



## Subject card

Subject name and code	Descriptive Geometry , PG_00044513						
Field of study	Transport						
Date of commencement of studies	October 2021	Academic year of realisation of subject			2021/2022		
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			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Katedra Wytrzymałości Materiałów -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Bożena Kotarska-Lewandowska					
	Teachers	dr inż. arch. Romanika Okraszewska dr inż. Bożena Kotarska-Lewandowska					
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 Adresy na platformie eNauczanie:						
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	5.0	40.0	75		
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_U05] able to use IT and graphic techniques typically used for the design, construction, operation and diagnosis of means and systems of transport	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				
	[K6_W04] has basic 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				

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	No requirements.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Drawing exercises	0.0%	50.0%
	Test	60.0%	50.0%
Recommended reading	Basic literature	<p>1. KOTARSKA-LEWANDOWSKA B., CHRÓSCIELEWSKI J. (red. praca zbiorowa): Materiały pomocnicze do wykładu i ćwiczeń z Geometrii Wykreślnej. Wersja elektroniczna do pobrania z portalu <a href="http://pg.edu.pl/enauczanie">pg.edu.pl/enauczanie</a>.</p> <p>2. KOTARSKA-LEWANDOWSKA B.: Geometria wykreślna. Zadania testowe. Wersja elektroniczna do pobrania z portalu pbc.</p> <p>3. Otto F., Otto E.: Podręcznik geometrii wykreślnej, PWN Warszawa, 1998</p> <p>4. Bieliński A.: Geometria wykreślna Oficyna Wydawnicza Politechniki Warszawskiej</p>	
	Supplementary literature	<p>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.</p> <p>6. Kotarska-Lewandowska B.: Geometria wykreślna. Zadania testowe, skrypt elektroniczny <a href="http://www.pbc.gda.pl">http://www.pbc.gda.pl</a>, Gdańsk 2011</p> <p>7. Jankowski W.: Geometria wykreślna, Wydawnictwo Politechniki Poznańskiej, 1999</p> <p>8. Błach A.: Inżynierska geometria wykreślna. Podstawy i zastosowania. Wydawnictwo Politechniki Śląskiej, Gliwice 2006</p>	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Determination of embankment and cut planes along roads and squares.		
Work placement	Not applicable		