GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Environmental principles of architectural and urban design, PG_00061518		
Field of study	Architecture		
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
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	English
Semester of study	3	ECTS credits	1.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Urban Design and Regional Planning -> Faculty of Architecture		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Miłosz Marciniak	
	Teachers		

Lesson types and methods of instruction

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

Developing the ability to use knowledge about the natural environment for spatial planning, urban and rural design

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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	Student is able to assess the conditions and possibilities of the location of various objects	[SW1] Assessment of factual knowledge
[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 the importance of the natural environment in architectural, urban and spatial planning; is able to describe the influence of environmental features on the possibility of land use and to define the features of the environment limiting the use of the area; is able to identyficate the limitations and the possibilities of the area (on the basis of the existing characteristics of the environment).	[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge
[K6_K03] is ready to take responsibility for architectural and urban values in environmental protection and cultural heritage	Student is able to assess the individual components of the natural environment for economic purposes, for the purposes of urban planning and spatial planning	[SK3] Assessment of ability to organize work

Subject contents	Lecture issues:1 Spatial and environmental information. Publicly available GIS platforms2 Landscape.3 Basic natural processes - functioning of the natural environment.4 Basic concepts of physical and geographical space.5 Dynamics and evolution of the natural environment.6 The main features of the geological structure of the Earth, the relationship between the bedrock and the topography.7 Assessment of ground and construction conditions.8 Assessment of the relief.9 Hydrological conditions of the area, analysis of inland and underground waters.10 Soil, soil conditions. Properties and natural conditions of the area determining the valuation class of arable soils.11 Vegetation as an important element of the terrain physiognomy.12 Forms of nature protection.13 Natural conditions in the legal systemexercises issues:1. Topographic maps and other thematic maps - sources, scales, contractual signs2. Landfall, inclination of the ground. Land development conditions3 Lines of equal slope, longitudinal profile, assessment of the suitability of the site for transport purposes4. Geology - Approximate usefulness of land for development5. Risk assessment of erosion processes (mass movements)6. Surface waters. Limits of local catchments (catchment area - natural and urbanized).7 Types of forests, their physiognomy and resistance to anthropogenic impact (ecological corridors)8 Assessment of conditions and possibilities of location of various objects9 Exposure and potential length of light by direct sunlight. Designation of sunlit and shaded areas10 Rose of the wind. Direction of cold air flow. Areas potentially exposed to the presence of cool air. Air flow - ventilation of the ground **exercises issues:** 1. Topographic maps and other thematic maps - sources, scales, contractual signs 2. Landfall, inclination of the ground. Land development conditions 3 Lines of equal slope, longitudinal profile, assessment of the suitability of the site for transport purposes 4. Geology - Approximate usefulness of land for development 5. Risk assessment of erosion processes (mass movements) 6. Surface waters. Limits of local catchments (catchment area - natural and urbanized). 7 Types of forests, their physiognomy and resistance to anthropogenic impact (ecological corridors) 8 Assessment of conditions and possibilities of location of various objects 9 Exposure and potential length of light by direct sunlight. Designation of sunlit and shaded areas 10 Rose of the wind. Direction of cold air flow. Areas potentially exposed to the presence of cool air. Air flow - ventilation of the ground
Prerequisites and co-requisites	Knowledge about the natural environment from the earlier stages of education
Assessment methods and criteria	

Subject passing criteria	Passing threshold	Percentage of the final grade
colloquium on the lecture content, execution of 10 exercises	60.0%	100.0%

Recommended reading	Basic literature	Oke T.R., Mills G., Christen A., Voogt J.A, Urban Climates, Cambridge University Press, 2017 (https://aerisfuturo.pl/projekt/urban-climates/) PHYSICAL GEOGRAPHY (An Open Educational Resources Publication by College of the Canyons) authored and compiled by Jeremy Patrich MA (2020)

	Supplementary literature	Price, David George, Engineering Geology: Principles and Practice, Springer, D. Venkat Reddy, NIT-Karnataka, Engineering Geology, Vikas Publishers, Hollis, G.E., The effects of urbanization on floods of different recurrence intervals: Water Resources Research, v. 11, no. 3 Price, David George, Engineering Geology: Principles and Practice, Springer, D. Venkat Reddy, NIT-Karnataka, Engineering Geology, Vikas Publishers, Hollis, G.E., The effects of urbanization on floods of different recurrence intervals: Water Resources Research, v. 11, no. 3
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Assessment of land suitability for construction and agriculture based on the size of the land decline.The grade line of the road, the impact of the relief on the marking and implementation of a road and a railway line.The load-bearing capacity of the soil, the limit load of the land suitable for development without reservations.The occurrence of mass movements and their impact on buildings.Properties and natural conditions of the area determining the valuation class of arable soils.Assessment of the possibility of flooding in a given area.The impact of changes in the depth of the first groundwater horizon on construction and underground infrastructure.Factors influencing the city's climate.Areas potentially exposed to stagnation of cool air.	
Work placement	Not applicable	

Document generated electronically. Does not require a seal or signature.