POZNAN UNIVERSITY OF TECHNOLOGY



EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

COURSE DESCRIPTION CARD - SYLLABUS

Course name Use of spreadsheet [N1IŚrod2>ZAK]

| Course | | | |
|--|-------------------------|----------------------------------|------------|
| Field of study Environmental Engineering | | Year/Semester 1/2 | |
| Area of study (specialization) | | Profile of study general academi | с |
| Level of study first-cycle | | Course offered ir Polish | 1 |
| Form of study part-time | | Requirements elective | |
| Number of hours | | | |
| Lecture 0 | Laboratory classe 20 | es | Other 0 |
| Tutorials 0 | Projects/seminars 0 | 5 | |
| Number of credit points 2,00 | | | |
| Coordinators dr inż. Rafał Brodziak rafal.brodziak@put.poznan.pl | | Lecturers | |

Prerequisites

1. Knowledge: Basic knowledge of computer science in high school. 2. Skills: Operating a personal computer, including basic knowledge of office programs. 3. Social competences: Awareness of the need to constantly update and supplement knowledge and skills.

Course objective

The aim of the course is to equip the student with the skills to collect, collect, store and process information and perform engineering calculations using a spreadsheet.

Course-related learning outcomes

Knowledge:

1. The student has knowledge of the use of spreadsheets, with particular attention to their use in environmental engineering

Skills:

- 1. The student uses a spreadsheet to collect and process data and information
- 2. Student creates formulas and calculation functions in a spreadsheet

3. Student uses a spreadsheet to analyze data

4. The student integrates data from various sources, including: databases, text files Social competence

1. The student is aware of responsibility for his/her own work.

2. The student is oriented towards acquiring knowledge in the field of new possibilities of spreadsheets in the field of information processing tools

Social competences:

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Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Two final colloquiums in the computer room, the first one in the middle of the semester, the second one during the last classes. Passing threshold: 50%. Detailed scoring criteria and grading scale are provided before colloquiums.

Programme content

During classes, students work at individual computer workstations where they complete spreadsheet tasks. Content includes creating formulas, conditional functions, formatting data, sorting and filtering, creating charts, PivotTables, interpreting results, manipulating date and time data, solving mathematical equations, recording and creating macros, and creating your own functions and forms.

Course topics

The

scope of topics covered includes:

- 1. Creating formulas and using basic functions
- 2. Conditional and logical functions, nesting of functions
- 3. Formatting, sorting and filtering tools, creating charts
- 4. Conditional formatting, advanced features
- 5. Pivot table, pivot chart
- 6. Interpretation of laboratory results, presentation of data
- 7. Operations on date/time data, tools for checking the correctness of entered data
- 8. Solving mathematical equations Solver add-in
- 9. Recording macros and creating macros
- 10. Create your own functions
- 11. Creating forms

Teaching methods

Carrying out tasks together, solving tasks given by the teacher - practical exercises, problem solving.

Bibliography

Basic:

- 1. Sikorski W. Excel dla studentów, WITKOM (Salma Press), 2023
- 2. Frye Curtis D., Microsoft Excel 2013 Krok po kroku, APN Promise, 2013 (ibuk PUT)
- 3. Built-in program help/documentation Microsoft Excel/LibreOffice/Google Sheets

Additional:

1. Wrotek W., VBA dla Excela 2019 PL : 234 praktyczne przykłady, Helion, 2019

2. Hong Zhou Eksploracja danych za pomocą Excela : metody uczenia maszynowego krok po kroku., Helion, 2024

- 3. Microsoft, Excel pomoc i informacje, online, https://support.office.com/pl-pl/excel
- 4. Masłowski K. Arkusze Google, Wydawnictwo Helion, 2022.

Breakdown of average student's workload

| | Hours | ECTS |
|--|-------|------|
| Total workload | 50 | 2,00 |
| Classes requiring direct contact with the teacher | 20 | 1,00 |
| Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation) | 30 | 1,00 |