GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Geodesy II, PG_00044799						
Field of study	Geodesy and Cartography						
Date of commencement of studies	October 2026		Academic year of realisation of subject	2026/2027			
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	exam			
Conducting unit	Department of Geodesy -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Karolina Makowska-Jarosik				
	Teachers						

Lesson types	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	The purpose of the subject is to convey to the student the knowledge in the field of more advanced geodetic measurements and calculations, as well as developing the teamwork skills.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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	Student possess the knowledge and uses the information regarding coordinate transformation and the control network. Student possess the knowledge and performs calculations of the mean error of the terrain details' position.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information
[K6_W06] has a well-grounded knowledge and understands geodesy concepts including the main methods of obtaining data about space togather with the surveying and computional 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 maner of measurements and results	Student possess the knowledge and uses the information concerning the development of geodetic observations results, depending on various reference surfaces (ellipsoid, sphere, plane).	[SW1] Assessment of factual knowledge
[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	Student is able to carry out the measurements and process their results described in the “Academic subject agenda”. The student can perform a map using the C-Geo program.	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task
[K6_U11] is able to develop geodetic documentation and perform individually as well as in a group, field and field surveying surveys	Student is able to process the results of geodetic measurements described in the “Academic subject agenda”. Student prepares geodetic documentation. Student is capable of working in a team.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task

Subject contents

Course content – lecture

Lectures:

1. Coordinate transformation
2. Transfer of coordinates and eccentric measurements
3. Trigonometric leveling
4. The national system of spatial references
5. Control network
6. Certified surveyors qualifications

Laboratories (tasks performed in small teams):

1. Carrying out the survey of details and preparing the geodetic documentation

Classes:

1. Coordinate transformation
2. Reckoned-in traverse
3. Transfer of coordinates and eccentric measurements
4. Trigonometric leveling

Prerequisites and co-requisites

Knowledge and skills acquired during the Geodesy I course.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Exam	50.0%	50.0%
Test	60.0%	25.0%
Getting the positive evaluation from from laboratory classes	100.0%	25.0%

Recommended reading	Basic literature	1. Beluch J., praca zbiorowa pod redakcją Józefa Belucha, **Ćwiczenia z geodezji II**. Uczelniane Wydawnictwa Naukowo Dydaktyczne. Kraków, 2008 (in Polish) 2. Jagielski A., ***Geodezja II***. Geodpis. Kraków, 2003 (in Polish) 3. Osada E., ***Geodezja***. Oficyna Wydawnicza Politechniki Wrocławskiej. Wrocław, 2002 (in Polish) 4. Osada E., ***Geodezyjne pomiary szczegółowe***. UxLAN. Wrocław, 2014 (in Polish) 5. Skórczyński A., ***Niwelacja trygonometryczna w pomiarach szczegółowych***. Wydawnictwa Politechniki Warszawskiej. Warszawa, 1993 (in Polish) 6. The act of law: Rozporządzenie Ministra Rozwoju, Pracy i Technologii z dnia 6 lipca 2021 r. w sprawie osnów geodezyjnych, grawimetrycznych i magnetycznych (in Polish) 7. The act of law: Rozporządzenie Rady Ministrów z dnia 15 października 2012 r. w sprawie państwowego systemu odniesień przestrzennych (in Polish)
	Supplementary literature	Literature recommended by a teacher during lectures
	eResources addresses	
Example issues/ example questions/ tasks being completed	1. Briefly describe the coordinate transformation algorithm using the Helmert method 2. List the measurement methods for a horizontal geodetic network 3. Briefly describe the spatial reference system in Poland	
Practical activites within the subject	Not applicable	

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