



Subject card

Subject name and code	Railway surveying, PG_00044854						
Field of study	Geodesy and Cartography						
Date of commencement of studies	October 2021	Academic year of realisation of subject			2023/2024		
Education level	first-cycle studies	Subject group			Optional subject group		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	3	Language of instruction			Polish		
Semester of study	5	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Railway Engineering -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Jacek Szmagliński				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	0.0	0.0	30
	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	30		6.0		14.0	50
Subject objectives	Presentation of the principles of designing a railroad in the horizontal and vertical plan, designing the track bed, structure and geometric layouts of railroad turnouts. Presentation of methods of measuring the geometry of the railway track. Presentation of the principles of geodetic surveys in the railroads.						
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 has well-established knowledge in the field of engineering surveying.				
[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		The student solves geodetic tasks and selects measurement methods for typical engineering tasks.					
Subject contents	Designing a railway road in vertical and horizontal plan. Measuring the geometry of the railway track.						
Prerequisites and co-requisites	The student must have basic knowledge of engineering geodesy. Classic measurements, photogrammetry, GNSS.						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Test		60.0%		60.0%		
	Works		100.0%		40.0%		

Recommended reading	Basic literature	<p>Grułkowski S., Kędra Z., Koc W., Nowakowski M.J.: Drogi szynowe. WPG, Gdańsk 2013.</p> <p>Massel A.: Projektowanie linii i stacji kolejowych. PKP Polskie Linie Kolejowe, Warszawa 2010.</p> <p>Gocał J.: Geodezja inżyniersko-przemysłowa. AGH, Uczelniane Wydawnictwo Naukowo-Dydaktyczne, Kraków 2007.</p> <p>Instrukcja o organizacji i wykonywaniu pomiarów w geodezji kolejowej. D-19, 2000.</p> <p>Rodzaje i obieg dokumentacji geodezyjno-kartograficznej wykonywanej na poszczególnych etapach modernizacji linii kolejowych Ig-1. PKP PLK. Warszawa, 2010.</p> <p>Wytyczne dla osadzania znaków regulacji osi toru na konstrukcjach wsporczych (słupach) sieci trakcyjnej Ig-6. PKP PLK, Warszawa, 2011.</p> <p>Standard techniczny określający zasady i dokładności pomiarów geodezyjnych dla zakładania wielofunkcyjnych znaków regulacji osi toru Ig-7. PKP PLK, Warszawa, 2012.</p>
	Supplementary literature	<p>Instrukcja o oględzinach, badaniach technicznych i utrzymaniu rozjazdów Id-4. PKP Polskie Linie Kolejowe S.A. Warszawa 2005 r.</p> <p>Warunki techniczne utrzymania nawierzchni na liniach kolejowych. Id1 2005</p>
	eResources addresses	<p>Adresy na platformie eNauczanie: Geodezja Kolejowa 23/24 - Moodle ID: 34276 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=34276</p>
Example issues/ example questions/ tasks being completed	<ul style="list-style-type: none"> - track geometry in the horizontal and vertical planes, - pavement and track construction, - measurement methods used in railways. 	
Work placement	Not applicable	