GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

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|---|---|---|---|
| Subject name and code | Environmental principles of architectural and urban design, PG_00052779 | | |
| Field of study | Architecture | | |
| Date of commencement of studies | October 2021 | Academic year of realisation of subject | 2022/2023 |
| 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 | 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 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 | 15.0 | 15.0 | 0.0 | 0.0 | 0.0 | 30 |

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 | 30 | 0.0 | 0.0 | 30 |

**Subject objectives**

Discussion of the physiographic relations and the identification of threats to the environment at the level of the organization of its components, including relations between people and buildings and between buildings and their surroundings, as well as the principles of sustainable development in design.

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [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 | |
| [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 | |
| [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 | |

**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**

Ability to think abow of cause and effect, analysis in the field of general knowledge about natural relations and conditions influencing the directions of spatial organization of architectural objects and infrastructure in the context of environmental protection, physiographic and technical conditions.

**Assessment methods and criteria**

| Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|
| test or essay | 60.0% | 50.0% |
| execution of exercises | 100.0% | 50.0% |

**Recommended reading**

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|---|---|
| Basic literature | 1. Heather Goudie, Landscapes and Geomorphology: A Very Short Introduction, Oxford University Press, 2010<br>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<br>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 | Adresy na platformie eNauczanie: |

**Example issues/ example questions/ tasks being completed**

Exercise 31) 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 constans 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.

**Work placement**

Not applicable

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