SYLLABUS

Name: Statistics and data vizualisation
Name in Polish:
Name in English:

Information on course:

Course offered by department:	Faculty of Organisation and Management
Course for department:	Silesian University of Technology
Study level and form:	Master's degree/Bechelor's degree, Full-time
Term:	winter semester 2023/2024
Coordinator of course edition:	Iwona Zdonek, PhD, Anna Mularczyk, PhD

Default type of course examination report:

Language:

English

Course homepage:

https://platforma.polsl.pl/roz/course/view.php?id=508

ECTS

6

Short description:

The main course objective is acquiring the ability to use statistical methods in management and production engineering

Description:

Lectures:

1. Data and methods of their presentation. Structure analysis.
2. Correlation and regression analysis.
3. The theory of probability
4. Statistical inference in structure analysis
5. Statistical inference in the analysis of interdependencies.

Laboratories:

1. Statistical data: preparation for analysis, types of variables, methods of presentation
2. Structure analysis. Comparing variable distributions. Data aggregation.
3. Relationship between qualitative variables: contingency tables, dependency measures, visualization
4. The relationship between quantitative variables. Correlation and regression analysis
5. Selected issues of the theory of statistical hypotheses

Teaching modes and hours
Lectures; 15h
Laboratories: 30h
Student's own work: 135h
Total number of hours: 180
Number of ECTS credits: 6
- Number of ECTS credits allocated for contact hours: 1,5
- Number of ECTS credits allocated for in-practice hours (laboratory classes, projects):1

Bibliography:

1. Introduction to Statistics, Genet Tsige, OmniScriptum GmbH & Co. KG 2011
2. Introduction to Statistics, David Lane, Rice University, Open Textbook Library
3. Online Statistics Education: An Interactive Multimedia Course of Study: https://onlinestatbook.com/2/
4. An Introduction to Statistical Learning with Applications in R, Gareth James Daniela Witten Trevor Hastie, Springer Nature 2013
5. Introduction to Statistics: An Intuitive Guide for Analyzing Data and Unlocking Discoveries, Jim Frost, James D. Frost 2020
6. Zdonek I., Mularczyk A., Turek M. [i in.]: Perception of prosumer photovoltaic technology in Poland: usability, ease of use, attitudes, and purchase intentions Energies, 2023, vol. 16, nr 12, s.1-18, No: 4674. DOI:10.3390/en16124674
7. Mularczyk A., Zdonek I.: Development of solar energy in Poland in the context of European countries Zeszyty Naukowe Politechniki Śląskiej. Organizacja i Zarządzanie, 2022, nr 161, s.171-186. DOI:10.29119/1641-3466.2022.161.12

Learning outcomes:

KNOWLEDGE: Student knows and understands:
Advanced issues in the field of statistics and areas of engineering and technical sciences useful for formulating and solving typical engineering tasks (K1A_W1)

SKILLS: Student is able to:
Identify, formulate and solve complex and unusual engineering problems related to the field of management and production engineering by applying the principles of engineering, science and mathematics, as well as perform tasks under conditions that are not fully predictable (K1A _U1)
in particular:
- can prepare statistical data and use the methods of statistical analysis
- can calculate probabilities in event spaces, determine the distribution parameters of a random variable, use typical distributions of a random variable,
- take part in a debate - present, justify and evaluate different opinions and positions and discuss them

SOCIAL COMPETENCE: Student is ready for:
Critical evaluation of knowledge and received content, recognition of the importance of knowledge in solving cognitive and practical problems, and consulting experts in the event of difficulties in solving problems on their own (K1A _K1)

Assessment methods and assessment criteria:

The grade consists of:
20% points for quizzes and files to send,
40% points for projects,
40% final test.

Practical placement: