methodology of horizontal and vertical measurements for the purposes of large-scale map developing, including the theoretical knowledge in the field of both measurement technology as well as standards and technical guidelines resulting from applicable regulations. Students learn the specifics of conducting extensive geodetic works as part of teamwork, which is necessary in order to complete a complex and comprehensive geodetic project.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W07] has a well-established knowledge and understands concepts in the field of engineering geodesy including the use of calculations and measurements methods carried out with the use of geodetic instruments and photogrammetric and remote sensing technologies related to geodetic support for investment, surveying and inventory measurements and photogrammetry with remote sensing	The student performs: - situational measurements by rectangular offset and by the use of tachymetry, - height measurements by the use of tachymetry, geometric leveling and leveling by the method of distributed points, - adjustment of surveyed polygons with the approximate method, - calculates situational and height coordinates.	[SW3] Assessment of knowledge contained in written work and projects
[K6_U11] is able to develop geodetic documentation and perform individually as well as in a group, field and field surveying surveys	The student: - performing of situational and height maps, - completing measurement and technical documentation.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment [SU5] Assessment of ability to present the results of task [SU2] Assessment of ability to analyse information

<table>
<tr><td>Subject contents</td><td>Lectures:

1. Historical aspect of surveying works
2. Systems and reference datumss used in geodesy
3. Plane coordinate systems
4. High systems and reference datums
5. Physical implementation of geodetic coordinate systems
6. Carrying out surveying works related to the development of situational and height maps
7. Introduction to the issue of cartographic projections
8. Basic knowledge in the field of adjustment of geodetic observations
9. The process of mapping and editing the situational and height map

Laboratories - Development of a situational and height map:

1. Initial analysis of the measuring object and verification of the location of existing horizontal and height reference points,

2. Designing the location of reference points and their stabilization,

3. Making sketches of the reference points and its topographic descriptions,

4. Situational measurement of geodetic polygons,

5. Height measurement of geodetic polygons,

6. Adjustment of geodetic polygons by approximate method,

7. Situational-height measurement of terrain details,

8. Calculation of situational and height coordinates of measurement pickets,

9. Performing of situational and height map,

10. Making a technical report.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Ability to handle traditional and modern geodetic instruments. Basic knowledge of the geodetic softwares that can be used for measurements processing and results visualization. .</td></tr>
<tr><td>Assessment methods and criteria</td><td><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>The correct performance of the report on situational-height measurements.</td><td>100.0%</td><td>100.0%</td></tr>
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Recommended reading	Basic literature	- Jagielski A. 2003. Geodezja I, - Jagielski A. 2014. Geodezja II, - Rozporządzenie Ministra Rozwoju, Pracy i Technologii z dnia 23 lipca 2021 r. w sprawie bazy danych obiektów topograficznych oraz mapy zasadniczej, - Rozporządzenie Ministra Rozwoju z dnia 18 sierpnia 2020 w sprawie standardów technicznych wykonywania geodezyjnych pomiarów sytuacyjnych i wysokościowych oraz opracowywania i przekazywania wyników tych pomiarów do państwowego zasobu geodezyjnego i kartograficznego (as amended), - Rozporządzenie Rady Ministrów z dnia 15 października 2012 w sprawie państwowego systemu odniesień przestrzennych (as amended), - Rozporządzenie Ministra Rozwoju, Pracy i Technologii z dnia 6 lipca 2021 r. w sprawie osnów geodezyjnych, grawimetrycznych i magnetycznych
	Supplementary literature	- E. Osada Osnowy Geodezyjne UxLan, Wrocław 2014, - E. Osada Geodezyjne pomiary terenowe UxLan, Wrocław 2014. - K. Czarnecki "Geodezja współczesna w zarysie" Gall, 2010
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	1. Height measurement by using the geometric leveling method, 2. Measurement of situational details by the method of rectangular offset, 3. Measurement of situational details by using tachymetry, 4. Adjustment of basic, geodetic measuring structures by the approximate method.	
Work placement	Not applicable	

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