1.	**Field of study**	**Applied Geology**
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	**Applied Geology 1**
Module code	W2-GS-S1-412
Number of the ECTS credits	1
Language of instruction	Polish
Purpose and description of the content of education	W ramach modułu "Geologia inżynierska 1" student zdobędzie wiedzę na temat gruntów oraz ich właściwości, co jest kluczowe z praktycznego punktu widzenia w zawodzie geologa. Student pozna skład mineralny i ziarnowy gruntów, zrozumie rolę wody i gazów w gruntach oraz nauczy się oceniać ich właściwości fizyczne i mechaniczne. Będzie potrafił analizować genezę gruntów oraz procesy prowadzące do ich erozji i akumulacji. Dzięki wiedzy na temat specyfiki gruntów budowlanych, student zyska umiejętność geologiczno-inżynierskiej oceny terenów pod zabudowę. Student pozna metody klasyfikacji gruntów, oznaczania ich właściwości oraz wyznaczania parametrów takich jak gęstość, skład granulometryczny, granice konsystencji i ściśliwość. Zdobyte umiejętności są niezbędne z punktu widzenia prowadzenia przyszłych badań terenowych i laboratoryjnych w zawodzie geologa.
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-GS-S1-412_1	zna podstawowe pojęcia z zakresu geologii inżynierskiej oraz posiada wiedzę na temat klasyfikacji i właściwości gruntów	1GS_U11 1GS_W1 1GS_W2 1GS_W6	1 3 2 2
W2-GS-S1-412_2	ma wiedzę z zakresu podstawowych zjawisk i procesów zachodzących w środowisku gruntowo-wodnym	1GS_K3 1GS_W1 1GS_W2 1GS_W3 1GS_W6	2 3 2 2 3
W2-GS-S1-412_3	zna i potrafi zastosować metody służące oznaczaniu podstawowych właściwości geologiczno-inżynierskich gruntów	1GS_K6 1GS_U1	2 2

		1GS_U2 1GS_U3 1GS_U6 1GS_U9 1GS_W2	3 2 1 1 3
W2-GS-S1-412_4	potrafi planować i organizować badania laboratoryjne z zakresu geologii inżynierskiej	1GS_K6 1GS_U1 1GS_U2 1GS_U3 1GS_U5 1GS_U9 1GS_W2	2 2 2 2 2 1 2
W2-GS-S1-412_5	potrafi zinterpretować wyniki badań laboratoryjnych z zakresu geologii inżynierskiej i oznaczeń podstawowych parametrów i właściwości gruntów	1GS_K1 1GS_K2 1GS_K3 1GS_K6 1GS_U1 1GS_U2 1GS_U3 1GS_U4 1GS_U6 1GS_W2 1GS_W6	1 1 2 2 3 2 2 2 2 2 3
W2-GS-S1-412_6	zna zakres zastosowania oznaczeń i badań geologiczno-inżynierskich w praktyce	1GS_K2 1GS_U11 1GS_U4 1GS_U6 1GS_W2 1GS_W3	1 1 1 2 2 1

9.	**Methods of conducting classes**	
Code	**Category**	**Name (description)**
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a03	Lecture methods / expository methods	Description

		a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison
a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
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*
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*

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-GS-S1-412_l_1	laboratory classes	12	course work	W2-GS-S1-412_3, W2-GS-S1-412_4, W2-GS-S1-412_5, W2-GS-S1-412_6	c06, c07, e01
W2-GS-S1-412_w_1	lecture	12	course work	W2-GS-S1-412_1, W2-GS-S1-412_2	a01, a03, a05, b01

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
b01	Consulting the curriculum and the organization	Getting acquainted with the syllabus content	No

	of classes	*reading through the syllabus and getting acquainted with its content*	
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

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.

1.	**Field of study**	**Applied Geology**
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	**Applied Geophysics**
Module code	W2-GS-S1-054
Number of the ECTS credits	2
Language of instruction	Polish
Purpose and description of the content of education	Dzięki modułowi student poznaje definicję geofizyki stosowanej, podział metod i rolę powierzchniowego rozpoznania geofizycznego jako wartościowego narzędzia wspomagającego w geologicznych pracach poszukiwawczych. Omawiane są 2 grupy metod poszukiwawczych: metody geoelektryczne i metody sejsmiczne, najistotniejsze odpowiednio ze względu na różnorodność zastosowań oraz udział w ogólnoświatowym rozpoznaniu geofizycznym. Spośród metod geoelektrycznych szczegółowo omawiane są metody elektrooporowe i elektromagnetyczne pól sztucznych, a spośród sejsmicznych – metoda refrakcyjna i refleksyjna, głębokie sondowania sejsmiczne oraz specyfika sejsmicznych badań morskich Każda metoda omawiana jest pod względem podstaw fizycznych, elementów i zasady działania aparatury pomiarowej, metodyki prowadzenia pomiarów i kryteriów doboru parametrów pomiaru, podstaw przetwarzania danych polowych, podstaw interpretacji danych pomiarowych oraz praktycznych zastosowań. W ramach laboratorium studenci zaznajamiani są narzędziami służącymi do przetwarzania polowych danych geoelektrycznych, elektromagnetycznych i sejsmicznych (dedykowane oprogramowanie), a także z zasadami przetwarzania danych oraz interpretowania wyników w celu uzyskania wiarygodnego geofizycznego modelu rozpoznawanego ośrodka. W ramach modułu student nabywa podstawowe informacje teoretyczne niezbędne do poprawnego projektowania geofizycznych prac poszukiwawczych oraz umiejętności praktyczne związane z processingiem danych pomiarowych i wnioskowaniem geofizycznym
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-002] Physics in Earth Sciences [W2-GS-S1-032] Geophysics [W2-GS-S1-009] Mathematics in Earth Sciences

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-054_1	znajomość podstaw fizycznych zjawisk wykorzystywanych w elektrycznych i sejsmicznych pracach poszukiwawczych	1GS_W1 1GS_W6	1 1
W2-GS-S1-054_2	znajomość metodyki poszukiwań elektrooporowych, elektromagnetycznych i sejsmicznych, zasady działania urządzeń pomiarowych oraz typowych możliwości wykorzystania wymienionych metod	1GS_W2 1GS_W3	2 1
W2-GS-S1-054_3	umiejętność wykonywania podstawowych sekwencji przetwarzania danych pomiarowych przy pomocy dostępnego oprogramowania	1GS_U2	1
W2-GS-	świadomość niejednoznaczności wnioskowania geofizycznego i umiejętność uzasadniania wyciąganych wniosków		

S1-054_4		1GS_U4	1
W2-GS-S1-054_5	świadomość konieczności szukania wartościowych i wiarygodnych informacji dodatkowych i uzupełniających	1GS_K2	1
W2-GS-S1-054_6	umiejętność komunikatywnego i zrozumiałego prezentowania wyników przeprowadzanych analiz	1GS_U6	1

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
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*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*

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-GS-S1-054_l_1	laboratory classes	24	course work	W2-GS-S1-054_3, W2-GS-S1-054_4, W2-GS-S1-054_5, W2-GS-S1-054_6	c06, d01, d03
W2-GS-S1-054_w_1	lecture	12	exam	W2-GS-S1-054_1, W2-GS-S1-054_2, W2-GS-S1-054_5	a01

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

Code	Category	Name (description)	Is it part of the BUNA?
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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	No
d02	Consulting the results of the verification of	Development of a corrective action plan as well as supplementary/corrective tasks	No

	learning outcomes	*reviewing and selecting tasks and activities enabling the elimination of errors indicated by the academic teacher, their verification or correction resulting in completing the task with at least the minimum passing grade*	
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No

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.

1.	**Field of study**	**Applied Geology**
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	**Applied Mineralogy**
Module code	W2-GS-S1-065
Number of the ECTS credits	1
Language of instruction	Polish
Purpose and description of the content of education	Moduł Mineralogia techniczna ma umożliwić studentowi nabycie szczegółowej wiedzy w zakresie badań własności i przydatności surowców mineralnych, które są stosowane w procesach technologicznych. Pozwoli to im na zapoznanie się z możliwościami wykorzystania poznanych wcześniej metod mineralogiczno-petrograficznych do badania i tworzenia materiałów technicznych. Zapoznanie się studentów z technologiami syntezy faz krystalicznych i amorficznych oraz ceramiki będzie naturalnym poszerzeniem ich dotychczasowej wiedzy z zakresu mineralogii. Dzięki temu student powinien uzyskać ich lepsze zrozumienie, poszerzając swoją znajomość mineralogii o fazy syntetyczne powstające w procesach przemysłowych. Rozwiązywanie różnego typu zadań rachunkowych w ramach ćwiczeń pozwoli na pogłębienie ich praktycznych umiejętności posługiwania się diagramami fazowymi.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-031] Mineralogy

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-065_1	zna podstawy technologii produkcji szkieł, ceramiki i syntezy faz krystalicznych.	1GS_W1 1GS_W2 1GS_W4	1 1 2
W2-GS-S1-065_2	opisuje i wyjaśnia podstawy fizyko-chemiczne procesu spiekania tworzyw ceramicznych	1GS_U1 1GS_W2	1 1
W2-GS-S1-065_3	potrafi posługiwać się ceramicznymi diagramami fazowymi, dwu-, i trójskładnikowymi	1GS_U3 1GS_U4	2 1
W2-GS-S1-065_4	potrafi wykorzystać nabyte wiadomości w celu rozwiązywania prostych zadań związanych z doborem oraz uszlachetnianiem surowców do produkcji ceramicznych	1GS_U4 1GS_U5 1GS_W4	2 2 1
W2-GS-	potrafi formułować opinie nt. zagadnień związanych z realizowanym tematem badawczym i wykazuje samodzielność w	1GS_K1	1

S1-065_5	jego realizacji		

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*
b02	Problem-solving methods	Lecture-discussion *transmission of content involving interaction with the lecture audience; discussion of lecture-related issues is one of its elements or constitutes its follow-up*
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*

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-GS-S1-065_l_1	laboratory classes	20	course work	W2-GS-S1-065_1, W2-GS-S1-065_2, W2-GS-S1-065_3, W2-GS-S1-065_4, W2-GS-S1-065_5	b01, b02, c06, e01

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

Code	Category	Name (description)	Is it part of the BUNA?
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
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	Analysis of the corrective feedback provided by the academic teacher on the results of the	No

	learning outcomes	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*	

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.

1.	Field of study	Applied Geology
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	**Applied petrology 1**
Module code	W2-GS-S1-041
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	Moduł Petrologia stosowana 1 ma umożliwić studentowi poznanie podstawowych typów skał wraz z podstawowymi metodami badawczymi oraz zrozumienia zależności procesów petrologicznych od procesów tektonicznych w skali globalnej, regionalnej i lokalnej. Omówione zostaną minerały główne i ich rola w poszczególnych typach skał, procesy prowadzące do powstania 3 podstawowych typów skał, budujących skorupę ziemską oraz płaszcz nadastenosferowy. Zostanie położony nacisk na umiejętności aplikacyjne oznaczania i klasyfikacji skał, co w dalszej konsekwencji pozwoli studentowi na praktyczne rozwiązywanie problemów geologicznych, w tym diagnozowania procesów geologicznych, krytyczną ocenę możliwości zastosowania zaawansowanych metod badawczych, w zależności od podstawowych charakterystyk badanego materiału skalnego.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-408] Chemistry in Earth sciences [W2-GS-S1-405] Dynamic Earth 1 [W2-GS-S1-406] Dynamic Earth 2 [W2-GS-S1-024] Mineralogy with the basics of crystallography [W2-GS-S1-410] Tectonics and Structural Geology

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-041_1	zna i rozumie w zaawansowanym stopniu teorie, fakty, obiekty zjawiska oraz dotyczące ich metody ze wszystkich działów geologii wyjaśniające złożone zależności pomiędzy nimi.	1GS_K2 1GS_W1 1GS_W2 1GS_W6	2 2 2 1
W2-GS-S1-041_2	potrafi wykorzystywać posiadaną wiedzę do formułowania i rozwiązywania, prostych i typowych, problemów geologicznych oraz wykonywać zadania inżyniera geologa w warunkach nie w pełni przewidywalnych przez: - właściwy dobór źródeł i informacji z nich pochodzących, także z zastosowaniem dostępnych baz danych, dokonywanie oceny, krytycznej analizy i syntezy tych informacji; - dobór oraz stosowanie właściwych metod i narzędzi stosowanych w naukach o Ziemi i środowisku, w tym zaawansowanych technik informacyjno-komunikacyjnych.	1GS_K2 1GS_U1 1GS_U3 1GS_U5 1GS_W1 1GS_W2	2 2 1 1 2 2

		1GS_W3 1GS_W4	1 1
W2-GS-S1-041_3	potrafi wypowiedzieć się w sposób komunikatywny i zrozumiały, w mowie i na piśmie na temat poznanych zagadnień geologicznych, również w wymaganych prawem formach: notatnika terenowego, raportu, projektu, dokumentacji i innych	1GS_K2 1GS_U3 1GS_W1 1GS_W2	2 2 1 2
W2-GS-S1-041_4	potrafi śledzić osiągnięcia nauk o Ziemi i środowisku, w tym najnowsze postępy technologiczne oraz konfrontować je z innymi dziedzinami nauki. Zdaje sobie sprawę z konieczności ciągłego pogłębiania wiedzy.	1GS_K2 1GS_U11 1GS_U6 1GS_W1 1GS_W2 1GS_W6	2 2 3 2 2 2
W2-GS-S1-041_5	jest gotów do odpowiedzialnego pełnienia ról zawodowych, w tym: - przestrzegania zasad etyki zawodowej i wymagania tego od innych; - dbałości o dorobek i tradycje zawodu inżyniera geologa.	1GS_U2 1GS_W2	2 2
W2-GS-S1-041_6	potrafi wykonać eksperymenty geologiczne oraz prace projektowe typowe dla inżyniera geologa, także z zastosowaniem techniki informatycznej, zinterpretować wyniki i poprawnie wnioskować.	1GS_K1 1GS_U11 1GS_U2 1GS_U5	2 1 1 1

9. Methods of conducting classes

Code	Category	Name (description)
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
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*
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
c07	Demonstration methods	Screen presentation

		a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*

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-GS-S1-041_l_1	laboratory classes	24	course work	W2-GS-S1-041_2, W2-GS-S1-041_3, W2-GS-S1-041_4, W2-GS-S1-041_5, W2-GS-S1-041_6	c06, d03, e01
W2-GS-S1-041_w_1	lecture	12	exam	W2-GS-S1-041_1, W2-GS-S1-041_2, W2-GS-S1-041_4, W2-GS-S1-041_5, W2-GS-S1-041_6	a03, a05, b01, c07

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

Code	Category	Name (description)	Is it part of the BUNA?
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
a04	Preparation for classes	Consulting materials complementary to those indicated in the syllabus *agreeing on materials complementary to those indicated in the syllabus, supporting the implementation of tasks resulting from or necessary for class participation*	No
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope	No

		or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	

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.

1.	Field of study	Applied Geology
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	**Applied petrology 2**
Module code	W2-GS-S1-049
Number of the ECTS credits	1
Language of instruction	Polish
Purpose and description of the content of education	Moduł Petrologia stosowana 2 ma umożliwić studentowi zapoznanie się z diagnostyką procesów geologicznych z użyciem podstawowego narzędzia, jakim jest mikroskop petrograficzny. Równolegle zostaną wprowadzone metody obliczeniowe, współgrające z podstawową metodą badawczą, zależne od podstawowych charakterystyk badanego materiału skalnego. W ramach laboratorium student przeprowadza samodzielną kompleksową charakterystykę badanego materiału, w tym produktów antropogenicznych (żużle, cegła, beton, ceramika, itp.). W efekcie końcowym student powinien wykonać poprawny opis badanego materiału wraz z interpretacją i krytyczną analizą możliwości jego wykorzystania praktycznego.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-408] Chemistry in Earth sciences [W2-GS-S1-405] Dynamic Earth 1 [W2-GS-S1-406] Dynamic Earth 2 [W2-GS-S1-024] Mineralogy with the basics of crystallography [W2-GS-S1-041] Applied petrology 1 [W2-GS-S1-410] Tectonics and Structural Geology

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-049_1	potrafi wykorzystywać posiadaną wiedzę do formułowania i rozwiązywania, prostych i typowych, problemów geologicznych oraz wykonywać zadania inżyniera geologa w warunkach nie w pełni przewidywalnych przez: - właściwy dobór źródeł i informacji z nich pochodzących, także z zastosowaniem dostępnych baz danych, dokonywanie oceny, krytycznej analizy i syntezy tych informacji; - dobór oraz stosowanie właściwych metod i narzędzi stosowanych w naukach o Ziemi i środowisku, w tym zaawansowanych technik informacyjno-komunikacyjnych.	1GS_K2 1GS_U1 1GS_U3 1GS_U4 1GS_U5 1GS_W1 1GS_W2 1GS_W3 1GS_W4	3 2 3 2 3 3 3 3 3
W2-GS-	potrafi wypowiedzieć się w sposób komunikatywny i zrozumiały, w mowie i na piśmie na temat poznanych zagadnień	1GS_K2	3

S1-049_2	geologicznych, również w wymaganych prawem formach: notatnika terenowego, raportu, projektu, dokumentacji i innych	1GS_U3 1GS_W1 1GS_W2	3 3 3
W2-GS-S1-049_3	jest gotów do odpowiedzialnego pełnienia ról zawodowych, w tym: - przestrzegania zasad etyki zawodowej i wymagania tego od innych; - dbałości o dorobek i tradycje zawodu inżyniera geologa.	1GS_U2 1GS_W2	2 2
W2-GS-S1-049_4	potrafi wykonać eksperymenty geologiczne oraz prace projektowe typowe dla inżyniera geologa, także z zastosowaniem techniki informatycznej, zinterpretować wyniki i poprawnie wnioskować.	1GS_K2 1GS_U11 1GS_U3 1GS_U4 1GS_U5	3 2 3 2 3

9. Methods of conducting classes

Code	Category	Name (description)
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*
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-GS-S2-049_l_1	laboratory classes	24	exam	W2-GS-S1-049_1, W2-GS-S1-049_2, W2-GS-S1-049_3, W2-GS-S1-049_4	c06, d03, e01, e04

11.	The student's work, apart from participation in classes, includes in particular:		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
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
a04	Preparation for classes	Consulting materials complementary to those indicated in the syllabus *agreeing on materials complementary to those indicated in the syllabus, supporting the implementation of tasks resulting from or necessary for class participation*	No
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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
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 phase/element of the verification of the learning outcomes assigned to the course*	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*	No

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.

1.	Field of study	Applied Geology
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 geomorphology**
Module code	W2-GS-S1-046
Number of the ECTS credits	1
Language of instruction	Polish
Purpose and description of the content of education	Celem modułu „Podstawy geomorfologii” jest poznanie głównych form rzeźby terenu oraz ich genezy i podstawowych procesów, które je ukształtowały (rzeźba fluwialna i fluwialno-denudacyjna, morfogenetyczna działalność czynników denudacyjnych, procesy stokowe, rzeźba eoliczna). Po osiągnięciu efektów kształcenia modułu student potrafi samodzielnie rozpoznawać i charakteryzować formy rzeźby terenu. Rozumie również ich związek z procesami geologicznymi i cechami budowy geologicznej (litologia, tektonika). Potrafi zrekonstruować różne środowiska (np. fluwialne) i przeprowadzić ich analizę na podstawie różnorodnych materiałów źródłowych (mapy, bazy danych, przekroje geologiczne, cyfrowe modele terenu, literatura). Zdobywa wiedzę umożliwiającą pogłębienie wyobraźni przestrzennej. Potrafi zdiagnozować zagrożenia (np. w wyniku osuwania) i zaproponować środki zaradcze.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-405] Dynamic Earth 1 [W2-GS-S1-406] Dynamic Earth 2 [W2-GS-S1-038] Fundamentals of Sedimentology

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-046_1	zna podstawowe pojęcia z zakresu geomorfologii i pogłębia wiedzę w zakresie tej problematyki	1GS_U11 1GS_W1 1GS_W6	2 2 2
W2-GS-S1-046_2	potrafi sklasyfikować formy geomorfologiczne ze względu na genezę Rozumie procesy, które doprowadziły do ich powstania.	1GS_U1 1GS_W1 1GS_W6	3 2 2
W2-GS-S1-046_3	potrafi sklasyfikować procesy stokowe i ich efekty. Potrafi rozpoznać i scharakteryzować osuwisko. Zna przyczyny powstawania osuwisk. Wie, które obszary w Polsce są szczególnie narażone na powstawanie osuwisk. Zna metody zapobiegania osuwiskom. Zna bazę osuwisk SOPO.	1GS_K1 1GS_K2 1GS_U1 1GS_U10	2 2 3 1

		1GS_U5 1GS_W2 1GS_W6	3 3 2
W2-GS-S1-046_4	rozumie zależność między rzeźbą terenu a budową geologiczną (litologia, tektonika)	1GS_U1 1GS_U11 1GS_W2	3 2 3
W2-GS-S1-046_5	potrafi wykonać analizę rozwoju rzeźby terenu na podstawie przekroju geologicznego	1GS_U1 1GS_U7 1GS_W2	3 1 3
W2-GS-S1-046_6	wykazuje aktywną postawę do poznawania rzeczy nowych i wykorzystywania ich dla wzbogacania własnej wiedzy; krytycznego i twórczego myślenia oraz otwartości na poglądy innych	1GS_K2 1GS_K4 1GS_K6 1GS_U7	1 1 1 2

9. Methods of conducting classes

Code	Category	Name (description)
b04	Problem-solving methods	Activating method – discussion / debate *an exchange of views supported by substantive arguments leading to a clash of different views, a compromise or the identification of common positions; it proceeds according to previously agreed-upon rules regarding the time, manner and turn-taking as well as the principles of civil discourse; a discussion is not a competition but aims at finding the best solutions or presenting different points of view; its varieties include brainstorming, Oxford-style debate, panel discussion, decision tree, conference discussion; a debate is an orderly dispute between supporters and opponents of a viewpoint, usually specialists in the field or pre-selected representatives of a group dealing with a common problem*
b07	Problem-solving methods	Activating methods: a case study *a comprehensive description of a phenomenon connected with the selected discipline; reflecting the reality, presenting the 'what', 'where' and 'how' of the phenomenon, i.e., all of its key aspects to be discussed in class; used as a reproduction, presentation, discussion or diagnosis of factors that shape the phenomenon or interact with it; an in-depth qualitative analysis and evaluation of a selected phenomenon*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
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*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*

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-GS-S1-046_l_1	laboratory classes	12	course work	W2-GS-S1-046_1, W2-GS-S1-046_2, W2-GS-S1-046_3, W2-GS-S1-046_4, W2-GS-S1-046_5, W2-GS-S1-046_6	b04, b07, c07, d01, d03

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
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
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 phase/element of the verification of the learning outcomes assigned to the course*	No

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.

1.	Field of study	Applied Geology
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 historical geology and stratigraphy**
Module code	W2-GS-S1-028
Number of the ECTS credits	2
Language of instruction	Polish
Purpose and description of the content of education	Moduł Podstawy geologii historycznej i stratygrafii ma umożliwić studentowi poznanie terminologii, procesów, metod badawczych w zakresie geologicznych dziejów Ziemi. Nacisk jest położony na umiejętność opisu głównych elementów historii lito- i biosfery szczególnie w odniesieniu do obszaru Polski. Student ma możliwość poznania głównych wydarzeń ewolucyjnych. Nabyta wiedza powinna umożliwić datowanie metodami biostratygraficznymi (skamieniałościami przewodnimi) podstawowych wydzieleń stratygraficznych w Polsce. Student nabywa świadomość wielkości czasu geologicznego, istnienia na tym tle zjawiska ewolucji organizmów oraz procesów i zdarzeń zmieniających środowisko przyrodnicze na powierzchni Ziemi.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-405] Dynamic Earth 1 [W2-GS-S1-404] Palaeontology

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-028_1	zna podstawowe pojęcia i metody z zakresu badań dziejów Ziemi, podstawowy podział dziejów Ziemi w formie tabeli stratygraficznej oraz podstawowe grupy skamieniałości przewodnich; zna hipotezy początków życia na Ziemi oraz główne etapy jego ewolucji w fanerozoiku	1GS_W1 1GS_W5	3 3
W2-GS-S1-028_2	rozumie istnienie w przeszłości procesów, zjawisk, zdarzeń wpływających na zmianę środowiska przyrodniczego na Ziemi	1GS_U1 1GS_U3	3 1
W2-GS-S1-028_3	potrafi rozpoznawać podstawowe elementy zmian paleogeograficznych i tektonicznych w historii Ziemi, ze szczególnym zwróceniem uwagi na zapis na obszarze Polski	1GS_U1 1GS_U3	3 2
W2-GS-S1-028_4	potrafi graficznie przedstawić profil stratygraficzny oraz przeprowadzić samodzielną korelację lito- i biostratygraficzną	1GS_U1	1
W2-GS-S1-028_5	wykazuje aktywną postawę do poznawania rzeczy nowych i wykorzystywania ich dla wzbogacania własnej wiedzy; stara się uczyć samodzielnie w oparciu o dostępną literaturę, krytycznie oceniając stan własnej wiedzy	1GS_K1 1GS_K2	3 3
W2-GS-	ma świadomość walorów poznawczych odsłonięć geologicznych, ich unikatowości i potrzeby ich ochrony	1GS_K3	3

S1-028_6		1GS_K6	1

9. Methods of conducting classes

Code	Category	Name (description)
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*

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-GS-S1-028_l_1	laboratory classes	24	course work	W2-GS-S1-028_1, W2-GS-S1-028_3, W2-GS-S1-028_4, W2-GS-S1-028_5	c07, d03
W2-GS-S1-028_w_1	lecture	12	course work	W2-GS-S1-028_1, W2-GS-S1-028_2, W2-GS-S1-028_3, W2-GS-S1-028_5, W2-GS-S1-028_6	c07

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

Code	Category	Name (description)	Is it part of the BUNA?
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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	No
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	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 phase/element of the verification of the learning outcomes assigned to the course*	No

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.

1.	**Field of study**	**Applied Geology**
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 topography and cartography**
Module code	W2-GS-S1-402
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	Celem modułu „Podstawy topografii i kartografii” jest zapoznanie studentów z podstawowymi zagadnieniami, problemami i trendami współczesnej kartografii i topografii. Moduł obejmuje wiedzę związaną z klasyfikacją map, odwzorowaniami kartograficznymi, kartograficznymi środkami wyrazu. Zapoznaje studentów z bazami danych referencyjnych oraz z bazami danych tematycznych. Przekazuje wiedzę o pozyskiwaniu i wykorzystaniu danych przestrzennych. Po osiągnięciu efektów kształcenia modułu student ma umiejętności posługiwania się mapą (np. interpretacja rzeźby terenu). Rozumie pojęcie trzeciego wymiaru w kartografii. Potrafi wykonać podstawowe obliczenia kartograficzne. Zna i potrafi wykorzystać bazy danych (działania w kartografii cyfrowej, takie jak pozyskiwanie danych przestrzennych, numeryczny model terenu). Zna możliwości podstawowych narzędzi do wizualizacji przestrzennej danych geologicznych i geograficznych - zna możliwości programów komputerowych typu QGIS i potrafi samodzielnie wygenerować np. profil morfologiczny i poziomice.
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-GS-S1-402_1	zna podstawowe pojęcia z zakresu topografii i kartografii i pogłębia wiedzę w tym zakresie	1GS_U11 1GS_W1 1GS_W6	2 1 2
W2-GS-S1-402_2	rozumie znaczenie trzeciego wymiaru w kartografii (np. okolica 3D, miasto wirtualne)	1GS_U1 1GS_U11	2 2
W2-GS-S1-402_3	potrafi wykonać podstawowe obliczenia z kartografii	1GS_U1 1GS_U10	2 1
W2-GS-S1-402_4	potrafi posługiwać się mapą (np. interpretować rzeźbę terenu). Potrafi posługiwać się współrzędnymi geograficznymi i topograficznymi. Na podstawie analizy ortofotomapy potrafi np. analizować zmiany środowiska, które miały miejsce na przestrzeni ostatnich 30 lat (np. rozwój kamieniołomu w Brudzowicach)	1GS_K2 1GS_U1	1 2

		1GS_U2 1GS_U3 1GS_U6	3 3 1
W2-GS-S1-402_5	zna współczesne źródła pozyskiwania danych do kartografii, także geologicznej (BDOO i BDOT10k, Geolog, SOPO, Midas itd.) i potrafi je wykorzystać. Potrafi wykorzystać także portale internetowe (Geoportal, ORSIP, Polska e-mapa) do pozyskania danych topograficznych i kartograficznych (np. do generowania profili morfologicznych, NMT, mierzenia powierzchni itp.)	1GS_U2 1GS_U3	3 3
W2-GS-S1-402_6	potrafi wykorzystać oprogramowanie komputerowe (QGIS) np. do wygenerowania profilu morfologicznego, poziomic itp. Potrafi zdygitalizować fragment mapy.	1GS_U2 1GS_U3	3 2

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
b02	Problem-solving methods	Lecture-discussion *transmission of content involving interaction with the lecture audience; discussion of lecture-related issues is one of its elements or constitutes its follow-up*
b04	Problem-solving methods	Activating method – discussion / debate *an exchange of views supported by substantive arguments leading to a clash of different views, a compromise or the identification of common positions; it proceeds according to previously agreed-upon rules regarding the time, manner and turn-taking as well as the principles of civil discourse; a discussion is not a competition but aims at finding the best solutions or presenting different points of view; its varieties include brainstorming, Oxford-style debate, panel discussion, decision tree, conference discussion; a debate is an orderly dispute between supporters and opponents of a viewpoint, usually specialists in the field or pre-selected representatives of a group dealing with a common problem*
b07	Problem-solving methods	Activating methods: a case study *a comprehensive description of a phenomenon connected with the selected discipline; reflecting the reality, presenting the 'what', 'where' and 'how' of the phenomenon, i.e., all of its key aspects to be discussed in class; used as a reproduction, presentation, discussion or diagnosis of factors that shape the phenomenon or interact with it; an in-depth qualitative analysis and evaluation of a selected phenomenon*
b08	Problem-solving methods	Activating method – peer learning *learning through the exchange of knowledge in a group/team/pair of students, i.e., in the so-called learning cell; a kind of mutual learning; an approach focused on student activity under the guidance of the person teaching the course; a learning situation where students with a similar level of experience learn from one another*
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
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*

d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
d04	Programmed learning methods	Reconstruction / reproduction *proceeding according to the indicated/displayed pattern/model; e.g., the reconstruction of a structure, model, image, 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-GS-S1-402_l_1	laboratory classes	24	course work	W2-GS-S1-402_3, W2-GS-S1-402_4, W2-GS-S1-402_5, W2-GS-S1-402_6	b04, b07, b08, c06, d01, d03, d04
W2-GS-S1-402_w_1	lecture	12	course work	W2-GS-S1-402_1, W2-GS-S1-402_2, W2-GS-S1-402_4, W2-GS-S1-402_5	a01, b02

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

Code	Category	Name (description)	Is it part of the BUNA?
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
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 phase/element of the verification of the learning outcomes assigned to the course*	No
d02	Consulting the results of the verification of learning outcomes	Development of a corrective action plan as well as supplementary/corrective tasks *reviewing and selecting tasks and activities enabling the elimination of errors indicated by the academic teacher, their verification or correction resulting in completing the task with at least the minimum passing grade*	No

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.

1.	Field of study	Applied Geology
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	**Basis of geography**
Module code	W2-GS-S1-012
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	Celem propedeutycznego modułu Podstawy geografii jest powtórzenie i ewentualne uzupełnienie wiedzy ogólno geograficznej dotyczącej: sposobów orientowania się w terenie (ustalania kierunków świata, współrzędnych geograficznych, azymutów); regionalizacji fizycznogeograficznej Polski i Europy (zwrócenie uwagi na oficjalne nazwy jednostek geograficznych, ich położenie i granice); sieci hydrograficznej (położenie najważniejszych rzek) i jezior na terenie Polski i Europy; podziału administracyjnego Polski oraz Europy wraz z położeniem najważniejszych miast; najważniejszych obiektów fizycznogeograficznych na poszczególnych kontynentach oraz oceanach. Student nabywa podstawowe umiejętności samodzielnego określania swojego położenia w terenie, potrzebną do realizacji większości przyszłych zajęć terenowych oraz realizacji prac dyplomowych. Znajomość położenia podstawowych obiektów geograficznych pomaga w ogólnej orientacji i lepszym zrozumieniu treści przekazywanych w kolejnych modułach. Student nabywa umiejętność samodzielnego poszukiwania informacji na podstawie różnego typu map i atlasów przydatnych w dalszych studiach oraz stosowania odpowiednich nazw geograficznych w opracowaniach geologicznych.
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-GS-S1-012_1	zna podstawowe pojęcia z zakresu geografii ogólnej i fizycznej oraz nazwy najważniejszych obiektów geograficznych	1GS_W1 1GS_W6	1 3
W2-GS-S1-012_2	potrafi wskazać na mapach najważniejsze regiony fizycznogeograficzne Polski i Europy, rzeki i jeziora, najważniejsze miasta Polski i Europy, najważniejsze krainy geograficzne na kontynentach oraz części oceanów; potrafi stosować odpowiednie nazewnictwo geograficzne do przygotowywania opracowań geologicznych	1GS_U1	1
W2-GS-S1-012_3	potrafi wyznaczać na mapach topograficznych współrzędne geograficzne oraz azymuty kierunków	1GS_U1 1GS_U6	1 2
W2-GS-S1-012_4	jest świadomy przydatności wiedzy ogólno geograficznej wykorzystywanej w większości późniejszych modułów oraz do przygotowania pracy dyplomowej;	1GS_K1	3

W2-GS-S1-012_5	wykazuje aktywną postawę do poznawania rzeczy nowych i wykorzystywania ich dla wzbogacania własnej wiedzy; stara się uczyć samodzielnie w oparciu o dostępną literaturę, krytycznie oceniając stan własnej wiedzy	1GS_K2	3

9. Methods of conducting classes

Code	Category	Name (description)
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*

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-GS-S1-012_l_1	laboratory classes	24	course work	W2-GS-S1-012_1, W2-GS-S1-012_2, W2-GS-S1-012_3, W2-GS-S1-012_4, W2-GS-S1-012_5	c06, c07
W2-GS-S1-012_w_1	lecture	12	course work	W2-GS-S1-012_1, W2-GS-S1-012_4, W2-GS-S1-012_5	c07

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

Code	Category	Name (description)	Is it part of the BUNA?
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	No
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	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
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 phase/element of the verification of the learning outcomes assigned to the course*	No
d01	Consulting the results of the verification of	Analysis of the corrective feedback provided by the academic teacher on the results of the	No

	learning outcomes	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*	
d02	Consulting the results of the verification of learning outcomes	Development of a corrective action plan as well as supplementary/corrective tasks *reviewing and selecting tasks and activities enabling the elimination of errors indicated by the academic teacher, their verification or correction resulting in completing the task with at least the minimum passing grade*	No

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.

1.	Field of study	Applied Geology
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	**Chemistry in Earth sciences**
Module code	W2-GS-S1-408
Number of the ECTS credits	4
Language of instruction	Polish
Purpose and description of the content of education	Moduł Chemia w naukach o Ziemi ma umożliwić studentowi rozpoznanie związków pomiędzy procesami i zjawiskami przyrodniczymi zachodzącymi w geosferze a prawami chemicznymi, właściwościami związków i pierwiastków oraz procesami chemicznymi. Wprowadzane zagadnienia obejmują: Chemiczne pojęcia podstawowe, prawa i definicje. Wiązania chemiczne. Klasyfikacja związków chemicznych. Roztwory i teoria dysocjacji elektrolitycznej. Odczyn i przewodnictwo właściwe wody i pH. Charakterystyka pierwiastków na tle położenia w układzie okresowym. W efekcie ukończenia modułu student powinien umieć zdefiniować podstawowe prawa chemiczne, rozumieć związki pomiędzy chemią a naukami o Ziemi, rozumieć procesy zachodzące w atmosferze oraz hydrosferze i ich zmiany zachodzące pod wpływem działalności człowieka. interpretować procesy przyrodnicze w świetle wiedzy chemicznej, a także samodzielnie prowadzić wybrane obliczenia chemiczne mające zastosowanie w naukach o Ziemi. Moduł daje studentowi umiejętność pracy laboratoryjnej
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-GS-S1-408_1	zna podstawowe pojęcia z zakresu chemii z zastosowaniu do nauk o Ziemi	1GS_W1 1GS_W6	2 2
W2-GS-S1-408_2	zna uwarunkowania środowiskowe działalności gospodarczej człowieka w zakresie nauk o Ziemi	1GS_W2 1GS_W6	3 2
W2-GS-S1-408_3	potrafi wykorzystywać posiadaną wiedzę do formułowania i rozwiązywania prostych i typowych, chemicznych problemów	1GS_U1 1GS_U10 1GS_U2 1GS_U3 1GS_W6	2 1 2 1 3
W2-GS-	potrafi przeprowadzić wybrane eksperymenty chemiczne	1GS_U10	1

S1-408_4		1GS_U2 1GS_U3	3 1
W2-GS-S1-408_5	potrafi wypowiedzieć się w sposób komunikatywny i zrozumiały, w mowie i na piśmie na temat poznanych zagadnień chemii w naukach o Ziemi, również w wymaganych prawem formach: notatnika laboratoryjnego, raportu, projektu, dokumentacji i innych.	1GS_U6	1
W2-GS-S1-408_6	debatując na temat chemii przedstawia jasno i ocenia obiektywnie różne opinie i stanowiska, szukając argumentów naukowych oraz dyskutować o nich.	1GS_U7	2
W2-GS-S1-408_7	potrafi śledzić osiągnięcia nauk o Ziemi i środowisku, w tym najnowsze postępy technologiczne oraz konfrontować je z innymi dziedzinami nauki. Zdaje sobie sprawę z konieczności ciągłego pogłębiania wiedzy.	1GS_U11	2
W2-GS-S1-408_8	jest świadomy rzetelności zdobytej wiedzy i konieczności konfrontowania z nią obiegowych opinii pochodzących z różnych źródeł.	1GS_K1	2
W2-GS-S1-408_9	jest świadomy ograniczonego zakresu zdobytej wiedzy i konieczności poszukiwania nowych informacji z wykorzystaniem rzetelnych i pewnych źródeł	1GS_K2	2

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
b07	Problem-solving methods	Activating methods: a case study *a comprehensive description of a phenomenon connected with the selected discipline; reflecting the reality, presenting the 'what', 'where' and 'how' of the phenomenon, i.e., all of its key aspects to be discussed in class; used as a reproduction, presentation, discussion or diagnosis of factors that shape the phenomenon or interact with it; an in-depth qualitative analysis and evaluation of a selected phenomenon*
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
e01	Practical methods	Laboratory exercise / experiment

		[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment
e05	Practical methods	Internship *including professional and individual training; gaining skills and experience in real-life conditions, e.g., in the environment, institution or workplace the student is preparing for by following a specific study programme; training in real working conditions*
f03	Methods of self-learning	Conceptual work *a (mainly intellectual) activity carried out independently (or in a selected group) resulting in the creation of a concept, idea or project; creating a plan based on a vision; developing a general outline of a project; producing a simplified sketch of the variant versions of a procedure/product/work*

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-GS-S1-408_l_1	laboratory classes	24	course work	W2-GS-S1-408_3, W2-GS-S1-408_4, W2-GS-S1-408_5, W2-GS-S1-408_6	c06, e01, e05, f03
W2-GS-S1-408_w_1	lecture	24	exam	W2-GS-S1-408_1, W2-GS-S1-408_2, W2-GS-S1-408_3, W2-GS-S1-408_6, W2-GS-S1-408_7, W2-GS-S1-408_8, W2-GS-S1-408_9	a01, a03, a05, b07, c07

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

Code	Category	Name (description)	Is it part of the BUNA?
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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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
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 phase/element of the verification of the learning outcomes assigned to the course*	No

e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No

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.

1.	Field of study	Applied Geology
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	**Contemporary trends in geology**
Module code	W2-GS-S1-403
Number of the ECTS credits	1
Language of instruction	Polish
Purpose and description of the content of education	Cykl wykładów prezentujących treści odnoszące się do obecnych badań. Na wykładach zostaną poruszone wybrane, najbardziej interesujące i aktualne zagadnienia, od wiedzy o skałach, minerałach, skamieniałościach i budowie zewnętrznej powłoki naszej planety, badaniach hydrogeologicznych, geofizycznych i górniczych.
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-GS-S1-403_1	zna podstawowe pojęcia z zakresu geologii i pogłębia wiedzę w tym zakresie	1GS_W1 1GS_W4	1 1
W2-GS-S1-403_2	potrafi wykorzystywać posiadaną wiedzę do formułowania i rozwiązywania prostych i typowych, problemów geologicznych	1GS_U1 1GS_U7	1 1
W2-GS-S1-403_3	jest świadomy ograniczonego zakresu zdobytej wiedzy i konieczności poszukiwania nowych informacji z wykorzystaniem rzetelnych i pewnych źródeł	1GS_K1	1

9. Methods of conducting classes

Code	Category	Name (description)
a02	Lecture methods / expository methods	Monographic lecture *an exhaustive discussion of one issue, usually related to the research interests of the person teaching the course or a thorough presentation of one selected issue*

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-GS-S1-403_w_1	lecture	12	course work	W2-GS-S1-403_1, W2-GS-S1-403_2, W2-GS-S1-403_3	a02

11.	The student's work, apart from participation in classes, includes in particular:		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
a04	Preparation for classes	Consulting materials complementary to those indicated in the syllabus *agreeing on materials complementary to those indicated in the syllabus, supporting the implementation of tasks resulting from or necessary for class participation*	No
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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
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 phase/element of the verification of the learning outcomes assigned to the course*	No

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.

1.	**Field of study**	**Applied Geology**
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	**Deposits of energy minerals**
Module code	W2-GS-S1-050
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	Celem modułu Złoża kopalin energetycznych jest nabycie przez studentów podstawowej wiedzy dotyczącej zarówno procesów prowadzących do powstawania złóż, jak i klasyfikacji oraz współczesnego występowania kopalin energetycznych (węgla i torfu, ropy naftowej i gazu ziemnego oraz rud uranu i wód termalnych). Kolejną kwestią jest zagadnienie przemysłowego wykorzystania oraz gospodarowania kopalnymi surowcami energetycznymi. Student powinien także nauczyć się rozpoznawać poszczególne typy węgli, torfów oraz bituminów występujących w skorupie ziemskiej na podstawie ich cech makroskopowych, a ponadto powinien uzyskać umiejętność właściwego określania formy, budowy geologicznej i jakości poszczególnych złóż kopalin energetycznych oraz ich znaczenia dla przemysłu i bilansu energetycznego kraju. Uwzględniona zostanie także kwestia wielkości zasobów i ich wystarczalności, jak i wpływu pozyskiwania oraz wykorzystywania poszczególnych typów złóż kopalin energetycznych na środowisko naturalne.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-408] Chemistry in Earth sciences [W2-GS-S1-411] Mining (I) [W2-GS-S1-035] Mining (II) [W2-GS-S1-020] Environmental Protection [W2-GS-S1-038] Fundamentals of Sedimentology [W2-GS-S1-413] Drilling 1 [W2-GS-S1-044] Drilling 2

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-050_1	zna genezę oraz procesy prowadzące do powstania określonych typów złóż kopalin energetycznych	1GS_W1 1GS_W2 1GS_W6	2 3 1
W2-GS-S1-050_2	zna podstawy klasyfikacji oraz parametry jakościowe surowców, a także rozmieszczenie wybranych złóż w Polsce na świecie	1GS_W2 1GS_W4 1GS_W6	2 1 2
W2-GS-	rozumie znaczenie poszczególnych typów paliw w bilansie energetycznym kraju/świata oraz zna kierunki zastosowania	1GS_W2	2

S1-050_3	kopalin energetycznych	1GS_W4	2
W2-GS-S1-050_4	posiada umiejętność rozpoznawania i identyfikacji podstawowych typów kopalin	1GS_U1 1GS_U3	1 1
W2-GS-S1-050_5	posiada umiejętność wykorzystywania wiedzy geologicznej w poszukiwaniu i dokumentowaniu złóż surowców energetycznych oraz oceny wpływu ich eksploatacji na środowisko naturalne	1GS_U1 1GS_U5	1 3
W2-GS-S1-050_6	potrafi wykonać samodzielne opracowanie dotyczące gospodarowania zasobami surowców energetycznych	1GS_U1 1GS_U5 1GS_U6 1GS_U7	2 2 3 1
W2-GS-S1-050_7	potrafi formułować pytania, służące pogłębieniu własnego zrozumienia danego tematu lub uzupełnieniu brakujących elementów rozumowania i wie do kogo je skierować lub gdzie szukać odpowiedzi	1GS_K2 1GS_K6	3 1

9. Methods of conducting classes

Code	Category	Name (description)
b02	Problem-solving methods	Lecture-discussion *transmission of content involving interaction with the lecture audience; discussion of lecture-related issues is one of its elements or constitutes its follow-up*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
e08	Practical methods	Practice-as-research *also conducted as fieldwork; an activity aimed at confronting the acquired theory with practice through its practical application; students situate themselves in the reality they observe, study and transform through the prism of the theory; the method of practical classes is dominated by the application of knowledge to solving practical tasks*

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-GS-S1-050_l_1	laboratory classes	24	course work	W2-GS-S1-050_4, W2-GS-S1-050_5, W2-GS-S1-050_6, W2-GS-S1-050_7	c07, e08
W2-GS-S1-050_w_1	lecture	24	exam	W2-GS-S1-050_1, W2-GS-S1-050_2, W2-GS-S1-050_3, W2-GS-S1-050_7	b02

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

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.

1.	**Field of study**	**Applied Geology**
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	**Descriptive Geometry**
Module code	W2-GS-S1-026
Number of the ECTS credits	1
Language of instruction	Polish
Purpose and description of the content of education	Celem modułu "Geometryczne podstawy analizy przestrzennej" jest rozwijanie wyobraźni przestrzennej poprzez ćwiczenie jednoznacznego odwzorowywania figur przestrzennych na płaszczyźnie. Konieczność przedstawiania przestrzennych i liniowych struktur geologicznych na płaszczyźnie wymaga znajomości i zrozumienia zasad rzutowania. Wszelkie opracowania kartograficzne bazują na założeniach geometrycznych, więc właściwe ich rozumienie i wiedza, w jaki sposób zostały sporządzone jest niezbędna do poprawnego ich wykonywania i pełnego z nich korzystania.
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-GS-S1-026_1	zna podstawowe pojęcia z zakresu geometrii wykreślnej, geometrycznych podstaw analizy przestrzennej, pogłębia wiedzę w zakresie wybranej problematyki, w tym np. wybrane zagadnienia z rzutu cechowanego, rzutu prostokątnego.	1GS_W1	1
W2-GS-S1-026_2	opisuje i wyjaśnia zjawiska przestrzenne oraz przyczyny i skutki w zakresie rozmieszczenia przestrzennego związanego z geologią i górnictwem.	1GS_U2 1GS_W2	1 1
W2-GS-S1-026_3	potrafi skonstruować proste relacje i zależności przestrzenne związane z podstawowymi zagadnieniami budowy geologicznej.	1GS_U3	1
W2-GS-S1-026_4	zyskuje umiejętność wykonania projekcji kartograficznej i wizualizacji danych przestrzennych dotyczących budowy geologicznej. Uzyskuje zrozumienie relacji przestrzennych zdolność działania w sposób odnoszący się do przestrzeni.	1GS_U4 1GS_U5	1 1
W2-GS-S1-026_5	w podejściu do geometrycznych podstaw analizy przestrzennej wykazuje aktywną postawę do poznawania rzeczy wielowymiarowych i wykorzystywania ich dla wzbogacania własnej wiedzy; twórczego myślenia oraz otwartości na przestrzenne rozumienie zjawisk i procesów geologicznych.	1GS_K1 1GS_U11	1 1

9.	Methods of conducting classes	
Code	**Category**	**Name (description)**
b03	Problem-solving methods	Activating method – educational games *learning content in the guise of a rule- and/or principle-based game; conducted in a deliberately arranged situation based on the description of relevant facts and processes; learners compete with one another within the framework of rules laid down by the academic teacher; varieties include simulation games – involving a simulation of real situations; decision games – based on the decision-making process and the recognition of the consequences of the decisions made (e.g., a decision tree); psychological games – increasing the emotional-volitional component of the participants' attitudes*
b07	Problem-solving methods	Activating methods: a case study *a comprehensive description of a phenomenon connected with the selected discipline; reflecting the reality, presenting the 'what', 'where' and 'how' of the phenomenon, i.e., all of its key aspects to be discussed in class; used as a reproduction, presentation, discussion or diagnosis of factors that shape the phenomenon or interact with it; an in-depth qualitative analysis and evaluation of a selected phenomenon*
d04	Programmed learning methods	Reconstruction / reproduction *proceeding according to the indicated/displayed pattern/model; e.g., the reconstruction of a structure, model, image, etc.*
e05	Practical methods	Internship *including professional and individual training; gaining skills and experience in real-life conditions, e.g., in the environment, institution or workplace the student is preparing for by following a specific study programme; training in real working conditions*

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-GS-S1-026_l_1	laboratory classes	12	course work	W2-GS-S1-026_1, W2-GS-S1-026_2, W2-GS-S1-026_3, W2-GS-S1-026_4, W2-GS-S1-026_5	b03, b07, d04, e05

11.	The student's work, apart from participation in classes, includes in particular:		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
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
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*	No

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.

1.	Field of study	Applied Geology
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	**Drilling 1**
Module code	W2-GS-S1-413
Number of the ECTS credits	1
Language of instruction	Polish
Purpose and description of the content of education	Zadaniem modułu Wiertnictwo 1 jest przedstawienie podstaw techniki i technologii wierceń oraz zasad pracy geologa projektującego, obsługującego i dokumentującego prace wiertnicze. Zadanie to realizowane jest przez poruszanie takich zagadnień, jak: Podstawowe pojęcia z zakresu wiertnictwa. Zwiercalność skał i kategorie zwiercalności. Klasyfikacje otworów i metod wiertniczych. Przegląd metod wiertniczych z uwzględnieniem: rodzajów otworów, zasad i technologii wiercenia narzędzi, urządzeń, organizacji pracy, pobierania prób skał i wody, likwidacji otworów, zagadnień bezpieczeństwa pracy. Otwory studzienne: konstrukcja otworów, dobór filtrów, obserwacje poziomów wodonośnych, próbne pompowanie i interpretacja wyników. Płuczka wiertnicza: zadania płuczki, metody przygotowania i badania, parametry i ich dobór w zależności od warunków geologicznych, systemy cyrkulacji płuczki. Rurowanie i zamykanie wód - iłowanie i cementowanie, kontrola skuteczności zamykania wód. Przyczyny awarii wiertniczych, roboty ratunkowe, narzędzia do instrumentacji. Geologiczna obsługa wierceń: projekt geologiczno-techniczny, plan ruchu, opróbowanie, typy rdzeniówek a uzysk rdzenia, pomiary i obserwacje geologiczne i geofizyczne, dzienniki wiercenia, dokumentacja wynikowa.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-002] Physics in Earth Sciences [W2-GS-S1-009] Mathematics in Earth Sciences [W2-GS-S1-031] Mineralogy

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-413_1	znajomość metod szacowania kategorii zwiercalności skał	1GS_W1 1GS_W2 1GS_W6	1 1 2
W2-GS-S1-413_2	umiejętność scharakteryzowania typów otworów wiertniczych i metod wiercenia	1GS_U1	2
W2-GS-S1-413_3	umiejętność objaśnienia zasad i technologii wiercenia różnymi metodami z uwzględnieniem sytuacji awaryjnych	1GS_U1 1GS_U5	1 1
W2-GS-S1-413_4	umiejętność doboru parametrów płuczki wiertniczej do warunków geologicznych i technicznych	1GS_U1 1GS_U5	1 1

W2-GS-S1-413_5	zdolność do sporządzenia projektu geologiczno-technicznego otworu	1GS_U1 1GS_U5	1 1
W2-GS-S1-413_6	zdolność do opracowania projektu cementowania otworu wiertniczego	1GS_U1 1GS_U5	1 1
W2-GS-S1-413_7	umiejętność zidentyfikowania elementów urządzeń wiertniczych i objaśnienia ich funkcji	1GS_U1 1GS_U5	1 1
W2-GS-S1-413_8	świadomość roli, czynności, obowiązków i odpowiedzialności służby geologicznej dozorującej wiercenia	1GS_K1 1GS_K2 1GS_K3 1GS_K4 1GS_K6	1 1 1 1 1
W2-GS-S1-413_9	postępuje zgodnie z zasadami etyki ekologicznej, ma świadomość istniejących unormowań prawnych w geologii i przestrzega ich	1GS_K1 1GS_K2 1GS_K3 1GS_K4 1GS_K6	1 1 1 1 1

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a02	Lecture methods / expository methods	Monographic lecture *an exhaustive discussion of one issue, usually related to the research interests of the person teaching the course or a thorough presentation of one selected issue*
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*

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-GS-S1-413_l_1	laboratory classes	12	course work	W2-GS-S1-413_1, W2-GS-S1-413_4, W2-GS-S1-413_5, W2-GS-S1-413_6, W2-GS-S1-413_7, W2-GS-S1-413_8	a03, c07, e01
W2-GS-S1-413_w_1	lecture	12	course work	W2-GS-S1-413_2, W2-GS-S1-413_3, W2-GS-S1-413_5, W2-GS-S1-413_7, W2-GS-S1-413_8, W2-GS-S1-413_9	a01, a02

11.	The student's work, apart from participation in classes, includes in particular:		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No

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.

1.	**Field of study**	**Applied Geology**
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	**Drilling 2**
Module code	W2-GS-S1-044
Number of the ECTS credits	1
Language of instruction	Polish
Purpose and description of the content of education	Zadaniem modułu Wiertnictwo 2 jest samodzielne przygotowanie dwóch projektów: (1) zarurowania otworu wiertniczego oraz (2) zacementowania otworu wiertniczego. Zadanie to realizowane jest przez poruszanie zagadnień: dobór średnic i parametrów wytrzymałościowych rur okładzinowych oraz doboru średnic świdrów. Zapoznanie studentów ze wzorami umożliwiającymi obliczenie ciśnień (złożowe, hydrostatyczne, geostatyczne, szczelinowania) w otworze wiertniczym. Zapoznanie studentów z algorytmem cementowania kolumn rur okładzinowych. Zadania obliczeniowe.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-413] Drilling 1

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-044_1	znajomość podstawowych zagadnień z zakresu wiertnictwa	1GS_W1 1GS_W2 1GS_W3 1GS_W6	1 1 1 1
W2-GS-S1-044_2	umiejętność doboru sprzętu wiertniczego	1GS_U1 1GS_U2 1GS_U5	1 2 1
W2-GS-S1-044_3	zdolność do sporządzenia projektu zarurowania otworu wiertniczego	1GS_U1 1GS_U2 1GS_U5	1 2 2
W2-GS-S1-044_4	zdolność do opracowania projektu cementowania otworu wiertniczego	1GS_U1 1GS_U2	1 2

		1GS_U5	2
W2-GS-S1-044_5	umiejętność zidentyfikowania elementów urządzeń wiertniczych	1GS_U1 1GS_U2	1 1
W2-GS-S1-044_6	świadomość roli, czynności, obowiązków i odpowiedzialności służby geologicznej dozorującej wiercenia	1GS_K1 1GS_K2 1GS_K3 1GS_K4 1GS_K6	1 1 1 1 1
W2-GS-S1-044_7	postępuje zgodnie z zasadami etyki ekologicznej, ma świadomość istniejących unormowań prawnych w geologii i przestrzega ich	1GS_K1 1GS_K2 1GS_K3 1GS_K4 1GS_K6	1 1 1 1 1

9. Methods of conducting classes

Code	Category	Name (description)
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*

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-GS-S1-044_l_1	laboratory classes	12	exam	W2-GS-S1-044_1, W2-GS-S1-044_2, W2-GS-S1-044_3, W2-GS-S1-044_4, W2-GS-S1-044_5, W2-GS-S1-044_6, W2-GS-S1-044_7	a03, c07, e01

11.	The student's work, apart from participation in classes, includes in particular:		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No

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.

1.	Field of study	Applied Geology
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	**Dynamic Earth 1**
Module code	W2-GS-S1-405
Number of the ECTS credits	6
Language of instruction	Polish
Purpose and description of the content of education	Celem modułu Dynamika Ziemi 1 jest wyjaśnienie mechanizmów, przyczyn i skutków procesów geologicznych zachodzących we wnętrzu Ziemi – procesów endogenicznych, tj. diastrofizm (tektonika płyt, trzęsienia ziemi), magmatyzm, metamorfizm oraz przedstawienie metod umożliwiających makroskopowe rozpoznawanie najczęściej występujących skał i minerałów skałotwórczych, co stanowi podstawę do bardziej zaawansowanych badań laboratoryjnych i mikroskopowych. Student poznaje parametry i budowę Ziemi, rozumie mechanizmy i uwarunkowania dynamiki skorupy ziemskiej oraz jej różnorodności strukturalnej. Uzyskuje umiejętność rozpoznawania i charakteryzowania procesów geologicznych zachodzących pod wpływem czynników wewnętrznych oraz zna ich wzajemne powiązania. Student poznaje podstawowe klasyfikacje minerałów i skał oraz zdobywa umiejętność makroskopowego rozpoznawania minerałów i skał wraz z identyfikacją procesów prowadzących do ich powstania. Nabyta wiedza może być podstawą prognozowania przebiegu procesów, w tym katastrof naturalnych, o podłożu geologicznym oraz przewidywania skutków wydarzeń geologicznych zarówno w skali regionalnej, jak i globalnej.
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-GS-S1-405_1	ma wiedzę dotyczącą budowy i ewolucji Ziemi.	1GS_W6	1
W2-GS-S1-405_2	zna i rozumie uwarunkowania, oraz mechanizmy procesów endogenicznych oraz związaną z nimi terminologię geologiczną.	1GS_U1 1GS_W6	1 1
W2-GS-S1-405_3	ma wiedzę dotyczącą zasad tektoniki płyt litosfery. Ma umiejętność wytłumaczenia zjawiska geologicznego w kontekście tektoniki płyt litosfery.	1GS_U1 1GS_W6	1 1
W2-GS-S1-405_4	potrafi rozpoznać najważniejsze minerały skałotwórcze i podstawowe rodzaje skał oraz interpretować warunki ich powstania.	1GS_U1 1GS_W6	1 1
W2-GS-	rozumie potrzebę ciągłego poszerzania swojej wiedzy. W sposób zorganizowany potrafi dysponować swoim czasem na	1GS_K1	1

S1-405_5	samodzielne dokształcanie się.	1GS_K2 1GS_U11	1 1

9. Methods of conducting classes

Code	Category	Name (description)
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
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*
b02	Problem-solving methods	Lecture-discussion *transmission of content involving interaction with the lecture audience; discussion of lecture-related issues is one of its elements or constitutes its follow-up*
b03	Problem-solving methods	Activating method – educational games *learning content in the guise of a rule- and/or principle-based game; conducted in a deliberately arranged situation based on the description of relevant facts and processes; learners compete with one another within the framework of rules laid down by the academic teacher; varieties include simulation games – involving a simulation of real situations; decision games – based on the decision-making process and the recognition of the consequences of the decisions made (e.g., a decision tree); psychological games – increasing the emotional-volitional component of the participants' attitudes*
b08	Problem-solving methods	Activating method – peer learning *learning through the exchange of knowledge in a group/team/pair of students, i.e., in the so-called learning cell; a kind of mutual learning; an approach focused on student activity under the guidance of the person teaching the course; a learning situation where students with a similar level of experience learn from one another*
b09	Problem-solving methods	Activating method – flipped classroom *anticipatory learning; work in class is based on previously studied material indicated by the person teaching the course; preparation outside the classroom serves the purpose of getting familiar with the issues whose knowledge is necessary for participating in the in-class discussion and the training in the related practical skills; the activity is based on the work of students under the guidance of the person teaching the course*
c01	Demonstration methods	Exhibition *preparing an object for public display and displaying it in order to elicit a specific reaction; creating a themed collection of specimens/objects/works to illustrate a specific issue*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*

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-GS-S1-405_l_1	laboratory classes	36	course work	W2-GS-S1-405_4, W2-GS-	b03, b08, b09, c01, c07

				S1-405_5	
W2-GS-S1-405_w_1	lecture	24	exam	W2-GS-S1-405_1, W2-GS-S1-405_2, W2-GS-S1-405_3, W2-GS-S1-405_5	a03, b01, b02

11.	**The student's work, apart from participation in classes, includes in particular:**		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	No
b02	Consulting the curriculum and the organization of classes	Verification / adjustment / discussion of syllabus provisions *consulting the content of the syllabus, possibly in the presence of the year tutor or members of the class group, and, if necessary, reassessing the provisions concerning special conditions for class participation, e.g., space and time requirements, technical and other requirements, including conditions for participation in classes outside the walls of the university, classes organized in blocks, organized online, etc.*	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
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No

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.

1.	Field of study	Applied Geology
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	**Dynamic Earth 2**
Module code	W2-GS-S1-406
Number of the ECTS credits	4
Language of instruction	Polish
Purpose and description of the content of education	Moduł Dynamika Ziemi 2 jest podzielony na trzy części: 1) Elementy tektoniki. Głównym celem tej części modułu jest przekazanie wiedzy o zróżnicowanych strukturach tektonicznych kształtujących skorupę ziemską (fałdy, uskoki, spękania, nasunięcia, płaszczowiny, foliacja, lineacja i in.). Student uczy się rozpoznawać i interpretować różne struktury tektoniczne, poznaje ich podstawowe klasyfikacje i mechanizmy powstawania. Nabywa umiejętności przedstawiania i zapisu wyników pomiarów orientacji struktur geologicznych oraz poznaje zasady posługiwania się kompasem geologicznym. 2) Elementy kartowania geologicznego. Celem tej części modułu jest przekazanie wiedzy i umiejętności dotyczących rozpoznawania podstawowych typów budowy geologicznej (budowa płytowa, monoklinalna, fałdowa) oraz struktur geologicznych (uskoki, fałdy, ciała magmowe, niezgodności) na mapach i przekrojach geologicznych. Student nabiera umiejętności interpretacji budowy i ewolucji geologicznej obszaru na podstawie gotowych opracowań kartograficznych (w tym kreślenia przekrojów geologicznych, wykonywania opisowego opracowania tekstowego dotyczącego przedstawionego obszaru) – opanowanie sztuki czytania mapy geologicznej na poziomie podstawowym. 3) Procesy egzogeniczne z elementami sedymentologii. Student zdobywa podstawową wiedzę o procesach egzogenicznych, które są kluczowe dla zrozumienia dynamiki powierzchni Ziemi. Zapoznaje się z metodami badań skał osadowych. Poznaje cechy wybranych środowisk sedymentacyjnych (procesy sedymentacyjne i sposoby ich zapisu w osadzie).
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-405] Dynamic Earth 1

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-406_1	student potrafi rozpoznawać i odpowiednio klasyfikować podstawowe struktury tektoniczne oraz ustalać ich wzajemne relacje i następstwo czasowe.	1GS_U1 1GS_W6	1 1
W2-GS-S1-406_2	zna graficzne i tekstowe sposoby prezentacji pomiarów orientacji struktur geologicznych, a także podstawy działania kompasu geologicznego.	1GS_U1 1GS_W6	1 1
W2-GS-S1-406_3	zna podstawowe typy geologicznych opracowań kartograficznych, ich strukturę, elementy oraz rodzaje stosowanych na nich kodów (symboli, oznaczeń, szrafur).	1GS_W6	1
W2-GS-	rozpoznaje podstawowe typy budowy geologicznej (płytowa, monoklinalna, fałdowa) oraz struktur geologicznych		

S1-406_4	(uskoki, fałdy, niezgodności, ciała magmowe) na mapach.	1GS_U1 1GS_W6	1 1
W2-GS-S1-406_5	wykonuje przekroje geologiczne dla obszarów o nieskomplikowanej budowie geologicznej. Potrafi dokonać na poziomie podstawowym syntezy wiedzy o budowie i ewolucji geologicznej obszaru na podstawie materiałów kartograficznych.	1GS_U1 1GS_W6	1 1
W2-GS-S1-406_6	potrafi wyjaśnić mechanizmy i efekty egzogenicznych procesów geologicznych oraz zna związaną z tymi procesami terminologię geologiczną.	1GS_U1 1GS_W6	1 1
W2-GS-S1-406_7	zna i rozumie związki między procesami egzogenicznymi a endogenicznymi.	1GS_U1 1GS_W6	1 1
W2-GS-S1-406_8	zna podstawowe procesy sedymentacyjne i wie, jak zapisują się w osadzie.	1GS_U1 1GS_W6	1 1
W2-GS-S1-406_9	rozumie potrzebę ciągłego poszerzania swojej wiedzy. W sposób zorganizowany potrafi dysponować swoim czasem na samodzielne dokształcanie się	1GS_K1 1GS_K2 1GS_U11	1 1 1

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
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*
b02	Problem-solving methods	Lecture-discussion *transmission of content involving interaction with the lecture audience; discussion of lecture-related issues is one of its elements or constitutes its follow-up*
b03	Problem-solving methods	Activating method – educational games *learning content in the guise of a rule- and/or principle-based game; conducted in a deliberately arranged situation based on the description of relevant facts and processes; learners compete with one another within the framework of rules laid down by the academic teacher; varieties include simulation games – involving a simulation of real situations; decision games – based on the decision-making process and the recognition of the consequences of the decisions made (e.g., a decision tree); psychological games – increasing the emotional-volitional component of the participants' attitudes*
b08	Problem-solving methods	Activating method – peer learning *learning through the exchange of knowledge in a group/team/pair of students, i.e., in the so-called learning cell; a kind of mutual learning; an approach focused on student activity under the guidance of the person teaching the course; a learning situation where students with a similar level of experience learn from one another*

b09	Problem-solving methods	Activating method – flipped classroom *anticipatory learning; work in class is based on previously studied material indicated by the person teaching the course; preparation outside the classroom serves the purpose of getting familiar with the issues whose knowledge is necessary for participating in the in-class discussion and the training in the related practical skills; the activity is based on the work of students under the guidance of the person teaching the course*
c01	Demonstration methods	Exhibition *preparing an object for public display and displaying it in order to elicit a specific reaction; creating a themed collection of specimens/objects/works to illustrate a specific issue*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*

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-GS-S1-406_l_1	laboratory classes	24	course work	W2-GS-S1-406_2, W2-GS-S1-406_4, W2-GS-S1-406_5, W2-GS-S1-406_8, W2-GS-S1-406_9	b03, b08, b09, c01, c07
W2-GS-S1-406_w_1	lecture	24	exam	W2-GS-S1-406_1, W2-GS-S1-406_3, W2-GS-S1-406_6, W2-GS-S1-406_7, W2-GS-S1-406_9	a01, a03, b01, b02

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

Code	Category	Name (description)	Is it part of the BUNA?
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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	No
b02	Consulting the curriculum and the organization of classes	Verification / adjustment / discussion of syllabus provisions *consulting the content of the syllabus, possibly in the presence of the year tutor or members of the class group, and, if necessary, reassessing the provisions concerning special conditions for class participation, e.g., space and time requirements, technical and other requirements, including conditions for participation in classes outside the walls of the university, classes organized in blocks, organized online, etc.*	No
c02	Preparation for verification of learning outcomes	Studying the literature used in and the materials produced in class	No

		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	
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No

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.

1.	Field of study	Applied Geology
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	**Economy**
Module code	W2-GS-S1-042
Number of the ECTS credits	1
Language of instruction	Polish
Purpose and description of the content of education	Celem przedmiotu jest omówienie podstawowych zagadnień z mikro i makroekonomii. Szczególny nacisk zostanie położony na kwestie istotne dla absolwenta geologii stosowanej tj. zasady funkcjonowania rynków kapitałowych, w tym roli surowców w gospodarce światowej. Ujęcie makroekonomiczne obejmuje kwestie polityki monetarnej i fiskalnej, a także zagadnienia związane z dochodem narodowym. Zagadnienia mikroekonomiczne obejmują elementy funkcjonowania przedsiębiorstwa.
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-GS-S1-042_1	posiada ogólną wiedzę na temat wybranych metod naukowych oraz zna zagadnienia charakterystyczne dla dyscypliny nauki niezwiązanej z kierunkiem studiów.	1GS_W3 1GS_W4	4 5
W2-GS-S1-042_2	zna gospodarcze, środowiskowe i społeczne aspekty działalności geologicznej i górniczej, typowe technologie inżynierskie stosowane w geologii oraz ma wiedzę na temat zagrożeń wynikających z tej działalności;	1GS_W3 1GS_W4	3 3
W2-GS-S1-042_3	potrafi przeprowadzić wstępną analizę ekonomiczną podejmowanych działań geologicznych i inżynierskich, określić wpływ człowieka na środowisko oraz racjonalnie korzystać z jego geokomponentów	1GS_K5	4
W2-GS-S1-042_4	potrafi formułować pytania, służące pogłębieniu własnego zrozumienia danego tematu lub uzupełnieniu brakujących elementów rozumowania i wie do kogo je skierować lub gdzie szukać odpowiedzi; potrafi myśleć i działać w sposób przedsiębiorczy	1GS_U1	3

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*

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*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*

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-GS-S1-042_l_1	laboratory classes	6	course work	W2-GS-S1-042_3, W2-GS-S1-042_4	e01
W2-GS-S1-042_w_1	lecture	6	course work	W2-GS-S1-042_1, W2-GS-S1-042_2	a01, b01

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

Code	Category	Name (description)	Is it part of the BUNA?
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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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

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.

1.	**Field of study**	**Applied Geology**
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	**Engineering geology 2**
Module code	W2-GS-S1-040
Number of the ECTS credits	2
Language of instruction	Polish
Purpose and description of the content of education	W ramach modułu "Geologia inżynierska 2" student zdobędzie zaawansowane umiejętności i wiedzę w zakresie badania i analizy właściwości gruntów. Opanuje metody wyznaczania wodoprzepuszczalności gruntów, nauczy się oceniać wytrzymałość gruntów na ścinanie za pomocą metody bezpośredniego ścinania oraz badań trójosiowych, które w praktyce wykorzystywane są przy określaniu stabilności gruntów pod obciążeniem. Ponadto, student zdobędzie umiejętności wyznaczania zagęszczalności gruntów, co jest istotne przy wyznaczaniu przydatności gruntów pod zabudowę. Wizyta w specjalistycznym laboratorium zewnętrznym umożliwi zapoznanie się z nowoczesnym sprzętem i technikami badawczymi stosowanymi w praktyce geologiczno-inżynierskiej. Dzięki tym umiejętnościom student będzie przygotowany do pracy w zawodzie geologa oraz udziału w różnych projektach budowlanych i geotechnicznych.
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-GS-S1-040_1	zna i potrafi zastosować metody służące oznaczaniu podstawowych właściwości geologiczno-inżynierskich gruntów	1GS_K6 1GS_U1 1GS_U2 1GS_U3 1GS_U6 1GS_U9 1GS_W2	2 2 3 2 1 1 3
W2-GS-S1-040_2	potrafi planować i organizować badania laboratoryjne z zakresu geologii inżynierskiej	1GS_K6 1GS_U1 1GS_U2 1GS_U3	2 2 2 2

		1GS_U5 1GS_U9 1GS_W2	2 1 2
W2-GS-S1-040_3	potrafi zinterpretować wyniki badań laboratoryjnych z zakresu geologii inżynierskiej i oznaczeń podstawowych parametrów i właściwości gruntów	1GS_K1 1GS_K2 1GS_K3 1GS_K6 1GS_U1 1GS_U2 1GS_U3 1GS_U4 1GS_U6 1GS_W2 1GS_W6	1 1 2 2 3 2 2 2 2 2 3
W2-GS-S1-040_4	zna zakres zastosowania oznaczeń i badań geologiczno-inżynierskich w praktyce	1GS_K2 1GS_U11 1GS_U4 1GS_U6 1GS_W2 1GS_W3	1 1 1 2 2 1

9. Methods of conducting classes

Code	Category	Name (description)
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*

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-GS-S1-040_l_1	laboratory classes	18	exam	W2-GS-S1-040_1, W2-GS-S1-040_2, W2-GS-S1-040_3, W2-GS-S1-040_4	c06, c07, e01

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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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

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.

1.	**Field of study**	**Applied Geology**
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	**Engineering Laboratory**
Module code	W2-GS-S1-060
Number of the ECTS credits	4
Language of instruction	Polish
Purpose and description of the content of education	Uczestnictwo w module Pracownia inżynierska ma zapewnić studentowi czas potrzebny na wykonanie badań, eksperymentów, zebrania materiałów i napisanie pracy inżynierskiej. W ramach modułu przewiduje się naukową dyskusję z promotorem lub opiekunem zagadnień i problemów napotykanych przy realizacji celu naukowego pracy, uzyskiwanie wskazówek do dalszych działań, wyjaśnianie wątpliwości oraz weryfikację poprawności bieżącej pracy. W pierwszej kolejności zakłada się dyskusję wyników badań lub studiów literatury i dokumentów pozyskanych przez studenta oraz stanu zaawansowania przygotowania pracy dyplomowej. W dalszej kolejności dyskusja służy wyjaśnianiu wątpliwości pojawiających się w trakcie prac terenowych/laboratoryjnych, zastosowania określonych metod do badań ustalonych z promotorem w pierwszym etapie. W końcowej fazie przygotowania pracy dyplomowej dyskusja może dotyczyć wniosków i odniesienia ich do literatury naukowej.
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-GS-S1-060_1	ma wystarczającą wiedzę związaną z tematyką pracy dyplomowej,	1GS_W1 1GS_W2 1GS_W3 1GS_W4	3 2 3 2
W2-GS-S1-060_2	sformułował cel naukowy pracy dyplomowej, wie jak chce go zrealizować, opracował konspekt pracy, promotor określa jako zaawansowany stopień realizacji założonego celu naukowego,	1GS_K2 1GS_U1 1GS_U11 1GS_U3 1GS_U9	3 3 3 1 3
W2-GS-S1-060_3	wybrał i zapoznał się z literaturą związaną z tematem pracy dyplomowej, zna dotychczasowy dorobek nauk o Ziemi w zakresie tej tematyki	1GS_K6	3

		1GS_U1 1GS_U11 1GS_W1	3 2 2
W2-GS-S1-060_4	przeprowadził wszystkie niezbędne prace dokumentacyjne, analizy, badania terenowe, badania laboratoryjne, eksperymenty, symulacje komputerowe oraz określił ich aspekty systemowe i pozatechniczne w tym ekonomiczne, etyczne; przedyskutował wyniki z promotorem oraz uzyskał od niego wskazówki do dalszego działania	1GS_U1 1GS_U10 1GS_U2 1GS_U3 1GS_U5 1GS_U7	3 2 4 4 4 2
W2-GS-S1-060_5	identyfikuje problemy naukowe wiążące się z realizacją pracy dyplomowej, dokonał analizy istniejących rozwiązań technicznych związanych z celem pracy	1GS_K1 1GS_K5 1GS_U4 1GS_W4	4 2 4 2
W2-GS-S1-060_6	w odniesieniu do problemów naukowych napotkanych podczas przygotowywania pracy dyplomowej proponuje ich rozwiązanie lub potrafi wybrać optymalne z przedstawionych mu rozwiązań	1GS_K2 1GS_K4 1GS_U3 1GS_U4 1GS_U5	1 1 2 1 2
W2-GS-S1-060_7	wykorzystuje dostępne źródła w celu tworzenia autentycznie nowych wartości, unikając tworzenia wartości pozornie nowych,	1GS_K3 1GS_K5 1GS_K6 1GS_U5	2 2 2 1

9. Methods of conducting classes

Code	Category	Name (description)
a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
b04	Problem-solving methods	Activating method – discussion / debate *an exchange of views supported by substantive arguments leading to a clash of different views, a compromise or the identification of common positions; it proceeds according to previously agreed-upon rules regarding the time, manner and turn-taking as well as the principles of civil discourse; a discussion is not a competition but aims at finding the best solutions or presenting different points of view; its varieties include brainstorming, Oxford-style debate, panel discussion, decision tree, conference discussion; a debate is an orderly dispute between supporters and opponents of a viewpoint, usually specialists in the field or pre-selected representatives of a group dealing with a common problem*
b08	Problem-solving methods	Activating method – peer learning *learning through the exchange of knowledge in a group/team/pair of students, i.e., in the so-called learning cell; a kind of mutual learning; an approach focused on student activity under the guidance of the person teaching the course; a learning situation where students with a similar level of experience learn from one another*

c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
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.*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*
e06	Practical methods	Observation *also conducted as fieldwork; a method of watching phenomena, objects or people in a systematic/planned way in order to gain knowledge about them; perceptual separation of elements of a model action as an element of learning through imitation; a complex system of cognition based on sensory experiences*
e07	Practical methods	Simulation *an indirect method; imitating reality in order to gain experience approximating a real one; recreating a real-world situation so that its participant can acquire an experience close to the authentic one; work on "replacement" material*
e08	Practical methods	Practice-as-research *also conducted as fieldwork; an activity aimed at confronting the acquired theory with practice through its practical application; students situate themselves in the reality they observe, study and transform through the prism of the theory; the method of practical classes is dominated by the application of knowledge to solving practical tasks*
f01	Methods of self-learning	Self-education *a method which involves independent acquisition of knowledge, skills and social competences, extending their scope and quality; complementary to the learning process taking place in class; taking on the task of developing and adjusting qualifications on one's own; self-study*
f02	Methods of self-learning	Individual work with a text *searching for and acquiring new information using textbooks and other written sources (including their digital versions); searching for texts, selecting fragments for analysis/interpretation, using other texts to solve a problem related to the studied issue*
f03	Methods of self-learning	Conceptual work *a (mainly intellectual) activity carried out independently (or in a selected group) resulting in the creation of a concept, idea or project; creating a plan based on a vision; developing a general outline of a project; producing a simplified sketch of the variant versions of a procedure/product/work*

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-GS-S1-060_l_1	laboratory classes	24	course work	W2-GS-S1-060_1, W2-GS-S1-060_2, W2-GS-S1-060_3, W2-GS-S1-060_4, W2-GS-S1-060_5, W2-GS-S1-060_6, W2-GS-S1-060_7	a05, b04, b08, c07, d01, d02, d03, e01, e06, e07, e08, f01, f02, f03

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
a04	Preparation for classes	Consulting materials complementary to those indicated in the syllabus *agreeing on materials complementary to those indicated in the syllabus, supporting the implementation of tasks resulting from or necessary for class participation*	No
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	No
b02	Consulting the curriculum and the organization of classes	Verification / adjustment / discussion of syllabus provisions *consulting the content of the syllabus, possibly in the presence of the year tutor or members of the class group, and, if necessary, reassessing the provisions concerning special conditions for class participation, e.g., space and time requirements, technical and other requirements, including conditions for participation in classes outside the walls of the university, classes organized in blocks, organized online, etc.*	No
b03	Consulting the curriculum and the organization of classes	Consulting the schedule *getting acquainted with the class schedule, possibly in the presence of the year tutor, in order to optimize participation in classes, including those supplementary to the core subjects listed in the pursued study programme*	No
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	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*	No

		well as from the notes or other materials/artifacts made in class	
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 phase/element of the verification of the learning outcomes assigned to the course*	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*	No
d02	Consulting the results of the verification of learning outcomes	Development of a corrective action plan as well as supplementary/corrective tasks *reviewing and selecting tasks and activities enabling the elimination of errors indicated by the academic teacher, their verification or correction resulting in completing the task with at least the minimum passing grade*	No
d03	Consulting the results of the verification of learning outcomes	Review of internship documentation *an analysis of the portfolio of documentation obtained during internship, including professional internship, and other practical classes and studio sessions, as well as the documentation developed in order to obtain credit for such classes; verification of the description, necessary attachments, opinions and grades before submitting the portfolio for acceptance*	No
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No
e03	Activities complementary to the classes	Participation in non-obligatory teaching, research or organizational grants intensifying the achievement of the assumed learning outcomes *research, artistic, social and other activities not indicated in the curriculum, undertaken on the student’s own initiative as a way of supplementing, enriching or extending the content and activities indicated in the module curriculum, intensifying the achievement of learning outcomes*	No

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.

1.	**Field of study**	**Applied Geology**
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	**Engineering Seminar**
Module code	W2-GS-S1-061
Number of the ECTS credits	15
Language of instruction	Polish
Purpose and description of the content of education	Seminarium inżynierskie przygotowuje studentów do prezentacji wyników pracy dyplomowej na forum publicznym, z udziałem osób prowadzących seminarium, studentów oraz promotorów i opiekunów prac dyplomowych. Prezentacja wyników ma charakter chronologiczny i postępowy, gdyż student rozpoczyna od prezentacji rozdziałów teoretycznych, będących swoistą bazą wiedzy, a następnie przechodzi do części metodologicznej, wynikowej i podsumowującej całość pracy W trakcie zajęć każdy student przygotowuje 8-9 krótkich 10 minutowych wystąpień (forma dowolna) obejmujących w kolejności: Harmonogram i plan pracy; Wstęp i cele pracy dyplomowej, problematyka; Rozdziały wprowadzające; Obszar badań; Materiał badawczy; Metodyka badawcza ; Wyniki; Dyskusja; Bibliografia i załączniki; Prezentacja całości pracy dyplomowej. Po każdym wystąpieniu następuje dyskusja zaprezentowanych zagadnień, w trakcie której punktowane są mocne i słabe strony postępów pracy oraz ocena merytoryczna zagadnień i tematyki pracy, a także uwagi i sugestie do przedyskutowania z promotorem pracy. Na Seminarium omawiana jest również procedura i przebieg Egzaminu dyplomowego.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-060] Engineering Laboratory [W2-GS-S1-037] Optional course 1 [W2-GS-S1-045] Optional course 2 [W2-GS-S1-052] Optional course 3 [W2-GS-S1-059] Optional course 4 [W2-GS-S1-068] Optional course 5

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-061_1	student ma pogłębioną wiedzę w zakresie szczegółowej tematyki/zagadnienia/ dyscyplin/ problemu badawczego, w której wykonuje pracę dyplomową	1GS_W1 1GS_W2 1GS_W3 1GS_W6	3 3 2 3
W2-GS-S1-061_2	student potrafi przygotować i wygłosić uporządkowane, ograniczone czasowo wystąpienie przedstawiające zagadnienia fachowe i inżynierskie ze studiowanej dziedziny, w tym wyniki własnej pracy lub zaczerpnięte z literatury	1GS_U1 1GS_U6 1GS_U7	3 2 2

W2-GS-S1-061_3	potrafi stosować różnorodne oprogramowania i metodologię do analizy danych i prezentacji wyników	1GS_K4 1GS_U1 1GS_U4 1GS_U7	2 3 3 3
W2-GS-S1-061_4	potrafi gromadzić informacje z literatury związanej z tematyką realizowanej pracy, różnych baz danych i innej dokumentacji; potrafi wyciągać z nich wnioski oraz formułować i uzasadniać własne opinie, a także wziąć udział w debacie i dyskusji	1GS_K4 1GS_U1 1GS_U4 1GS_U7	2 3 3 3
W2-GS-S1-061_5	potrafi pracować samodzielnie	1GS_U4 1GS_U5	2 1
W2-GS-S1-061_6	student dąży do poszerzenia własnej wiedzy, potrafi formułować pytania służące zrozumieniu nowego tematu	1GS_K1 1GS_K2	2 2
W2-GS-S1-061_7	student rozumie potrzebę upowszechniania wiedzy inżynierskiej i osiągnięć dziedziny, którą studiuje	1GS_K5 1GS_K6	2 2
W2-GS-S1-061_8	rozumie i docenia znaczenie uczciwości intelektualnej w swoich działaniach	1GS_K6	1

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
b05	Problem-solving methods	Activating method – seminar / proseminar *a seminar method; usually an oral presentation of a previously studied/diagnosed problem delivered on a forum; it aims at provoking a discussion concerning the results of research work; a type of conference, course or training session modelled on seminar classes*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*

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-GS-S1-061_l_1	laboratory classes	20	course work	W2-GS-S1-061_1, W2-GS-S1-061_2, W2-GS-S1-061_3, W2-GS-S1-061_4, W2-GS-S1-061_5, W2-GS-S1-061_6, W2-GS-S1-061_7, W2-GS-	a01, b05, c07

				S1-061_8	

11.	The student's work, apart from participation in classes, includes in particular:		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No

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.

1.	**Field of study**	**Applied Geology**
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	**Engineering soil science**
Module code	W2-GS-S1-051
Number of the ECTS credits	2
Language of instruction	Polish
Purpose and description of the content of education	W ramach modułu "Gruntoznawstwo inżynierskie" student zdobędzie wiedzę na temat właściwości gruntów i metod ich analizy, kluczowych w badaniach z zakresu gruntoznawstwa inżynierskiego i inżynierii lądowej. Student nauczy się przeprowadzać analizy granulometryczne metodami laboratoryjnymi wykorzystywanymi w praktyce. Opanuje metody oznaczania szczegółowych parametrów gruntów i skał, co umożliwi dokładną charakterystykę podłoża budowlanego w kontekście działań prowadzonych w inżynierii lądowej i geotechnice. Student zdobędzie umiejętności wyznaczania granicznych parametrów wytrzymałościowych gruntów, kluczowych w analizie zachowania się podłoża budowlanego pod obciążeniem. Ponadto pozna wpływ naturalnych czynników fizycznych i chemicznych oraz procesów takich jak sufozja i upłynnianie na właściwości podłoża budowlanego, a także specyfikę gruntów antropogenicznych. Wiedza ta przygotuje studenta do rozwiązywania problemów inżynieryjnych związanych z podłożem budowlanym.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-412] Applied Geology 1 [W2-GS-S1-040] Engineering geology 2

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-051_1	zna kluczowe terminy z zakresu gruntoznawstwa inżynierskiego	1GS_U11 1GS_W1 1GS_W2 1GS_W4 1GS_W6	2 2 3 1 2
W2-GS-S1-051_2	rozumie podstawowe zjawiska i procesy występujące w środowisku skalnym i gruntowym w nawiązaniu do działań inżynierii lądowej	1GS_K3 1GS_W1 1GS_W2 1GS_W3 1GS_W4	3 2 3 3 1

		1GS_W6	3
W2-GS-S1-051_3	zna i potrafi zastosować metody oznaczania właściwości gruntów i skał kluczowych w gruntoznawstwie inżynierskim i rozpoznaniu podłoża budowlanego	1GS_K6 1GS_U1 1GS_U2 1GS_U3 1GS_U6 1GS_U9 1GS_W2	2 3 3 2 1 1 3
W2-GS-S1-051_4	potrafi planować i przeprowadzać badania laboratoryjne mające zastosowanie w gruntoznawstwie inżynierskim i określeniu charakterystyki podłoża budowlanego	1GS_K6 1GS_U1 1GS_U2 1GS_U3 1GS_U5 1GS_U9 1GS_W2	2 3 2 2 2 1 3
W2-GS-S1-051_5	potrafi analizować i interpretować wyniki badań laboratoryjnych i oznaczeń parametrów gruntów i skał kluczowych w rozwiązywaniu problemów z zakresu gruntoznawstwa inżynierskiego i działań inżynierii lądowej	1GS_K1 1GS_K2 1GS_K3 1GS_K6 1GS_U1 1GS_U2 1GS_U3 1GS_U4 1GS_U6 1GS_W2 1GS_W6	1 1 3 2 3 2 2 3 1 3 3
W2-GS-S1-051_6	zna zakres zastosowania oznaczeń oraz badań gruntów i skał, a także ich praktyczne wykorzystanie w gruntoznawstwie inżynierskim i działaniach inżynierii lądowej	1GS_K2 1GS_U11 1GS_U4 1GS_U6 1GS_W2 1GS_W3	1 2 2 1 3 2

9.	Methods of conducting classes	
Code	**Category**	**Name (description)**
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture

		a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*

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-GS-S1-051_l_1	laboratory classes	24	course work	W2-GS-S1-051_3, W2-GS-S1-051_4, W2-GS-S1-051_5, W2-GS-S1-051_6	e01
W2-GS-S1-051_w_1	lecture	6	course work	W2-GS-S1-051_1, W2-GS-S1-051_2	a01, a03, a05

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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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

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.

1.	Field of study	Applied Geology
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	**Environmental Geology**
Module code	W2-GS-S1-056
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	Moduł Geologia środowiskowa umożliwia studentowi wykorzystanie zdobytej wiedzy do interpretacji przemian dokonujących się w środowisku naturalnym (w różnych strefach wietrzeniowych) pod wpływem procesów naturalnych i antropogenicznych. Pozwala nabyć umiejętności oceny stanu chemicznego środowiska gruntowo-wodnego w oparciu o obowiązujące przepisy prawne. Omawiane będą również zagadnienia związane z rekultywacją, renaturyzacją i remediacją terenów zdegradowanych, koszty i trudności związane z takimi działaniami. Wiedza ta obejmuje także mechanizmy naturalnych procesów samooczyszczania środowiska oraz kierunków celowych działań ochronnych i zapobiegawczych z zakresu inżynierii środowiska. Przykładem szczególnym środowiska, zdolnym do samoistnych procesów samooczyszczania jest gleba z zachodzącymi w niej procesami adsorpcji, wytrącania, tworzenia związków kompleksowych i innymi właściwościami. Wynikają one z obecności w glebach specyficznego kompleksu sorpcyjnego, występującego w znacznej mierze w postaci układów koloidalnych. Na przykładzie szeregu pierwiastków (C, Cl, P, S, N) oraz ich związków pochodzenia naturalnego i antropogenicznego zostanie omówiona geochemia i ich kumulacja w środowisku. Część ćwiczeń poświęcona jest na przygotowanie opracowania zawierającego opis wybranych elementów geośrodowiskowych na obszarze przykładowej gminy przy wykorzystaniu opracowań kartograficznych, głównie Mapy Geośrodowiskowej, a także baz danych publikowanych w internecie.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-408] Chemistry in Earth sciences [W2-GS-S1-414] Geochemistry (I) [W2-GS-S1-025] Geoinformation and Geological Databases [W2-GS-S1-020] Environmental Protection [W2-GS-S1-063] Renevable Energy Sources

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-056_1	rozumie wpływ wybranych pierwiastków i ich związków na procesy przemian środowiskowych w różnych sferach hipergenicznych, integrując i poszerzając zdobytą dotąd wiedzę z zakresu nauk przyrod- niczych, jest przygotowany do ewentualnego wykorzystania w przyszłości uzyskanej wiedzy dla wskazywania kierunków działań na rzecz poprawienia kondycji środowiska naturalnego	1GS_K3 1GS_U11 1GS_W1 1GS_W2 1GS_W3	1 1 1 3 2
W2-GS-	potrafi scharakteryzować geotoksyny, ich główne źródła pochodzenia oraz niektóre procesy naturalne i antropogeniczne	1GS_W1	1

S1-056_2	prowadzące do ich uruchomienia	1GS_W2 1GS_W3	2 3
W2-GS-S1-056_3	identyfikuje antropogeniczne oddziaływanie na elementy środowiska geologicznego na przykładzie obszaru zlikwidowanego zakładu produkcyjnego i składowania odpadów przemysłowych	1GS_K4 1GS_U1 1GS_U3	3 2 3
W2-GS-S1-056_4	nabywa kompetencje do wyjaśniania przyczyn i kierunków zachodzenia procesów przemian w otaczającym środowisku z odróżnianiem naturalnych i antropogenicznych czynników przemian	1GS_K1 1GS_K2 1GS_K3	2 3 2
W2-GS-S1-056_5	potrafi wykonywać zadania laboratoryjne w zakresie opracowywanych zagadnień, pracować według instrukcji laboratoryjnych, śledzić przebieg procesu i formułować wnioski	1GS_K3 1GS_U11 1GS_U2 1GS_U4	2 1 3 2
W2-GS-S1-056_6	potrafi wykonać opracowanie w zakresie charakterystyki wybranych elementów geologii środowiskowej dla obszaru gminy z wykorzystaniem opracowań kartograficznych i baz danych, w tym dostępnych na stronach internetowych	1GS_K3 1GS_K4 1GS_K5 1GS_K6 1GS_U1 1GS_U6	2 2 1 1 3 2
W2-GS-S1-056_7	rozwija kreatywną postawę przez ćwiczenie aktywnego włączenia się do dyskusji nad zagadnieniami ważkimi dla ochrony środowiska	1GS_K1 1GS_K2 1GS_K5 1GS_K6 1GS_U1 1GS_U4 1GS_U5 1GS_U7 1GS_W4	2 2 1 1 2 2 2 3 1
W2-GS-S1-056_8	umie pracować w grupach ćwiczeniowych i organizować działania laboratoryjne, postępować zgodnie z zasadami BHP	1GS_K6 1GS_U9	1 2

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a03	Lecture methods / expository methods	Description

		a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison
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*
b07	Problem-solving methods	Activating methods: a case study *a comprehensive description of a phenomenon connected with the selected discipline; reflecting the reality, presenting the 'what', 'where' and 'how' of the phenomenon, i.e., all of its key aspects to be discussed in class; used as a reproduction, presentation, discussion or diagnosis of factors that shape the phenomenon or interact with it; an in-depth qualitative analysis and evaluation of a selected phenomenon*
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
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*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*
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*
e06	Practical methods	Observation *also conducted as fieldwork; a method of watching phenomena, objects or people in a systematic/planned way in order to gain knowledge about them; perceptual separation of elements of a model action as an element of learning through imitation; a complex system of cognition based on sensory experiences*
f03	Methods of self-learning	Conceptual work *a (mainly intellectual) activity carried out independently (or in a selected group) resulting in the creation of a concept, idea or project; creating a plan based on a vision; developing a general outline of a project; producing a simplified sketch of the*

		variant versions of a procedure/product/work

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-GS-S1-056_l_1	laboratory classes	24	course work	W2-GS-S1-056_1, W2-GS-S1-056_3, W2-GS-S1-056_4, W2-GS-S1-056_5, W2-GS-S1-056_6, W2-GS-S1-056_7, W2-GS-S1-056_8	c06, c07, d01, d03, e01, e04, e06, f03
W2-GS-S1-056_w_1	lecture	12	exam	W2-GS-S1-056_1, W2-GS-S1-056_2, W2-GS-S1-056_7	a01, a03, b01, b07

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

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.

1.	**Field of study**	**Applied Geology**
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	**Environmental Protection**
Module code	W2-GS-S1-020
Number of the ECTS credits	2
Language of instruction	Polish
Purpose and description of the content of education	Celem modułu Ochrona środowiska jest umożliwienie zrozumienia interakcji pomiędzy środowiskiem a człowiekiem oraz konieczności zapobiegania niekorzystnym skutkom działalności człowieka. Poprzez poznanie struktur środowiska, praw rządzących tymi strukturami, metod oceny stanu i antropogenicznych przekształceń środowiska oraz sposobów zapobiegania tym przekształceniom student kształtuje postawę otwarcia na potrzeby nie tylko swoje lecz także innych użytkowników tych samych zasobów przyrody. Poznaje cykl życia wybranych urządzeń, obiektów i systemów technicznych związanych z gospodarowaniem różnymi geokomponentami środowiska. Różnorodność zajęć powoduje nabywanie umiejętności przydatnych w dalszych studiach: poszukiwania wiedzy, pytania, postrzegania zjawisk, samodzielnego wnioskowania, wreszcie pisemnego syntetyzowania zebranych informacji. Po osiągnięciu efektów kształcenia modułu student powinien dostrzegać, że wszelkie działania w geologii mają nierozerwalny związek ze środowiskiem, kształtują je i muszą być podporządkowane etyce ekologicznej.
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-GS-S1-020_1	zna podstawowe pojęcia z zakresu ochrony i inżynierii środowiska i pogłębia wiedzę w zakresie wybranej problematyki	1GS_W1 1GS_W2	1 2
W2-GS-S1-020_2	opisuje i wyjaśnia zjawiska oraz przyczyny i skutki globalnych i regionalnych oddziaływań człowieka na środowisko, ocenia wpływ metod i technik stosowanych do rozwiązywania globalnych problemów środowiska zarówno na biotyczne jak i abiotyczne elementy środowiska, rozumie społeczne, ekonomiczne i prawne uwarunkowania działalności inżynierskiej w środowisku	1GS_W1 1GS_W3 1GS_W4 1GS_W5	1 3 2 1
W2-GS-S1-020_3	opisuje i tłumaczy źródła powstania, sposoby ograniczania i technicznego unieszkodliwiania zanieczyszczeń materiałowych i energetycznych wprowadzanych do środowiska (ścieki, odpady komunalne, przemysłowe, deformacje atmo-, bio- i litosfery)	1GS_W1 1GS_W2	1 2
W2-GS-S1-020_4	potrafi działać racjonalnie i ekonomicznie w zakresie minimalizacji obciążania środowiska, oceniać zagrożenia wywołane technicznymi sposobami unieszkodliwiania zanieczyszczeń, postrzega środowisko jako system powiązanych ze sobą	1GS_U1 1GS_U10	1 1

	geokomponentów, których poprawa wymaga stosowania adekwatnych metod, narzędzi i parametrów	1GS_U11 1GS_U2 1GS_U9 1GS_W2 1GS_W4 1GS_W5	2 3 1 1 1 1
W2-GS-S1-020_5	postrzega wartości środowiska, ceni je, dostrzega relacje wiążące istoty żywe ze środowiskiem i zdolny jest ocenić odpowiedzialność człowieka za podejmowane obecnie decyzje, których skutki będą obciążać przyszłe pokolenia	1GS_K2 1GS_K3 1GS_K5 1GS_K6 1GS_W2	2 2 2 2 3
W2-GS-S1-020_6	wykazuje aktywną postawę do poznawania rzeczy nowych i wykorzystywania ich dla wzbogacania własnej wiedzy; krytycznego i twórczego myślenia oraz otwartości na poglądy innych	1GS_K1 1GS_K2	2 1

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
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*
b02	Problem-solving methods	Lecture-discussion *transmission of content involving interaction with the lecture audience; discussion of lecture-related issues is one of its elements or constitutes its follow-up*

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-GS-S1-020_w_1	lecture	24	course work	W2-GS-S1-020_1, W2-GS-S1-020_2, W2-GS-S1-020_3, W2-GS-S1-020_4, W2-GS-S1-020_5, W2-GS-S1-020_6	a01, b01, b02

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

Code	Category	Name (description)	Is it part of the BUNA?
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

b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No

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.

1.	Field of study	Applied Geology
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	**Field practice in geophysics**
Module code	W2-GS-S1-076
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	Moduł realizowany jest jako prezentacja kompleksu procedur mających za zadanie rozpoznanie płytkiej budowy geologicznej wyznaczonego obszaru przy użyciu różnych metod geofizyki powierzchniowej. W ramach modułu studenci zapoznawani są z wybraną aparaturą do powierzchniowych pomiarów geofizycznych, metodyką prowadzenia pomiarów oraz podstawami przetwarzania danych i zasadami interpretacji wyników. Moduł realizowany jest w 4-5 osobowych zespołach odpowiadających liczebności geofizycznych zespołów pomiarowych. Studenci samodzielnie (pod okiem NA) wykonują terenowe pomiary różnymi metodami geofizycznymi i różnymi urządzeniami w celu pozyskania zbiorów danych. W ramach prac kameralnych poznają podstawy przetwarzania geofizycznych danych pomiarowych i samodzielnie przetwarzają pozyskane dane, a następnie dokonują wizualizacji uzyskanych wyników (tabele, mapy, przekroje itp). W dalszym etapie uczą się wykonywać interpretację geofizyczną, a na koniec interpretację geologiczną uzyskanych wyników. Efektem końcowym wykonanych działań jest zbiorcze opracowania geofizyczno–geologiczne (typu dokumentacja) z przeprowadzonego rozpoznania.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-002] Physics in Earth Sciences [W2-GS-S1-032] Geophysics [W2-GS-S1-025] Geoinformation and Geological Databases [W2-GS-S1-009] Mathematics in Earth Sciences [W2-GS-S1-401] Fundamentals of Geodesy [W2-GS-S1-402] Basics of topography and cartography

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-076_1	umiejętność współdziałania w realizacji zadania badawczego i ponoszenia odpowiedzialności za wykonywane obowiązki i powierzone urządzenia.	1GS_U10 1GS_U9	2 1
W2-GS-S1-076_2	znajomość obsługi wybranej aparatury pomiarowej stosowanej w geofizycznych badaniach powierzchniowych oraz praktyczna umiejętność wykonywania nieskomplikowanych pomiarów geofizycznych	1GS_U3 1GS_W2	1 1
W2-GS-S1-076_3	znajomość podstaw metodyki cyfrowego przetwarzania danych geofizycznych	1GS_U2	1
W2-GS-	umiejętność interpretacji geofizycznych pomiarów terenowych oraz prostego wnioskowania w oparciu o uzyskane wyniki		

S1-076_4		1GS_W1	1
W2-GS-S1-076_5	umiejętność sprawozdawania oraz prezentowania wyników wykonanych badań	1GS_U6	1

9. Methods of conducting classes

Code	Category	Name (description)
c02	Demonstration methods	Video show *reproducing a film or video material in its entirety or in fragments in order to illustrate the content taught in class, to submit it to analysis and evaluation or to use it as an exercise in image perception; a film/video can be a work of art, an illustration (also technical illustration) of a content/phenomenon/object, a private record of an action, a media image, etc.*
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
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*
e08	Practical methods	Practice-as-research *also conducted as fieldwork; an activity aimed at confronting the acquired theory with practice through its practical application; students situate themselves in the reality they observe, study and transform through the prism of the theory; the method of practical classes is dominated by the application of knowledge to solving practical tasks*

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-GS-S1-076_ct_1	field practice	36	course work	W2-GS-S1-076_1, W2-GS-S1-076_2, W2-GS-S1-076_3, W2-GS-S1-076_4, W2-GS-S1-076_5	c02, c06, d01, e08

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

Code	Category	Name (description)	Is it part of the BUNA?
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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	No
c03	Preparation for verification of learning outcomes	Implementation of an individual or group assignment necessary for course/phase/	No

		examination completion *a set of activities aimed at performing an assigned task, to be executed out of class, as an obligatory 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.

1.	**Field of study**	**Applied Geology**
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	**Field Research - General Geology**
Module code	W2-GS-S1-419
Number of the ECTS credits	6
Language of instruction	Polish
Purpose and description of the content of education	Moduł Geologia ogólna ma umożliwić studentowi praktyczne poznanie geologii w terenie. Przede wszystkim wykorzystanie różnych metod badawczych w warunkach terenowych. Opanowanie techniki pomiarów elementów zalegania warstw geologicznych, identyfikacji podstawowych typów skał, minerałów i skamieniałości oraz możliwość identyfikacji podstawowych struktur geologicznych w oparciu o obserwacje terenowe.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-405] Dynamic Earth 1 [W2-GS-S1-406] Dynamic Earth 2 [W2-GS-S1-012] Basis of geography [W2-GS-S1-028] Basics of historical geology and stratigraphy [W2-GS-S1-402] Basics of topography and cartography

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-419_1	zna podstawowe zasady pracy indywidualnej oraz zespołowej geologa terenowego wraz z zasadami BHP i potrafi je stosować	1GS_U9 1GS_W1 1GS_W6	4 2 2
W2-GS-S1-419_2	zna różne typy odsłonięć geologicznych i potrafi je znaleźć w terenie	1GS_W1	1
W2-GS-S1-419_3	ma umiejętność terenowej identyfikacji skał, minerałów skamieniałości, struktur sedymentacyjnych oraz prostych struktur tektonicznych w oparciu o wiedzę z zajęć audytoryjnych; potrafi analizować informacje zawarte w skale na podstawie cech makroskopowych, składu ziarnowego, mineralogii i śladów paleontologicznych	1GS_U1	3
W2-GS-S1-419_4	potrafi prowadzić notatnik terenowy, wykonywać rysunki obiektów w skali makro, wykonywać proste przekroje geologiczne w oparciu o obserwacje terenowe oraz profilować odsłonięcia skał osadowych; potrafi wykonywać proste pomiary terenowe oraz posługiwać się kompasem geologicznym	1GS_U6	3
W2-GS-S1-419_5	potrafi orientować się w terenie oraz posługiwać się mapą topograficzną i geologiczną; wykazuje się geologiczną wyobraźnią przestrzenną	1GS_U1	1
W2-GS-	jest wrażliwy na piękno przyrody; ma świadomość wartości i unikalności odsłonięć geologicznych, okazów minerałów,	1GS_K3	3

S1-419_6	skamieniałości i innych obiektów geologicznych oraz oraz potrzeby ich ochrony	1GS_K6	1
W2-GS-S1-419_7	wykazuje aktywną postawę do poznawania rzeczy nowych i wykorzystywania ich dla wzbogacania własnej wiedzy	1GS_K1 1GS_K2	3 3

9. Methods of conducting classes

Code	Category	Name (description)
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
e06	Practical methods	Observation *also conducted as fieldwork; a method of watching phenomena, objects or people in a systematic/planned way in order to gain knowledge about them; perceptual separation of elements of a model action as an element of learning through imitation; a complex system of cognition based on sensory experiences*

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-GS-S1-419_ct_1	field practice	84	course work	W2-GS-S1-419_1, W2-GS-S1-419_2, W2-GS-S1-419_3, W2-GS-S1-419_4, W2-GS-S1-419_5, W2-GS-S1-419_6, W2-GS-S1-419_7	c06, c07, e06

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

Code	Category	Name (description)	Is it part of the BUNA?
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
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	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*	No

		well as from the notes or other materials/artifacts made in class	
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 phase/element of the verification of the learning outcomes assigned to the course*	No
d03	Consulting the results of the verification of learning outcomes	Review of internship documentation *an analysis of the portfolio of documentation obtained during internship, including professional internship, and other practical classes and studio sessions, as well as the documentation developed in order to obtain credit for such classes; verification of the description, necessary attachments, opinions and grades before submitting the portfolio for acceptance*	No

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.

1.	Field of study	Applied Geology
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	**Field trip: Petrology**
Module code	W2-GS-S1-421
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	Ćwiczenia terenowe: Petrologia mają umożliwić studentowi zapoznanie się z metodami pracy geologa w terenie, nauczyć go wykorzystywania w terenie wiedzy teoretycznej nabytej podczas zajęć stacjonarnych. Student powinien opanować i utrwalić umiejętność identyfikacji minerałów skałotwórczych, podstawowych struktur i tekstur skalnych by na ich podstawie poprawnie identyfikować rodzaje skał oraz typy mineralizacji. Moduł ma również za zadanie wyrobienie nawyku prowadzenia notatnika terenowego, który jest ważnym składnikiem dokumentacji geologicznej. Kurs jest okazją do dyskusji na temat procesów geologicznych (np. rozwój zjawisk magmowych, metamorfizm, wulkanizm), surowców mineralnych regionu odbywania ćwiczeń oraz problematyki wpływu górnictwa i przemysłu na środowisko.
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-GS-S1-421_1	poznanie metod identyfikacji minerałów i skał podczas prac terenowych	1GS_W1 1GS_W6	1 2
W2-GS-S1-421_2	umiejętność klasyfikowania głównych typów skał na podstawie obserwacji w makro-skali	1GS_W1 1GS_W4 1GS_W6	1 3 2
W2-GS-S1-421_3	powiązanie minerałów skałotwórczych z typami skał, asocjacji i paragenez	1GS_U2 1GS_W2	2 1
W2-GS-S1-421_4	zapamiętanie lokalizacji wizytowanych miejsc i powiązanie ich z budową geologiczną regionu objętego ćwiczeniami	1GS_U6 1GS_W4 1GS_W6	1 1 1
W2-GS-S1-421_5	gromadzenie próbek mineralogicznych i petrograficznych do badań	1GS_U10	2

		1GS_U5 1GS_U6 1GS_U7 1GS_U9 1GS_W6	2 2 2 2 3
W2-GS-S1-421_6	dbałość o staranność dokumentowania informacji uzyskanej w terenie w notatniku terenowym	1GS_U11	2

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
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*
b02	Problem-solving methods	Lecture-discussion *transmission of content involving interaction with the lecture audience; discussion of lecture-related issues is one of its elements or constitutes its follow-up*
c01	Demonstration methods	Exhibition *preparing an object for public display and displaying it in order to elicit a specific reaction; creating a themed collection of specimens/objects/works to illustrate a specific issue*
e09	Practical methods	Plein air session *implementation of a creative task in an open-air area, e.g. outside the studio*

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-GS-S1-421	field practice	36	course work	W2-GS-S1-421_1, W2-GS-S1-421_2, W2-GS-S1-421_3, W2-GS-S1-421_4, W2-GS-S1-421_5, W2-GS-S1-421_6	a01, b01, b02, c01, e09

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

Code	Category	Name (description)	Is it part of the BUNA?
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
a04	Preparation for classes	Consulting materials complementary to those indicated in the syllabus *agreeing on materials complementary to those indicated in the syllabus, supporting the implementation of tasks resulting from or necessary for class participation*	No

c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	No

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.

1.	**Field of study**	**Applied Geology**
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	**Foreign language course 1**
Module code	LJO-2023-01
Number of the ECTS credits	3
Language of instruction	
Purpose and description of the content of education	The module aims to develop communicative language competences and to stimulate the acquisition of skills in oral and written language reception and production as well as in language interaction and mediation, taking into account different varieties and registers of the foreign language and the necessary language strategies. The module develops the ability to learn, to independently search for and select information and sources of knowledge, and to work in a team. The main emphasis is placed on strengthening the skills of effective communication with others and the fluent use of foreign language in social, educational or professional contacts in accordance with the criteria laid out in the Common European Framework of Reference for Languages (CEFR).
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)
LJO1_1	Can, following the teacher's instructions, use his/her general knowledge in order to develop and practice the listening, reading, writing and speaking skills in a foreign language, can formulate clearly and correctly, moderately complex oral and written texts on various topics, effectively and properly using the relevant vocabulary and rules for the organization of statements, in accordance in accordance with the criteria laid out in the Common European Framework of Reference for Languages (CEFR).	KJ.2023_U	2
LJO1_2	Can search, collect and make use of general information contained in foreign texts of various levels of difficulty, can present their opinions using correct language constructions.	KJ.2023_U	2
LJO1_3	Can, following general instructions, properly select sources and general information needed to learn a foreign language.	KJ.2023_U	2

9. Methods of conducting classes

Code	Category	Name (description)
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object*

		or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison
a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
b06	Problem-solving methods	Activating method – staged drama/drama *experiential learning; solving a problem by acting out a role; a.k.a. a role-playing method; role-players interpret their roles in an individual way; the identification with the role is achieved through the activation of the senses, imagination and speech, the stimulation of gesture and movement, etc.; the aim of drama is to experience situations, problems and events mediated by the role; staged drama is a role-playing method enriched with props and stage scenery illustrating a theme*
c02	Demonstration methods	Video show *reproducing a film or video material in its entirety or in fragments in order to illustrate the content taught in class, to submit it to analysis and evaluation or to use it as an exercise in image perception; a film/video can be a work of art, an illustration (also technical illustration) of a content/phenomenon/object, a private record of an action, a media image, etc.*
c03	Demonstration methods	Audio playback / audio drama *preparation and reproduction of sound material (audio recording) in its entirety or in fragments in order to illustrate the content taught in class, to submit it to analysis and evaluation or to use it as a method of sound perception, including the appreciation of a musical piece, an artistic audio drama, an oral presentation of an artistic or scientific text as well as a media text; analysis of the sound material recorded on a carrier with a view to studying a sound-related phenomenon*
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
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.*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
d04	Programmed learning methods	Reconstruction / reproduction *proceeding according to the indicated/displayed pattern/model; e.g., the reconstruction of a structure, model, image, etc.*
e07	Practical methods	Simulation *an indirect method; imitating reality in order to gain experience approximating a real one; recreating a real-world situation so that its participant can acquire an experience close to the authentic one; work on “replacement” material*
f01	Methods of self-learning	Self-education *a method which involves independent acquisition of knowledge, skills and social competences, extending their scope and quality; complementary to the learning process taking place in class; taking on the task of developing and adjusting qualifications on one’s own; self-study*
f02	Methods of self-learning	Individual work with a text

		searching for and acquiring new information using textbooks and other written sources (including their digital versions); searching for texts, selecting fragments for analysis/interpretation, using other texts to solve a problem related to the studied issue

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
LJO1_lekt	language classes	30	course work	LJO1_1, LJO1_2, LJO1_3	a03, a05, b06, c02, c03, c06, c07, d02, d03, d04, e07, f01, f02

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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	Yes
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	Yes
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
d02	Consulting the results of the verification of learning outcomes	Development of a corrective action plan as well as supplementary/corrective tasks *reviewing and selecting tasks and activities enabling the elimination of errors indicated by the academic teacher, their verification or correction resulting in completing the task with at least the minimum passing grade*	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.

1.	**Field of study**	**Applied Geology**
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	**Foreign language course 2**
Module code	LJO-2023-02
Number of the ECTS credits	3
Language of instruction	
Purpose and description of the content of education	The module aims to develop communicative language competences and to stimulate the acquisition of skills in oral and written language reception and production as well as in language interaction and mediation, taking into account different varieties and registers of the foreign language and the necessary language strategies. The module develops the ability to learn, to independently search for and select information and sources of knowledge, and to work in a team. The main emphasis is placed on strengthening the skills of effective communication with others and the fluent use of foreign language in social, educational or professional contacts in accordance with the criteria laid out in the Common European Framework of Reference for Languages (CEFR).
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)
LJO2_1	Can effectively use the possessed detailed knowledge in order to develop and practice the listening, reading, writing and speaking skills in a foreign language, can formulate clear and correct more complex oral and written texts on various topics, effectively and properly using the relevant vocabulary, rules of text organization, in accordance in accordance with the criteria laid out in the Common European Framework of Reference for Languages (CEFR).	KJ.2023_U	2
LJO2_2	Can search, analyse, evaluate and make use of specific information contained in foreign texts of more complex difficulty on topics specified in the module syllabus.	KJ.2023_U	2
LJO2_3	Can, to some extent independently, select the appropriate sources, specific information and tools for learning a foreign language and formulate his/her own opinions in a foreign language.	KJ.2023_U	2

9. Methods of conducting classes

Code	Category	Name (description)
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object*

		or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison
a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
b06	Problem-solving methods	Activating method – staged drama/drama *experiential learning; solving a problem by acting out a role; a.k.a. a role-playing method; role-players interpret their roles in an individual way; the identification with the role is achieved through the activation of the senses, imagination and speech, the stimulation of gesture and movement, etc.; the aim of drama is to experience situations, problems and events mediated by the role; staged drama is a role-playing method enriched with props and stage scenery illustrating a theme*
c02	Demonstration methods	Video show *reproducing a film or video material in its entirety or in fragments in order to illustrate the content taught in class, to submit it to analysis and evaluation or to use it as an exercise in image perception; a film/video can be a work of art, an illustration (also technical illustration) of a content/phenomenon/object, a private record of an action, a media image, etc.*
c03	Demonstration methods	Audio playback / audio drama *preparation and reproduction of sound material (audio recording) in its entirety or in fragments in order to illustrate the content taught in class, to submit it to analysis and evaluation or to use it as a method of sound perception, including the appreciation of a musical piece, an artistic audio drama, an oral presentation of an artistic or scientific text as well as a media text; analysis of the sound material recorded on a carrier with a view to studying a sound-related phenomenon*
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
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.*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
d04	Programmed learning methods	Reconstruction / reproduction *proceeding according to the indicated/displayed pattern/model; e.g., the reconstruction of a structure, model, image, etc.*
e07	Practical methods	Simulation *an indirect method; imitating reality in order to gain experience approximating a real one; recreating a real-world situation so that its participant can acquire an experience close to the authentic one; work on “replacement” material*
f01	Methods of self-learning	Self-education *a method which involves independent acquisition of knowledge, skills and social competences, extending their scope and quality; complementary to the learning process taking place in class; taking on the task of developing and adjusting qualifications on one’s own; self-study*
f02	Methods of self-learning	Individual work with a text *searching for and acquiring new information using textbooks and other written sources (including their digital versions); searching for texts, selecting fragments for analysis/interpretation, using other texts to solve a problem related to the studied issue*

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**
LJO2_lekt	language classes	30	course work	LJO2_1, LJO2_2, LJO2_3	a03, a05, b06, c02, c03, c06, d02, d03, d04, e07, f01, f02

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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	Yes
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	Yes
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
d02	Consulting the results of the verification of learning outcomes	Development of a corrective action plan as well as supplementary/corrective tasks *reviewing and selecting tasks and activities enabling the elimination of errors indicated by the academic teacher, their verification or correction resulting in completing the task with at least the minimum passing grade*	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.

1.	**Field of study**	**Applied Geology**
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	**Foreign language course 3**
Module code	LJO-2023-03
Number of the ECTS credits	3
Language of instruction	
Purpose and description of the content of education	The module aims to develop communicative language competences and to stimulate the acquisition of skills in oral and written language reception and production as well as in language interaction and mediation, taking into account different varieties and registers of the foreign language and the necessary language strategies. The module develops the ability to learn, to independently search for and select information and sources of knowledge, and to work in a team. The main emphasis is placed on strengthening the skills of effective communication with others and the fluent use of foreign language in social, educational or professional contacts in accordance with the criteria laid out in the Common European Framework of Reference for Languages (CEFR).
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)
LJO3_1	Can independently use the acquired knowledge in order to develop and practice listening comprehension, reading, writing and speaking skills in a foreign language at an appropriate level.	KJ.2023_U	3
LJO3_2	Can effectively search, select, synthesize and use information contained in foreign texts of varying levels of difficulty on topics specified in the syllabus of the module.	KJ.2023_U	3
LJO3_3	Can communicate in a foreign language in speech and writing, producing texts on the topics specified in the module syllabus using various communication channels and techniques, can participate in a debate, present his/her own and other people's positions and discuss them in a foreign language.	KJ.2023_U	3

9. Methods of conducting classes

Code	Category	Name (description)
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*

a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
b06	Problem-solving methods	Activating method – staged drama/drama *experiential learning; solving a problem by acting out a role; a.k.a. a role-playing method; role-players interpret their roles in an individual way; the identification with the role is achieved through the activation of the senses, imagination and speech, the stimulation of gesture and movement, etc.; the aim of drama is to experience situations, problems and events mediated by the role; staged drama is a role-playing method enriched with props and stage scenery illustrating a theme*
c02	Demonstration methods	Video show *reproducing a film or video material in its entirety or in fragments in order to illustrate the content taught in class, to submit it to analysis and evaluation or to use it as an exercise in image perception; a film/video can be a work of art, an illustration (also technical illustration) of a content/phenomenon/object, a private record of an action, a media image, etc.*
c03	Demonstration methods	Audio playback / audio drama *preparation and reproduction of sound material (audio recording) in its entirety or in fragments in order to illustrate the content taught in class, to submit it to analysis and evaluation or to use it as a method of sound perception, including the appreciation of a musical piece, an artistic audio drama, an oral presentation of an artistic or scientific text as well as a media text; analysis of the sound material recorded on a carrier with a view to studying a sound-related phenomenon*
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
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.*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
d04	Programmed learning methods	Reconstruction / reproduction *proceeding according to the indicated/displayed pattern/model; e.g., the reconstruction of a structure, model, image, etc.*
e07	Practical methods	Simulation *an indirect method; imitating reality in order to gain experience approximating a real one; recreating a real-world situation so that its participant can acquire an experience close to the authentic one; work on “replacement” material*
f01	Methods of self-learning	Self-education *a method which involves independent acquisition of knowledge, skills and social competences, extending their scope and quality; complementary to the learning process taking place in class; taking on the task of developing and adjusting qualifications on one’s own; self-study*
f02	Methods of self-learning	Individual work with a text *searching for and acquiring new information using textbooks and other written sources (including their digital versions); searching for texts, selecting fragments for analysis/interpretation, using other texts to solve a problem related to the studied issue*

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
LJO3_lekt	language classes	30	course work	LJO3_1, LJO3_2, LJO3_3	a03, a05, b06, c02, c03, c06,

					d02, d03, d04, e07, f01, f02

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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	Yes
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	Yes
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
d02	Consulting the results of the verification of learning outcomes	Development of a corrective action plan as well as supplementary/corrective tasks *reviewing and selecting tasks and activities enabling the elimination of errors indicated by the academic teacher, their verification or correction resulting in completing the task with at least the minimum passing grade*	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.

1.	**Field of study**	**Applied Geology**
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	**Foreign language course 4**
Module code	LJO-2023-04
Number of the ECTS credits	3
Language of instruction	
Purpose and description of the content of education	The module aims to develop communicative language competences and to stimulate the acquisition of skills in oral and written language reception and production as well as in language interaction and mediation, taking into account different varieties and registers of the foreign language and the necessary language strategies. The module develops the ability to learn, to independently search for and select information and sources of knowledge, and to work in a team. The main emphasis is placed on strengthening the skills of effective communication with others and the fluent use of foreign language in social, educational or professional contacts in accordance with the criteria laid out in the Common European Framework of Reference for Languages (CEFR).
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)
LJO4_1	Can effectively formulate complex problems in a foreign language, including those related to the field of study in order to practice listening, reading, writing and speaking skills in a foreign language.	KJ.2023_U	3
LJO4_2	Can independently search, analyze, evaluate, select, synthesize and use general and specific information contained in foreign texts of varying complexity.	KJ.2023_U	3
LJO4_3	Has the ability to understand, reproduce and create various types of written and oral texts that require advanced systemic knowledge of a foreign language, including specialist knowledge, using grammatical structures and vocabulary, specified in the syllabus of the module. Can use a foreign language at B2 level or higher (or lower, as specified in the syllabus, depending on the language and the level of the group chosen by a student who already has proof of his/her competence in one foreign language at B2 level) in accordance with the Common European Framework of Reference for Languages (CEFR)) using various communication channels and techniques to the extent appropriate for a given area of knowledge.	KJ.2023_U	3

9.	Methods of conducting classes	
Code	**Category**	**Name (description)**
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
b06	Problem-solving methods	Activating method – staged drama/drama *experiential learning; solving a problem by acting out a role; a.k.a. a role-playing method; role-players interpret their roles in an individual way; the identification with the role is achieved through the activation of the senses, imagination and speech, the stimulation of gesture and movement, etc.; the aim of drama is to experience situations, problems and events mediated by the role; staged drama is a role-playing method enriched with props and stage scenery illustrating a theme*
c02	Demonstration methods	Video show *reproducing a film or video material in its entirety or in fragments in order to illustrate the content taught in class, to submit it to analysis and evaluation or to use it as an exercise in image perception; a film/video can be a work of art, an illustration (also technical illustration) of a content/phenomenon/object, a private record of an action, a media image, etc.*
c03	Demonstration methods	Audio playback / audio drama *preparation and reproduction of sound material (audio recording) in its entirety or in fragments in order to illustrate the content taught in class, to submit it to analysis and evaluation or to use it as a method of sound perception, including the appreciation of a musical piece, an artistic audio drama, an oral presentation of an artistic or scientific text as well as a media text; analysis of the sound material recorded on a carrier with a view to studying a sound-related phenomenon*
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
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.*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
d04	Programmed learning methods	Reconstruction / reproduction *proceeding according to the indicated/displayed pattern/model; e.g., the reconstruction of a structure, model, image, etc.*
e07	Practical methods	Simulation *an indirect method; imitating reality in order to gain experience approximating a real one; recreating a real-world situation so that its participant can acquire an experience close to the authentic one; work on “replacement” material*
f01	Methods of self-learning	Self-education *a method which involves independent acquisition of knowledge, skills and social competences, extending their scope and quality; complementary to the learning process taking place in class; taking on the task of developing and adjusting qualifications on one’s own; self-study*
f02	Methods of self-learning	Individual work with a text

		searching for and acquiring new information using textbooks and other written sources (including their digital versions); searching for texts, selecting fragments for analysis/interpretation, using other texts to solve a problem related to the studied issue

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
LJO4_lekt	language classes	30	course work	LJO4_1, LJO4_2, LJO4_3	a03, a05, b06, c02, c03, c06, d02, d03, d04, e07, f01, f02

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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	Yes
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	Yes
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
d02	Consulting the results of the verification of learning outcomes	Development of a corrective action plan as well as supplementary/corrective tasks *reviewing and selecting tasks and activities enabling the elimination of errors indicated by the academic teacher, their verification or correction resulting in completing the task with at least the minimum passing grade*	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.

1.	**Field of study**	**Applied Geology**
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	**Fundamentals of Geodesy**
Module code	W2-GS-S1-401
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	Zajęcia z przedmiotu Geodezja i kartografia są prowadzone w formie wykładów i ćwiczeń. W ramach wykładów studenci poznają podział geodezji i podstawy prawne wykonywania prac geodezyjnych (tyczenia i pomiary sytuacyjno – wysokościowe) wraz ze stosowanymi w Polsce układami współrzędnych poziomych i wysokościowych. W drugiej części wykładów scharakteryzowane zostają konkretne techniki geodezyjne (tyczenia linii prostych i kątów, bezpośredni pomiar odległości taśmą, niwelacja geometryczna i trygonometryczna, tachimetria, GPS RTK i statyczne), wraz z opisem budowy i posługiwania się aparaturą. Po przedstawieniu zagadnień z instrumentoznawstwa na wykładach przedstawione zostaną teoretyczne podstawy obliczeń geodezyjnych. W ramach ćwiczeń studenci uczą się posługiwania akcesoriami i aparaturą geodezyjną. Wykonują podstawowe pomiary i obliczenia geodezyjne. Opracowują i wizualizują zebrane dane w formie typowych operatów geodezyjnych.
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-GS-S1-401_1	zna budowę i potrafi obsłużyć urządzenia do wykonywania pomiarów geodezyjnych	1GS_W2	2
W2-GS-S1-401_2	zna i rozumie zasady prawne regulujące pracę w geodezji oraz polskie układy współrzędnych	1GS_W1	2
W2-GS-S1-401_3	potrafi planować pomiary pod kątem właściwego wykorzystania dostępnych technik pomiarowych do rozwiązywania zadań badawczych	1GS_U2	2
W2-GS-S1-401_4	potrafi wykorzystać metody obliczeniowe do projektowania lub analizy pomiarów geodezyjnych	1GS_U3	3
W2-GS-S1-401_5	dokonuje krytycznej analizy technik badawczych	1GS_U4	2
W2-GS-S1-401_6	potrafi współdziałać z innymi osobami w ramach prac zespołowych (także o charakterze interdyscyplinarnym).	1GS_U10	1

9.	Methods of conducting classes	
Code	**Category**	**Name (description)**
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
b07	Problem-solving methods	Activating methods: a case study *a comprehensive description of a phenomenon connected with the selected discipline; reflecting the reality, presenting the 'what', 'where' and 'how' of the phenomenon, i.e., all of its key aspects to be discussed in class; used as a reproduction, presentation, discussion or diagnosis of factors that shape the phenomenon or interact with it; an in-depth qualitative analysis and evaluation of a selected phenomenon*
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*
e05	Practical methods	Internship *including professional and individual training; gaining skills and experience in real-life conditions, e.g., in the environment, institution or workplace the student is preparing for by following a specific study programme; training in real working conditions*
e08	Practical methods	Practice-as-research *also conducted as fieldwork; an activity aimed at confronting the acquired theory with practice through its practical application; students situate themselves in the reality they observe, study and transform through the prism of the theory; the method of practical classes is dominated by the application of knowledge to solving practical tasks*

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-GS-S1-401_l_1	laboratory classes	24	course work	W2-GS-S1-401_1, W2-GS-S1-401_3, W2-GS-S1-401_4, W2-GS-S1-401_5, W2-GS-S1-401_6	b07, e04, e05, e08
W2-GS-S1-401_w_1	lecture	12	course work	W2-GS-S1-401_1, W2-GS-S1-401_2, W2-GS-S1-401_3, W2-GS-S1-401_4, W2-GS-S1-401_5	a01, a03

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
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

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.

1.	**Field of study**	**Applied Geology**
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	**Fundamentals of Sedimentology**
Module code	W2-GS-S1-038
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	Celem modułu Podstawy sedymentologia jest wprowadzenie do sedymentologii poprzez poznanie wybranych zjawisk i procesów prowadzących do powstawania skał osadowych, głównych czynników wpływających na przebieg procesów sedymentacji, a także nabycie podstawowych umiejętności badania sukcesji skalnych. Student poznaje wybrane typy współczesnych i kopalnych skał osadowych oraz środowiska ich powstawania. Poznaje zasady analizy i interpretacji zapisu osadowego, metodykę badań sedymentologicznych oraz jej związek z innymi naukami przyrodniczymi. Dostrzega zależności między zapisem skalnym, a różnego rodzaju procesami przyrodniczymi. Dostrzega ważność ochrony środowiska przyrodniczego. Obserwuje, analizuje, stawia pytania i wyciąga wnioski.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-405] Dynamic Earth 1 [W2-GS-S1-406] Dynamic Earth 2

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-038_1	ma podstawową wiedzę o tym, czym się zajmuje sedymentologia, jaki ma związek z innymi naukami przyrodniczymi; zna podstawowe pojęcia i metody badawcze stosowane w sedymentologii	1GS_K1 1GS_K2 1GS_U1 1GS_U2 1GS_W1 1GS_W2	3 2 2 1 3 2
W2-GS-S1-038_2	zna główne czynniki i zjawiska wpływające na przebieg procesów sedymentacji i charakter powstających osadów	1GS_U1 1GS_W1 1GS_W2	3 3 2
W2-GS-S1-038_3	zna składniki skały osadowej, wymienia cechy tekstury i struktury osadu, definiuje ogólne warunki ich powstania, zna podstawowe metody ich badania i potrafi je zastosować	1GS_U1 1GS_U2 1GS_U5	2 3 2

		1GS_W1	3
W2-GS-S1-038_4	makroskopowo rozpoznaje i opisuje skałę osadową i składniki ją budujące, rozumie zastosowane terminy i potrafi je wyjaśnić	1GS_U1 1GS_U5 1GS_W1	3 1 1
W2-GS-S1-038_5	zna, charakteryzuje i rekonstruuje wybrane kopalne i współczesne środowiska sedymentacyjne, i wiąże je z konkretnymi typami osadów/skał	1GS_U1 1GS_W1 1GS_W2	3 3 1
W2-GS-S1-038_6	kształci umiejętność obserwacji, analizowania, wyciągania wniosków i uogólniania wiadomości; formułuje pytania i opinie, myśli i działa w sposób przedsiębiorczy oraz wykazuje się wyobraźnią przestrzenną	1GS_K1 1GS_K2 1GS_U11 1GS_U3 1GS_U4 1GS_U5 1GS_U6 1GS_U7 1GS_W1 1GS_W3	2 2 2 2 1 2 2 2 3 1
W2-GS-S1-038_7	rozumie potrzebę ochrony środowiska przyrodniczego, rozróżnia negatywny i pozytywny wpływ człowieka na środowisko naturalne	1GS_K2 1GS_W3	2 2
W2-GS-S1-038_8	wyszukuje i właściwie wykorzystuje literaturę fachową w języku ojczystym i obcym	1GS_K1 1GS_K2	2 1

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
b02	Problem-solving methods	Lecture-discussion *transmission of content involving interaction with the lecture audience; discussion of lecture-related issues is one of its elements or constitutes its follow-up*
b08	Problem-solving methods	Activating method – peer learning *learning through the exchange of knowledge in a group/team/pair of students, i.e., in the so-called learning cell; a kind of mutual learning; an approach focused on student activity under the guidance of the person teaching the course; a learning*

		situation where students with a similar level of experience learn from one another
b09	Problem-solving methods	Activating method – flipped classroom *anticipatory learning; work in class is based on previously studied material indicated by the person teaching the course; preparation outside the classroom serves the purpose of getting familiar with the issues whose knowledge is necessary for participating in the in-class discussion and the training in the related practical skills; the activity is based on the work of students under the guidance of the person teaching the course*
c01	Demonstration methods	Exhibition *preparing an object for public display and displaying it in order to elicit a specific reaction; creating a themed collection of specimens/objects/works to illustrate a specific issue*
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
d04	Programmed learning methods	Reconstruction / reproduction *proceeding according to the indicated/displayed pattern/model; e.g., the reconstruction of a structure, model, image, 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*
f03	Methods of self-learning	Conceptual work *a (mainly intellectual) activity carried out independently (or in a selected group) resulting in the creation of a concept, idea or project; creating a plan based on a vision; developing a general outline of a project; producing a simplified sketch of the variant versions of a procedure/product/work*

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-GS-S1-038_l_1	laboratory classes	24	course work	W2-GS-S1-038_1, W2-GS-S1-038_3, W2-GS-S1-038_4, W2-GS-S1-038_6, W2-GS-S1-038_8	a03, b08, b09, c01, c06, c07, d04, e04, f03
W2-GS-S1-038_w_1	lecture	12	exam	W2-GS-S1-038_1, W2-GS-S1-038_2, W2-GS-S1-038_5, W2-GS-S1-038_7, W2-GS-S1-038_8	a01, b02

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
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
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 phase/element of the verification of the learning outcomes assigned to the course*	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*	No
d02	Consulting the results of the verification of learning outcomes	Development of a corrective action plan as well as supplementary/corrective tasks *reviewing and selecting tasks and activities enabling the elimination of errors indicated by the academic teacher, their verification or correction resulting in completing the task with at least the minimum passing grade*	No

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.

1.	**Field of study**	**Applied Geology**
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	**Geochemistry (I)**
Module code	W2-GS-S1-414
Number of the ECTS credits	2
Language of instruction	Polish
Purpose and description of the content of education	Moduł Geochemia ma umożliwić studentowi poznanie związków pomiędzy procesami i zjawiskami przyrodniczymi zachodzącymi w geosferze a prawami chemicznymi, właściwościami związków i pierwiastków oraz procesami chemicznymi. Wprowadzane zagadnienia obejmują: Elementy kosmochemii. Elementy geochemii nieorganicznej - chemia zewnętrznych i wewnętrznych stref Ziemi; podział pierwiastków ze względu na ich właściwości geochemiczne; charakterystyka wybranych pierwiastków na tle ich położenia w układzie okresowym; obieg pierwiastków w przyrodzie; środowiska geochemiczne. Minerały a związki chemiczne. Podstawy metod analizy geochemicznej - identyfikacja wybranych pierwiastków i związków. Elementy geochemii organicznej: paliwa kopalne – rodzaje, procesy powstawania, utylizacja. Wybrane środowiskowe aspekty wykorzystania surowców geologicznych. W efekcie ukończenia modułu student powinien umieć zdefiniować podstawowe prawa chemiczne, rozumieć związki pomiędzy chemią a naukami o Ziemi, znać wzory chemiczne podstawowych minerałów, scharakteryzować cechy chemiczne podstawowych minerałów i skał na podstawie ich budowy chemicznej, interpretować procesy geologiczne w świetle wiedzy chemicznej, a także samodzielnie prowadzić obliczenia chemiczne mające zastosowanie w naukach o Ziemi. Moduł daje studentowi umiejętność pracy laboratoryjnej oraz zapoznaje go z wybranymi metodami analizy geochemicznej.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-408] Chemistry in Earth sciences

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-414_1	zna podstawowe pojęcia z zakresu geochemii	1GS_W1 1GS_W2	2 2
W2-GS-S1-414_2	zna uwarunkowania środowiskowe działalności gospodarczej człowieka	1GS_W2 1GS_W4	3 2
W2-GS-S1-414_3	potrafi wykorzystywać posiadaną wiedzę do formułowania i rozwiązywania prostych i typowych, problemów z geochemii	1GS_U1 1GS_U11 1GS_U3	2 1 1
W2-GS-	potrafi przeprowadzić wybrane eksperymenty i analizy geochemiczne	1GS_U1	1

S1-414_4		1GS_U2	3
W2-GS-S1-414_5	debatując na temat geochemii przedstawia jasno i ocenia obiektywnie różne opinie i stanowiska, szukając argumentów naukowych oraz dyskutować o nich	1GS_U7	2
W2-GS-S1-414_6	potrafi śledzić osiągnięcia nauk o Ziemi i środowisku, w tym najnowsze postępy technologiczne oraz konfrontować je z innymi dziedzinami nauki. Zdaje sobie sprawę z konieczności ciągłego pogłębiania wiedzy.	1GS_U11	2
W2-GS-S1-414_7	jest świadomy rzetelności zdobytej wiedzy i konieczności konfrontowania z nią obiegowych opinii pochodzących z różnych źródeł.	1GS_K1	2
W2-GS-S1-414_8	jest świadomy ograniczonego zakresu zdobytej wiedzy i konieczności poszukiwania nowych informacji z wykorzystaniem rzetelnych i pewnych źródeł	1GS_K2	2

9. Methods of conducting classes

Code	Category	Name (description)
a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
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*
b07	Problem-solving methods	Activating methods: a case study *a comprehensive description of a phenomenon connected with the selected discipline; reflecting the reality, presenting the 'what', 'where' and 'how' of the phenomenon, i.e., all of its key aspects to be discussed in class; used as a reproduction, presentation, discussion or diagnosis of factors that shape the phenomenon or interact with it; an in-depth qualitative analysis and evaluation of a selected phenomenon*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*
e05	Practical methods	Internship *including professional and individual training; gaining skills and experience in real-life conditions, e.g., in the environment, institution or workplace the student is preparing for by following a specific study programme; training in real working conditions*
f03	Methods of self-learning	Conceptual work *a (mainly intellectual) activity carried out independently (or in a selected group) resulting in the creation of a concept, idea or project; creating a plan based on a vision; developing a general outline of a project; producing a simplified sketch of the variant versions of a procedure/product/work*

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-GS-S1-414_w_1	lecture	12	course work	W2-GS-S1-414_1, W2-GS-S1-414_2, W2-GS-S1-414_3, W2-GS-S1-414_6, W2-GS-S1-414_7, W2-GS-S1-414_8	a05, b01, b07, c07
W2-GS-S2-414_l_1	laboratory classes	24	course work	W2-GS-S1-414_3, W2-GS-S1-414_4, W2-GS-S1-414_5, W2-GS-S1-414_6	e01, e05, f03

11.	The student's work, apart from participation in classes, includes in particular:		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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
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 phase/element of the verification of the learning outcomes assigned to the course*	No
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No

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.

1.	**Field of study**	**Applied Geology**
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	**Geoinformation and Geological Databases**
Module code	W2-GS-S1-025
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	Głównym celem modułu „Geoinformacja i geologiczne bazy danych” jest rozwinięcie umiejętności studentów w zakresie wykorzystania nowoczesnych narzędzi i technologii do wyszukiwania, gromadzenia, przetwarzania, analizowania i wizualizacji danych przestrzennych w kontekście badań geologicznych. Tematyka zajęć obejmuje podstawy teoretyczne z zakresu systemów informacji geograficznej (GIS) oraz baz danych geologicznych. Studenci uczestniczący w kursie mają okazję zapoznać się z obsługą oprogramowania GIS oraz ręcznych odbiorników nawigacyjnych GPS, a także ich zastosowaniem w geologicznych pracach kartograficznych i dokumentacyjnych. Zajęcia przygotowują studentów do efektywnego wykorzystywania technologii geoinformacyjnych w ich przyszłej pracy zawodowej, umożliwiając im prowadzenie nowoczesnych badań geologicznych oraz podejmowanie decyzji opartych na analizie danych przestrzennych
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-GS-S1-025_1	zna wybrane zagadnienia z zakresu Systemów Informacji Geograficznej (GIS) i potrafi je wykorzystać do zgłębiania wiedzy z różnych działów geologii	1GS_W1 1GS_W6	1 1
W2-GS-S1-025_2	potrafi posługiwać się podstawowymi pojęciami z zakresu geoinformacji, rozumie te pojęcia i potrafi je wyjaśnić używając języka potocznego	1GS_U1 1GS_U6	1 2
W2-GS-S1-025_3	potrafi właściwie dobrać źródła danych i weryfikować informacje z nich pochodzące, w szczególności z zastosowaniem ogólnodostępnych baz danych	1GS_K2 1GS_U1	1 2
W2-GS-S1-025_4	posiada umiejętność posługiwania się odbiornikami GPS, a także zamkniętym i wolnym oprogramowaniem komputerowym wykorzystywanym w dziedzinie nauk o Ziemi do analizy i wizualizacji wyników badań terenowych i laboratoryjnych	1GS_U1 1GS_U3 1GS_W2	1 1 1
W2-GS-S1-025_5	przetwarza dane cyfrowe o środowisku do celów jego ochrony i właściwego gospodarowania	1GS_U1 1GS_W2	2 1

W2-GS-S1-025_6	potrafi formułować pytania służące pogłębieniu własnego zrozumienia danego tematu lub uzupełnieniu brakujących elementów rozumowania i wie do kogo je skierować lub gdzie szukać odpowiedzi	1GS_K2	1
W2-GS-S1-025_7	potrafi formułować pytania służące pogłębieniu własnego zrozumienia danego tematu lub uzupełnieniu brakujących elementów rozumowania i wie do kogo je skierować lub gdzie szukać odpowiedzi	1GS_K2	1

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
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*
b02	Problem-solving methods	Lecture-discussion *transmission of content involving interaction with the lecture audience; discussion of lecture-related issues is one of its elements or constitutes its follow-up*
b07	Problem-solving methods	Activating methods: a case study *a comprehensive description of a phenomenon connected with the selected discipline; reflecting the reality, presenting the 'what', 'where' and 'how' of the phenomenon, i.e., all of its key aspects to be discussed in class; used as a reproduction, presentation, discussion or diagnosis of factors that shape the phenomenon or interact with it; an in-depth qualitative analysis and evaluation of a selected phenomenon*
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
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*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
e03	Practical methods	Creation/production – creative workshop *an activity involving creating/producing a work/artifact based on the individual, creative effort of the participant; the creative workshop is characterized by the presence and openness which make it possible to access the essence of the work/ peculiarity of the artifact at every stage of its creation/production*
f02	Methods of self-learning	Individual work with a text

		searching for and acquiring new information using textbooks and other written sources (including their digital versions); searching for texts, selecting fragments for analysis/interpretation, using other texts to solve a problem related to the studied issue

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-GS-S1-025_l_1	laboratory classes	24	course work	W2-GS-S1-025_4, W2-GS-S1-025_5, W2-GS-S1-025_6, W2-GS-S1-025_7	c06, c07, d01, d03, e03, f02
W2-GS-S1-025_w_1	lecture	12	course work	W2-GS-S1-025_1, W2-GS-S1-025_2, W2-GS-S1-025_3	a01, b01, b02, b07

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

Code	Category	Name (description)	Is it part of the BUNA?
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
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
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 phase/element of the verification of the learning outcomes assigned to the course*	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*	No
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No

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.

1.	Field of study	Applied Geology
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	**Geological diversification of Poland**
Module code	W2-GS-S1-064
Number of the ECTS credits	2
Language of instruction	Polish
Purpose and description of the content of education	Moduł Zróżnicowanie geologiczne Polski ma umożliwić studentowi poznanie budowy geologicznej poszczególnych regionów Polski, oraz procesów które przyczyniły się do powstania poszczególnych jednostek geologicznych kraju. Student nabywa wiedzę w zakresie geologii poszczególnych regionów kraju pod względem tektoniki, litologii, stratygrafii oraz historii rozwoju poszczególnych jednostek geologicznych. Dzięki temu student uzyskuje syntetyczną wiedzę na temat rozwoju geologicznego Polski, a w wyniki samodzielnego studiowania literatury, winien zgłębić wiedzę w zakresie szczegółowych aspektów geologicznych danych regionów i jednostek geologicznych. Dzięki nabytej wiedzy, student będzie miał również świadomość ochrony unikatowych pod względem naukowym i edukacyjnym stanowisk geologicznych w różnych regionach naszego kraju.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-405] Dynamic Earth 1 [W2-GS-S1-406] Dynamic Earth 2 [W2-GS-S1-012] Basis of geography [W2-GS-S1-028] Basics of historical geology and stratigraphy [W2-GS-S1-410] Tectonics and Structural Geology

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-064_1	zna jednostki geologiczno-strukturalne na terenie administracyjnym Polski i częściowo krajów ościennych, ich budowę geologiczną oraz historię powstania i rozwoju.	1GS_W1 1GS_W6	2 3
W2-GS-S1-064_2	potrafi wskazać na mapach regionalne jednostki geologiczne Polski, potrafi interpretować ich przekroje geologiczne i generować modele wgłębnej budowy geologicznej	1GS_U1	2
W2-GS-S1-064_3	potrafi dyskutować, wyrażać swoje poglądy na temat budowy geologicznej Polski; sprawnie wyszukuje informacje w literaturze, również w języku obcym	1GS_U1 1GS_U6	2 2
W2-GS-S1-064_4	jest zdolny do syntetycznego przedstawienia geologii wybranych jednostek i obszarów Polski na podstawie analizy geologicznej; zdaje sobie sprawę z unikalności niektórych stanowisk geologicznych	1GS_K1 1GS_K3 1GS_K6	3 2 1

W2-GS-S1-064_5	wykazuje aktywną postawę do poznawania rzeczy nowych i wykorzystywania ich dla wzbogacania własnej wiedzy; stara się uczyć samodzielnie w oparciu o dostępną literaturę, krytycznie oceniając stan własnej wiedzy	1GS_K2	3

9. Methods of conducting classes

Code	Category	Name (description)
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*

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-GS-S1-064_l_1	laboratory classes	20	course work	W2-GS-S1-064_1, W2-GS-S1-064_2, W2-GS-S1-064_3, W2-GS-S1-064_4, W2-GS-S1-064_5	c06, c07, d03
W2-GS-S1-064_w_1	lecture	10	course work	W2-GS-S1-064_1, W2-GS-S1-064_3, W2-GS-S1-064_4, W2-GS-S1-064_5	c07

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

Code	Category	Name (description)	Is it part of the BUNA?
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	No
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	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

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.

1.	Field of study	Applied Geology
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	**Geological Mapping**
Module code	W2-GS-S1-417
Number of the ECTS credits	4
Language of instruction	Polish
Purpose and description of the content of education	Celem modułu Kartowanie geologiczne jest nabycie wiedzy, umiejętności konstruowania oraz sposobu wykorzystania mapy geologicznej, przekrojów geologicznych i profili litostratygraficznych wraz z objaśnieniami, przy zastosowaniu różnych metod kartograficznych. Moduł weryfikuje i uzupełnia wiedzę na temat struktur geologicznych i sposobu ich odwzorowania na płaszczyźnie. Wykonując opracowania podstawowymi metodami stosowanymi w kartografii geologicznej student opanowuje zasady przestrzennego konstruowania modelu budowy geologicznej oraz poznaje zasady prowadzenia prac geologicznych.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-405] Dynamic Earth 1 [W2-GS-S1-406] Dynamic Earth 2 [W2-GS-S1-026] Descriptive Geometry [W2-GS-S1-402] Basics of topography and cartography [W2-GS-S1-410] Tectonics and Structural Geology

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-417_1	zna podstawowe pojęcia używane w kartografii; zna rodzaje struktur geologicznych i sposoby ich odwzorowania na powierzchni terenu (planisekcja i intersekcja)	1GS_W1 1GS_W2	2 2
W2-GS-S1-417_2	zna podstawowe metody badawcze, techniki, narzędzia i materiały stosowane w kartografii geologicznej powierzchniowej w celu rozpoznania budowy geologicznej, struktur tektonicznych oraz opisu środowisk depozycji skał	1GS_W1 1GS_W2	1 2
W2-GS-S1-417_3	zna zasady organizacji i prowadzenia prac geologicznych	1GS_U3 1GS_U5	2 1
W2-GS-S1-417_4	potrafi wykorzystać informacje zawarte w różnorodnych opracowaniach kartograficznych, a szczególnie na seryjnych mapach geologicznych; potrafi wykonać elementy dokumentacji geologicznej z zakresu kartografii geologicznej powierzchniowej, redagować proste teksty objaśniające wykorzystując dostępne źródła informacji, umiejętnie prezentuje opracowane wyniki w postaci map tematycznych, przekrojów geologicznych i profili litostratygraficznych;	1GS_U1 1GS_U2 1GS_U3	1 2 1
W2-GS-S1-417_5	potrafi realizować zadania wyznaczone przez siebie i innych; potrafi formułować pytania, służące pogłębieniu własnego zrozumienia opracowywanego tematu z zakresu kartografii geologicznej powierzchniowej lub uzupełnieniu brakujących	1GS_K1	1

	elementów rozumowania i wie do kogo je skierować lub gdzie szukać odpowiedzi;	1GS_U10 1GS_U11 1GS_U2 1GS_U3 1GS_U5	1 1 1 2 1
W2-GS-S1-417_6	ma świadomość odpowiedzialności za powierzone urządzenia i materiały, za pracę własną; szanuje pracę własną i innych, postępuje zgodnie z zasada-mi BHP;	1GS_K2 1GS_K6	1 2

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
b03	Problem-solving methods	Activating method – educational games *learning content in the guise of a rule- and/or principle-based game; conducted in a deliberately arranged situation based on the description of relevant facts and processes; learners compete with one another within the framework of rules laid down by the academic teacher; varieties include simulation games – involving a simulation of real situations; decision games – based on the decision-making process and the recognition of the consequences of the decisions made (e.g., a decision tree); psychological games – increasing the emotional-volitional component of the participants' attitudes*
b07	Problem-solving methods	Activating methods: a case study *a comprehensive description of a phenomenon connected with the selected discipline; reflecting the reality, presenting the 'what', 'where' and 'how' of the phenomenon, i.e., all of its key aspects to be discussed in class; used as a reproduction, presentation, discussion or diagnosis of factors that shape the phenomenon or interact with it; an in-depth qualitative analysis and evaluation of a selected phenomenon*
e05	Practical methods	Internship *including professional and individual training; gaining skills and experience in real-life conditions, e.g., in the environment, institution or workplace the student is preparing for by following a specific study programme; training in real working conditions*

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-GS-S1-417_l_1	laboratory classes	36	course work	W2-GS-S1-417_1, W2-GS-S1-417_2, W2-GS-S1-417_3, W2-GS-S1-417_4, W2-GS-S1-417_5, W2-GS-S1-417_6	b03, b07, e05
W2-GS-S1-417_w_1	lecture	12	course work	W2-GS-S1-417_1, W2-GS-S1-417_2, W2-GS-S1-417_3,	a01, a03

				W2-GS-S1-417_4	

11.	The student's work, apart from participation in classes, includes in particular:		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
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
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*	No

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.

1.	Field of study	Applied Geology
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	**Geological Mapping – field course**
Module code	W2-GS-S1-422
Number of the ECTS credits	6
Language of instruction	Polish
Purpose and description of the content of education	Celem modułu Ćwiczenia terenowe – Kartowanie geologiczne jest poznanie zasad prowadzenia prac geologiczno-zdjęciowych oraz zasad sporządzania map geologicznych. Student w praktyczny sposób uczy się pozyskiwania danych w terenie poprzez planowanie marszrut, przeprowadzanie obserwacji geomorfologicznych, przeprowadzanie obserwacji geologicznych, dokumentowanie sond i odsłonięć oraz innych obserwacji. Równocześnie nabywa umiejętność wielopłaszczyznowej analizy zebranych różnorodnych danych (litologicznych, tektonicznych, geomorfologicznych, stratygraficznych, sedymentologicznych) umożliwiających rozpoznanie budowy geologicznej badanego obszaru i opracowanie jej modelu kartograficznego. Na podstawie danych pozyskanych w terenie, ich analizy i interpretacji opracowywane są materiały kartograficzne w formie kompleksowej mapy geologicznej zawierającej mapę geologiczną zakrytą, mapę geologiczną odkrytą, przekroje geologiczne, profile litostratygraficzne, objaśnienia tekstowe, mapę geosozologiczną.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-405] Dynamic Earth 1 [W2-GS-S1-406] Dynamic Earth 2 [W2-GS-S1-415] Quaternary geology [W2-GS-S1-031] Mineralogy [W2-GS-S1-404] Palaeontology [W2-GS-S1-028] Basics of historical geology and stratigraphy [W2-GS-S1-038] Fundamentals of Sedimentology [W2-GS-S1-402] Basics of topography and cartography [W2-GS-S1-410] Tectonics and Structural Geology

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-422_1	zna i stosuje terenowe i kameralne metody tworzenia map geologicznych i innych opracowań kartografii geologicznej	1GS_W1 1GS_W2	2 2
W2-GS-S1-422_2	zna i stosuje typowe technologie inżynierskie stosowane w kartografii geologicznej; zna rodzaje map i przekrojów geologicznych i sposoby ich wykonywania, oraz metody odwzorowania rzeźby terenu i budowy geologicznej na płaszczyźnie; zna podstawowe zasady bezpieczeństwa i higieny pracy w trakcie prac terenowych	1GS_W2 1GS_W3 1GS_W4	2 2 2
W2-GS-	posiada umiejętność orientacji w terenie i lokalizowania obserwacji geologicznych, również z wykorzystaniem GPS; zna		

S1-422_3	metody komputerowe wspomagające terenowe prace w kartografii geologicznej	1GS_U1 1GS_U2 1GS_U3	2 2 3
W2-GS-S1-422_4	dokumentuje prace terenowe, analizuje i interpretuje zebrane dane, przetwarza je i opracowuje w formie materiałów kartograficznych	1GS_U2 1GS_U4 1GS_U5	2 3 3
W2-GS-S1-422_5	ma umiejętność postrzegania rzeczywistości geologicznej poprzez opracowania kartograficzne	1GS_U6 1GS_U7	2 3
W2-GS-S1-422_6	pracuje zespołowo w terenie oraz podczas kameralnego opracowywania zebranych w terenie danych	1GS_U10 1GS_U9	4 3
W2-GS-S1-422_7	dostrzega i ocenia krytycznie wpływ działalności antropogenicznej na środowisko przyrodnicze; ma świadomość odpowiedzialności za powierzony sprzęt, za pracę własną; szanuje pracę własną i innych, postępuje zgodnie z zasadami BHP	1GS_K3 1GS_K6 1GS_W3	3 2 4

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
b08	Problem-solving methods	Activating method – peer learning *learning through the exchange of knowledge in a group/team/pair of students, i.e., in the so-called learning cell; a kind of mutual learning; an approach focused on student activity under the guidance of the person teaching the course; a learning situation where students with a similar level of experience learn from one another*
b09	Problem-solving methods	Activating method – flipped classroom *anticipatory learning; work in class is based on previously studied material indicated by the person teaching the course; preparation outside the classroom serves the purpose of getting familiar with the issues whose knowledge is necessary for participating in the in-class discussion and the training in the related practical skills; the activity is based on the work of students under the guidance of the person teaching the course*
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points,*

		charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image
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.*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*
e03	Practical methods	Creation/production – creative workshop *an activity involving creating/producing a work/artifact based on the individual, creative effort of the participant; the creative workshop is characterized by the presence and openness which make it possible to access the essence of the work/ peculiarity of the artifact at every stage of its creation/production*
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*
e05	Practical methods	Internship *including professional and individual training; gaining skills and experience in real-life conditions, e.g., in the environment, institution or workplace the student is preparing for by following a specific study programme; training in real working conditions*
e06	Practical methods	Observation *also conducted as fieldwork; a method of watching phenomena, objects or people in a systematic/planned way in order to gain knowledge about them; perceptual separation of elements of a model action as an element of learning through imitation; a complex system of cognition based on sensory experiences*
e08	Practical methods	Practice-as-research *also conducted as fieldwork; an activity aimed at confronting the acquired theory with practice through its practical application; students situate themselves in the reality they observe, study and transform through the prism of the theory; the method of practical classes is dominated by the application of knowledge to solving practical tasks*
e09	Practical methods	Plein air session *implementation of a creative task in an open-air area, e.g. outside the studio*
f02	Methods of self-learning	Individual work with a text *searching for and acquiring new information using textbooks and other written sources (including their digital versions); searching for texts, selecting fragments for analysis/interpretation, using other texts to solve a problem related to the studied issue*
f03	Methods of self-learning	Conceptual work *a (mainly intellectual) activity carried out independently (or in a selected group) resulting in the creation of a concept, idea or project; creating a plan based on a vision; developing a general outline of a project; producing a simplified sketch of the variant versions of a procedure/product/work*

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-GS-S1-422_ct_1	field practice	84	course work	W2-GS-S1-422_1, W2-GS-S1-422_2, W2-GS-S1-422_3, W2-GS-S1-422_4, W2-GS-S1-422_5, W2-GS-S1-422_6, W2-GS-S1-422_7	a01, a03, b08, b09, c06, c07, d02, d03, e01, e03, e04, e05, e06, e08, e09, f02, f03

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
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	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
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 phase/element of the verification of the learning outcomes assigned to the course*	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*	No
d02	Consulting the results of the verification of learning outcomes	Development of a corrective action plan as well as supplementary/corrective tasks *reviewing and selecting tasks and activities enabling the elimination of errors indicated by the academic teacher, their verification or correction resulting in completing the task with at least the minimum passing grade*	No
d03	Consulting the results of the verification of learning outcomes	Review of internship documentation *an analysis of the portfolio of documentation obtained during internship, including professional*	No

		internship, and other practical classes and studio sessions, as well as the documentation developed in order to obtain credit for such classes; verification of the description, necessary attachments, opinions and grades before submitting the portfolio for acceptance	

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.

1.	Field of study	Applied Geology
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	**Geology and metal ore exploration**
Module code	W2-GS-S1-055
Number of the ECTS credits	4
Language of instruction	Polish
Purpose and description of the content of education	Moduł składa się z wykładów i ćwiczeń podczas których student poznaje zagadnienia związane z rolą metali w rozwoju cywilizacji oraz kierunkami wykorzystania kopalin metalicznych. W dalszej części cykl wykładów obejmuje zagadnienia dotyczące procesów formowania się złóż oraz podziału genetycznego złóż. Omawiane są klasyfikacje technologiczne złóż rud metali oraz podziały pierwiastków stosowane w przemyśle. Prawidłowości rozmieszczenia złóż rud metali na świecie oraz geologiczne uwarunkowania eksploatacji związane z czynnikami ekonomicznymi, górniczymi i środowiskowymi. Scharakteryzowane są magmowe, pneumatolityczne, pegmatytowe, skarnowe, hydrotermalne osadowe i metamorfogeniczne typy złóż oraz ich znacznie dla formowania się złóż najważniejszych metali. Na wybranych przykładach najważniejszych dla światowej gospodarki złóż: Fe, Cu, Co, Cr, Ni, W, Mo, Sn, Zn-Pb, Hg omówione są różne typy genetyczne złóż, ich potencjał zasobowy i znaczenie dla światowej gospodarki. Światowe rezerwy oraz perspektywy zagospodarowania nowych zasobów rud metali kolorowych, uszlachetniaczy stali, REE oraz litu. Ćwiczenia obejmują wiedzę z zakresu formy, budowy i jakości polskich złóż rud metali. Omówione są najważniejsze polskie złoża rud żelaza, niklu, chromu, cyny, miedzi i srebra, cynku i ołowiu oraz potencjalne możliwości udokumentowania złóż Mo-W, Al, Au, REE. Scharakteryzowane są typy mineralizacji, najważniejsze minerały kruszcowe, zespoły paragenetyczne, rodzaje rudy, budowa wybranych złóż w tym tych, których eksploatacja ma jedynie znaczenie historyczne. Szczegółowe informacje dotyczą geologii i ekonomiki eksploatacji złóż rud Cu na Monoklinie Przedsudeckiej, Zn-Pb w rejonie śląsko-krakowskim oraz perspektyw zagospodarowania nowych złoż Cu-Ag, Zn-Pb.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-405] Dynamic Earth 1 [W2-GS-S1-406] Dynamic Earth 2 [W2-GS-S1-031] Mineralogy [W2-GS-S1-041] Applied petrology 1 [W2-GS-S1-049] Applied petrology 2

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-055_1	zna rozmieszczenie, bazę zasobową i budowę geologiczną najważniejszych złóż rud metali w Polsce i na świecie	1GS_U6 1GS_W4 1GS_W6	1 1 2
W2-GS-	wie jakie procesy odgrywają najważniejsza rolę w powstawaniu złóż kopalin, posiada umiejętność opisu tych procesów	1GS_K1	1

S1-055_2	w kontekście wiedzy z zakresu geochemii, petrografii i mineralogii.	1GS_U11 1GS_W1 1GS_W2	1 1 3
W2-GS-S1-055_3	wie jakie składniki mineralne budują poszczególne rudy metali oraz umie je rozpoznać i opisać.	1GS_W6	2
W2-GS-S1-055_4	zna podstawowe założenia metod szacowania zasobów, określania kryteriów bilansowości złóż oraz ograniczenia eksploatacji dla najważniejszych kopalin.	1GS_U1 1GS_U2	3 1
W2-GS-S1-055_5	potrafi wykonać prosty projekt/opracowanie na temat rozmieszczenia złóż rud metali w Polsce oraz ich jakości i perspektyw wydobycia	1GS_U1 1GS_U2 1GS_U5 1GS_U6	2 1 1 1
W2-GS-S1-055_6	postrzega relacje pomiędzy działaniami człowieka a stanem środowiska i jakością życia, jest zdolnym do krytycznej analizy działań człowieka w środowisku;	1GS_K3 1GS_U7 1GS_W3	1 1 1
W2-GS-S1-055_7	potrafi wykonać kartę informacyjną złoża, wie jakie informacje są ważne w kontekście ekonomicznym i górniczym.	1GS_K6 1GS_U3 1GS_U9	1 2 1

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*

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-GS-S1-055_l_1	laboratory classes	24	course work	W2-GS-S1-055_4, W2-GS-S1-055_5, W2-GS-S1-055_6, W2-GS-S1-055_7	a03, c07
W2-GS-S1-055_w_1	lecture	24	exam	W2-GS-S1-055_1, W2-GS-S1-055_2, W2-GS-S1-055_3	a01

11.	The student's work, apart from participation in classes, includes in particular:		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
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

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.

1.	Field of study	Applied Geology
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	**Geophysics**
Module code	W2-GS-S1-032
Number of the ECTS credits	4
Language of instruction	Polish
Purpose and description of the content of education	Dzięki modułowi student poznaje rolę rozpoznania geofizycznego w badaniach i poszukiwaniach geologicznych. W ramach modułu syntetycznie omawiane są hipotezy wyjaśniające powstanie i ewolucję Wszechświata, Układu Słonecznego oraz Ziemi, a w dalszej kolejności naturalne pola fizyczne Ziemi (pole siły ciężkości, pole magnetyczne, pole termiczne) i naturalne zjawiska sejsmiczne oraz interakcje między nimi zachodzące. Omawiane są możliwości i sposoby wykorzystania pomiarów zmienności wyżej wymienionych zjawisk i efektów jako źródła unikatowych informacji przyczyniających się do poznania i zrozumienia procesów zachodzących na i we wnętrzu Ziemi zarówno w czasie geologicznym, współczesnym jak i w przyszłości. Omawiana jest aparatura służąca do badań, zasady jej działania, ewolucja i możliwości. Sygnalizowane są aspekty stosowane omawianych metod związane z poszukiwaniami surowcowymi, aspektami środowiskowymi, pracami inżynieryjno-budowlanymi oraz prognozowaniem zagrożeń. W ramach laboratorium w oparciu o omawianą na wykładach część teoretyczną wykonywane są proste prace obliczeniowe. Moduł ma za zadanie powiązanie „Dynamiki Ziemi" z procesami fizycznymi, które są mechanizmami napędowymi obserwowanych efektów oraz wyjaśnienie źródeł powszechnie akceptowanych informacji o budowie głębokiego wnętrza Ziemi oraz globalnych procesach geologicznych.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-405] Dynamic Earth 1 [W2-GS-S1-406] Dynamic Earth 2 [W2-GS-S1-002] Physics in Earth Sciences [W2-GS-S1-009] Mathematics in Earth Sciences [W2-GS-S1-402] Basics of topography and cartography

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-032_1	znajomość podstaw fizycznych wybranych zjawisk wykorzystywanych w geofizycznych pracach badawczych i poszukiwawczych	1GS_W1	1
W2-GS-S1-032_2	znajomość podstaw metodyki badań grawimetrycznych, magnetometrycznych, geotermicznych i sejsmologicznych, budowy i zasady działania urządzeń pomiarowych oraz typowych zastosowań wymienionych metod	1GS_W2 1GS_W3 1GS_W4	2 1 1
W2-GS-S1-032_3	umiejętność wykonywania prostych obliczeń związanych z przetwarzaniem danych pomiarowych przy pomocy podstawowego oprogramowania i znajomość ograniczeń takich obliczeń	1GS_U2	2

W2-GS-S1-032_4	umiejętność prezentowania wyników badań oraz redagowania tekstów podsumowujących badania	1GS_U6	1
W2-GS-S1-032_5	umiejętność formułowania pytań służących zgłębieniu tematu i umiejętność wyszukiwania wartościowych i wiarygodnych informacji	1GS_K2	1

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
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*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*

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-GS-S1-032_l_1	laboratory classes	24	course work	W2-GS-S1-032_3, W2-GS-S1-032_4, W2-GS-S1-032_5	c06, d01, d03
W2-GS-S1-032_w_1	lecture	24	course work	W2-GS-S1-032_1, W2-GS-S1-032_2, W2-GS-S1-032_5	a01

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

Code	Category	Name (description)	Is it part of the BUNA?
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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	No
d02	Consulting the results of the verification of learning outcomes	Development of a corrective action plan as well as supplementary/corrective tasks *reviewing and selecting tasks and activities enabling the elimination of errors indicated by the academic teacher, their verification or correction resulting in completing the task with at least the minimum passing grade*	No

e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No

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.

1.	**Field of study**	**Applied Geology**
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	**Geostatistics**
Module code	W2-GS-S1-030
Number of the ECTS credits	2
Language of instruction	Polish
Purpose and description of the content of education	Moduł Geostatystyka składa się z wykładów i ćwiczeń prowadzonych z wykorzystaniem pracowni komputerowej. W trakcie wykładów omawiane są następujące zagadnienia: Podstawowe pojęcia statystyki matematycznej, Rozkłady prawdopodobieństwa zmiennych losowych, miary tendencji centralnej i rozproszenia rozkładów, estymacja punktowa i przedziałowa parametrów rozkładów, zasady testowania hipotez statystycznych, parametryczne testy istotności, nieparametryczne testy zgodności, analiza korelacji i regresji dwóch zmiennych losowych, analiza korelacji wielu zmiennych. W ramach ćwiczeń student uczy się prowadzić analizę statystyczną danych z wykorzystaniem specjalistycznych programów komputerowych. Rozwiązuje zadania związane ze statystyką opisową, uczy się praktycznego wyznaczania przedziałów ufności parametrów rozkładów statystycznych, testowania hipotez o parametrach rozkładów, wykonywania testów zgodności rozkładów, prowadzenia analizy korelacyjnej i wyznaczania współczynników regresji liniowej.
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-GS-S1-030_1	student zna podstawowe pojęcia statystyki matematycznej	1GS_W1 1GS_W6	2 2
W2-GS-S1-030_2	potrafi scharakteryzować metody statystyczne wykorzystywane w naukach o Ziemi.	1GS_U1	1
W2-GS-S1-030_3	jest w stanie wykonywać obliczenia zawiązane z analizą danych wykorzystując odpowoednie programy komputerowe i interpretować uzyskane wyniki.	1GS_K2 1GS_U1 1GS_U10 1GS_U11	2 2 2 2

9.	Methods of conducting classes	
Code	**Category**	**Name (description)**
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*

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-GS-S1-030_l_1	laboratory classes	24	course work	W2-GS-S1-030_1, W2-GS-S1-030_2, W2-GS-S1-030_3	e01
W2-GS-S1-030_w_1	lecture	12	course work	W2-GS-S1-030_1, W2-GS-S1-030_2, W2-GS-S1-030_3	a01, c07

11.	The student's work, apart from participation in classes, includes in particular:		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
a04	Preparation for classes	Consulting materials complementary to those indicated in the syllabus *agreeing on materials complementary to those indicated in the syllabus, supporting the implementation of tasks resulting from or necessary for class participation*	No
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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
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 phase/element of the verification of the learning outcomes assigned to the course*	No

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.

1.	Field of study	Applied Geology
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	**GIS in geology**
Module code	W2-GS-S1-048
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	Głównym celem modułu „GIS w geologii” jest kompilacja umiejętności studentów w zakresie wykorzystania narzędzi systemów informacji geograficznej (GIS) zdobytych przez studentów w ciągu poprzedzających trzech lat. Tematyka zajęć obejmuje praktyczne zastosowanie GIS. Studenci uczestniczący w kursie będą przygotowywali czystorysowe mapy cyfrowe na bazie wykonanych map geologicznych. Moduł przewiduje przygotowanie mapy dokumentacyjnej na podstawie zebranych danych GPS, oraz dygitalizację i wizualizację mapy odkrytej i zakrytej w skali 1:10000. Uczestnik kursu zostanie przygotowany do efektywnego wykorzystywania narzędzi GIS zgodnie z krajowymi i międzynarodowymi standardami kartograficznymi, wymaganymi w przyszłej pracy zawodowej.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-025] Geoinformation and Geological Databases [W2-GS-S1-417] Geological Mapping

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-048_1	zna wybrane zagadnienia z zakresu Systemów Informacji Geograficznej (GIS)	1GS_W1 1GS_W6	1 1
W2-GS-S1-048_2	potrafi posługiwać się pojęciami z zakresu kartografii geologicznej, oraz GIS, rozumie te pojęcia i potrafi je wyjaśnić używając języka potocznego	1GS_U1 1GS_U6	1 2
W2-GS-S1-048_3	potrafi właściwie dobrać i stosować narzędzia do osiągnięcia wybranych celów w przygotowaniu dokumentacji kartograficznej	1GS_K2 1GS_U1	1 2
W2-GS-S1-048_4	posiada umiejętność posługiwania się wolnym oprogramowaniem komputerowym wykorzystywanym w dziedzinie nauk o Ziemi do analizy i wizualizacji wyników badań terenowych	1GS_K2 1GS_U1 1GS_U3 1GS_W2	1 1 1 1
W2-GS-S1-048_5	potrafi formułować pytania służące poznawaniu nowych narzędzi i metod i gdzie szukać odpowiedzi	1GS_K2	2

		1GS_U11 1GS_U4	1 1
W2-GS-S1-048_6	wykazuje aktywną postawę w stosunku do korzystania ze wskazówek prowadzących podczas zajęć laboratoryjnych	1GS_K2	1

9.	**Methods of conducting classes**	
Code	**Category**	**Name (description)**
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
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*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
e03	Practical methods	Creation/production – creative workshop *an activity involving creating/producing a work/artifact based on the individual, creative effort of the participant; the creative workshop is characterized by the presence and openness which make it possible to access the essence of the work/ peculiarity of the artifact at every stage of its creation/production*
f02	Methods of self-learning	Individual work with a text *searching for and acquiring new information using textbooks and other written sources (including their digital versions); searching for texts, selecting fragments for analysis/interpretation, using other texts to solve a problem related to the studied issue*

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-GS-S1-048_l_1	laboratory classes	36	course work	W2-GS-S1-048_1, W2-GS-S1-048_2, W2-GS-S1-048_3, W2-GS-S1-048_4, W2-GS-S1-048_5, W2-GS-S1-048_6	c06, c07, d01, d03, e03, f02

11.	The student's work, apart from participation in classes, includes in particular:		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
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
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
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 phase/element of the verification of the learning outcomes assigned to the course*	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*	No
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No

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.

1.	**Field of study**	**Applied Geology**
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	**Hydrogeology**
Module code	W2-GS-S1-409
Number of the ECTS credits	4
Language of instruction	Polish
Purpose and description of the content of education	W ramach realizacji modułu Hydrogeologia student zapoznaje się z problematyką wód podziemnych, ich występowaniem, własnościami fizyko-chemicznymi, podstawowymi parametrami hydrogeologicznymi, wzajemnymi relacjami pomiędzy wodami powierzchniowymi i podziemnymi, prawami rządzącymi ruchem wód podziemnych, podstawowymi sposobami kartograficznego przedstawiania występowania wód podziemnych oraz szacowania ich zasobów a także podstaw ich ochrony. Student poznaje także różne metody pomiaru natężenia przepływu, badania parametrów hydrogeologicznych i interpretacji wyników pomiarów hydrogeologicznych. Nabyte umiejętności pozwolą mu na wykonywanie podstawowych czynności hydrogeologa w geologii, górnictwie, zarządzaniu środowiskiem, administracji geologicznej, kartografii i budownictwie.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-408] Chemistry in Earth sciences [W2-GS-S1-405] Dynamic Earth 1 [W2-GS-S1-406] Dynamic Earth 2

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-409_1	zna i rozumie podstawowe pojęcia związane z hydrogeologią oraz obiegiem wody w przyrodzie	1GS_W1	1
W2-GS-S1-409_2	zna podstawowe własności hydrogeologiczne skał	1GS_W1	1
W2-GS-S1-409_3	zna prawa rządzące ruchem wód podziemnych	1GS_W1	1
W2-GS-S1-409_4	potrafi wykonać prostą mapę hydrogeologiczną i przekrój hydrogeologiczny	1GS_K1 1GS_K6 1GS_U1 1GS_U2	1 1 1 2
W2-GS-S1-409_5	posiada umiejętność podstawowej interpretacji wyników badań składu chemicznego wody	1GS_U1 1GS_U10	1 1

		1GS_U6 1GS_U9	1 1
W2-GS-S1-409_6	zna podstawy ujmowania wód podziemnych	1GS_K1 1GS_U2 1GS_W1	1 1 1
W2-GS-S1-409_7	zna różne metody pomiaru natężenia przepływu wody w ciekach powierzchniowych i potrafi je zastosować do obliczeń bilansu hydrogeologicznego	1GS_K1 1GS_U2 1GS_W1	1 1 1
W2-GS-S1-409_8	zna podstawowe zagadnienia związane z zasobami wód podziemnych i ich zagrożeniem antropogenicznym	1GS_W1 1GS_W3 1GS_W4	1 1 1

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*
e08	Practical methods	Practice-as-research *also conducted as fieldwork; an activity aimed at confronting the acquired theory with practice through its practical application; students situate themselves in the reality they observe, study and transform through the prism of the theory; the method of practical classes is dominated by the application of knowledge to solving practical tasks*

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-GS-S1-409_l_1	laboratory classes	36	course work	W2-GS-S1-409_4, W2-GS-	c06, e01, e08

				S1-409_5, W2-GS-S1-409_6, W2-GS-S1-409_7	
W2-GS-S1-409_w_1	lecture	12	exam	W2-GS-S1-409_1, W2-GS-S1-409_2, W2-GS-S1-409_3, W2-GS-S1-409_6, W2-GS-S1-409_7, W2-GS-S1-409_8	a01, a03

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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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 phase/element of the verification of the learning outcomes assigned to the course*	No

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.

1.	**Field of study**	**Applied Geology**
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	**Hydrogeology, Engineering Geology and Geological Drilling Service – Field Trip**
Module code	W2-GS-S1-420
Number of the ECTS credits	4
Language of instruction	Polish
Purpose and description of the content of education	Po zrealizowaniu modułu student nabędzie umiejętności projektowania studni, kartowania hydrogeologicznego, polowych badań hydrogeologicznych i geologiczno-inżynierskich. Zapozna się z zadaniami geologa na wierceniach, skonfrontuje teoretyczną wiedzę z zakresu wiertnictwa i górnictwa z praktycznymi aspektami tych modułów. Obserwując pracę geologa w terenie przekona się czy jest to praca odpowiadająca jego możliwościom i aspiracjom.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-412] Applied Geology 1 [W2-GS-S1-040] Engineering geology 2 [W2-GS-S1-411] Mining (I) [W2-GS-S1-035] Mining (II) [W2-GS-S1-409] Hydrogeology [W2-GS-S1-413] Drilling 1 [W2-GS-S1-044] Drilling 2

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-420_1	zapoznaje się z systemami odwadniania kopalń odkrywkowych oraz konstrukcjami studni odwadniających i eksploatacyjnych.	1GS_K2 1GS_U1 1GS_W1 1GS_W4	2 1 1 1
W2-GS-S1-420_2	realizuje w terenie badania monitoringowe wód podziemnych oraz pomiary hydrometryczne w ciekach powierzchniowych	1GS_K2 1GS_U10 1GS_U2 1GS_U9	2 1 2 1
W2-GS-S1-420_3	stosuje podstawowe polowe metody oznaczanie współczynnika filtracji strefy aeracji i saturacji	1GS_U1 1GS_U11	1 1

		1GS_U2	1
W2-GS-S1-420_4	posiada podstawową wiedzę w zakresie kartowania hydrogeologicznego	1GS_K6 1GS_U1 1GS_W1	2 1 1
W2-GS-S1-420_5	rozpoznaje podstawowe typy wiertnic i sprzęt specjalistyczny	1GS_K5 1GS_U1 1GS_U9	2 2 2
W2-GS-S1-420_6	dobiera konstrukcję otworu do danych warunków geologicznych i hydrogeologicznych	1GS_K5 1GS_U1 1GS_U9 1GS_W2	1 2 1 4
W2-GS-S1-420_7	zna obowiązki geologa w obsłudze wierceń	1GS_K2 1GS_K3 1GS_K5 1GS_K6 1GS_U1 1GS_U10 1GS_U11 1GS_U5 1GS_U6 1GS_U9 1GS_W4	1 1 2 3 2 3 2 3 1 2 2

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*
b04	Problem-solving methods	Activating method – discussion / debate *an exchange of views supported by substantive arguments leading to a clash of different views, a compromise or the identification of common positions; it proceeds according to previously agreed-upon rules regarding the time, manner and turn-taking as well as the principles of civil discourse; a discussion is not a competition but aims at finding the best solutions or presenting different points of view; its varieties include brainstorming, Oxford-style debate, panel discussion, decision tree, conference discussion; a debate is an orderly dispute between supporters and opponents of a viewpoint, usually specialists in the field or pre-selected representatives of a group dealing with a common problem*
b07	Problem-solving methods	Activating methods: a case study *a comprehensive description of a phenomenon connected with the selected discipline; reflecting the reality, presenting the 'what', 'where' and 'how' of the phenomenon, i.e., all of its key aspects to be discussed in class; used as a reproduction,*

		presentation, discussion or diagnosis of factors that shape the phenomenon or interact with it; an in-depth qualitative analysis and evaluation of a selected phenomenon
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*
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*
e05	Practical methods	Internship *including professional and individual training; gaining skills and experience in real-life conditions, e.g., in the environment, institution or workplace the student is preparing for by following a specific study programme; training in real working conditions*
e06	Practical methods	Observation *also conducted as fieldwork; a method of watching phenomena, objects or people in a systematic/planned way in order to gain knowledge about them; perceptual separation of elements of a model action as an element of learning through imitation; a complex system of cognition based on sensory experiences*

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-GS-S1-420_ct_1	field practice	60	course work	W2-GS-S1-420_1, W2-GS-S1-420_2, W2-GS-S1-420_3, W2-GS-S1-420_4, W2-GS-S1-420_5, W2-GS-S1-420_6, W2-GS-S1-420_7	b01, b04, b07, c06, d03, e01, e04, e05, e06

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

Code	Category	Name (description)	Is it part of the BUNA?
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*	No

		developed during previous classes or new skills necessary for the implementation of subsequent elements of the curriculum (as preparation for class participation)	
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
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 phase/element of the verification of the learning outcomes assigned to the course*	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*	No
d03	Consulting the results of the verification of learning outcomes	Review of internship documentation *an analysis of the portfolio of documentation obtained during internship, including professional internship, and other practical classes and studio sessions, as well as the documentation developed in order to obtain credit for such classes; verification of the description, necessary attachments, opinions and grades before submitting the portfolio for acceptance*	No
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No

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.

1.	Field of study	Applied Geology
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	**Information systems in the practice of the geological engineer: AutoCAD or GeoStar or FEFLOW**
Module code	W2-GS-S1-036
Number of the ECTS credits	2
Language of instruction	Polish
Purpose and description of the content of education	Moduł: Systemy informacyjne w praktyce inżyniera geologa umożliwia osobom studiującym samodzielny wybór po pierwszych zajęciach oprogramowania, które chcą poznać na pozostałych zajęciach. W trakcie pierwszych zajęć prowadzący informuje studenta o zastosowaniach w geologii trzech programów: AutoCAD, GeoStar i FEFLOW oraz pokazuje efekty graficzne związane z wykorzystaniem danego oprogramowania. Na kolejnych zajęciach studenci zapoznają się z wybranym programem poznając interfejs programu i podstawowe funkcje i narzędzia. Wraz z kolejnymi zajęciami student poznaje nowe paski narzędziowe/moduły programu, które w konsekwencji umożliwiają tworzenie wybranych załączników graficznych niezbędnych przy wykonywaniu wybranych dokumentacji hydrogeologicznych i geologiczno-inżynierskich określonych w rozporządzeniu Ministra Środowiska w sprawie dokumentacji hydrogeologicznej i dokumentacji geologiczno-inżynierskiej. Po osiągnięciu efektów kształcenia modułu student powinien dostrzegać, przydatność wybranego programu w praktyce inżyniera geologa, zauważać obszary jego wykorzystania i potrafić swobodnie poruszać się w podstawowych funkcjach program oraz nabrać umiejętności do dalszego samorozwoju z wykorzystaniem oprogramowania, które poznawał na zajęciach.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-025] Geoinformation and Geological Databases [W2-GS-S1-409] Hydrogeology [W2-GS-S1-009] Mathematics in Earth Sciences [W2-GS-S1-402] Basics of topography and cartography

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-036 _1	zna obszary w geologii w których znajdują zastosowanie programy komputerowe takie jak AutoCAD, GeoStar i FEFLOW.	1GS_U11 1GS_W2	1 1
W2-GS-S1-036 _2	ma podstawową wiedzę teoretyczną i praktyczną o wybranym programie komputerowym	1GS_K2 1GS_U2	1 3
W2-GS-S1-036 _3	stosuje płynnie wybrane funkcje programu, zna ich przydatność do prezentacji danych geologicznych	1GS_U2 1GS_U6	3 1
W2-GS-S1-036 _4	potrafi z pomocą oprogramowania wykonać wybrane załączniki graficzne, które są określone w rozporządzeniu Ministra Środowiska w sprawie dokumentacji hydrogeologicznej i dokumentacji geologiczno-inżynierskiej	1GS_U2 1GS_U6	3 2

W2-GS-S1-036 _5	potrafi krytycznie interpretować przygotowane wizualizacje graficzne przedstawiające budowę geologiczną, warunki hydrogeologiczne lub inne wybrane zagadnienia	1GS_U2 1GS_U4 1GS_U5 1GS_U6	3 2 1 2
W2-GS-S1-036 _6	potrafi analizować i przetwarzać geologiczne dane przestrzenne z badań terenowych i w sposób czytelny je zeschematyzować i zwizualizować	1GS_U2 1GS_U4 1GS_U5 1GS_U6	3 2 1 2
W2-GS-S1-036 _7	podczas tworzenia załączników graficznych wykazuje się przedsiębiorczą kreatywnością i samodzielnością oraz potrafi syntetycznie przedstawić wyniki z badań terenowych	1GS_K4 1GS_U2 1GS_U5	1 2 1

9. Methods of conducting classes

Code	Category	Name (description)
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
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*
d04	Programmed learning methods	Reconstruction / reproduction *proceeding according to the indicated/displayed pattern/model; e.g., the reconstruction of a structure, model, image, etc.*
f03	Methods of self-learning	Conceptual work *a (mainly intellectual) activity carried out independently (or in a selected group) resulting in the creation of a concept, idea or project; creating a plan based on a vision; developing a general outline of a project; producing a simplified sketch of the variant versions of a procedure/product/work*

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-GS-S1-036_l_1	laboratory classes	24	course work	W2-GS-S1-036 _1, W2-GS-S1-036 _2, W2-GS-S1-036 _3, W2-GS-S1-036 _4, W2-GS-S1-036 _5, W2-GS-S1-036 _6, W2-GS-S1-036 _7	c07, d01, d04, f03

11.	The student's work, apart from participation in classes, includes in particular:		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	No
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	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*	No

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.

1.	Field of study	Applied Geology
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	**Instrumental research methods in geology**
Module code	W2-GS-S1-416
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	Celem modułu jest nabycie przez studentów wiedzy na temat niektórych metod laboratoryjnych badania minerałów i skał. W trakcie zajęć student pozna podstawowe metody instrumentalne dostępne w INoZ: - skaningowa mikroskopia SEM-EDS, - proszkowa dyfrakcja promieni rentgenowskich (PXRD), - spektroskopia wibracyjna (Raman i IR). Student pozna możliwości badawcze zaproponowanych metod badawczych. Wykonując bezpośrednio pomiary lub uczestnicząc w ich przeprowadzeniu, zapozna się z metodami pracy laboratoryjnej, takimi jak przygotowanie próbek do badań, odpowiednie dla każdej z metod oraz nauczy się omawiania uzyskanych wyników. Przygotowywanie sprawozdań z wykonanych zajęć nauczy studenta pisania raportów laboratoryjnych oraz krytycznego czytania opracowań, wykonanych przez inne osoby czy jednostki badawcze. Przedmiot ten, jako całość wprowadzi studenta w podstawową wiedzę o współczesnych metodach badawczych stosowanych w geologii oraz w podstawowe umiejętności pracy w laboratorium badawczym.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-408] Chemistry in Earth sciences [W2-GS-S1-031] Mineralogy [W2-GS-S1-024] Mineralogy with the basics of crystallography [W2-GS-S1-041] Applied petrology 1 [W2-GS-S1-049] Applied petrology 2

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-416_1	zna teoretyczne podstawy wybranych metod badawczych oraz zasady działania sprzętu	1GS_U10 1GS_U6 1GS_W2 1GS_W5 1GS_W6	1 1 1 1 1
W2-GS-	potrafi przygotować próbkę do badań, umie obsługiwać sprzęt pod opieką prowadzącego	1GS_U10	1

S1-416_2		1GS_U3 1GS_U6 1GS_W2 1GS_W6	1 1 1 1
W2-GS-S1-416_3	umie zinterpretować wyniki uzyskanych danych eksperymentalnych oraz przygotować sprawozdanie zaliczeniowe	1GS_U10 1GS_U3 1GS_U6 1GS_W2 1GS_W6	1 1 1 1 1

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
b02	Problem-solving methods	Lecture-discussion *transmission of content involving interaction with the lecture audience; discussion of lecture-related issues is one of its elements or constitutes its follow-up*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
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.*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
f01	Methods of self-learning	Self-education *a method which involves independent acquisition of knowledge, skills and social competences, extending their scope and quality; complementary to the learning process taking place in class; taking on the task of developing and adjusting qualifications on one's own; self-study*

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-GS-S1-416_l_1	laboratory classes	30	course work	W2-GS-S1-416_1, W2-GS-S1-416_2, W2-GS-S1-416_3	d01, d02, d03, f01
W2-GS-S1-416_w_1	lecture	6	course work	W2-GS-S1-416_1	a01, a03, b02, c07

11.	The student's work, apart from participation in classes, includes in particular:		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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 phase/element of the verification of the learning outcomes assigned to the course*	No
d02	Consulting the results of the verification of learning outcomes	Development of a corrective action plan as well as supplementary/corrective tasks *reviewing and selecting tasks and activities enabling the elimination of errors indicated by the academic teacher, their verification or correction resulting in completing the task with at least the minimum passing grade*	No
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No

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.

1.	**Field of study**	**Applied Geology**
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	**Interdisciplinary challenges of natural sciences**
Module code	W2-GS-S1-400
Number of the ECTS credits	2
Language of instruction	Polish
Purpose and description of the content of education	Celem modułu „Interdyscyplinarne wyzwania nauk przyrodniczych” jest umożliwienie studentowi poznania tych obszarów nauk przyrodniczych, gdzie dla poszerzenia istniejącego stanu wiedzy niezbędne jest interdyscyplinarne wykorzystanie metod i strategii poznawczych różnych dziedzin. Na przykładach badań naukowych z dziedzin takich jak kosmochemia, geologia/geochemia/mineralogia, archeometria i ochrona środowiska student zostanie zapoznany z wyzwaniami, jakie stawia przed badaczem nowoczesne podejście do badań przyrodniczych. Jednocześnie student uzyska podstawową wiedzę i umiejętności praktyczne, niezbędne do zrozumienia metod stosowanych w naukach przyrodniczych. Po osiągnięciu efektów kształcenia modułu, integracja między różnymi dziedzinami wiedzy pozwoli studentowi w rozwijaniu głębokiego i jednocześnie spójnego rozumienia nauk przyrodniczych oraz świata.
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-GS-S1-400_1	zna podstawowe pojęcia z zakresu nauk przyrodniczych	1GS_W1 1GS_W6	2 2
W2-GS-S1-400_2	zna uwarunkowania środowiskowe działalności gospodarczej człowieka w zakresie nauk o Ziemi	1GS_W2 1GS_W6	3 2
W2-GS-S1-400_3	potrafi wykorzystywać posiadaną wiedzę do formułowania i rozwiązywania prostych i typowych, problemów z dziedziny nauk przyrodniczych	1GS_U1 1GS_U10 1GS_U3 1GS_W6	2 1 1 3
W2-GS-S1-400_4	potrafi przeprowadzić wybrane eksperymenty przyrodnicze	1GS_U10 1GS_U2	1 3
W2-GS-	potrafi brać udział w debacie – przedstawiać jasno i oceniać obiektywnie różne opinie i stanowiska, szukając	1GS_U7	2

S1-400_5	argumentów naukowych oraz dyskutować o nich.		
W2-GS-S1-400_6	potrafi śledzić osiągnięcia nauk o Ziemi i środowisku, w tym najnowsze postępy technologiczne oraz konfrontować je z innymi dziedzinami nauki. Zdaje sobie sprawę z konieczności ciągłego pogłębiania wiedzy.	1GS_U11	2
W2-GS-S1-400_7	jest świadomy rzetelności zdobytej wiedzy i konieczności konfrontowania z nią obiegowych opinii pochodzących z różnych źródeł.	1GS_K1	2
W2-GS-S1-400_8	jest świadomy ograniczonego zakresu zdobytej wiedzy i konieczności poszukiwania nowych informacji z wykorzystaniem rzetelnych i pewnych źródeł	1GS_K2	2

9. Methods of conducting classes

Code	Category	Name (description)
a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
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*
b07	Problem-solving methods	Activating methods: a case study *a comprehensive description of a phenomenon connected with the selected discipline; reflecting the reality, presenting the 'what', 'where' and 'how' of the phenomenon, i.e., all of its key aspects to be discussed in class; used as a reproduction, presentation, discussion or diagnosis of factors that shape the phenomenon or interact with it; an in-depth qualitative analysis and evaluation of a selected phenomenon*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*
e05	Practical methods	Internship *including professional and individual training; gaining skills and experience in real-life conditions, e.g., in the environment, institution or workplace the student is preparing for by following a specific study programme; training in real working conditions*
f03	Methods of self-learning	Conceptual work *a (mainly intellectual) activity carried out independently (or in a selected group) resulting in the creation of a concept, idea or project; creating a plan based on a vision; developing a general outline of a project; producing a simplified sketch of the variant versions of a procedure/product/work*

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-GS-S1-400_l_1	laboratory classes	12	course work	W2-GS-S1-400_3, W2-GS-	e01, e05, f03

				S1-400_4, W2-GS-S1-400_5	
W2-GS-S1-400_w_1	lecture	12	course work	W2-GS-S1-400_1, W2-GS-S1-400_2, W2-GS-S1-400_3, W2-GS-S1-400_6, W2-GS-S1-400_7, W2-GS-S1-400_8	a05, b01, b07, c07

11.	**The student's work, apart from participation in classes, includes in particular:**		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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
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 phase/element of the verification of the learning outcomes assigned to the course*	No
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No

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.

1.	**Field of study**	**Applied Geology**
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	**Legal Issues in Geology and Environmental Protection**
Module code	W2-GS-S1-418
Number of the ECTS credits	1
Language of instruction	Polish
Purpose and description of the content of education	Moduł Zagadnienia prawne w geologii i ochronie środowiska ma pozwolić studentowi zrozumienie funkcjonowania reżimu prawnego w odniesieniu do działalności poszukiwawczej, rozpoznawczej, wydobywczej i rozwiązań prawnych w zakresie ochrony środowiska w związku z realizacją działalności objętej ustawą Prawo geologiczne i górnicze. Szczegółowo prezentowanymi zagadnieniami są: Pojęcie prawa i systemu prawnego, miejsce prawa geologicznego w systemie prawnym RP. Organy państwowe administrujące górnictwem i geologią. Historia prawodawstwa geologicznego i górniczego w Polsce, źródła prawa Szczegółowe omówienie zagadnień własności złóż kopalin, koncesjonowania działalności geologicznej i górniczej, kwalifikacji osób uprawnionych do prowadzenia takiej działalności, podstaw prawnych działalności geologicznej (projektowanie prac, prowadzenie prac, dokumentacja, ewidencja i bilansowanie zasobów) i górniczej (projekt zagospodarowania złoża, wydobywanie kopalin i likwidacja zakładu górniczego), szkód spowodowanych w związku z pracami geologicznymi i górniczymi oraz instrumentów ochrony środowiska przed oddziaływaniem górnictwa.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-055] Geology and metal ore exploration [W2-GS-S1-411] Mining (I) [W2-GS-S1-035] Mining (II) [W2-GS-S1-413] Drilling 1 [W2-GS-S1-044] Drilling 2

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-418_1	umie rozróżniać źródła prawa i organy państwowe, które je kreują	1GS_K5 1GS_U1	2 2
W2-GS-S1-418_2	rozumie organizację państwowej administracji geologicznej i górniczej oraz ich kompetencje	1GS_K5 1GS_U1	2 2
W2-GS-S1-418_3	rozumie zasady nabywania prawa użytkowania górniczego	1GS_K5 1GS_W3 1GS_W4 1GS_W5	2 2 2 2

W2-GS-S1-418_4	rozumie rozwiązania prawne w zakresie wykonywania działalności geologicznej i górniczej	1GS_K5 1GS_U5 1GS_W3 1GS_W4 1GS_W5	2 2 2 2 2
W2-GS-S1-418_5	rozumie idee i zakres współdziałania organów przy podejmowaniu decyzji dotyczących działalności geologicznej i górniczej	1GS_K4 1GS_W3 1GS_W4 1GS_W5	2 2 2 2
W2-GS-S1-418_6	rozumie zasady zrównoważonej i racjonalnej eksploatacji kopalin	1GS_K3 1GS_U1 1GS_U5 1GS_W3 1GS_W4 1GS_W5	2 2 2 2 2 2
W2-GS-S1-418_7	ma świadomość roli, zakresu obowiązków i odpowiedzialności geologa w świetle przepisów prawa	1GS_K6 1GS_U1 1GS_U6 1GS_W4 1GS_W5	2 2 2 2 2
W2-GS-S1-418_8	zna instrumenty ochrony środowiska przed oddziaływaniem prac geologicznych i górniczych	1GS_K3 1GS_K6 1GS_U6 1GS_W3 1GS_W4 1GS_W5	2 2 2 2 2 2

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
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*

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-GS-S1-418_w_1	lecture	20	course work	W2-GS-S1-418_1, W2-GS-S1-418_2, W2-GS-S1-418_3, W2-GS-S1-418_4, W2-GS-S1-418_5, W2-GS-S1-418_6, W2-GS-S1-418_7, W2-GS-S1-418_8	a01, b01

11.	The student's work, apart from participation in classes, includes in particular:		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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

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.

1.	**Field of study**	**Applied Geology**
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	**Mathematics in Earth Sciences**
Module code	W2-GS-S1-009
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	Moduł Matematyka w naukach o Ziemi umożliwi studentowi gruntowne poznanie (lub przypomnienie) wybranych zagadnień z matematyki, jak przekształcenie wyrażeń wymiernych i niewymiernych, podstawowych pojęć z zakresu algebry, własności funkcji elementarnych i trygonometrycznych oraz podstaw rachunku różniczkowego i całkowego. Student nabędzie umiejętności posługiwania się podstawowym aparatem matematycznym, wykorzystywanym w naukach przyrodniczych, a także w podstawach fizyki i chemii.
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-GS-S1-009 _1	zna podstawowe pojęcia z zakresu matematyki i pogłębia wiedzę w zakresie wybranej problematyki	1GS_W1 1GS_W2	1 1
W2-GS-S1-009 _2	przyswoi nowe pojęcia matematyki wyższej i metody obliczeniowe stosowane w naukach o Ziemi.	1GS_W1 1GS_W3	1 1
W2-GS-S1-009 _3	pozna podstawy statystyki matematycznej.	1GS_W1	3
W2-GS-S1-009 _4	będzie potrafił przeprowadzić krytyczną dyskusję posiadanej wiedzy i umiejętności	1GS_K1 1GS_U1	1 1
W2-GS-S1-009 _5	nabierze przekonania do stosowania metod obliczeniowych w opisie zjawisk geologicznych	1GS_K2 1GS_U1	1 1

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture

		a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*

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-GS-S1-009_l_1	laboratory classes	24	course work	W2-GS-S1-009 _1, W2-GS-S1-009 _2, W2-GS-S1-009 _3, W2-GS-S1-009 _4, W2-GS-S1-009 _5	e01
W2-GS-S1-009_w_1	lecture	12	course work	W2-GS-S1-009 _1, W2-GS-S1-009 _2, W2-GS-S1-009 _3, W2-GS-S1-009 _4, W2-GS-S1-009 _5	a01

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

Code	Category	Name (description)	Is it part of the BUNA?
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*	Yes
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)*	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.

1.	**Field of study**	**Applied Geology**
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	**Mineralogy**
Module code	W2-GS-S1-031
Number of the ECTS credits	4
Language of instruction	Polish
Purpose and description of the content of education	Mineralogia - nauka o minerałach, zajmująca się badaniem składu, właściwości, morfologii, struktury, procesów powstawania i przemian minerałów, prawidłowości ich współwystępowania w przyrodzie, a także warunków i metod syntezy oraz praktycznych zastosowań. Celem przedmiotu Mineralogia jest zapoznanie studentów z teoretycznymi i metodologicznymi podstawami kursu, praca z najbardziej rozpowszechnionymi minerałami, które pozwolą na zrozumienie kierunków badań mineralogicznych i praktycznego wykorzystania surowców mineralnych. Do zadań przedmiotu Mineralogia należy zdobycie wiedzy o genezie minerałów, poznaniu zasad klasyfikacji, zrozumieniu wzorów krystalochemicznych i ich obliczanie na podstawie wyników analiz chemicznych na poziomie podstawowym. Dodatkowo na zajęciach praktycznych student powinien opanować nawyki opisania i rozpoznawania minerałów oraz ich paragenez.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-024] Mineralogy with the basics of crystallography

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-031_1	zna współczesną klasyfikację minerałów	1GS_U10 1GS_U6 1GS_W6	2 1 2
W2-GS-S1-031_2	posiada podstawową wiedzę (cechy fizyczne, skład chemiczny, strukturę, genezę) o najbardziej rozpowszechnionych minerałach i grupach minerałów	1GS_U10 1GS_U6 1GS_W6	2 2 1
W2-GS-S1-031_3	zna zastosowanie surowców mineralnych	1GS_U10 1GS_U6 1GS_W6	1 1 1
W2-GS-	umie ustalać i opisywać cechy fizyczne minerałów i rozpoznawać minerały, opisywać asocjacje mineralne oraz ustalać	1GS_U10	2

S1-031_4	typ genetyczny badanej próbki	1GS_U6 1GS_W6	2 1
W2-GS-S1-031_5	zna podstawy obliczenia wzorów krystalochemicznych	1GS_U10 1GS_U6 1GS_W6	1 1 1

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
b02	Problem-solving methods	Lecture-discussion *transmission of content involving interaction with the lecture audience; discussion of lecture-related issues is one of its elements or constitutes its follow-up*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
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.*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
f01	Methods of self-learning	Self-education *a method which involves independent acquisition of knowledge, skills and social competences, extending their scope and quality; complementary to the learning process taking place in class; taking on the task of developing and adjusting qualifications on one's own; self-study*

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-GS-S1-031_l_1	laboratory classes	24	course work	W2-GS-S1-031_1, W2-GS-	d01, d02, d03, f01

				S1-031_2, W2-GS-S1-031_3, W2-GS-S1-031_4, W2-GS-S1-031_5	
W2-GS-S1-031_w_1	lecture	24	exam	W2-GS-S1-031_1, W2-GS-S1-031_2, W2-GS-S1-031_3, W2-GS-S1-031_5	a01, a03, b02, c07

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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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 phase/element of the verification of the learning outcomes assigned to the course*	No
d02	Consulting the results of the verification of learning outcomes	Development of a corrective action plan as well as supplementary/corrective tasks *reviewing and selecting tasks and activities enabling the elimination of errors indicated by the academic teacher, their verification or correction resulting in completing the task with at least the minimum passing grade*	No
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No

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.

1.	**Field of study**	**Applied Geology**
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	**Mineralogy with the basics of crystallography**
Module code	W2-GS-S1-024
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	Celem modułu Mineralogia z podstawami krystalografii jest krótkie wprowadzenie podstaw krystalografii – nauki o kryształach będącej bazą dla studiowania mineralogii, petrografii, geochemii, nauki o złożach. Studenci poznają uniwersalne pojęcia substancji krystalicznej i symetrii oraz rozpoznają symetrię kryształów zarówno zewnętrzną, jak i wewnętrzną. Ponadto poznają prawa krystalografii geometrycznej i znajdą dla nich zastosowanie w mineralogii. Celem kursu jest nauczenie studentów praktycznych nawyków pracy z kryształami, opanowanie techniki prawidłowego opisania ich formy zewnętrznej oraz budowy wewnętrznej niezbędnej dla prawidłowej interpretacji wyników samodzielnej pracy naukowej i rozumienia literatury specjalistycznej.
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-GS-S1-024_1	zna podstawowe pojęcia i prawa krystalografii geometrycznej, umie rozpoznawać operacje symetrii w kryształach	1GS_U10 1GS_U6 1GS_W6	1 1 1
W2-GS-S1-024_2	potrafi rozpoznać 32 klasy symetrii, wie jak przekształcić symbole symetrii Grotha w symbole międzynarodowe	1GS_U10 1GS_U6 1GS_W6	1 2 1
W2-GS-S1-024_3	rozpoznaje postaci proste w układach krystalograficznych oraz potrafi ustalić symbole ścian postaci prostych	1GS_U10 1GS_U6 1GS_W6	1 2 1
W2-GS-S1-024_4	opanował rysowanie projekcji cyklograficznych i stereograficznych	1GS_U10 1GS_U6 1GS_W6	2 2 1

W2-GS-S1-024_5	posługuje się programami komputerowymi CrystalShaper, Vesta	1GS_U1 1GS_U10 1GS_U6	1 1 1

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
b02	Problem-solving methods	Lecture-discussion *transmission of content involving interaction with the lecture audience; discussion of lecture-related issues is one of its elements or constitutes its follow-up*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
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.*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
f01	Methods of self-learning	Self-education *a method which involves independent acquisition of knowledge, skills and social competences, extending their scope and quality; complementary to the learning process taking place in class; taking on the task of developing and adjusting qualifications on one's own; self-study*

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-GS-S1-024_l_1	laboratory classes	18	course work	W2-GS-S1-024_1, W2-GS-S1-024_2, W2-GS-S1-024_3, W2-GS-S1-024_4, W2-GS-S1-024_5	d01, d02, d03, f01
W2-GS-S1-024_w_1	lecture	18	course work	W2-GS-S1-024_1, W2-GS-S1-024_2, W2-GS-S1-024_3	a01, a03, b02, c07

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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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 phase/element of the verification of the learning outcomes assigned to the course*	No
d02	Consulting the results of the verification of learning outcomes	Development of a corrective action plan as well as supplementary/corrective tasks *reviewing and selecting tasks and activities enabling the elimination of errors indicated by the academic teacher, their verification or correction resulting in completing the task with at least the minimum passing grade*	No
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No

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.

1.	Field of study	Applied Geology
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	**Mining (I)**
Module code	W2-GS-S1-411
Number of the ECTS credits	2
Language of instruction	Polish
Purpose and description of the content of education	Moduł Górnictwo ma umożliwić studentowi nabycie wiedzy o sposobach i metodach eksploatacji złóż. Student powinien poznać schemat funkcjonowania zakładu górniczego, rodzaje wyrobisk i ich zadania, rodzaje obudów i warunki ich stosowania, sposoby i systemy eksploatacji złóż, metody urabiania kopaliny oraz transport w zakładach górniczych. Powinien także poznać zagadnienia dotyczące podstawowych zagrożeń naturalnych w górnictwie oraz wpływu działalności górniczej na środowisko naturalne i społeczne. Dzięki temu student ma uzyskać podstawową wiedzę na temat znaczenia górnictwa w naukach geologicznych i środowisku oraz kierunków rozwoju i współczesnych problemów górnictwa.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-405] Dynamic Earth 1 [W2-GS-S1-406] Dynamic Earth 2 [W2-GS-S1-024] Mineralogy with the basics of crystallography [W2-GS-S1-020] Environmental Protection

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-411_1	zna podstawowe sposoby i metody eksploatacji złóż kopalin i pogłębia wiedzę w zakresie wybranej problematyki	1GS_W3 1GS_W4 1GS_W6	2 3 2
W2-GS-S1-411_2	opisuje i wyjaśnia podstawowe pojęcia z zakresu górnictwa	1GS_W1	2
W2-GS-S1-411_3	opisuje i rozumie schematu funkcjonowania zakładu górniczego	1GS_W3 1GS_W4	2 2
W2-GS-S1-411_4	rozumie warunki eksploatacji górniczej w zależności od zagrożeń naturalnych	1GS_W3	3
W2-GS-S1-411_5	potrafi rozróżnić stosowane systemy eksploatacji kopalin w zależności od formy i budowy złoża	1GS_U1	3
W2-GS-S1-411_6	potrafi określić znaczenie i rolę transportu w funkcjonowaniu zakładu górniczego	1GS_U1	2

		1GS_U6	1
W2-GS-S1-411_7	rozumie kierunki perspektyw górnictwa w aspekcie, nowych technologii eksploatacji i bezpieczeństwa pracy, wykazuje aktywną postawę do poznawania rzeczy nowych i wykorzystywania ich dla wzbogacania własnej wiedzy, krytycznego i twórczego myślenia oraz otwartości na poglądy innych	1GS_K1 1GS_K6	1 3

9. Methods of conducting classes

Code	Category	Name (description)
b02	Problem-solving methods	Lecture-discussion *transmission of content involving interaction with the lecture audience; discussion of lecture-related issues is one of its elements or constitutes its follow-up*
b04	Problem-solving methods	Activating method – discussion / debate *an exchange of views supported by substantive arguments leading to a clash of different views, a compromise or the identification of common positions; it proceeds according to previously agreed-upon rules regarding the time, manner and turn-taking as well as the principles of civil discourse; a discussion is not a competition but aims at finding the best solutions or presenting different points of view; its varieties include brainstorming, Oxford-style debate, panel discussion, decision tree, conference discussion; a debate is an orderly dispute between supporters and opponents of a viewpoint, usually specialists in the field or pre-selected representatives of a group dealing with a common problem*
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*

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-GS-S1-411_l_1	laboratory classes	12	course work	W2-GS-S1-411_4, W2-GS-S1-411_5, W2-GS-S1-411_6, W2-GS-S1-411_7	b04, c06
W2-GS-S1-411_w_1	lecture	12	course work	W2-GS-S1-411_1, W2-GS-S1-411_2, W2-GS-S1-411_3, W2-GS-S1-411_4	b02

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
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*	No

		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	

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.

1.	Field of study	Applied Geology
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	**Mining (II)**
Module code	W2-GS-S1-035
Number of the ECTS credits	1
Language of instruction	Polish
Purpose and description of the content of education	Moduł “Górnictwo 2” jest poświęcony rozwinięciu u studentów przede wszystkim umiejętności praktycznych dotyczących wybranych problemów, z jakimi boryka się współczesne górnictwo, np. problematyki zagrożeń naturalnych, czy funkcjonowania zakładu górniczego. Wykonując zadanie praktyczne (projekt oraz opracowanie tekstowe) studenci nabędą umiejętności opracowywania danych, ich raportowania oraz interpretacji. Tym samym nauczą się postępowania z materiałem faktograficznym i dokumentacyjnym, podobnym do opracowywanego w realnym zakładzie górniczym. Zapoznają się także z wybranymi cyklami technologicznymi funkcjonującymi w zakładzie górniczym oraz z systemami monitorowania i kontroli wybranych zagrożeń naturalnych oraz wpływu działalności górniczej na środowisko naturalne.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-405] Dynamic Earth 1 [W2-GS-S1-406] Dynamic Earth 2 [W2-GS-S1-411] Mining (I) [W2-GS-S1-024] Mineralogy with the basics of crystallography [W2-GS-S1-020] Environmental Protection [W2-GS-S1-401] Fundamentals of Geodesy

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-035_1	zna schemat działania zakładu górniczego w kontekście specyfiki budowy geologicznej złoża, technologii i organizacji produkcji oraz oddziaływania eksploatacji na środowisko	1GS_W2 1GS_W3	2 2
W2-GS-S1-035_2	potrafi oszacować oraz wyznaczać wielkości wybranych parametrów górniczych niezbędnych w funkcjonowaniu kopalni	1GS_U1 1GS_U2 1GS_U3	2 2 2
W2-GS-S1-035_3	wykorzystując posiadaną wiedzę potrafi wypracować koncepcję rozwiązania wybranego problemu związanego ze specyfiką działalności kopalni w danych warunkach geologiczno-górniczych	1GS_U2 1GS_U3 1GS_U5	2 2 3
W2-GS-S1-035_4	potrafi wykonać opracowanie tekstowe i graficzne na temat funkcjonowania zakładu górniczego	1GS_U5	2

		1GS_U6	3
W2-GS-S1-035_5	jest świadomy swojej rzetelnej wiedzy, zdaje sobie sprawę z konieczności jej poszerzania mając na uwadze odpowiedzialne pełnienie roli zawodowej w kontekście zarówno działalności zakładu górniczego i dbałości o środowisko zewnętrzne	1GS_K1 1GS_K2 1GS_K6	2 2 1

9. Methods of conducting classes

Code	Category	Name (description)
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
e07	Practical methods	Simulation *an indirect method; imitating reality in order to gain experience approximating a real one; recreating a real-world situation so that its participant can acquire an experience close to the authentic one; work on “replacement” material*

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-GS-S1-035_l_1	laboratory classes	12	exam	W2-GS-S1-035_1, W2-GS-S1-035_2, W2-GS-S1-035_3, W2-GS-S1-035_4, W2-GS-S1-035_5	c06, e07

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

Code	Category	Name (description)	Is it part of the BUNA?
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
a04	Preparation for classes	Consulting materials complementary to those indicated in the syllabus *agreeing on materials complementary to those indicated in the syllabus, supporting the implementation of tasks resulting from or necessary for class participation*	No
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	No

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.

1.	Field of study	Applied Geology
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	**Modeling of geological processes**
Module code	W2-GS-S1-067
Number of the ECTS credits	1
Language of instruction	Polish
Purpose and description of the content of education	Moduł Modelowanie procesów geologicznych ma umożliwić studentowi zdobycie wiedzy na temat zasad modelowania wybranych procesów geologicznych. Student poznaje etapy modelowania począwszy od modelu konceptualnego, poprzez budowę modelu numerycznego, jego kalibrację, weryfikację, walidację, ocenę ryzyka i skończywszy na dokumentacji poszczególnych etapów modelowania. Student wykonuje pod opieką prowadzącego proste symulacje prognostyczne w oparciu o zbudowane modele numeryczne. Dzięki temu student doskonali swoje umiejętności schematyzacji warunków geologicznych, a także poszerza znajomość specjalistycznego oprogramowania wykorzystywanego do rozwiązywania zróżnicowanych zagadnień geologicznych i hydrogeologicznych. Poznaje wybrane przykłady zastosowania modelowania numerycznego do lepszego zrozumienia procesów geologicznych i hydrogeologicznych oraz tworzenia prognoz potencjalnych zmian tych procesów pod wpływem czynników naturalnych i antropogenicznych. Po osiągnięciu efektów kształcenia modułu student powinien dostrzegać, że badania modelowe są powszechnie wykorzystywane w praktyce geologicznej, a wielu przypadkach badania modelowe są wymagane obowiązującymi przepisami prawa.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-048] GIS in geology [W2-GS-S1-025] Geoinformation and Geological Databases [W2-GS-S1-409] Hydrogeology [W2-GS-S1-009] Mathematics in Earth Sciences

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-067 _1	zna zasady tworzenia modeli numerycznych oraz ich możliwości zastosowania i ograniczenia do rozwiązywania zagadnień związanych z procesami geologicznymi	1GS_W2 1GS_W4	2 3
W2-GS-S1-067 _2	ma wiedzę o programach komputerowych do modelowania procesów geologicznych	1GS_W4	2
W2-GS-S1-067 _3	potrafi zaprojektować prace modelowe od modelu koncepcyjnego po symulacje prognostyczne	1GS_U5	4
W2-GS-S1-067 _4	potrafi zbudować model konceptualny oraz model filtracji z wykorzystaniem oprogramowania bazującego na różnicach skończonych lub elementach skończonych oraz zinterpretować jego wyniki	1GS_K4 1GS_U2	2 2

		1GS_U4 1GS_U5	2 2
W2-GS-S1-067 _5	potrafi na podstawie zbudowanych modeli ocenić wpływ warunków naturalnych i działań człowieka na zmiany zachodzące w środowisku przyrodniczym	1GS_K3 1GS_U3 1GS_U4	1 2 2
W2-GS-S1-067 _6	podczas tworzenia modeli wykazuje się przedsiębiorczą kreatywnością i samodzielnością oraz potrafi syntetycznie przedstawić wyniki prognoz modelowych	1GS_K4 1GS_K5 1GS_U11 1GS_U5	1 1 2 3

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*
d04	Programmed learning methods	Reconstruction / reproduction *proceeding according to the indicated/displayed pattern/model; e.g., the reconstruction of a structure, model, image, etc.*
e07	Practical methods	Simulation *an indirect method; imitating reality in order to gain experience approximating a real one; recreating a real-world situation so that its participant can acquire an experience close to the authentic one; work on "replacement" material*
f03	Methods of self-learning	Conceptual work *a (mainly intellectual) activity carried out independently (or in a selected group) resulting in the creation of a concept, idea or project; creating a plan based on a vision; developing a general outline of a project; producing a simplified sketch of the variant versions of a procedure/product/work*

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-GS-S1-067_l_1	laboratory classes	20	course work	W2-GS-S1-067 _1, W2-GS-S1-067 _2, W2-GS-S1-067 _3, W2-GS-S1-067 _4, W2-GS-S1-067 _5, W2-GS-S1-067 _6	d01, d04, e07, f03

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

Code	Category	Name (description)	Is it part of the BUNA?
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

b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	No
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	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*	No

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.

1.	**Field of study**	**Applied Geology**
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	**Module in the "Civil Society and Entrepreneurship" area**
Module code	MO-2023-SS-SOP
Number of the ECTS credits	3
Language of instruction	
Purpose and description of the content of education	“Civil society and entrepreneurship” is the area which like no other contributed to opening university education "to the world", the area which directly connects science and knowledge acquisition to social use (the system of institutions, laws, customs, social norms). Underlying the area are the conviction that education within each academic discipline should be correlated with the awareness of the changing relation between a person and a citizen, between private and collective life, between a political and a non-political subject, etc. The area of “Civil Society and Entrepreneurship” can be pursued by a student within modules dominated by an academic teacher as well as those where the responsibility for achieving the learning outcomes lies mainly with the student, e.g. civil society in action (projects combining social and natural sciences, combining social sciences and humanities, or combining social sciences, mathematics, physics and chemistry) or social participation in practice. The choice from the range of the above-mentioned modules allows for a high individualization of the education process.
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)
KS_01	Is ready to meet social obligations, co-organize activities for the benefit of the community and is open to scientific solutions to cognitive and practical problems.	MOB.2023_K01	3
U_01	Asks questions, analyzes research problems, and finds solutions to them, making use of knowledge, skills and experience pertaining to civil society and entrepreneurship, in conjunction with the leading discipline of the degree programme.	MOB.2023_U01	3
U_02	Communicates the results of his/her work on civil society and entrepreneurship in a way which is clear and understandable not only to specialists.	MOB.2023_U01	3
W_01	Has advanced knowledge of selected scientific theories and methods, and is familiar with issues connected with civil society and entrepreneurship.	MOB.2023_W01	3
W_02	Understands the connection between the issues pertaining to civil society and entrepreneurship, and the leading discipline of the degree programme.	MOB.2023_W01	3

9.	Methods of conducting classes	
Code	**Category**	**Name (description)**
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
b04	Problem-solving methods	Activating method – discussion / debate *an exchange of views supported by substantive arguments leading to a clash of different views, a compromise or the identification of common positions; it proceeds according to previously agreed-upon rules regarding the time, manner and turn-taking as well as the principles of civil discourse; a discussion is not a competition but aims at finding the best solutions or presenting different points of view; its varieties include brainstorming, Oxford-style debate, panel discussion, decision tree, conference discussion; a debate is an orderly dispute between supporters and opponents of a viewpoint, usually specialists in the field or pre-selected representatives of a group dealing with a common problem*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
f01	Methods of self-learning	Self-education *a method which involves independent acquisition of knowledge, skills and social competences, extending their scope and quality; complementary to the learning process taking place in class; taking on the task of developing and adjusting qualifications on one's own; self-study*
f02	Methods of self-learning	Individual work with a text *searching for and acquiring new information using textbooks and other written sources (including their digital versions); searching for texts, selecting fragments for analysis/interpretation, using other texts to solve a problem related to the studied issue*

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**
01	depending on the choice	30	course work	KS_01, U_01, U_02, W_01, W_02	a03, a05, b04, c07, d03, f01, f02

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
a04	Preparation for classes	Consulting materials complementary to those indicated in the syllabus *agreeing on materials complementary to those indicated in the syllabus, supporting the implementation of tasks resulting from or necessary for class participation*	Yes
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	Yes
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	Yes
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
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	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.

1.	**Field of study**	**Applied Geology**
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	**Module in the "Creative Expression and Critical Thinking" area**
Module code	MO-2023-SS-ETKM
Number of the ECTS credits	3
Language of instruction	
Purpose and description of the content of education	Underlying the area of “Critical Thinking and Creative Expression” is the conviction that it is necessary to interest students in various intellectual traditions and forms of creative practice making it possible to approach a given problem from many perspectives. It is crucial to develop critical thinking skills, in particular with regard to information present in various forms of communication (popular, popular science, specialist publications, traditional and so-called new media, or artistic activities based on scientific research). Equally important is work in the area of cultural awareness and expression aimed at creative expression of ideas, experiences and emotions through various means of expression: music, theater, literature and visual arts. Driving the process of self-creation is the need to be creative and the need for creative expression, stemming from a deeply rooted human tendency to be inventive while drawing from the values found in art, literature, music, fine arts, values defining the culture of the nation, existing in national traditions, in historical memory and in folk culture.
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)
KS_01	Is ready to meet social obligations, co-organize activities for the benefit of the community and is open to scientific solutions to cognitive and practical problems.	MOB.2023_K01	3
U_01	Asks questions, analyzes research problems, and finds solutions to them, making use of knowledge, skills and experience pertaining to critical thinking and creative expression in connection with the leading discipline of the degree programme.	MOB.2023_U01	3
U_02	Communicates the results of his/her work in the field of critical thinking and creative expression in a way which is clear and understandable not only to specialists.	MOB.2023_U01	3
W_01	Has advanced knowledge of selected scientific theories and methods, and is familiar with issues pertaining to critical thinking and creative expression.	MOB.2023_W01	3
W_02	Understands the connection between issues related to critical thinking and creative expression and the leading discipline of the degree programme.	MOB.2023_W01	3

9.	Methods of conducting classes	
Code	**Category**	**Name (description)**
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
b04	Problem-solving methods	Activating method – discussion / debate *an exchange of views supported by substantive arguments leading to a clash of different views, a compromise or the identification of common positions; it proceeds according to previously agreed-upon rules regarding the time, manner and turn-taking as well as the principles of civil discourse; a discussion is not a competition but aims at finding the best solutions or presenting different points of view; its varieties include brainstorming, Oxford-style debate, panel discussion, decision tree, conference discussion; a debate is an orderly dispute between supporters and opponents of a viewpoint, usually specialists in the field or pre-selected representatives of a group dealing with a common problem*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
f01	Methods of self-learning	Self-education *a method which involves independent acquisition of knowledge, skills and social competences, extending their scope and quality; complementary to the learning process taking place in class; taking on the task of developing and adjusting qualifications on one's own; self-study*
f02	Methods of self-learning	Individual work with a text *searching for and acquiring new information using textbooks and other written sources (including their digital versions); searching for texts, selecting fragments for analysis/interpretation, using other texts to solve a problem related to the studied issue*

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**
01	depending on the choice	30	course work	KS_01, U_01, U_02, W_01, W_02	a03, a05, b04, c07, d03, f01, f02

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
a04	Preparation for classes	Consulting materials complementary to those indicated in the syllabus *agreeing on materials complementary to those indicated in the syllabus, supporting the implementation of tasks resulting from or necessary for class participation*	Yes
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	Yes
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	Yes
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
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No

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.

1.	**Field of study**	**Applied Geology**
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	**Module in the "Digital World" area**
Module code	MO-2023-SS-CS
Number of the ECTS credits	3
Language of instruction	
Purpose and description of the content of education	Apart from the real world, the digital world is of course another area constantly present in modern people’s lives. The two human environments – the natural and the cultural one – have been joined by a third one, i.e. the digital environment. Modern digital technologies create new opportunities, but their constant development may, in addition to new opportunities, also create new threats. The modules proposed within the “Digital World” area provide an opportunity to learn about the crucial, current technological and social aspects of the digital world and to build competences for conscious, creative and safe functioning in this/her world. The modules of the Digital World area are divided into two sub-areas. Crucial for the first one, dubbed “Digital technologies”, are the issues pertaining to technologies; this/her sub-area will allow students to expand their digital competences in the field of programming as well as data processing and analysis. Essential for the second sub-area, dubbed “Digital society”, is a reflection on the impact of the development of digital technologies, including artificial intelligence, on the way we function as individuals and as entire societies. The purpose of the module content in this/her sub-area is to develop students' skills of navigating the digital world in creatively and safely, while maintaining personal autonomy and self-awareness.
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)
KS_01	Shows openness to science-based solutions to cognitive and practical problems and is ready to fulfill social obligations.	MOB.2023_K01	3
U_01	Asks questions, analyzes research problems, and finds solutions to them, making use of knowledge, skills and experience gained in the field of digital technologies and issues pertaining to the digital society in conjunction with the leading discipline of the degree programme.	MOB.2023_U01	3
U_02	Communicates the results of his/her work pertaining to the key technological and social aspects of the digital world in a way which is clear and understandable not only to specialists.	MOB.2023_U01	3
W_01	Has advanced knowledge of selected scientific theories and methods and is familiar with issues pertaining to key technological and social aspects of the digital world.	MOB.2023_W01	3
W_02	Understands the connection between key technological and social aspects of the digital world and the leading discipline	MOB.2023_W01	3

	of the degree programme.		

9.	Methods of conducting classes	
Code	**Category**	**Name (description)**
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
b04	Problem-solving methods	Activating method – discussion / debate *an exchange of views supported by substantive arguments leading to a clash of different views, a compromise or the identification of common positions; it proceeds according to previously agreed-upon rules regarding the time, manner and turn-taking as well as the principles of civil discourse; a discussion is not a competition but aims at finding the best solutions or presenting different points of view; its varieties include brainstorming, Oxford-style debate, panel discussion, decision tree, conference discussion; a debate is an orderly dispute between supporters and opponents of a viewpoint, usually specialists in the field or pre-selected representatives of a group dealing with a common problem*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
f01	Methods of self-learning	Self-education *a method which involves independent acquisition of knowledge, skills and social competences, extending their scope and quality; complementary to the learning process taking place in class; taking on the task of developing and adjusting qualifications on one's own; self-study*
f02	Methods of self-learning	Individual work with a text *searching for and acquiring new information using textbooks and other written sources (including their digital versions); searching for texts, selecting fragments for analysis/interpretation, using other texts to solve a problem related to the studied issue*

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**
01	depending on the choice	30	course work	KS_01, U_01, U_02, W_01, W_02	a03, a05, b04, c07, d03, f01, f02

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	No

		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	
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
a04	Preparation for classes	Consulting materials complementary to those indicated in the syllabus *agreeing on materials complementary to those indicated in the syllabus, supporting the implementation of tasks resulting from or necessary for class participation*	Yes
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	Yes
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	Yes
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
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	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.

1.	**Field of study**	**Applied Geology**
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	**Module in the "Health and Personal Development" area**
Module code	MO-2023-SS-ZRO
Number of the ECTS credits	3
Language of instruction	
Purpose and description of the content of education	The area of “Health and Personal Development” opens university education to the perspective of the well-being of an individual (i.e., a student, who is a person entering adulthood). The area focuses on such categories as maintaining physical, mental and social health, the level of satisfaction with various spheres of one’s life and the development of "soft" skills (dealing with stress, communicating with others or the conscious shaping and managing one’s life). The modules offered within the “Health” sub-area are meant to equip students with the ability to recognize and assess their own health (including their mental health) and to find appropriate means of promoting it. The point of departure of the module is the presentation of modern knowledge that distinguishes evidence-based medicine from common beliefs. The modules in the “Personal Development” sub-area direct students towards methods of the practical maintenance of one’s well-being (including mental well-being). They supply competences for building one’s personal potential in the modern world in a way which is active and effective as well as conscious and prudent. The main concern is realizing and recognizing one's own preferences, possibilities and limits, as well as the awareness of agency and responsibility for the balance between health, happiness and development. Having attended the module, the individual will be in a position to combine his/her own development with taking care of his/her mental and physical condition and general well-being in a balanced way.
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)
KS_01	Is ready to meet social obligations, co-organize activities for the benefit of the community and is open to scientific solutions to cognitive and practical problems.	MOB.2023_K01	3
U_01	Asks questions, analyzes research problems, and finds solutions to them, making use of knowledge, skills and experience pertaining to the concept of an individual’s well-being, including their health and personal development, in conjunction with the leading discipline of the degree programme.	MOB.2023_U01	3
U_02	Communicates the results of his/her work regarding the concept of an individual’s well-being, including their health and personal development, in a way which is clear and understandable not only to specialists.	MOB.2023_U01	3
W_01	Has advanced knowledge of selected scientific theories and methods, and is familiar with issues connected with the concept of an individual’s well-being, including their health and personal development.	MOB.2023_W01	3

W_02	Understands the connection between the issues pertaining to the concept of an individual’s well-being, including their health and personal development, and the leading discipline of the degree programme.	MOB.2023_W01	3

9.	**Methods of conducting classes**	
Code	**Category**	**Name (description)**
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
b04	Problem-solving methods	Activating method – discussion / debate *an exchange of views supported by substantive arguments leading to a clash of different views, a compromise or the identification of common positions; it proceeds according to previously agreed-upon rules regarding the time, manner and turn-taking as well as the principles of civil discourse; a discussion is not a competition but aims at finding the best solutions or presenting different points of view; its varieties include brainstorming, Oxford-style debate, panel discussion, decision tree, conference discussion; a debate is an orderly dispute between supporters and opponents of a viewpoint, usually specialists in the field or pre-selected representatives of a group dealing with a common problem*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
f01	Methods of self-learning	Self-education *a method which involves independent acquisition of knowledge, skills and social competences, extending their scope and quality; complementary to the learning process taking place in class; taking on the task of developing and adjusting qualifications on one’s own; self-study*
f02	Methods of self-learning	Individual work with a text *searching for and acquiring new information using textbooks and other written sources (including their digital versions); searching for texts, selecting fragments for analysis/interpretation, using other texts to solve a problem related to the studied issue*

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**
01	depending on the choice	30	course work	KS_01, U_01, U_02, W_01, W_02	a03, a05, b04, c07, d03, f01, f02

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
a04	Preparation for classes	Consulting materials complementary to those indicated in the syllabus *agreeing on materials complementary to those indicated in the syllabus, supporting the implementation of tasks resulting from or necessary for class participation*	Yes
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	Yes
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	Yes
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
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	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.

1.	**Field of study**	**Applied Geology**
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	**Module in the "Natural Environment and Technologies" area**
Module code	MO-2023-SS-SNT
Number of the ECTS credits	3
Language of instruction	
Purpose and description of the content of education	The “Natural Environment and Technologies” area pertains to human interaction with the material environment, both the natural one and the one heavily modified by technology. This is the environment where people live, which they are subject to, and which they change in many ways. Understanding the Anthropocene requires an understanding of how biological systems function (from cells to ecosystems, to modern environmental threats, climate issues, natural resources, and many other natural issues) as well as an understanding of the rudiments of technical and technological knowledge. It is crucial to know and understand how technological development, especially in the areas of energy, green technologies, modern materials or everyday life (e.g. food production) can change the nature of human impact and support the way we care for the environment. The ways in which the human impact on the environment is regulated include using legal tools, such as nature protection law or energy law, as well as EU regulations, Sustainable Development Goals or the European Green Deal.
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)
KS_01	Shows openness to science-based solutions to cognitive and practical problems and is ready to meet social obligations.	MOB.2023_K01	3
U_01	Asks questions, analyzes research problems, and finds solutions to them, making use of knowledge, skills and experience pertaining to the human interaction with the material environment – both natural and technologically modified, in conjunction with the leading discipline of the degree programme.	MOB.2023_U01	3
U_02	Communicates the results of his/her work pertaining to the human interaction with the material environment – both natural and technologically modified, in a way which is clear and understandable not only to specialists.	MOB.2023_U01	3
W_01	Has advanced knowledge of selected scientific theories and methods, and is familiar with issues connected with human interaction with the material environment – both natural and technologically modified.	MOB.2023_W01	3
W_02	Understands the connection between issues pertaining to human interaction with the material environment – both natural and technologically modified, and the leading discipline of the degree programme.	MOB.2023_W01	3

9.	Methods of conducting classes	
Code	**Category**	**Name (description)**
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
b04	Problem-solving methods	Activating method – discussion / debate *an exchange of views supported by substantive arguments leading to a clash of different views, a compromise or the identification of common positions; it proceeds according to previously agreed-upon rules regarding the time, manner and turn-taking as well as the principles of civil discourse; a discussion is not a competition but aims at finding the best solutions or presenting different points of view; its varieties include brainstorming, Oxford-style debate, panel discussion, decision tree, conference discussion; a debate is an orderly dispute between supporters and opponents of a viewpoint, usually specialists in the field or pre-selected representatives of a group dealing with a common problem*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
f01	Methods of self-learning	Self-education *a method which involves independent acquisition of knowledge, skills and social competences, extending their scope and quality; complementary to the learning process taking place in class; taking on the task of developing and adjusting qualifications on one's own; self-study*
f02	Methods of self-learning	Individual work with a text *searching for and acquiring new information using textbooks and other written sources (including their digital versions); searching for texts, selecting fragments for analysis/interpretation, using other texts to solve a problem related to the studied issue*

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**
01	depending on the choice	30	course work	KS_01, U_01, U_02, W_01, W_02	a03, a05, b04, c07, d03, f01, f02

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
a04	Preparation for classes	Consulting materials complementary to those indicated in the syllabus *agreeing on materials complementary to those indicated in the syllabus, supporting the implementation of tasks resulting from or necessary for class participation*	Yes
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	Yes
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	Yes
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
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	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.

1.	**Field of study**	**Applied Geology**
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	**Module in the "The Limits of Science" area**
Module code	MO-2023-SS-GN
Number of the ECTS credits	3
Language of instruction	
Purpose and description of the content of education	Scientific pursuits and the ways people function in the world are geared towards getting to know the reality and acquiring knowledge. All of this/her is within the purview of the “Limits of Science” area. It endeavours to indicate the difference between science and pseudoscience, the pitfalls and benefits of popularizing knowledge, to address the issue of how knowledge is obtained in various research communities. What is the difference between the natural sciences and humanities? What happens on the way from a hypothesis to testing a theory? What methods do the different sciences have at their disposal? Can humanities be scientific and how much literature is there in physics? The “Limits of Science” area strives to indicate practical ways of navigating the world of science. It strives to describe how to distinguish valuable knowledge from information noise, to introduce students to the arcana of recognizing and applying research methods and to develop the panorama of concepts related to the classification of knowledge and cognition, to present the history and the directions of human inquiry. An important role of the area is to indicate the methods of interpreting scientific texts and the research results contained within them, and to develop the ability to present scientific content in an effective and accessible way.
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)
KS_01	Is ready to meet social obligations, co-organize activities for the benefit of the community and is open to scientific solutions to cognitive and practical problems.	MOB.2023_K01	3
U_01	Asks questions, analyzes research problems, and finds solutions to them, making use of knowledge, skills and experience pertaining to the issues falling under the scope of limits of science , in conjunction with the leading discipline of the degree programme.	MOB.2023_U01	3
U_02	Communicates the results of his/her work on the issues falling under the scope of limits of science in a way which is clear and understandable not only to specialists.	MOB.2023_U01	3
W_01	Has advanced knowledge of selected scientific theories and methods, and is familiar with issues typical to scientific enquiry and practicing science.	MOB.2023_W01	3
W_02	Understands the connection between the issues falling under the scope of limits of science and the leading discipline of	MOB.2023_W01	3

	the degree programme.		

9.	Methods of conducting classes	
Code	**Category**	**Name (description)**
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
b04	Problem-solving methods	Activating method – discussion / debate *an exchange of views supported by substantive arguments leading to a clash of different views, a compromise or the identification of common positions; it proceeds according to previously agreed-upon rules regarding the time, manner and turn-taking as well as the principles of civil discourse; a discussion is not a competition but aims at finding the best solutions or presenting different points of view; its varieties include brainstorming, Oxford-style debate, panel discussion, decision tree, conference discussion; a debate is an orderly dispute between supporters and opponents of a viewpoint, usually specialists in the field or pre-selected representatives of a group dealing with a common problem*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*
f01	Methods of self-learning	Self-education *a method which involves independent acquisition of knowledge, skills and social competences, extending their scope and quality; complementary to the learning process taking place in class; taking on the task of developing and adjusting qualifications on one's own; self-study*
f02	Methods of self-learning	Individual work with a text *searching for and acquiring new information using textbooks and other written sources (including their digital versions); searching for texts, selecting fragments for analysis/interpretation, using other texts to solve a problem related to the studied issue*

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**
01	depending on the choice	30	course work	KS_01, U_01, U_02, W_01, W_02	a03, a05, b04, c07, d03, f01, f02

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	No

		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	
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
a04	Preparation for classes	Consulting materials complementary to those indicated in the syllabus *agreeing on materials complementary to those indicated in the syllabus, supporting the implementation of tasks resulting from or necessary for class participation*	Yes
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	Yes
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	Yes
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
e01	Activities complementary to the classes	Undertaking, on one’s own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	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.

1.	Field of study	Applied Geology
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	**Nazwa w języku angielskim Geology and deposit mining - field exercises**
Module code	W2-GS-S1-074
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	1. Przedstawienie zasad BHP obowiązujących podczas ćwiczeń terenowych, ze szczególnym uwzględnieniem zasad bezpieczeństwa na terenie zakładów górniczych i w odsłonięciach. 2. Zapoznanie z budową geologiczną i praktyczną orientacją w zakresie sposobów zagospodarowania wybranych surowców: skalnych (np. dolomity rejonu Siewierza, piaski podsadzkowe i formierskie północno-wschodniej części GZW, skały magmowe i metamorficzne rejonu Dolnego Śląska), metalicznych (np. stratoidalnych złóż rud cynku i ołowiu rejonu olkuskiego, polimetalicznych złóż formacji porfirowo-miedziowej – Myszków, złoża miedzi monokliny przedsudeckiej), energetycznych (pokładowe złoża węgla kamiennego wschodniej części GZW) oraz towarzyszących im złóż metanu (południowa część GZW) na przykładzie konkretnych złóż w zależności od miejsca realizacji ćwiczeń terenowych. 3. Nauczenie prowadzenia samodzielnych obserwacji geologicznych w terenie – rozróżnianie typów mineralizacji, form i tekstur złożowych. 4. Zapoznanie studentów z różnymi formami dokumentowania złóż (profilowanie rdzeni wiertniczych, kartowanie wyrobisk podziemnych, opróbowanie złoża i określanie jakości kopaliny). 5. Przedstawienie informacji dotyczących form gospodarowania zasobami (rodzaje i treść sporządzanych dokumentów) oraz systemów eksploatacji (ścianowy, komorowo-filarowy, odkrywkowy, otworowy). Zagadnienia problematyki ekonomicznej i prawnej oraz formy oddziaływania górnictwa na środowisko naturalne (deformacje powierzchni terenu, zaburzenia stosunków wodnych, składowanie odpadów).
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-411] Mining (I) [W2-GS-S1-035] Mining (II) [W2-GS-S1-031] Mineralogy [W2-GS-S1-041] Applied petrology 1 [W2-GS-S1-049] Applied petrology 2

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
2-GS-S1-074_1	potrafi rozpoznać w odsłonięciu lub rdzeniu wiertniczym rudę danego metalu lub inną kopalinę użyteczną i wskazać jakie minerały tej kopaliny są wykorzystywane w gospodarce.	1GS_U1 1GS_U6 1GS_W6	2 1 1

2-GS-S1-074_2	potrafi opisać bazę zasobową danego regionu i wskazać jakie znaczenie dla gospodarki miało dane złoże w ujęciu historycznym oraz obecnie.	1GS_U4 1GS_U6 1GS_W2 1GS_W4	1 1 1 2
2-GS-S1-074_3	potrafi dokonać podstawowych, terenowych obserwacji geologicznych niezbędnych do wykonania prostego opisu złoża.	1GS_U2 1GS_U9	2 1
2-GS-S1-074_4	potrafi opisać budowę geologiczną złoża, zna rozmieszczenie najważniejszych złóż w Sudetach, G. Świętokrzyskich i regionie śląsko-krakowskim.	1GS_K3 1GS_W3	1 1

9. Methods of conducting classes

Code	Category	Name (description)
a02	Lecture methods / expository methods	Monographic lecture *an exhaustive discussion of one issue, usually related to the research interests of the person teaching the course or a thorough presentation of one selected issue*
b05	Problem-solving methods	Activating method – seminar / proseminar *a seminar method; usually an oral presentation of a previously studied/diagnosed problem delivered on a forum; it aims at provoking a discussion concerning the results of research work; a type of conference, course or training session modelled on seminar classes*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*
e08	Practical methods	Practice-as-research *also conducted as fieldwork; an activity aimed at confronting the acquired theory with practice through its practical application; students situate themselves in the reality they observe, study and transform through the prism of the theory; the method of practical classes is dominated by the application of knowledge to solving practical tasks*

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-GS-S1-074_ct_1	field practice	36	course work	2-GS-S1-074_1, 2-GS-S1-074_2, 2-GS-S1-074_3, 2-GS-S1-074_4	a02, b05, e01, e08

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*	No

		materials to be used in class	
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

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.

1.	**Field of study**	**Applied Geology**
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	**Optional course 1**
Module code	W2-GS-S1-037
Number of the ECTS credits	2
Language of instruction	Polish
Purpose and description of the content of education	W ramach przedmiotów fakultatywnych (1, 2, 3, 4 i 5) student ma możliwość wyboru specjalistycznych modułów poszerzających ogólną wiedzę geologiczną. Wybór z kilkudziesięciu oferowanych modułów w ramach Przedmiotów fakultatywnych pozwala ukierunkować studenta na tematykę, którą się szczególnie interesuje lub która będzie mu potrzebna do zrealizowania pracy dyplomowej. Wszystkie oferowane moduły liczą 24 h zajęć i 2 punkty ECTS. W ramach Przedmiotu fakultatywnego 1 (24 h) student musi wybrać jeden moduł. Z tej samej puli modułów do wyboru student będzie wybierał jeszcze cztery razy: w ramach Przedmiotu fakultatywnego 2 (48 h) – dwa moduły, w ramach Przedmiotu fakultatywnego 3 (72 h) – trzy moduły, w ramach Przedmiotu fakultatywnego 4 (72 h) – trzy moduły i w ramach Przedmiotu fakultatywnego 5 (72 h) – trzy moduły. Pozwala mu to zaprojektować własną ścieżkę rozszerzania wiedzy i zyskiwania specjalistycznych umiejętności i kompetencji.
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-GS-S1-037_1	zyskuje unikalną, specjalistyczną wiedzę wspierającą ogólne wykształcenie geologiczne	1GS_W1 1GS_W2 1GS_W3 1GS_W4	2 2 2 2
W2-GS-S1-037_2	nabywa umiejętności wynikające z uzyskanej wiedzy, które poszerzają jego zestaw umiejętności zawodowych	1GS_U1 1GS_U11 1GS_U2 1GS_U3 1GS_U4 1GS_U5 1GS_U6	2 2 2 2 2 2 2

W2-GS-S1-037_3	doskonali i rozwija specjalistyczne kompetencje geologiczne	1GS_K2 1GS_K3 1GS_K4 1GS_K6	2 2 2 2

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a02	Lecture methods / expository methods	Monographic lecture *an exhaustive discussion of one issue, usually related to the research interests of the person teaching the course or a thorough presentation of one selected issue*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*

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-GS-S1-037_l_1	laboratory classes	12	course work	W2-GS-S1-037_2, W2-GS-S1-037_3	e01
W2-GS-S1-037_w_1	lecture	12	course work	W2-GS-S1-037_1	a01, a02

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

Code	Category	Name (description)	Is it part of the BUNA?
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
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

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.

1.	**Field of study**	**Applied Geology**
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	**Optional course 2**
Module code	W2-GS-S1-045
Number of the ECTS credits	4
Language of instruction	Polish
Purpose and description of the content of education	W ramach przedmiotów fakultatywnych (1, 2, 3, 4 i 5) student ma możliwość wyboru specjalistycznych modułów poszerzających ogólną wiedzę geologiczną. Wybór z kilkudziesięciu oferowanych modułów w ramach Przedmiotów fakultatywnych pozwala ukierunkować studenta na tematykę, którą się szczególnie interesuje lub która będzie mu potrzebna do zrealizowania pracy dyplomowej. Wszystkie oferowane moduły liczą 24 h zajęć i 2 punkty ECTS. W ramach Przedmiotu fakultatywnego 1 (24 h) student musi wybrać jeden moduł. Z tej samej puli modułów do wyboru student będzie wybierał jeszcze cztery razy: w ramach Przedmiotu fakultatywnego 2 (48 h) – dwa moduły, w ramach Przedmiotu fakultatywnego 3 (72 h) – trzy moduły, w ramach Przedmiotu fakultatywnego 4 (72 h) – trzy moduły i w ramach Przedmiotu fakultatywnego 5 (72 h) – trzy moduły. Pozwala mu to zaprojektować własną ścieżkę rozszerzania wiedzy i zyskiwania specjalistycznych umiejętności i kompetencji.
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-GS-S1-045_1	zyskuje unikalną, specjalistyczną wiedzę wspierającą ogólne wykształcenie geologiczne	1GS_W1 1GS_W2 1GS_W3 1GS_W4	2 2 2 2
W2-GS-S1-045_2	nabywa umiejętności wynikające z uzyskanej wiedzy, które poszerzają jego zestaw umiejętności zawodowych	1GS_U1 1GS_U11 1GS_U2 1GS_U3 1GS_U4 1GS_U5 1GS_U6	2 2 2 2 2 2 2

W2-GS-S1-045_3	doskonali i rozwija specjalistyczne kompetencje geologiczne	1GS_K2 1GS_K3 1GS_K4 1GS_K6	2 2 2 2

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a02	Lecture methods / expository methods	Monographic lecture *an exhaustive discussion of one issue, usually related to the research interests of the person teaching the course or a thorough presentation of one selected issue*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*

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-GS-S1-045_l_1	laboratory classes	24	course work	W2-GS-S1-045_2, W2-GS-S1-045_3	e01
W2-GS-S1-045_w_1	lecture	24	course work	W2-GS-S1-045_1	a01, a02

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

Code	Category	Name (description)	Is it part of the BUNA?
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
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

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.

1.	**Field of study**	**Applied Geology**
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	**Optional course 3**
Module code	W2-GS-S1-052
Number of the ECTS credits	6
Language of instruction	Polish
Purpose and description of the content of education	W ramach przedmiotów fakultatywnych (1, 2, 3, 4 i 5) student ma możliwość wyboru specjalistycznych modułów poszerzających ogólną wiedzę geologiczną. Wybór z kilkudziesięciu oferowanych modułów w ramach Przedmiotów fakultatywnych pozwala ukierunkować studenta na tematykę, którą się szczególnie interesuje lub która będzie mu potrzebna do zrealizowania pracy dyplomowej. Wszystkie oferowane moduły liczą 24 h zajęć i 2 punkty ECTS. W ramach Przedmiotu fakultatywnego 1 (24 h) student musi wybrać jeden moduł. Z tej samej puli modułów do wyboru student będzie wybierał jeszcze cztery razy: w ramach Przedmiotu fakultatywnego 2 (48 h) – dwa moduły, w ramach Przedmiotu fakultatywnego 3 (72 h) – trzy moduły, w ramach Przedmiotu fakultatywnego 4 (72 h) – trzy moduły i w ramach Przedmiotu fakultatywnego 5 (72 h) – trzy moduły. Pozwala mu to zaprojektować własną ścieżkę rozszerzania wiedzy i zyskiwania specjalistycznych umiejętności i kompetencji.
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-GS-S1-052_1	zyskuje unikalną, specjalistyczną wiedzę wspierającą ogólne wykształcenie geologiczne	1GS_W1 1GS_W2 1GS_W3 1GS_W4	2 2 2 2
W2-GS-S1-052_2	nabywa umiejętności wynikające z uzyskanej wiedzy, które poszerzają jego zestaw umiejętności zawodowych	1GS_U1 1GS_U11 1GS_U2 1GS_U3 1GS_U4 1GS_U5 1GS_U6	2 2 2 2 2 2 2

W2-GS-S1-052_3	doskonali i rozwija specjalistyczne kompetencje geologiczne	1GS_K2 1GS_K3 1GS_K4 1GS_K6	2 2 2 2

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a02	Lecture methods / expository methods	Monographic lecture *an exhaustive discussion of one issue, usually related to the research interests of the person teaching the course or a thorough presentation of one selected issue*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*

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-GS-S1-052_l_1	laboratory classes	36	course work	W2-GS-S1-052_2, W2-GS-S1-052_3	e01
W2-GS-S1-052_w_1	lecture	36	course work	W2-GS-S1-052_1	a01, a02

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

Code	Category	Name (description)	Is it part of the BUNA?
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
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

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.

1.	**Field of study**	**Applied Geology**
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	**Optional course 4**
Module code	W2-GS-S1-059
Number of the ECTS credits	6
Language of instruction	Polish
Purpose and description of the content of education	W ramach przedmiotów fakultatywnych (1, 2, 3, 4 i 5) student ma możliwość wyboru specjalistycznych modułów poszerzających ogólną wiedzę geologiczną. Wybór z kilkudziesięciu oferowanych modułów w ramach Przedmiotów fakultatywnych pozwala ukierunkować studenta na tematykę, którą się szczególnie interesuje lub która będzie mu potrzebna do zrealizowania pracy dyplomowej. Wszystkie oferowane moduły liczą 24 h zajęć i 2 punkty ECTS. W ramach Przedmiotu fakultatywnego 1 (24 h) student musi wybrać jeden moduł. Z tej samej puli modułów do wyboru student będzie wybierał jeszcze cztery razy: w ramach Przedmiotu fakultatywnego 2 (48 h) – dwa moduły, w ramach Przedmiotu fakultatywnego 3 (72 h) – trzy moduły, w ramach Przedmiotu fakultatywnego 4 (72 h) – trzy moduły i w ramach Przedmiotu fakultatywnego 5 (72 h) – trzy moduły. Pozwala mu to zaprojektować własną ścieżkę rozszerzania wiedzy i zyskiwania specjalistycznych umiejętności i kompetencji.
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-GS-S1-059_1	zyskuje unikalną, specjalistyczną wiedzę wspierającą ogólne wykształcenie geologiczne	1GS_W1 1GS_W2 1GS_W3 1GS_W4	2 2 2 2
W2-GS-S1-059_2	nabywa umiejętności wynikające z uzyskanej wiedzy, które poszerzają jego zestaw umiejętności zawodowych	1GS_U1 1GS_U11 1GS_U2 1GS_U3 1GS_U4 1GS_U5 1GS_U6	2 2 2 2 2 2 2

W2-GS-S1-059_3	doskonali i rozwija specjalistyczne kompetencje geologiczne	1GS_K2 1GS_K3 1GS_K4 1GS_K6	2 2 2 2

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a02	Lecture methods / expository methods	Monographic lecture *an exhaustive discussion of one issue, usually related to the research interests of the person teaching the course or a thorough presentation of one selected issue*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*

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-GS-S1-059_l_1	laboratory classes	36	course work	W2-GS-S1-059_2, W2-GS-S1-059_3	e01
W2-GS-S1-059_w_1	lecture	36	course work	W2-GS-S1-059_1	a01, a02

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

Code	Category	Name (description)	Is it part of the BUNA?
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
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

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.

1.	**Field of study**	**Applied Geology**
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	**Optional course 5**
Module code	W2-GS-S1-068
Number of the ECTS credits	6
Language of instruction	Polish
Purpose and description of the content of education	W ramach przedmiotów fakultatywnych (1, 2, 3, 4 i 5) student ma możliwość wyboru specjalistycznych modułów poszerzających ogólną wiedzę geologiczną. Wybór z kilkudziesięciu oferowanych modułów w ramach Przedmiotów fakultatywnych pozwala ukierunkować studenta na tematykę, którą się szczególnie interesuje lub która będzie mu potrzebna do zrealizowania pracy dyplomowej. Wszystkie oferowane moduły liczą 24 h zajęć i 2 punkty ECTS. W ramach Przedmiotu fakultatywnego 1 (24 h) student musi wybrać jeden moduł. Z tej samej puli modułów do wyboru student będzie wybierał jeszcze cztery razy: w ramach Przedmiotu fakultatywnego 2 (48 h) – dwa moduły, w ramach Przedmiotu fakultatywnego 3 (72 h) – trzy moduły, w ramach Przedmiotu fakultatywnego 4 (72 h) – trzy moduły i w ramach Przedmiotu fakultatywnego 5 (72 h) – trzy moduły. Pozwala mu to zaprojektować własną ścieżkę rozszerzania wiedzy i zyskiwania specjalistycznych umiejętności i kompetencji.
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-GS-S1-068_1	zyskuje unikalną, specjalistyczną wiedzę wspierającą ogólne wykształcenie geologiczne	1GS_W1 1GS_W2 1GS_W3 1GS_W4	2 2 2 2
W2-GS-S1-068_2	nabywa umiejętności wynikające z uzyskanej wiedzy, które poszerzają jego zestaw umiejętności zawodowych	1GS_U1 1GS_U11 1GS_U2 1GS_U3 1GS_U4 1GS_U5 1GS_U6	2 2 2 2 2 2 2

W2-GS-S1-068_3	doskonali i rozwija specjalistyczne kompetencje geologiczne	1GS_K2 1GS_K3 1GS_K4 1GS_K6	2 2 2 2

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a02	Lecture methods / expository methods	Monographic lecture *an exhaustive discussion of one issue, usually related to the research interests of the person teaching the course or a thorough presentation of one selected issue*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*

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-GS-S1-068_l_1	laboratory classes	36	course work	W2-GS-S1-068_2, W2-GS-S1-068_3	e01
W2-GS-S1-068_w_1	lecture	36	course work	W2-GS-S1-068_1	a01, a02

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

Code	Category	Name (description)	Is it part of the BUNA?
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
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

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.

1.	**Field of study**	**Applied Geology**
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	**Palaeontology**
Module code	W2-GS-S1-404
Number of the ECTS credits	4
Language of instruction	Polish
Purpose and description of the content of education	Moduł Paleontologia przedstawia studentowi terminologię, procesy i metody badawcze w zakresie naturalnej historii organizmów żywych. Nacisk jest położony na umiejętność rozróżniania głównych grup skamieniałości. Nabyta wiedza powinna umożliwić studentowi rozpoznawanie najważniejszych kopalnych organizmów, a także określanie pozycji stratygraficznej, paleoekologicznej i biogeograficznej typowych formacji osadowych fanerozoiku Polski.
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-GS-S1-404_1	zna najważniejsze grupy pierwotniaków, roślin i zwierząt występujące w stanie kopalnym w fanerozoiku, ich morfologię oraz zasięgi stratygraficzne; zna również podstawy podziału i nazewnictwo tabeli stratygraficznej	1GS_W1 1GS_W6	3 4
W2-GS-S1-404_2	potrafi rozróżniać najważniejsze grupy organizmów kopalnych, określać ich elementy morfologiczne oraz zasięgi stratygraficzne	1GS_U1	3
W2-GS-S1-404_3	potrafi określać wiek względny skał na podstawie skamieniałości, warunki paleośrodowiskowe, interpretuje zmieniającą się pozycję geograficzną i biogeograficzną Polski w fanerozoiku na podstawie skamieniałości	1GS_U1 1GS_U11 1GS_U6	3 2 2
W2-GS-S1-404_4	umie manualnie wykonywać rysunki skamieniałości w kilku rzutach	1GS_U1	1
W2-GS-S1-404_5	wykazuje aktywną postawę do poznawania rzeczy nowych i wykorzystywania ich dla wzbogacania własnej wiedzy; stara się uczyć samodzielnie w oparciu o dostępną literaturę, krytycznie oceniając stan własnej wiedzy	1GS_K2	3
W2-GS-S1-404_6	ma świadomość walorów poznawczych, ontologicznych i estetycznych organizmów kopalnych oraz ich ochrony jako znalezisk unikatowych, oraz potrzeby ich ochrony	1GS_K1 1GS_K3 1GS_K6	3 1 1

9.	Methods of conducting classes	
Code	**Category**	**Name (description)**
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
e06	Practical methods	Observation *also conducted as fieldwork; a method of watching phenomena, objects or people in a systematic/planned way in order to gain knowledge about them; perceptual separation of elements of a model action as an element of learning through imitation; a complex system of cognition based on sensory experiences*

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-GS-S1-404_l_1	laboratory classes	24	course work	W2-GS-S1-404_1, W2-GS-S1-404_2, W2-GS-S1-404_3, W2-GS-S1-404_4, W2-GS-S1-404_5, W2-GS-S1-404_6	c06, c07, e06
W2-GS-S1-404_w_1	lecture	24	exam	W2-GS-S1-404_1, W2-GS-S1-404_5, W2-GS-S1-404_6	c07

11.	The student's work, apart from participation in classes, includes in particular:		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
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
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	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
c03	Preparation for verification of learning outcomes	Implementation of an individual or group assignment necessary for course/phase/ examination completion	No

		a set of activities aimed at performing an assigned task, to be executed out of class, as an obligatory 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.

1.	**Field of study**	**Applied Geology**
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	**Physical education**
Module code	WF-2023
Number of the ECTS credits	0
Language of instruction	
Purpose and description of the content of education	Academic physical culture should be an integral and complementary part of the general educational program of the university. Physical culture consists of physical education, recreation, sport and tourism. The physical education module is the only area that creates the opportunity for implementing the body- and health-related values and provides a counterbalance to the mental workload of university students. It responds to the changing reality and to a large extent participates in the process of preparing the student for professional adult life as well as the life in the family and in the society. The aim of the classes in this/her module is to become familiar with and to learn the technical elements of the selected sports discipline. Also, to possibly consolidate the skills acquired at a previous stage of education. Thus, the student becomes equipped with the necessary knowledge about physical culture, its history and specific regulations. He/she becomes familiar with the organization of competitions and the recreational and tourist events. Through group cooperation and discipline, the classes develop self-esteem and instill life-long health-promoting attitudes.
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)
K01	The student observes the rules of "fair play" on the sports field and in everyday life. He/she promotes the social and cultural importance of sport and exercise and cultivates his/her own preferences related to physical culture.		
U01	The student uses sports facilities and equipment in a safe way, practices the correct warm-up and, if necessary, implements appropriate safety measures when exercising.		
U02	The student is able to properly analyze the level of their own physical fitness and motor skills.		
U03	The student is able to cooperate in a group and assume various roles: creating and supporting the attitudes of others, following the instructions of the coach or the teacher, as well as competition, rivalry and responsibility.		
W01	The student has knowledge pertaining to the impact of physical exercise on human health. He/she knows the body needs and the forms of physical activity needed to maintain health, as well as the consequences and risks associated with the lack of exercise.		
W02	The student knows the rules and regulation, rules of the games and the history of the chosen form of exercise.		

9.	Methods of conducting classes	
Code	**Category**	**Name (description)**
b03	Problem-solving methods	Activating method – educational games *learning content in the guise of a rule- and/or principle-based game; conducted in a deliberately arranged situation based on the description of relevant facts and processes; learners compete with one another within the framework of rules laid down by the academic teacher; varieties include simulation games – involving a simulation of real situations; decision games – based on the decision-making process and the recognition of the consequences of the decisions made (e.g., a decision tree); psychological games – increasing the emotional-volitional component of the participants' attitudes*
c06	Demonstration methods	Demonstration-imitation *a presentation of a model way of performing specific activities accompanied by a commentary; it aims at triggering imitation activities in an individual or in a group of participants observing the activities of the person teaching the course until the right habit is formed through regular exercise; the demonstration-imitation method is combined with a physical practice of activities/behaviours*
e05	Practical methods	Internship *including professional and individual training; gaining skills and experience in real-life conditions, e.g., in the environment, institution or workplace the student is preparing for by following a specific study programme; training in real working conditions*
e06	Practical methods	Observation *also conducted as fieldwork; a method of watching phenomena, objects or people in a systematic/planned way in order to gain knowledge about them; perceptual separation of elements of a model action as an element of learning through imitation; a complex system of cognition based on sensory experiences*

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**
01	practical classes	30	course work	K01, U01, U02, U03, W01, W02	b03, c06, e05, e06

11.	The student's work, apart from participation in classes, includes in particular:		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	No

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.

1.	**Field of study**	**Applied Geology**
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	**Physics in Earth Sciences**
Module code	W2-GS-S1-002
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	Moduł Fizyka w naukach o Ziemi składa się z cyklu wykładów oraz ćwiczeń prowadzonych w pracowni fizycznej. W trakcie wykładów student poznaje podstawowe teorie fizyczne istotne dla zrozumienia zjawisk i procesów fizycznych zachodzących na Ziemi. Na wstępie przedstawiane są podstawowe pojęcia z zakresu budowy materii i oddziaływań elementarnych, modele ciał fizycznych oraz elementy matematycznego opisu zjawisk fizycznych. W dalszej kolejności prezentowane są podstawy najważniejszych teorii fizyki klasycznej: mechanika punktu materialnego i bryły sztywnej, mechanika płynów, teoria sprężystości, grawitacja, termodynamika, elektryczność i magnetyzm. Prezentowane są przykłady wykorzystania tych teorii do opisu zjawisk i procesów fizycznych obserwowanych na Ziemi. W czasie zajęć w pracowni fizycznej studenci zapoznają się z podstawowymi przyrządami pomiarowymi stosowanymi w fizyce oraz uczą się zestawiania układu pomiarowego. Wykorzystując wiedzę teoretyczną nabytą w czasie wykładów studenci przeprowadzają pod nadzorem prowadzącego doświadczenia fizyczne i opracowują wyniki pomiarów oraz sporządzają sprawozdania z wykonanych doświadczeń.
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-GS-S1-002_1	zna podstawy teorii fizycznych istotnych dla zrozumienia zjawisk fizycznych zachodzących na kuli ziemskiej: mechaniki, teorii sprężystości, grawitacji, mechaniki płynów, termodynamiki, elektryczności i magnetyzmu.	1GS_W1 1GS_W6	2 2
W2-GS-S1-002_2	zna podstawowe przyrządy i urządzenia pomiarowe stosowane w fizyce.	1GS_U1	1
W2-GS-S1-002_3	potrafi przeprowadzić prosty eksperyment fizyczny posługując się przyrządami pomiarowymi, opracować wyniki pomiarów oraz sporządzić sprawozdanie z wykonanego doświadczenia.	1GS_U1 1GS_U2 1GS_U4 1GS_U6 1GS_U9 1GS_W2	2 2 2 2 2 2

9.	Methods of conducting classes	
Code	**Category**	**Name (description)**
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*

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-GS-S1-002_l_1	laboratory classes	24	course work	W2-GS-S1-002_1, W2-GS-S1-002_2, W2-GS-S1-002_3	e01
W2-GS-S1-002_w_1	lecture	12	course work	W2-GS-S1-002_1, W2-GS-S1-002_2, W2-GS-S1-002_3	a01, c07

11.	The student's work, apart from participation in classes, includes in particular:		
Code	**Category**	**Name (description)**	**Is it part of the BUNA?**
a04	Preparation for classes	Consulting materials complementary to those indicated in the syllabus *agreeing on materials complementary to those indicated in the syllabus, supporting the implementation of tasks resulting from or necessary for class participation*	No
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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
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 phase/element of the verification of the learning outcomes assigned to the course*	No

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.

1.	Field of study	Applied Geology
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	**Quaternary geology**
Module code	W2-GS-S1-415
Number of the ECTS credits	2
Language of instruction	Polish
Purpose and description of the content of education	Celem modułu jest zapoznanie studentów z młodszym okresem ery kenozoicznej w kontekście budowy geologicznej (rozpoznawanie osadów glacjalnych i wodnolodowcowych i ich wykorzystanie oraz poznanie głównych form polodowcowej rzeźby terenu, ich genezy oraz podstawowych procesów, które je ukształtowały), zmian klimatu i ich przyczyn (zlodowacenia i interglacjały), przemian roślinności, wymierania megafauny oraz współczesnych zagrożeń pod kątem wpływu człowieka na procesy geologiczne (np. rozpad lądolodów, antropocen). Po osiągnięciu efektów kształcenia modułu student jest przygotowany do samodzielnego rozpoznawania i klasyfikacji polodowcowych form rzeźby terenu, zna klasyfikację osadów lodowcowych i wodnolodowcowych także pod kątem charakterystyki geologiczno-inżynierskiej oraz rozumie ich związek z procesami geologicznymi i cechami budowy geologicznej. Potrafi wykonać i interpretować przekroje geologiczne przez osady czwartorzędowe na podstawie danych z profili wiertniczych. Zdobywa wiedzę umożliwiającą pogłębienie wyobraźni przestrzennej. Potrafi zrekonstruować środowiska glacjalne oraz dokonać ich analizy. Rozumie współczesne zagrożenia cywilizacyjne i ich wpływ na środowisko i procesy geologiczne, dostrzega, że wszelkie działania w geologii mają nierozerwalny związek ze środowiskiem, kształtują je i muszą być podporządkowane etyce ekologicznej.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-405] Dynamic Earth 1 [W2-GS-S1-406] Dynamic Earth 2 [W2-GS-S1-041] Applied petrology 1 [W2-GS-S1-049] Applied petrology 2 [W2-GS-S1-038] Fundamentals of Sedimentology

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-415_1	zna podstawowe pojęcia z zakresu geologii czwartorzędu i pogłębia wiedzę w zakresie tej problematyki	1GS_U11 1GS_W1 1GS_W6	2 2 2
W2-GS-S1-415_2	klasyfikuje genetycznie i charakteryzuje osady wodnolodowcowe i glacjalne (również pod kątem charakterystyki geologiczno-inżynierskiej) oraz formy akumulacji wodnolodowcowej i lodowcowej, a także formy strefy peryglacjalnej, potrafi je nazwać i opisać.	1GS_K1 1GS_K2 1GS_U1	2 2 3

		1GS_W1 1GS_W2 1GS_W6	2 3 2
W2-GS-S1-415_3	zna metody badawcze geologii czwartorzędu i wie w jakim celu się je stosuje	1GS_U1	3
W2-GS-S1-415_4	zna zagrożenia wynikające z sejsmiczności antropogenicznej. Zna zagadnienia związane z glacitektoniką i młodymi ruchami tektonicznymi w Polsce	1GS_U1 1GS_U11 1GS_W1 1GS_W2	2 2 2 3
W2-GS-S1-415_5	ma umiejętność konstruowania przekrojów geologicznych przez osady czwartorzędowe, oraz ich interpretacji, wykorzystując do tego wiedzę o osadach i procesach kształtujących różne formy terenu	1GS_K1 1GS_K2 1GS_U1 1GS_U3 1GS_W2 1GS_W6	2 1 3 1 3 2
W2-GS-S1-415_6	zna relacje pomiędzy działaniem człowieka a stanem środowiska i zmianami klimatycznymi w holocenie. Zna zagrożenia wynikające z ocieplenia klimatu, np. rozpad lądolodu Grenlandii i topnienie lodowców szelfowych Antarktydy, zmiany wieloletniej zmarzliny i ich wpływ na budownictwo. Krytycznie analizuje działania człowieka w środowisku; stara się postępować zgodnie z zasadami etyki ekologicznej	1GS_K1 1GS_K2 1GS_K3 1GS_U3 1GS_W2 1GS_W3	2 2 1 3 3 2
W2-GS-S1-415_7	wykazuje aktywną postawę do poznawania rzeczy nowych i wykorzystywania ich dla wzbogacania własnej wiedzy; krytycznego i twórczego myślenia oraz otwartości na poglądy innych.	1GS_K2 1GS_K4 1GS_K6 1GS_U7	2 2 2 2

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a02	Lecture methods / expository methods	Monographic lecture *an exhaustive discussion of one issue, usually related to the research interests of the person teaching the course or a thorough presentation of one selected issue*
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object*

		or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison
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*
b02	Problem-solving methods	Lecture-discussion *transmission of content involving interaction with the lecture audience; discussion of lecture-related issues is one of its elements or constitutes its follow-up*
b04	Problem-solving methods	Activating method – discussion / debate *an exchange of views supported by substantive arguments leading to a clash of different views, a compromise or the identification of common positions; it proceeds according to previously agreed-upon rules regarding the time, manner and turn-taking as well as the principles of civil discourse; a discussion is not a competition but aims at finding the best solutions or presenting different points of view; its varieties include brainstorming, Oxford-style debate, panel discussion, decision tree, conference discussion; a debate is an orderly dispute between supporters and opponents of a viewpoint, usually specialists in the field or pre-selected representatives of a group dealing with a common problem*
b07	Problem-solving methods	Activating methods: a case study *a comprehensive description of a phenomenon connected with the selected discipline; reflecting the reality, presenting the 'what', 'where' and 'how' of the phenomenon, i.e., all of its key aspects to be discussed in class; used as a reproduction, presentation, discussion or diagnosis of factors that shape the phenomenon or interact with it; an in-depth qualitative analysis and evaluation of a selected phenomenon*
b09	Problem-solving methods	Activating method – flipped classroom *anticipatory learning; work in class is based on previously studied material indicated by the person teaching the course; preparation outside the classroom serves the purpose of getting familiar with the issues whose knowledge is necessary for participating in the in-class discussion and the training in the related practical skills; the activity is based on the work of students under the guidance of the person teaching the course*
b10	Problem-solving methods	SWOT analysis *a method of analyzing a phenomenon/action/work of an institution, employed to organize information and solve problems; applied in strategic planning, project implementation or solving a business or organizational problem; a universal tool to be used in the initial stage of a strategic analysis which involves sorting information about a problem into four categories: strengths and weaknesses, opportunities and threats; SWOT analysis makes it possible to determine the factors in favour of a project and its chances for success, as well as eliminating or reducing negative factors and threats to the project at the stage of early diagnosis*
c01	Demonstration methods	Exhibition *preparing an object for public display and displaying it in order to elicit a specific reaction; creating a themed collection of specimens/objects/works to illustrate a specific issue*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
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*
d03	Programmed learning methods	Working with another teaching tool

		e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools
e07	Practical methods	Simulation *an indirect method; imitating reality in order to gain experience approximating a real one; recreating a real-world situation so that its participant can acquire an experience close to the authentic one; work on "replacement" material*
f02	Methods of self-learning	Individual work with a text *searching for and acquiring new information using textbooks and other written sources (including their digital versions); searching for texts, selecting fragments for analysis/interpretation, using other texts to solve a problem related to the studied issue*

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-GS-S1-415_l_1	laboratory classes	24	course work	W2-GS-S1-415_2, W2-GS-S1-415_3, W2-GS-S1-415_5, W2-GS-S1-415_6, W2-GS-S1-415_7	a03, b04, b07, b09, b10, c01, c07, d01, d03, e07, f02
W2-GS-S1-415_w_1	lecture	12	course work	W2-GS-S1-415_1, W2-GS-S1-415_2, W2-GS-S1-415_3, W2-GS-S1-415_4, W2-GS-S1-415_6	a01, a02, b01, b02, b04

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

Code	Category	Name (description)	Is it part of the BUNA?
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
b03	Consulting the curriculum and the organization of classes	Consulting the schedule *getting acquainted with the class schedule, possibly in the presence of the year tutor, in order to optimize participation in classes, including those supplementary to the core subjects listed in the pursued study programme*	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
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 phase/element of the verification of the learning outcomes assigned to the course*	No
d02	Consulting the results of the verification of learning outcomes	Development of a corrective action plan as well as supplementary/corrective tasks *reviewing and selecting tasks and activities enabling the elimination of errors indicated by the academic teacher, their verification or correction resulting in completing the task with at least the minimum passing grade*	No

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.

1.	**Field of study**	**Applied Geology**
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	**Renevable Energy Sources**
Module code	W2-GS-S1-063
Number of the ECTS credits	1
Language of instruction	Polish
Purpose and description of the content of education	Odnawialne źródła energii (OZE) to kurs dla osób, które interesują się wyzwaniami energetycznymi przyszłości. Kurs przybliża studentom poszczególne rodzaje OZE, ich możliwości oraz ograniczenia. Uczestnicy kursu zapoznają się z fizycznymi podstawami OZE, co wpływa na ich pełniejsze zrozumienie tych źródeł oraz ich stabilności, przewidywalności oraz wydajności w zależności od uwarunkowań środowiskowych. Na kursie porównamy OZE ze źródłami konwencjonalnymi takimi jak węgiel, gaz, ropa i atom, ze szczególnym uwzględnieniem roli OZE w polityce energetycznej w Polsce, wybranych krajach oraz w ujęciu globalnym. Studenci w ramach ćwiczeń opracowują zadane zagadnienia i prezentują je na zajęciach, co pozwala im poszerzyć kluczowe umiejętności i kompetencje w zakresie pozyskania, obróbki, prezentacji danych oraz efektywnego komunikowania wyników i tez dotyczących OZE.
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-GS-S1-063_1	studenci mają okazję zapoznać się z podstawowymi pojęciami użytecznymi w dyskusji na temat energii, jej pochodzeniem, zapotrzebowaniem na energię w skali gospodarstwa domowego, kraju, kontynentu i planety.	1GS_K1 1GS_U4 1GS_W1 1GS_W6	1 1 1 1
W2-GS-S1-063_2	studenci poznają dostępne obecnie odnawialne źródła energii (OZE), dowiadują się również, jakie są fizyczne mechanizmy stojące za tymi źródłami przez to rozpoznają lepiej ich potencjał oraz ograniczenia.	1GS_K1 1GS_K3 1GS_U1 1GS_U4 1GS_W1 1GS_W3	1 1 1 1 1 1
W2-GS-	studenci porównują OZE ze źródłami konwencjonalnymi (np. węgiel, ropa, gaz, atom).	1GS_K1	1

S1-063_3		1GS_K3 1GS_U4 1GS_W1 1GS_W3	1 1 1 1
W2-GS-S1-063_4	studenci opracowują zagadnienia dotyczące OZE (samodzielnie i/lub w zespołach) a następnie prezentują swoje wyniki przed grupą. Studenci nabierają umiejętności i doświadczenia w gromadzeniu danych, ich obróbce, prezentacji oraz skutecznym komunikowaniu tez i wniosków swoich prac.	1GS_K1 1GS_K4 1GS_U10 1GS_U6 1GS_U7 1GS_U9	1 1 1 1 1 1

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
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*
b04	Problem-solving methods	Activating method – discussion / debate *an exchange of views supported by substantive arguments leading to a clash of different views, a compromise or the identification of common positions; it proceeds according to previously agreed-upon rules regarding the time, manner and turn-taking as well as the principles of civil discourse; a discussion is not a competition but aims at finding the best solutions or presenting different points of view; its varieties include brainstorming, Oxford-style debate, panel discussion, decision tree, conference discussion; a debate is an orderly dispute between supporters and opponents of a viewpoint, usually specialists in the field or pre-selected representatives of a group dealing with a common problem*
c02	Demonstration methods	Video show *reproducing a film or video material in its entirety or in fragments in order to illustrate the content taught in class, to submit it to analysis and evaluation or to use it as an exercise in image perception; a film/video can be a work of art, an illustration (also technical illustration) of a content/phenomenon/object, a private record of an action, a media image, etc.*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
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
d03	Programmed learning methods	Working with another teaching tool *e.g. using websites in any way or according to the rules set by the teacher; or making use of other subject-specific tools*

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-GS-S1-063_l_1	laboratory classes	20	course work	W2-GS-S1-063_1, W2-GS-S1-063_2, W2-GS-S1-063_3, W2-GS-S1-063_4	a01, a03, b01, b04, c02, c07, d01, d03

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
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 phase/element of the verification of the learning outcomes assigned to the course*	No
e01	Activities complementary to the classes	Undertaking, on one's own initiative and individually, activities aimed at expanding the scope or depth of the teaching content, also beyond the walls of the University *a set of activities undertaken independently and on the student's own initiative, aimed at expanding the depth and scope of knowledge and skills, their revision and repetition, retention or verification, also activities carried outside the university, e.g., in a culture promoting or educational institution, a laboratory, in the open air, etc.; also self-education*	No

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.

1.	**Field of study**	**Applied Geology**
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	**Sedimentology filedtrips**
Module code	W2-GS-S1-423
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	Ćwiczenia terenowe z Sedymentologii to praktyczne przełożenie wiedzy nabytej przez studenta dotyczącej analizy utworów osadowych w terenie pod względem rozpoznawania ich cech teksturalnych i strukturalnych, procesów sedymentacji i środowiska depozycji oraz ich proweniencji. Dodatkowo student nabywa praktycznych umiejętności sporządzania ogólnego i szczegółowego profilu sedymentologicznego wraz z interpretacją, wykorzystuje pomiary kompasem geologicznym do oceny struktur linijnych i planarnych skał klastycznych, a także stosuje metody wizualizacji statystycznej (diagramy i histogram) do przedstawienia wskaźników procesu sedymentacji na przykładzie skał osadowych. Wymiernym efektem uczestnictwa w ćwiczeniach terenowych jest możliwość zaznajomienia się z różnymi środowiskami sedymentacji skał osadowych w terenie oraz nabycie umiejętności interpretacji procesów sedymentacyjnych na podstawie osadów kopalnych przy użyciu metod i technik wykorzystywanych w naukach o Ziemi.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-405] Dynamic Earth 1 [W2-GS-S1-406] Dynamic Earth 2 [W2-GS-S1-415] Quaternary geology [W2-GS-S1-046] Basics of geomorphology [W2-GS-S1-038] Fundamentals of Sedimentology

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-423_1	zna metody badań stosowane w sedymentologii, zwłaszcza w czasie pracy terenowej; zna podstawową terminologię sedymentologiczną; zna zasady higieny i bezpieczeństwa pracy w terenie	1GS_U1 1GS_U9 1GS_W1 1GS_W3 1GS_W6	1 1 2 1 2
W2-GS-S1-423_2	zna cechy wskaźnikowe i zasięg przestrzenny współczesnych środowisk sedymentacji; zna cechy wskaźnikowe osadów węglanowych i klastycznych w różnych kopalnych środowiskach sedymentacji	1GS_U1 1GS_U5 1GS_W1	2 1 2
W2-GS-	zna zasady tworzenia profilu litologicznego, wymienia cechy struktury i tektury skały i wiąże je ze środowiskiem	1GS_U1	1

S1-423_3	powstania	1GS_U6 1GS_W1	1 2
W2-GS-S1-423_4	rozpoznaje skałę osadową i składniki, które ją budują; umie wskazać i opisać strukturę i teksturę tej skały; kojarzy skałę ze środowiskiem; sprawnie posługuje się terminologią sedymentologiczną	1GS_U1 1GS_U6 1GS_W1	2 1 2
W2-GS-S1-423_5	umie wykonać profil litologiczny skały osadowej zwięzłej i luźnej, wykonać szkic odsłonięcia, prowadzić notatnik terenowy; pracuje samodzielnie i w grupie	1GS_U10 1GS_U6 1GS_U9 1GS_W1	2 1 2 2
W2-GS-S1-423_6	umie wykonać pomiary imbrykacji i lineacji otoczaków, ich średnicy średniej (sprawnie posługuje się kompasem geologicznym); przeprowadza analizę statystyczną pomiarów i nanosi wyniki na diagram rozetowy, konstruuje histogram uziarnienia otoczaków	1GS_U1 1GS_U9 1GS_W1 1GS_W2	2 1 2 1
W2-GS-S1-423_7	zadaje pytania i formułuje opinie na temat zagadnień sedymentacji i genezy różnych skał osadowych	1GS_K1 1GS_K2 1GS_U1 1GS_U5	1 1 2 1
W2-GS-S1-423_8	pracuje w grupie (jako lider i wykonawca); przejawia aktywną postawę w czasie badań terenowych	1GS_K1 1GS_U1 1GS_U6 1GS_U9	2 1 2 2

9. Methods of conducting classes

Code	Category	Name (description)
a03	Lecture methods / expository methods	Description *a description of objects, phenomena, processes or people; it involves specifying the structure and characteristic features of the object, phenomenon, or process being described; it is usually accompanied by a demonstration of the described object or by its models, drawings, tables, charts, etc.; a description may take the form of an explanation, classification, justification or comparison*
a05	Lecture methods / expository methods	Explanation/clarification *explication involving the derivation of a predetermined theorem from other, already known ones, in the number of steps specified by the person teaching the course*
e05	Practical methods	Internship *including professional and individual training; gaining skills and experience in real-life conditions, e.g., in the environment, institution or workplace the student is preparing for by following a specific study programme; training in real working conditions*
e06	Practical methods	Observation

		also conducted as fieldwork; a method of watching phenomena, objects or people in a systematic/planned way in order to gain knowledge about them; perceptual separation of elements of a model action as an element of learning through imitation; a complex system of cognition based on sensory experiences

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-GS-S1-423_ct_1	field practice	36	course work	W2-GS-S1-423_1, W2-GS-S1-423_2, W2-GS-S1-423_3, W2-GS-S1-423_4, W2-GS-S1-423_5, W2-GS-S1-423_6, W2-GS-S1-423_7, W2-GS-S1-423_8	a03, a05, e05, e06

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

Code	Category	Name (description)	Is it part of the BUNA?
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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	No
b02	Consulting the curriculum and the organization of classes	Verification / adjustment / discussion of syllabus provisions *consulting the content of the syllabus, possibly in the presence of the year tutor or members of the class group, and, if necessary, reassessing the provisions concerning special conditions for class participation, e.g., space and time requirements, technical and other requirements, including conditions for participation in classes outside the walls of the university, classes organized in blocks, organized online, etc.*	No
c01	Preparation for verification of learning outcomes	Determining the stages of task implementation contributing to the verification of learning outcomes *devising a task implementation strategy embracing the division of content, the range of activities, implementation time and/or the method(s) of obtaining the necessary materials and tools, etc.*	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 phase/element of the verification of the learning outcomes assigned to the course*	No
d03	Consulting the results of the verification of learning outcomes	Review of internship documentation *an analysis of the portfolio of documentation obtained during internship, including professional internship, and other practical classes and studio sessions, as well as the documentation developed in order to obtain credit for such classes; verification of the description, necessary attachments, opinions and grades before submitting the portfolio for acceptance*	No

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.

1.	Field of study	Applied Geology
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	**Tectonics and Structural Geology**
Module code	W2-GS-S1-410
Number of the ECTS credits	4
Language of instruction	Polish
Purpose and description of the content of education	Celem modułu "Tektonika i geologia strukturalna" jest umożliwienie zrozumienia przyczyn, przebiegu i skutków procesów deformacyjnych w ramach tektoniki płyt litosfery oraz podstawowych metod ich badania. Zakres modułu obejmuje poznanie mechanicznych właściwości skał, mechanizmów procesów tektonicznych, właściwości deformacyjnych skał, zrozumienie genezy i działania sił oraz naprężeń w skałach. Studenci zapoznają się z genetycznymi i geometrycznymi cechami deformacji oraz klasyfikacją struktur, w tym mikrostruktur, mezostruktur, makrostruktur i megastruktur, a także struktur nietektonicznych, paratektonicznych, grawitacyjnych i tektonicznych, struktur ciągłych i nieciągłych. Program obejmuje klasyfikację fałdów, uskoków oraz spękań, zrozumienie mechanizmów działających w strefach ścinania, omówienie struktur tektonicznych, tektoniki ciał magmowych, kompleksów metamorficznych, glacitektoniki, tektoniki solnej, morfotektoniki oraz aktywnej tektoniki. Ponadto, studenci poznają ewolucję Ziemi i skorupy ziemskiej oraz cykl orogeniczny. W ramach praktycznych zajęć laboratoryjnych studenci nabywają umiejętności przydatnych w dalszych studiach, takich jak obserwacja, samodzielne wnioskowanie oraz pisemne syntetyzowanie zebranych danych. Zajęcia te obejmują również bardziej szczegółowe umiejętności związane z rekonstruowaniem nadrzędnych form strukturalnych, wiekowego następstwa struktur, kierunku i zwrotu transportu tektonicznego, osi skracania i poszerzania, osi głównych naprężeń oraz charakteru i stylu deformacji.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-405] Dynamic Earth 1 [W2-GS-S1-406] Dynamic Earth 2 [W2-GS-S1-009] Mathematics in Earth Sciences

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-410_1	zna podstawową terminologię, cele i pojęcia używane w tektonice oraz metody analizy strukturalnej	1GS_K2 1GS_U1 1GS_W1	1 1 3
W2-GS-S1-410_2	potrafi określić własności reologiczne skał oraz mechanizmy zachodzące podczas procesów tektonicznych	1GS_W1	2
W2-GS-S1-410_3	zna genezę, mechanizmy powstawania i ewolucję struktur tektonicznych uformowanych w różnych warunkach i reżimach deformacyjnych oraz potrafi je identyfikować	1GS_K2 1GS_U1	1 1

		1GS_W1	1
W2-GS-S1-410_4	rozumie i potrafi zrekonstruować naprężenia w skałach oraz geometrię deformacji, wiekowe następstwo struktur, kierunek i zwrot transportu tektonicznego, osie skracania i poszerzania, osie głównych naprężeń oraz charakter i styl deformacji	1GS_K2 1GS_U1 1GS_U3 1GS_W1	1 1 2 2
W2-GS-S1-410_5	zna i rozumie ewolucję Ziemi i skorupy ziemskiej, cyklu orogenicznego, tektoniki płyt litosfery	1GS_K2 1GS_W1 1GS_W2	1 2 2
W2-GS-S1-410_6	wykazuje aktywną postawę do poznawania rzeczy nowych i wykorzystywania ich dla wzbogacania własnej wiedzy; krytycznego i twórczego myślenia oraz otwartości na poglądy innych	1GS_K1 1GS_K2 1GS_K3 1GS_K4 1GS_U11 1GS_U6 1GS_U7	2 2 1 1 1 1 1

9. Methods of conducting classes

Code	Category	Name (description)
a01	Lecture methods / expository methods	Formal lecture/ course-related lecture *a systematic course of study involving a synthetic presentation of an academic discipline; its implementation assumes a passive reception of the information provided*
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*
c07	Demonstration methods	Screen presentation *a presentation of synthetic image content using computer graphics, e.g., a series of slides or other multimedia forms, usually accompanied by a commentary; typical components of a screen presentation include text organized into bulleted points, charts, images and animations, sometimes sound effects or music; a multimedia illustration of course content presented in the form of a projected image*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*
e02	Practical methods	Production exercise – workshop *an activity involving the creation of an object/product according to the rules/principles/description provided by the academic teacher acting as the workshop master*

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-GS-S1-410_l_1	laboratory classes	24	course work	W2-GS-S1-410_1, W2-GS-S1-410_3, W2-GS-S1-410_4, W2-GS-S1-410_6	e01, e02
W2-GS-S1-410_w_1	lecture	24	exam	W2-GS-S1-410_1, W2-GS-S1-410_2, W2-GS-S1-410_3, W2-GS-S1-410_4, W2-GS-S1-410_5	a01, b01, c07

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
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	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
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 phase/element of the verification of the learning outcomes assigned to the course*	No

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.

1.	Field of study	Applied Geology
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	**Tectonics and Structural Geology (Field classes)**
Module code	W2-GS-S1-073
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	Celem modułu „Tektonika i Geologia Strukturalna (ćwiczenia terenowe)” jest zdobycie praktycznych umiejętności obserwacji, identyfikacji, opisu i interpretacji struktur tektonicznych, wprawnego posługiwania się kompasem geologicznym, wykonywania podstawowych operacji przestrzennych na siatkach stereograficznych, samodzielna interpretacja zebranych w terenie wyników badań strukturalnych. Końcowym efektem prac terenowych i kameralnych jest raport geologiczno-strukturalny dla wybranych obszarów badawczych.
List of modules that must be completed before starting this module (if necessary)	[W2-GS-S1-405] Dynamic Earth 1 [W2-GS-S1-406] Dynamic Earth 2 [W2-GS-S1-009] Mathematics in Earth Sciences [W2-GS-S1-410] Tectonics and Structural Geology

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
W2-GS-S1-073_1	potrafi zidentyfikować, sklasyfikować i zinterpretować różne struktury tektoniczne w terenie oraz umiejętnie je zaprezentować na rysunkach	1GS_K2 1GS_U1 1GS_U10 1GS_U2 1GS_U3 1GS_W1	1 2 1 1 1 1
W2-GS-S1-073_2	zna wybrane metody analizy strukturalnej i potrafi je zastosować w oparciu o wykonane pomiary (w tym diagramy punktowe, konturowe i rozetowe, elipsoida naprężeń, wyznaczanie osi fałdu, określanie związku genetycznego spękań z fałdami i uskokami)	1GS_U1 1GS_U2 1GS_U3 1GS_W1	2 1 1 1
W2-GS-S1-073_3	sprawnie posługuje się kompasem geologicznym, zarówno w odniesieniu do elementów linijnych jak i planarnych; posiada umiejętność transpozycji pomiarów tektonicznych w terenie na obraz przestrzenny z wykorzystaniem projekcji stereograficznych	1GS_U1 1GS_U10 1GS_U2	1 1 1

		1GS_U3	1
W2-GS-S1-073_4	potrafi sporządzić raport geologiczno-strukturalny w oparciu o własne obserwacje, pomiary tektoniczne i ich interpretację na diagramach strukturalnych	1GS_K1 1GS_K2 1GS_U1 1GS_U10 1GS_U2 1GS_U3 1GS_U9 1GS_W1	1 1 1 2 1 3 3 1
W2-GS-S1-073_5	kształtuje umiejętność powiązania obserwacji, analizowania i wnioskowania; ma świadomość, jak ważna jest analiza porównawcza przestrzennej orientacji struktur tektonicznych do formułowania daleko idących wniosków tektogenetycznych	1GS_K1 1GS_K2 1GS_U11 1GS_W6	2 2 1 1

9. Methods of conducting classes

Code	Category	Name (description)
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*
e05	Practical methods	Internship *including professional and individual training; gaining skills and experience in real-life conditions, e.g., in the environment, institution or workplace the student is preparing for by following a specific study programme; training in real working conditions*
e06	Practical methods	Observation *also conducted as fieldwork; a method of watching phenomena, objects or people in a systematic/planned way in order to gain knowledge about them; perceptual separation of elements of a model action as an element of learning through imitation; a complex system of cognition based on sensory experiences*
e08	Practical methods	Practice-as-research *also conducted as fieldwork; an activity aimed at confronting the acquired theory with practice through its practical application; students situate themselves in the reality they observe, study and transform through the prism of the theory; the method of practical classes is dominated by the application of knowledge to solving practical tasks*
e09	Practical methods	Plein air session *implementation of a creative task in an open-air area, e.g. outside the studio*
f01	Methods of self-learning	Self-education *a method which involves independent acquisition of knowledge, skills and social competences, extending their scope and quality; complementary to the learning process taking place in class; taking on the task of developing and adjusting qualifications on one's own; self-study*
f03	Methods of self-learning	Conceptual work

		a (mainly intellectual) activity carried out independently (or in a selected group) resulting in the creation of a concept, idea or project; creating a plan based on a vision; developing a general outline of a project; producing a simplified sketch of the variant versions of a procedure/product/work

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-GS-S1-073_ct_1	field practice	36	course work	W2-GS-S1-073_1, W2-GS-S1-073_2, W2-GS-S1-073_3, W2-GS-S1-073_4, W2-GS-S1-073_5	e01, e05, e06, e08, e09, f01, f03

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
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 phase/element of the verification of the learning outcomes assigned to the course*	No

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