GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

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|---|---|---|---|
| Subject name and code | Environmental principles of spatial development, PG_00050229 | | |
| Field of study | Spatial Development | | |
| Date of commencement of studies | October 2023 | Academic year of realisation of subject | 2023/2024 |
| Education level | first-cycle studies | Subject group | Obligatory subject group in the field of study<br>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 | 1 | Language of instruction | Polish |
| Semester of study | 2 | ECTS credits | 3.0 |
| 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 | dr Miłosz Marciniak | |

**Lesson types and methods of instruction**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 30.0 | 15.0 | 0.0 | 0.0 | 0.0 | 45 |
| 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 | 45 | 4.0 | 26.0 | 75 |

**Subject objectives**

Developing skills of using knowledge about the natural environment for the needs of spatial planning, and urban and rural design

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| K6_U04 | can assess the conditions and location possibilities of various objects | [SU1] Assessment of task fulfilment<br>[SU2] Assessment of ability to analyse information<br>[SU4] Assessment of ability to use methods and tools |
| [K6_W04] has basic knowledge in the field of pro-ecological design and knows the principles of sustainable development of cities and regions; has knowledge of the natural foundations of spatial management and the impact of natural conditions on the processes of economic development on a local, regional and national scale | can assess individual components of the natural environment for economic purposes, for the needs of urban planning and spatial planning | [SW1] Assessment of factual knowledge<br>[SW3] Assessment of knowledge contained in written work and projects |
| [K6_W01] has knowledge related to theoretical and practical issues in the field of spatial management, the basics of planning and urban design and principles of local, regional and national development, and has basic knowledge about contemporary trends of development and revitalization of settlement structures and the life cycle of facilities and systems related to the functioning of settlement units | can describe the impact of environmental features on the possibilities of land use and restrictions introduced by some environmental features on the use of the area | [SW1] Assessment of factual knowledge |

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| Subject contents | Characteristics of the natural environment and its components (topography, geological structure and grounds, soils, groundwater, surface water, vegetation, climate and topoclimate). Assessment of the natural environment for economic purposes, for the needs of urban planning and spatial planning.<br><br>Discussion of the impact of the development of environmental features on the possibilities of land use and restrictions on the use of the area with given features introduced by some environmental features. Assessment of conditions and location options for various objects. Declines in land - land suitability for construction and agriculture. Equal slope lines, longitudinal profile, site suitability assessment for transport needs. SMGP and geological and engineering atlases. Soil load capacity. Approximate suitability of land for development. Risk assessment for mass movements. SOPO system. Landslides and threatened areas registers. Soil maps. Soil valuation classes and agricultural suitability complexes. Site analysis from the point of view of the protection of agricultural and forest land. Site analysis from the point of view of suitability for construction. Hydrographic and hydrogeological map. Soil permeability and groundwater flow direction. Usefulness of the development area due to the depth of 1 groundwater horizon. Main groundwater reservoirs. Limits of local (natural and urbanized) catchments. Plotting the topographic border of the catchment area. Hydrographic map, KZGW website. Impact of surface water runoff on transport and construction. Determining the boundaries of the floodplain. Consequences of flooding for buildings and people. PSH base - areas at risk of flooding. ISOK system. Forest habitat types, their physiognomy and resistance to anthropopressure, forest management, Health properties of selected plant communities. Forest data bank. RDLP services. Assessment of conditions and location options for various objects - sozological and geoenvironmental maps. EMSGP system. Protected areas - GDoś geoservice, Map of ecological corridors in Poland. Climatic elements (temperature, precipitation, humidity). Sources of climate data. Designation of sunny and shaded areas. Typical meteorological year. ARMAAG system. Cooling air flow directions. Areas potentially exposed to cold air stagnation. Air flow - ventilating the area. Topoclimate of the city. Climate valorization of urban areas. |
| Prerequisites and co-requisites | Knowledge about the natural environment from earlier stages of education |

Assessment methods and criteria

| Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|
| test from lecture content | 60.0% | 50.0% |
| 12 exercises | 80.0% | 50.0% |

Recommended reading

Basic literature


Macias A., Bródka S., Przyrodnicze podstawy gospodarowania przestrzenią. PWN, Warszawa, 2014.

Szponar A., Fizjografia urbanistyczna. PWN, Warszawa, 2003.

Oke T.R., Mills G., Christen A., Voogt J.A, Urban Climates, Cambridge University Press, 2017 (https://aerisfuturo.pl/projekt/urban-climates/)

Błażejczyk K. i in., Miejska wyspa ciepła w Warszawie. Uwarunkowania klimatyczne i urbanistyczne. IGiPZ PAN, Wyd. Akademickie Sedno, Warszawa, 2014.

Ustawy, rozporządzenia i normy

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|---|---|---|
| | Supplementary literature | Kaczyński R.R., Warunki geologiczno-inżynierskie na obszarze Polski. Państwowy Instytut Geologiczny, 2017.<br><br>Saternus P., Leksykon urbanistyki i planowania przestrzennego. BEL Studio, Warszawa, 2013.<br><br>Krzyk P., Kotuła Ł., Uwarunkowania geologiczno-inżynierskie i geotechniczne w planowaniu przestrzennym z uwzględnieniem obszarów osuwiskowych. Instytut Rozwoju Miast, Kraków, 2015.<br><br>Krzymowska-Kostrowicka A., Geoekologia turystyki i wypoczynku. PWN, Warszawa, 1999.<br><br>Kowalczak P., Wodne dylematy urbanizacji. Wydawnictwo PTPN, Poznań 2011.<br><br>Kolerski T., Praktyczne aspekty gospodarki wodnej w projektowaniu zbiorników retencyjnych. PG, 2014.<br><br>Lewińska J. – Klimat miasta - zasoby, zagrożenia, kształtowanie. Instytut Gospodarki Przestrzennej i Komunalnej, Oddział w Krakowie, 2000.<br><br>Literatura szczegółowa do poszczególnych ćwiczeń. |
| | eResources addresses | Adresy na platformie eNauczanie: |
| Example issues/ example questions/ tasks being completed | Assessment of land suitability for the needs of construction and agriculture based on the size of the land fall.<br>Road grade, influence of relief on routing and implementation of a road and railway line.<br>Soil load capacity, maximum load of land useful for building without reservations.<br>Occurrence of mass movements and their impact on buildings.<br>Properties and natural conditions of the area determining the soil soil quality class.<br>Assessment of the possibility of flooding in a given area.<br>Impact of changes in the depth of the first groundwater horizon on construction and underground infrastructure.<br>Possibilities of tourist use of individual types of forest habitat.<br>Factors affecting the city's climate.<br>Areas potentially exposed to cold air stagnation. | |
| Work placement | Not applicable | |