COURSE DESCRIPTION CARD - SYLLABUS

Course name
Advanced functions of spreadsheet [N1IBiJ1>ZFAK]

Course

Field of study	Year/Semester
Safety and Quality Engineering	1/1
Area of study (specialization)	Profile of study
–	general academic
Level of study	Course offered in
first-cycle	Polish
Form of study	Requirements
part-time	compulsory

Number of hours

Lecture	Laboratory classes	Other
0	18	0
Tutorials	Projects/seminars	
0	0	

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

Knowledge from high school in the field of computer science. Basic computer and office skills.

Course objective

Students acquire skills in the efficient use of a spreadsheet in the field of engineering calculations with the use of functions and formulas. They are able to create and edit charts.

Course-related learning outcomes

Knowledge:
1. Describes advanced data formatting techniques and the use of mathematical formulas in solving tasks related to safety engineering, identifying their application in data analysis [K1_W10].
2. Explains the methodology of sorting and filtering data, applying partial sums, creating pivot tables, and using absolute addresses in calculations, emphasizing their significance in the process of data analysis and interpretation [K1_W10].
3. Characterizes the application of conditional functions, macros, selected text, logical, date and time, and financial functions in advanced data analysis, pointing out their role in optimizing decision-making processes [K1_W10].

Skills:
1. Applies advanced spreadsheet functions to solve complex mathematical and engineering tasks, including data analysis, forecasting, and strategic planning [K1_U04].
2. Creates and edits charts, applies conditional formatting and data search functions to effectively present and analyze information, supporting decision-making processes in engineering [K1_U01].
3. Designs and implements macros to automate tasks in spreadsheets, increasing work efficiency and precision of analyses [K1_U04].

Social competences:
1. Understands and appreciates the importance of advanced spreadsheet tools in data analysis for engineering safety, promoting their use to improve work quality and safety [K1_K01].
2. Initiates and supports actions aimed at disseminating knowledge about advanced data analysis techniques, cooperating in society and the professional environment in the field of safety engineering [K1_K05].
3. Demonstrates the ability to work in a team and communicate in the process of sharing knowledge and best practices regarding effective use of spreadsheets, contributing to increased awareness of their significance in safety management [K1_K05].

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

There are two tests during the semester, during which students carry out tasks related to the material of laboratory classes (on the computer) on their own. Each task is scored. The test is passed if at least 50% of points are achieved. The final grade for the subject is the average of the marks from the two tests.

Programme content

Data formatting, formulas in solving math problems, sorting data, filtering, subtotals, pivot table, absolute addresses in calculations, creating and editing charts, conditionalfunctions and conditional summation functions in tasks, macros, selected text functions, logical expressions, date and time functions, selected financial functions, data search functions, replacement and counting functions, conditional data formatting.

Course topics

Teaching methods

The method programmed with the use of a computer - the teacher discusses the tasks to be performed by students, explains complicated issues using examples and analogous tasks.
Practical method - laboratory exercises - students carry out the tasks themselves after prior explanation by the teacher.

Bibliography

Basic:
Wrotek W., Excel 2019 PL. Kurs, Helion 2019 III, Helion, Gliwice 2014
Kowalczyk G., Word 2016 PL. Ćwiczenia praktyczne, Helion 2016

Additional:
Walkenbach J., Alexander M., Analiza i prezentacja danych w Microsoft Excel. Vademecum Walkenbacha. Wydanie II, Helion 2014

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	18	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	32	1,00