**Nazwa przedmiotu:**

 Przedmiot obieralny 2 - Systemic design for sustainability development

**Koordynator przedmiotu:**

brak

**Status przedmiotu:**

Obowiązkowy

**Poziom kształcenia:**

Studia II stopnia

**Program:**

Geodesy and Cartography

**Grupa przedmiotów:**

Obieralne

**Kod przedmiotu:**

1060-

**Semestr nominalny:**

2 / rok ak. 2023/2024

**Liczba punktów ECTS:**

2

**Liczba godzin pracy studenta związanych z osiągnięciem efektów uczenia się:**

1. Number of contact hours: 32, including a) 30 hours of projects b) 2 hours of consultations, 2. Student's own work - 18 hours, including a) 12 hours of implementation of project tasks b) 6 hours of analysis of literature; 3) TOTAL: 60 hours, which corresponds to 2 ECTS points

**Liczba punktów ECTS na zajęciach wymagających bezpośredniego udziału nauczycieli akademickich:**

Number of contact hours: 32, including a) 30 hours of projects b) 2 hours of consultations. The workload related to activities that require direct teacher participation is 32 hours, which corresponds to 1 ECTS credit.

**Język prowadzenia zajęć:**

angielski

**Liczba punktów ECTS, którą student uzyskuje w ramach zajęć o charakterze praktycznym:**

a) 30 hours of projects b) 2 hours of consultations, Student's own work - 12 hours of implementation of project tasks; TOTAL: 44 hours

**Formy zajęć i ich wymiar w semestrze:**

|  |  |
| --- | --- |
| Wykład:  | 0h |
| Ćwiczenia:  | 0h |
| Laboratorium:  | 0h |
| Projekt:  | 30h |
| Lekcje komputerowe:  | 0h |

**Wymagania wstępne:**

no prerequisites

**Limit liczby studentów:**

30

**Cel przedmiotu:**

brak

**Treści kształcenia:**

brak

**Metody oceny:**

The final assessment of knowledge and skills consists of the grade from exercises. The lecturer has the right to revise it by half of the grade. Obtaining more than 60% of points from all assessments/reports and class attendance is required. The additional elements of the assessment of the exercises are the substantive activity of the student and teamwork evaluation. More than two unjustified absences mean Student's failing the project.
Design Process
- Is the Student active in activities and lectures?
- Are the global and local contexts issues developed?
- Are multiple options for the solution explored?
- Are the systemic design tools properly used?
- Was the project completed at the time it was due?
Design Solution
- Are the adequate SDGs addressed?
- Are all leverage points considered?
- Are the design solutions prototyped in VR/AR environment?
 Presentation
- Is the graphic communication clearly expressed?
- Is the verbal communication clearly and thoughtfully organized?
- Is adequate information presented to support the design?
- Is the presentation clear and legible?
- Is the concept or research foundation for the developed ideas clearly presented?

**Egzamin:**

nie

**Literatura:**

Literature
JONES, P., VAN AEL, K. 2022. Design Journeys through Complex Systems: Practice Tools for Systemic Design. BIS Publishers BV; Edycja 1, Amsterdam, pp. 240

Supplementary literature
2016. Follow the Rabbit: A Field Guide to Systemic Design. Government of Alberta CoLab. Version 1.0.
Meadows, D.H., Wright, D., 2008. Thinking in systems : a primer. Chelsea Green Pub., White River Junction, Vt.
Senge, P.M., 2006. The fifth discipline : the art and practice of the learning organization, Rev. and updated. ed. Doubleday/Currency, New York.
Cat Drew, Jessie Johnson, Simran Chadha, Celina Carlisle, Anstey Burnett, Nat Hunter. 2018. Beyond net zero: a systemic design approach. Design Council, Design Economy https://www.designcouncil.org.uk/our-work/skills-learning/tools-frameworks/beyond-net-zero-a-systemic-design-approach/
https://www.systemicdesigntoolkit.org
https://miro.com/miroverse/the-systemic-four-design-thinking-tools-for-circular-economy/
https://thesystemsthinker.com/
https://learningforsustainability.net
https://www.un.org/sustainabledevelopment/

**Witryna www przedmiotu:**

brak

**Uwagi:**

brak

## Efekty przedmiotowe

### Profil praktyczny - wiedza

**Efekt :**

Weryfikacja:

**Powiązane efekty kierunkowe:**

**Powiązane efekty obszarowe:**

### Profil ogólnoakademicki - wiedza

**Efekt W\_01:**

one has theoretical knowledge about system thinking, design thinking, and systemic design

Weryfikacja:

exercises and activity during classes

**Powiązane efekty kierunkowe:** K\_W06, K\_W16

**Powiązane efekty obszarowe:** T2A\_W09, T2A\_W11, T2A\_W02, T2A\_W05, T2A\_W08

### Profil ogólnoakademicki - umiejętności

**Efekt U\_01:**

One is able to obtain information from literature, databases, and other sources; is able to integrate the received information, interpret and critically evaluate it, draw conclusions and formulate and comprehensively justify opinions

Weryfikacja:

exercises and activity during classes

**Powiązane efekty kierunkowe:** K\_U01

**Powiązane efekty obszarowe:** T2A\_U01

**Efekt U\_02:**

One is able to prototype design solutions in a team in the VR environment

Weryfikacja:

exercises and activity during classes

**Powiązane efekty kierunkowe:** K\_U02

**Powiązane efekty obszarowe:** T2A\_U02, T2A\_U03

### Profil ogólnoakademicki - kompetencje społeczne

**Efekt K\_01:**

 One is able to think and act in a creative and entrepreneurial way

Weryfikacja:

exercises and activity during classes

**Powiązane efekty kierunkowe:** K\_K01

**Powiązane efekty obszarowe:** T2A\_K06

**Efekt K\_02:**

One is aware of the importance and understands the non-technical aspects and effects of engineering activities, including their impact on the environment, and the related responsibility for decisions made

Weryfikacja:

exercises and activity during classes

**Powiązane efekty kierunkowe:** K\_K03

**Powiązane efekty obszarowe:** T2A\_K02

**Efekt K\_03:**

 One is able to cooperate and work in a group, assuming various roles in it.

Weryfikacja:

exercises and activity during classes

**Powiązane efekty kierunkowe:** K\_K04

**Powiązane efekty obszarowe:** T2A\_K03