GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Geodesy II l(projekt managment), PG_00050191		
Field of study	Geodesy and Cartography		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2023/2024
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	2	Language of instruction	Polish
Semester of study	3	ECTS credits	5.0
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	dr inż. Karolina Makowska-Jarosik	
	Teachers	dr inż. Karolina Makowska-Jarosik dr inż. Tadeusz Widerski dr inż. Karol Daliga	

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	15.0	15.0	0.0	60
	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	60	9.0	56.0	125

Subject objectives	The purpose of the subject is to convey student the knowledge in the field of precise geodetic measurements and verification of the modern surveying instruments accuracy and their application when carrying out geodetic measurements and elaborations associated with investment process as well as developing the teamwork skills.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U04] can use contemporary geodetic instruments, including automation of measurements, data transmission and processing in a computer-instrument system with the use of computer networks	Student is able to carry out the measurements and process their results described in the “Academic subject agenda”. Student is capable of working in the team.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
[K6_W05] knows and understands the basic principles in the field of geomatics, mathematical and thematical cartography, including reference systems and coordinate frames associated with cartographic elaborations, and has knowledge about establishing and modernizing geodetic networks, taking into account the current legal status	Student possess the knowledge concerning establishment of a network.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
[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 knows the information regarding carrying out the measurements with the use of modern surveying instruments. He is also able to process the obtained results.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects

Subject contents

Lecture:

1. Precise levelling
2. Establishing the horizontal control networks
3. Exploitation of the ISO Standards regarding the verification of the surveying instruments accuracy
4. The usage of drones during the geodetic measurements
5. The exploitation of electronic distance measurement in modern surveying instruments
6. Surveying studies, situational and height measurements related to geodetic construction service and as-built documentation
7. BIM - Building Information Modeling

Laboratories (tasks performed in small teams):

1. Carrying out the measurement using the precise levelling method in order to determine the height of the minor control points
2. Verification of both automatic level and total station accuracy
3. The design of the control network on the premises of Gdańsk University of Technology and its measurement

Project (tasks performed in small teams):

1. Carrying out the photogrammetric elaboration basing on the photographs obtained when using the drone
2. The geodetic processing of the underground infrastructural network design

Prerequisites and co-requisites

Knowledge and skills acquired during the Geodesy I and Geodesy II courses.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Getting the positive evaluation from from laboratory classes	60.0%	20.0%
Exam	50.0%	60.0%
Getting the positive evaluation from project classes	60.0%	20.0%

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. ISO standard regarding the verification of the surveying instruments accuracy 3. Jagielski A., **Podstawy geodezji inżynieryjnej. Standardy, pomiary realizacyjne, trasy, objętości.** Geodpis, 2012 (in Polish) 4. Praca zbiorowa, **Niwelacja precyzyjna**. PPWK im. E. Romera S.A., Warszawa, 1993. (in Polish)
	Supplementary literature	Literature recommended by a teacher during lectures.
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	1. Provide three characteristic features of the optical precision level. 2. According to which procedures the tests of the surveying instruments can be carried out? 3. List the factors affecting the electronic distance measurement. 4. List the geodetic measurements carried out during the construction process. 5. Explain the BIM concept.	
Work placement	Not applicable	