1.	**Field of study**	**Aquamatics - Interdisciplinary Management of Water Environments**
2.	Faculty	Faculty of Natural Sciences
3.	Academic year of entry	2023/2024 (winter term), 2024/2025 (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 groundwater modelling 2**
Module code	W2-AQ-S1-064
Number of the ECTS credits	2
Language of instruction	Polish
Purpose and description of the content of education	Student pozna zaawansowane zasady i schematy budowy modeli przepływu wód podziemnych i ich główne zastosowanie. Zdobyte umiejętności w laboratorium pozwolą studentom opanować budowę, kalibrację i weryfikację złożonych modeli przepływu wód podziemnych. Zajęcia przygotowują studenta do rozwiązania zadania polegającego na stworzeniu modelu dobrze dostosowanego do celu pracy, zastosowaniu właściwego narzędzia i doborze odpowiednich danych wejściowych, a także na weryfikacji modeli wykonanych samodzielnie lub przez inną osobę. Podczas konsultacji student będzie posiadał możliwość uzyskania bardziej szczegółowych informacji na temat narzędzi i me-tod prezentowanych w trakcie zajęć laboratoryjnych.
List of modules that must be completed before starting this module (if necessary)	[W2-AQ-S1-043] Basics of groundwater modelling

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-AQ-S1-043_1	Zna podstawowe cele zastosowania modelowania matematycznego wód podziemnych i zna zasady doboru narzędzi oraz danych do celu modelowania.	AQ1_U01 AQ1_U03 AQ1_W05	3 3 4
W2-AQ-S1-043_2	Potrafi pozyskać dane wejściowe do modeli wód podziemnych i przygotować je w odpowiednich formatach.	AQ1_K02 AQ1_U02 AQ1_U06 AQ1_U10	2 4 4 2
W2-AQ-S1-043_3	Potrafi za pomocą specjalistycznego oprogramowania wykonać proste modele przepływu wód podziemnych.	AQ1_K04 AQ1_U02 AQ1_U04 AQ1_U07	1 3 2 4
W2-AQ-	Potrafi odpowiednio wykorzystać opracowany model do rozwiązywania zadań z zakresu gospodarowania wodami	AQ1_K02	2

S1-043_4	podziemnymi.	AQ1_U01 AQ1_U04 AQ1_U08 AQ1_W05	4 2 4 4

9. Methods of conducting classes

Code	Category	Name (description)
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.*

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-AQ-S1_064_fs_1	laboratory classes	30	exam	W2-AQ-S1-043_1, W2-AQ-S1-043_2, W2-AQ-S1-043_3, W2-AQ-S1-043_4	d01, d02

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
a02	Preparation for classes	Literature reading / analysis of source materials *reading the literature indicated in the syllabus; reviewing, organizing, analyzing and selecting source materials to be used in class*	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
c02	Preparation for verification of learning outcomes	Studying the literature used in and the materials produced in class *exploring the studied content, inquiring, considering, assimilating, interpreting it, or organizing knowledge obtained from the literature, documentation, instructions, scenarios, etc., used in class as well as from the notes or other materials/artifacts made in class*	No

d01	Consulting the results of the verification of learning outcomes	Analysis of the corrective feedback provided by the academic teacher on the results of the verification of learning outcomes *reading through the academic teacher’s comments, assessments and opinions on the implementation of the task aimed at checking the level of the achieved learning outcomes*	Yes

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.