GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00059294		
Field of study	Transport		
Date of commencement of studies	February 2023	Academic year of realisation of subject	2023/2024
Education level	second-cycle studies	Subject group	
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	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Faculty of Civil and Environmental Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Zbigniew Kędra	
	Teachers	dr inż. Zbigniew Kędra	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	15.0	15.0	0.0	0.0	45

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	45	0.0	0.0	45

Subject objectives

The aim of the course is to acquaint students with the measurement systems used in rail transport, and teach basic measurements used in the rail road

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U14] able to solve detailed problems of transport infrastructure to an extent required of the specialty		[SU3] Assessment of ability to use knowledge gained from the subject [SU1] Assessment of task fulfilment
[K7_W14] has advanced knowledge of transport infrastructure maintenance and management to an extent required of the specialty		[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge
[K7_W11] has basic knowledge of energy in transport		[SW1] Assessment of factual knowledge

Subject contents

Lectures: Characteristics, division and systematics of measuring systems in rail transport. Railway track geometry measurements (hand-held devices, measuring vehicles and geodetic systems). Profile and rail rail wear measurements. Measurement of corrugated rail wear. Systems for detecting damage to railway infrastructure elements. Video inspection of railway infrastructure. Acceleration and dynamics measurements of a rail vehicle. Measurements of the traction cable and its interaction with the pantograph. Measuring systems for railway vehicles. Systems and devices built into the railway track. **Exercises and laboratory**: Measurements of width and cant in tracks and railway turnouts. Altitude measurements (geometric leveling) in track and railway turnouts. Measurements of arrows in the track and turnouts. Measurements of rail and rail turnout wear. Measurements of corrugated rail wear. Analysis of measurements carried out and preparation of reports.

Prerequisites and co-requisites

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Exercise	50.0%	30.0%
	Laboratory	100.0%	30.0%
	Lecture	50.0%	40.0%
Recommended reading	Basic literature	Kędra Z .: Materials from the lecture Measuring systems in rail transportKędra Z .: Materials for the laboratory Measuring systems in rail transport	
	Supplementary literature	Materiały informacyjne firm produkujących systemy pomiarowe Strony internetowe producentów systemów pomiarowych Id-1 (D-1), "Warunki techniczne utrzymania nawierzchni na liniach kolejowych", Warszawa 2005 Id-3 (D-4), "Warunki techniczne utrzymania podtorza kolejowego", Warszawa 2009 Id-4 (D-6), "Instrukcja o oględzinach, badaniach technicznych i utrzymaniu rozjazdów", Warszawa 2005	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		