GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Geodesy I, PG_00044795		
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
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	1	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. Daria Filipiak-Kowszyk	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	45.0	15.0	30.0	0.0	0.0	90

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	90	12.0	73.0	175

Subject objectives

The purpose of the subject is to convey student the knowledge in the field of basic geodetic measurements and calculations.

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	Student performs geodetic measurements Student prepares basic geodetic documentation regarding levelling traverse, polygon traverse and survey of details.	[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment
[K6_U13] is able to apply the principles of health and safety at work during the execution of geodetic works	The student is able to apply the principles of safe surveying and usage, transfer and storage of surveying instruments.	[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 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	The student possess the knowledge and uses the information concerning the performance of basic geodetic measurements and calculations.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects

Subject contents	Course content – lecture Lecture: 1. Direct levelling and trigonometric levelling 2. Angle and distance measurements 3. Topographic survey 4. Principles of coordinate calculus 5. Law of propagation of mean errors Course content – exercises Classes: 1. Measurement units conversion 2. Levelling traverse calculus 3. Horizontal angle calculus 4. Principles of coordinate calculus 5. Law of propagation of mean errors Course content – laboratory Laboratories: 1. Levelling traverse measurements 2. Horizontal angle measurements 3. Polygon traverse measurements 4. Survey of details
Prerequisites and co-requisites	

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Exam	60.0%	50.0%
Laboratory report	100.0%	10.0%
Test	60.0%	40.0%

Recommended reading

Basic literature	1. The act of law: Rozporządzenie Ministra Rozwoju z dnia 18 sierpnia 2020 r. w sprawie standardów technicznych wykonywania geodezyjnych pomiarów sytuacyjnych i wysokościowych oraz opracowywania i przekazywania wyników tych pomiarów do państwowego zasobu geodezyjnego i kartograficznego. (In Polish) 2. The act of law: Rozporządzenie Ministra Administracji i Cyfryzacji z dnia 14 lutego 2012r. w sprawie osnów geodezyjnych, grawimetrycznych i magnetycznych. (In Polish) 3. A. Jagielski, **Geodesy I - theory and practice** , Wyd. GEODPIS, Kraków, 2019 (In Polish) 4. A. Jagielski, **Geodesy II**, Wyd. GEODPIS, Kraków, 2020 (In Polish)
Supplementary literature	1. J. Ząbek, **Geodesy I**, Wyd. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 2012 (In Polish) 2. W. Kosiński, **Geodesy**, Wyd. Naukowe PWN, Warszawa, 2021 (In Polish)
eResources addresses	

Example issues/ example questions/ tasks being completed	1. List the surfaces of reference used in surveying 2. Explain "control network" concept. 3. Explain "survey of details" concept. 4. Explain "direct levelling" concept.
Practical activites within the subject	Not applicable