

§ GDAŃSK UNIVERSITY § OF TECHNOLOGY

Subject card

Subject name and code	Engineering surveying, PG_00041524								
Field of study									
Date of commencement of studies	October 2024		Academic year of realisation of subject			2024/2025			
Education level	second-cycle studies		Subject group			Optional subject group			
Mode of study	Full-time studies		Mode of delivery			at the university			
Year of study	1		Language of instruction			English			
Semester of study	2		ECTS credits			3.0			
Learning profile	general academic profile		Assessment form			assessment			
Conducting unit	Department of Geodesy -> Faculty of Civil and Environmental Engineering								
Name and surname	Subject supervisor		mgr inż. Mariu	ıgr inż. Mariusz Chmielecki					
of lecturer (lecturers)	Teachers								
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	_aboratory Project		Seminar	SUM	
	Number of study hours	15.0	0.0	0.0	15.0		0.0	30	
	E-learning hours inclu	ided: 0.0							
Learning activity and number of study hours	Learning activity	Participation in classes includ plan	n didactic ed in study	Participation in consultation hours		Self-study		SUM	
	Number of study hours	30		5.0				75	
Subject objectives	understand advanced engineering surveying methods and its possibilities, use selected surveying instruments and applying them form measurements, ability to interpret and use surveying results in civil engineering practice, geodetic instrument accuracy determination.								
Learning outcomes	Course outcome Subject outcome Method of verification							ication	
	[K7_W13] has knowledge on state of the art methods on knowledge acquisition, filtration, processing and analysis		has knowledge of modern methods of data acquisition as well as their filtration, processing and analysis			[SW1] Assessment of factual knowledge			
	[K7_K05] can manage a team in a responsible way, regarding the rules of occupational safety and health		knows how to lead a team in a responsible manner			[SK5] Assessment of ability to solve problems that arise in practice			
	[K7_W15] has deep and adequate knowlege of civil engineering, within offered specialization and profile		has an organized and in-depth knowledge of the field of construction, within the offered specialties and diploma profiles			[SW1] Assessment of factual knowledge			
	[K7_K03] can think and act creatively and enterprisingly and works for society		can think and act creatively and enterprisingly			[SK5] Assessment of ability to solve problems that arise in practice			
	[K7_U06] is able to choose proper tools (measuring, analytical or numerical) to solve engineering problems, to acquire, filtrate, proces and analyse data		can choose the tools (measurement, analytical or numerical) to solve engineering problems, acquire, filter, process and analyze data			[SU1] Assessment of task fulfilment			
Subject contents	Introduction to topographic surveys: methods and instruments. Advanced geodetic surveying, precise monitoring methods in civil engineering and construction. Local, global, horizontal and vertical datum systems. Coordinates, projections and transformation. Global Navigation Satellite Systems (GPS, Glonass, Galileo): architecture, functions, precise measurement techiques, geodetic receivers and its application in engineering surveying. Active Geodetic Networks, ASG-EUPOS: architecture, networking structure, functions, services, data processing. Geodetic Laser Scanning: idea, measurements, instruments, data processing. Bathymetric surveys: methods, idea, instruments, data acquisition and processing. Integrated Engineering Geodesy Surveys: structure monitoring, movements of constructions, analysys, practical solutions. Data teletransmission systems in engineering surveying: digital and analog emission, binary transmission, ASCII codes. Fundamentals of GIS.								
and co-requisites									

Assessment methods	Subject passing criteria	Passing threshold	Percentage of the final grade				
and criteria	Surveys and Mathcad	100.0%	30.0%				
	Midterm colloquium	50.0%	70.0%				
Recommended reading	Basic literature A. Łyszkowicz, S. Łyszkowicz: Surveying, Oficyna Wydawn Politechniki Warszawskiej, 2010. W. G. Crowford. Construction Surveying and Layout, Publis 2003 Illinois Department of Transportation Burea of Design and Environmental, Surveying Manual, 2003. (available in intern						
	Supplementary literature	Department of the US Army, Engineering and Design NAVSTAR Global Positioning System Surveying, US Department of Defence, 2003 (available in internet). J. Wahr, Geodesy and Gravity, Samizdat Press, 1996 (available in internet). International Hydrographic Organization, Manual oh Hydrography, Monaco, 2005. (available in internet). J. Bossy, W. Graszka, M. Leonczyk, ASG-EUPOS The Polish Contribution to the EUPOS Project, Symposium on GNSS, 2008 (available in internet).					
	eResources addresses	Adresy na platformie eNauczanie:					
Example issues/ example questions/ tasks being completed	 Levelling, parts of a level, levelling an instrument. Measuring the elevations, staking out the elevations. 						
	3. What is a levelling line, how to coduct it.						
	4. How to calculate an levelling line.						
	5. Parts of total station.						
	6. How to measure a construction's deviations from vertical plane.						
Work placement	Not applicable						