



Subject card

Subject name and code	Environmental principles of architectural and urban design, PG_00061489						
Field of study	Podstawy przyrodnicze architektury i urbanistyki						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2026/2027		
Education level	first-cycle studies		Subject group		Obligatory subject group in the field of study Subject group related to scientific research in the field of study		
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		1.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Spatial Planning -> Faculty of Architecture -> Wydziały Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Miłosz Marciniak				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	10.0	0.0	0.0	0.0	25
	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	25		0.0		5.0	30
Subject objectives	Discussion of the relationships between people and buildings, as well as between buildings and their surroundings, along with foundational knowledge of sustainable development principles. Mastery of applying environmentally friendly solutions in design, including analysis of environmental consequences and risks. Development of skills in using physiographic tools and implementing eco-friendly solutions and sustainability principles as part of expanding theoretical knowledge and working with: GIS materials (portals containing environmental information), maps, and source texts in the field						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_K03] is ready to take responsibility for architectural and urban values in environmental protection and cultural heritage		is ready to take responsibility for architectural and urban values in environmental protection and cultural heritage		[SK5] Ocena umiejętności rozwiązywania problemów występujących w praktyce		
	[K6_W04] knows and understands relations between man and architecture and between architecture and the surrounding environment, and the need to adapt architecture to human needs and scale; problems of physics, technology and functions of buildings to the extent that ensures comfort of use and protection against the effects of weather; methods and means of implementing environmentally responsible sustainable design as well as protection and conservation of the surrounding environment		knows and understands relations between man and the surrounding environment, methods and means of implementing environmentally responsible sustainable design as well as protection and conservation of the surrounding environment		[SW1] Ocena wiedzy faktograficznej		
	[K6_W02] knows and understands the rules of gathering information and their interpretation as a part of project concept preparation; issues related to architecture and urban planning in the field of simple design problems solving		knows and understands the rules of gathering information and their interpretation as a part of project concept preparation		[SW1] Ocena wiedzy faktograficznej		

Subject contents	Lecture issues: 1. Spatial and environmental information. 2. Publicly available GIS platforms 3. Landscape. 4. Basic natural processes - functioning of the natural environment. 5. Basic concepts of physical and geographical space. 6. Dynamics and evolution of the natural environment. 7. The main features of the geological structure of the Earth, the relationship between the bedrock and the topography. 8. Assessment of soil and construction conditions. 9. Assessment of the relief. 10. Hydrological conditions of the area, analysis of inland and underground waters. 11. Soil, soil conditions. 12. Vegetation as an important element of the terrain physiognomy. 13. Forms of nature protection. 14. Natural conditions in the legal system. 15. Regulations concerning ecophysiographic studies. 16. Mechanisms and conditions of anthropopression, effects of anthropopressure. subject of exercises 1. Land falls, land suitability for development 2. Routing roads with a given maximum slope in the longitudinal profile 3. Approximate suitability of land for development 4. Assessment of the risk of erosive processes 5. Determining the boundaries of local catchments - slopes and directions of runoff 6. surface water 7. Determining the direction of runoff of the groundwater horizon 1, classification of the suitability of the site for development due to the depth of the groundwater horizon 1, 8. Determining the boundaries of the floodplain 9. Forest habitat types, their physiognomy and resistance to anthropopressure. Health properties of selected plant communities 10. Assessment of the conditions and possibilities of locating various objects. Protected areas 11. Exposure and the potential length of the lighting time by 12. Wind rose. Cool air flow directions.		
Prerequisites and co-requisites	The ability to think from a cause-and-effect perspective and to analyze general knowledge of natural relationships and conditions that influence the spatial organization of architectural structures and infrastructure, particularly in the context of environmental protection, physiographic factors, and technical constraints.		
Assessment methods and criteria	Subject passing criteria test or essay execution of exercises	Passing threshold 60.0% 100.0%	Percentage of the final grade 50.0% 50.0%
Recommended reading	Basic literature	1. Heather Goudie, Landscapes and Geomorphology: A Very Short Introduction, Oxford University Press, 2010 2. Steffen Lehmann, Gaëll Mainguy, Green Urbanism: Formulating a Series of Holistic Principles, Surveys and Perspectives Integrating Environment and Society 3.2 2010, Vol.3 / n°2 3. Strahler, Alan H. and Arthur Strahler. 2003. Physical Geography: Science and Systems of the Human Environment. 2nd Edition John Wiley and Sons, New York.	
	Supplementary literature	1. Forman, Richard & Sperling, Daniel & Bissonette, John & Clevenger, Anthony. (2003). Road Ecology: Science And Solutions. Bibliovault OAI Repository, the University of Chicago Press.	
	eResources addresses		

Example issues/ example questions/ tasks being completed	Exercise 3 Task: 1) On the assigned topographic map in scale 1: 5000, determine the course of the road with the assumed design speed for the speed of 60 km / h, on the route connecting the left and right side of the map. 2) Use the constants titl method when develop and calculating direction the route.3) Perform at least one turn of road arc with the correct radius of the arc for the assumed speed.4) Provide:- the adopted contour line,- the gradient of the terrain adopted for a given road category,- segment length (d)- the length of this section (d) on the map scale.
Practical activites within the subject	Not applicable

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