

GDAŃSK UNIVERSITY

Subject card

Subject name and code	Architectural geometry, PG_00052609								
Field of study	Alchitecture	Acadamia year of			2021/2022				
studies			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			English			
Semester of study	2		ECTS credits			3.0			
Learning profile	general academic profile		Assessment form		exam				
Conducting unit	Faculty of Architecture								
Name and surname of lecturer (lecturers)	Subject supervisor dr inż. arch. Anna Wancław								
	Teachers		mgr inż. arch. Dariusz Cyparski						
			dr inż. arch. Anna Wancław						
			marint arch Michał Malewszyk						
Lesson types and methods	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM	
of instruction	Number of study hours	15.0	0.0	0.0	15.0		0.0	30	
	E-learning hours included: 0.0								
	Adresy na platformie eNauczanie:								
	Geometria dla architekta 2021/2022 - Moodle ID: 21692 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=21692								
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		39.0		75	
Subject objectives	The development of spatial vision and the ability to apply it in the architectural design, skills in using axonometric drawing and perspective.								
Learning outcomes	Course outcome		Subject outcome			Method of verification			
	[K6_U04] is able to use analytical methods to formulate and solve project tasks		He can use various methods of space mapping to solve simple spatial problems. He can present the effects of work in an attractive way. Has manual skills in the precise execution of linear drawings.			[SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task			
	[K6_W01] knows and understands construction problems, building and engineering issues related to building design; principles, solutions, constructions and building materials used in simple engineering tasks in the field of architectural and urban design		He knows various methods of mapping space. Correctly constructs and reads spatial objects in various types of projections, also with the use of popular digital programs.			[SW1] Assessment of factual knowledge			

Subject contents	lectures:					
	1. One-point perspective, circle in perspecrive					
	2. Orthogonal perspective. Shadows in prespective					
	3. Settings in digital perspective					
	4. Regular and semi-regular polyhedrons and geodesic domes.					
	5. Curves and their properties. Properties of digital curves.					
	6. Surfaces and their properties. Surface classification. Construction of the surface. Piercing points.					
	7, 8. Stage II surfaces and their cross-sections. Conical curves. Affinity relationship elipse with circle					
	9. Straight and screw surfaces. Digitally surfaces. Methods of creation. Curves and "offset" surfaces					
	10, 11. Intersection of surface. The vault.					
	12. Computer modifications and surface transformations. Models and surface developments.					
	13, 14. Sufraces in architecture.					
	15. Review of issues. Preparation for the exam					
	project:					
	lab 1. roofs					
	lab 2. Horizontal projection - a road project in the terrain					
	1. One point perspective, the circle and shadow					
	2. Vertical perspective with shadow,					
	3. homework - perspective of indyvidual architectural project					
	4a. construction of sufraces					
	TEST - roofs and shadow, horizontal projection, perspective.					
	4b. conical cross-sections					
	lab 3. Regular and semi-regular polyhedrons and geodesic domes					
	lab 4. Ruled surfaces.					
	lab 5. Intersection of surfaces, selected issues					

Prereauisites						
and co-requisites						
Assessment methods	Subject passing criteria	Passing threshold	Percentage of the final grade			
and criteria	Quality of drawings	100.0%	33.0%			
	Final exam	51.0%	33.0%			
	Test	51.0%	34.0%			
Recommended reading	Basic literature	H. Pottmann, A. Asperl, M. Hofer, A. Kilian, <i>Architectural geometry,</i> Bentley Institute Press 2007				
	Supplementary literature	Górska R., <i>Geometria wykreślna,</i> Kraków 2015				
		Otto F.E., <i>Geometria wykreślna,</i>				
		Jankowski W., <i>Geometria wykreślna,</i>				
		Grochowski B., Geometria wykreślna z perspektywą stosowaną,				
		Bruzda J., Szkice Perspektywiczne w architekturze, Warszawa, 1971				
		Romaszkiewicz-Białas T., <i>Perspektywa praktyczna dla architektów,</i> Wrocław, 1991				
	eResources addresses	Geometria dla architekta 2021/2022 - Moodle ID: 21692 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=21692				
Example issues/ example questions/ tasks being completed	1. Solve the geometry of the roof with the given eaves projections, build a spatial model in a selected computer program 2. determine the of the road in the field					
	iven plans of the objects and its shad	low according to a given light ray.				
	4. According to the given light ray construct the shade and cast shadow of the sphere on projection planes					
	5. Create a ruled surface in parametric mode (Grasshopper)					
Work placement	Not applicable					