University of Silesia in Katowice

1.	Field of study	Water Management - Aquamatics
2.	Faculty	Faculty of Natural Sciences
3.	Academic year of entry	2025/2026 (winter term)
4.	Level of qualifications/degree	first-cycle studies (in engineering)
5.	Degree profile	general academic
6.	Mode of study	full-time

7.	General information about the module	
Module name		Basics of data analysis
Module code		W2-GW-AQ-S1-023
Number of the ECTS credits		3
Language of instruction		Polish
Purpose and description of the content of education		This module aims to familiarize students with the fundamental concepts and methods related to data analysis. The classes will also cover topics necessary for proficient navigation in the IT environment, including LAN and WAN environments. The thematic scope includes theoretical content necessary for understanding the principles and methods of data analysis, starting from understanding data structures and their organization through data processing, quality analysis, graphical presentation, and basic statistical analysis. Students will become acquainted with IT tools enabling data management, such as spreadsheets, database management systems, and statistical packages. The objective of the classes is to acquire basic skills in using the learned software, which will allow for analyzing data obtained in projects, used in modelling, presenting data in graphs, and utilizing databases. Additionally, the module aims to achieve fluency in handling large data sets and the ability to verify their quality and completeness.
List of modules that must be completed before starting this module (if necessary)		not applicable

8.	Learning outcomes of the module		
Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GW-AQ-S1-023 _1	Rozumie czym są dane, zna podstawowe formaty zapisu danych w systemach informatycznych, umie rozpoznać ich strukturę.	GW-AQ1_U03 GW-AQ1_W01	3 3
W2-GW-AQ-S1-023 _2	Zna i umie korzystać w stopniu podstawowym z narzędzi do analizy danych (arkusz kalkulacyjny, system zarządzania bazami danych, pakiet statystyczny).	GW-AQ1_U03 GW-AQ1_W01 GW-AQ1_W08	3 3 3
W2-GW-AQ-S1-023 _3	Umie ocenić jakość danych, operować na danych, zaprezentować w formie graficznej, przeprowadzić podstawową analizę statystyczną	GW-AQ1_U03 GW-AQ1_W01 GW-AQ1_W08	3 3 3

9. Methods of conducting classes

Code	Category	Name (description)
b01	Problem-solving methods	**Problem-based lecture** *an analysis of a selected scientific or practical problem accompanied by its assessment and an attempt to provide a solution to the issues presented in the lecture as well as the indication of the consequences of the proposed solution*
d01	Programmed learning methods	**Working with a computer** *e.g., Webquest; implementation of educational tasks using electronic and digital devices, computer programs and Internet applications; the academic teacher acts as a consultant; students' work is carried out step by step according to the plan laid own by the person teaching the course and following his instructions, and proceeds towards producing the indicated results within the set deadline*
d02	Programmed learning methods	**Working with a programmed textbook** *working with a textbook containing instructional material covering part of or the entire curriculum of the module as well as a formula for studying the content; includes working with a subject textbook, an atlas, a catalogue, a problem book, etc.*
e04	Practical methods	**Project scheduling** *proceeding according to the steps proposed within a specific methodology for the completion of a task; e.g., identifying project objectives, determining the result, identifying strengths, limitations, opportunities and threats (SWOT), establishing a schedule of activities, assessing resources, establishing an implementation plan; the initial diagnosis; the reassessment of assumptions; the process of preparing the practical implementation of a project*

10. Forms of teaching

Code	Name	Number of hours	Assessment of the learning outcomes of the module	Learning outcomes of the module	Methods of conducting classes
W2-GW-AQ _023 fs _1	lecture	5	course work	W2-GW-AQ-S1-023 _2	b01
W2-GW-AQ _023 fs _2	laboratory classes	30	course work	W2-GW-AQ-S1-023 _1, W2-GW-AQ-S1-023 _2, W2-GW-AQ-S1-023 _3	d01, d02, e04

11. The student's work, apart from participation in classes, includes in particular:

Code	Category	Name (description)	Is it part of the BUNA?
a01	Preparation for classes	**Search for materials and review activities necessary for class participation** *reviewing literature, documentation, tools and materials as well as the specifics of the syllabus and the range of activities indicated in it as required for full participation in classes*	No
a03	Preparation for classes	**Developing practical skills** *activities involving the repetition, refinement and consolidation of practical skills, including those developed during previous classes or new skills necessary for the implementation of subsequent elements of the curriculum (as preparation for class participation)*	No
a05	Preparation for classes	**Production/preparation of tools, materials or documentation necessary for class participation** *developing, preparing and assessing the usefulness of tools and materials (e.g. aids, scenarios, research tools, equipment, etc.) to be employed in class or as an aid when preparing for classes*	No
c03	Preparation for verification of learning outcomes	**Implementation of an individual or group assignment necessary for course/phase/ examination completion** *a set of activities aimed at performing an assigned task, to be executed out of class, as an obligatory*	No

		phase/element of the verification of the learning outcomes assigned to the course	

Information on the details of the module implementation in a given academic year can be found in the syllabus available in the USOS system: https://usosweb.us.edu.pl.