



Subject card

Subject name and code	, PG_00064168						
Field of study	Transport						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
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		2.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department Of Mechanics Of Materials And Structures -> Faculty Of Civil And Environmental Engineering -> Wydziały Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Bożena Kotarska-Lewandowska				
	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		3.0		17.0	50
Subject objectives	The aim of the course is to equip the student in: - knowledge of projection methods in orthogonal, topographic and axonometric projections; -skills of solving spatial problems in engineering practice.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W03] has knowledge of informatics, electronics, telecommunications, automation and control, information technologies, computer graphics, geodesy and satellite navigation which is useful for understanding how it can be applied in transport		At the conclusion of the course, students should be able to recognize the correctness of geometrical record in road projects		[SW3] Assessment of knowledge contained in written work and projects		
	[K6_U08] able to carry out simple engineering tasks related to the construction and operation of a selected element of the transport system, select the right methods and tools		At the conclusion of the course, students should be able to:• represent polyhedrons and selected surfaces in orthogonal, topographic and axonometric projection;• transform planes and determine natural size of elements;• determine relation between objects in space by construction of piercing points or intersection lines; • solve practical problems in the scope of earth works;• sketch 3-D objects in axonometric or perspective view.		[SU1] Assessment of task fulfilment		

Subject contents	Orthographic projection, planes of reference. Invariants of parallel projections. Representation of geometric elements in the Monge projection, transformation, auxiliary views. Belonging and parallelism of points, lines and planes. Determination of common elements: piercing points, edges between planes. Operating on polyhedrons: piercing points, intersection lines. Topographic projection. Representation of points, lines and planes. Basic constructions: belonging and parallelism of geometric elements, intersection of elements. Edge and normal view of a plane. Topographic surfaces. Determination of embankment and cut planes along roads and squares. Axonometric projection. Plane of reference and property of axonometric projection. Orthogonal projection. Determination of shortenings of true lengths on orthographic axes. Oblique axonometric projection. Application of presented projection methods: construction of earth work along roads. Basic rules of perspective projection, one-point perspective.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	drawing exercises	40.0%	50.0%
	test	60.0%	50.0%
Recommended reading	Basic literature	1. KOTARSKA-LEWANDOWSKA B., CHRÓŚCIELEWSKI J. (red. praca zbiorowa): Materiały pomocnicze do wykładu i ćwiczeń z Geometrii Wykreślnej. Wersja elektroniczna do pobrania z portalu pg.edu.pl/enauczanie. 2. KOTARSKA-LEWANDOWSKA B.: Geometria wykreślna. Zadania testowe. Wersja elektroniczna do pobrania z portalu pbc. 3. Otto F., Otto E.: Podręcznik geometrii wykreślnej, PWN Warszawa, 1998 4. Bieliński A.: Geometria wykreślna Oficyna Wydawnicza Politechniki Warszawskiej	
	Supplementary literature	5. GROCHOWSKI B.: Elementy geometrii wykreślnej. PWN, Warszawa 2002. 5. OTTO F., OTTO E.: Podręcznik geometrii wykreślnej. PWN, Warszawa 1998. 6. JANKOWSKI W.: Geometria wykreślna. Wydawnictwo Politechniki Poznańskiej, Poznań 1999. 6. Kotarska-Lewandowska B.: Geometria wykreślna. Zadania testowe, skrypt elektroniczny http://www.pbc.gda.pl , Gdańsk 2011 7. Jankowski W.: Geometria wykreślna, Wydawnictwo Politechniki Poznańskiej, 1999 8. Błach A.: Inżynierska geometria wykreślna. Podstawy i zastosowania. Wydawnictwo Politechniki Śląskiej, Gliwice 2006	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	Determination of embankment and cut planes along roads and squares.		
Work placement	Not applicable		

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