

PROGRAM OF STUDIES

FACULTY: .OF GEOENGINEERING, MINING AND GEOLOGY

MAIN FIELD OF STUDY: .MINING AND GEOLOGY

DISCIPLINE: D1 ENVIRONMENTAL, MINING AND POWER ENGINEERING

EDUCATION LEVEL second-level studies (4 semesters)

FORM OF STUDIES: full-time studies

PROFILE: general academic

LANGUAGE OF STUDY: English

Content:

1. Assumed learning outcomes – attachment no. 1... to the program of studies
2. Program of studies description – attachment no. 2... to the program of studies

In effect since .2023/2024

ASSUMED LEARNING OUTCOMES

FACULTY: Geoengineering, Mining, and Geology

MAIN FIELD OF STUDY: Mining and Geology

EDUCATION LEVEL: second-level studies

PROFILE: general academic

Location of the main-field-of study:

Branch of science: **engineering and technical sciences**

Discipline: **environmental engineering, mining and energy**

.....
Explanation of the markings:

P6U – universal first degree characteristics corresponding to education at the first-level studies - 6 PRK level *

P7U – universal first degree characteristics corresponding to education at the second-level studies - 7 PRK level *

P6S – second degree characteristics corresponding to education at the first-level studies - 6 PRK level *

P7S – second degree characteristics corresponding to education at the second-level studies - 7 PRK level *

W - category "knowledge"

U - category "skills"

K - category "social competences"

K (*faculty symbol*) _W1, K (*faculty symbol*) _W2, K (*faculty symbol*) _W3, ... - main-field-of study learning outcomes related to the category "knowledge"

K (*faculty symbol*) _U1, K (*faculty symbol*) _U2, K (*faculty symbol*) _U3, ... - main-field-of study learning outcomes related to the category "skills"

K (*faculty symbol*) _K1, K (*faculty symbol*) _K2, K (*faculty symbol*) _K3, ... - main-field-of study learning outcomes related to the category "social competences"

... _inż. – learning outcomes related to the engineer competences

* delete as applicable

Main field of study learning outcomes	Description of learning outcomes for the main-field-of study After completion of studies, the graduate:	Reference to PRK characteristics		
		Universal first degree characteristics (U)	Second degree characteristics typical for qualifications obtained in higher education (S)	
			Characteristics for qualifications on 6 / 7* levels of PRK	Characteristics for qualifications on 6 and 7 levels of PRK, enabling acquiring engineering competences
KNOWLEDGE (W)				
K2_GIG_W01	has knowledge of effective scientific expression and presentation, knows the rules and methods for conducting scientific research and presenting their results in a scientific publication	P7U_W	P7S_WG	
K2_GIG_W02	has extended and in-depth knowledge of physics and/or chemistry, necessary to understand the phenomena and processes affecting the properties of the Earth's crust and raw materials it contains.	P7U_W	P7S_WG	
K2_GIG_W03	has basic knowledge of the role and main principles of financial management in the enterprise; has in-depth knowledge of the economic evaluation of investment projects and investment risk assessment	P7U_W	P7S_WG P7S_WK	P7S_WG_inż P7S_WK_inż
K2_GIG_W04	has systematised knowledge of the fundamentals and types of environmental management systems in Poland and EU countries; knows the tools and instruments supporting their implementation and the applicable legal regulations.		P7S_WG P7S_WK	P7S_WG_inż P7S_WK_inż
K2_GIG_W05	has basic knowledge necessary to understand the social and psychological determinants of engineering activities	P7U_W	P7S_WK	P7S_WK_inż
K2_GIG_W06	has knowledge of the basic decision models in management with the use of IT tools/applications	P7U_W	P7S_WK	P7S_WK_inż
K2_GIG_W07	has knowledge of the processes and technologies used in geoenvironmental engineering, mining and processing of mineral resources		P7S_WG	P7S_WG_inż

K2_GIG_W08	has in-depth knowledge of the recognition and assessment of resources, quality, and value of the deposit, legal procedures to launch mine operations, and to conduct mining and mineral processing	P7U_W	P7S_WG P7S_WK	P7S_WG_inž P7S_WK_inž
K2_GIG_W09	has knowledge of the operation of mining or geoengineering enterprises as well as about their production management and optimization		P7S_WG P7S_WK	P7S_WG_inž P7S_WK_inž
K2_GIG_W10	has extended knowledge of the sciences describing the phenomena that are the basis of technologies used in mining and mineral engineering and the sciences explaining the phenomena and threats accompanying mining, mineral engineering, and environmental protection, in particular in the field of rock mass mechanics, soil mechanics, geophysics, hydrogeology, and ecology	P7U_W	P7S_WG P7S_WK	P7S_WG_inž P7S_WK_inž
K2_GIG_W11	knows the formal and legal conditions in the field of geology, mining, geoengineering, mineral engineering and environmental protection	P7U_W	P7S_WK	
K2_GIG_W12	has knowledge of the rational use of environmental resources, circular economy and economic activity sustainable in terms of innovation, environmental protection and safety	P7U_W	P7S_WG P7S_WK	P7S_WG_inž P7S_WK_inž
K2_GIG_W13	knows the environmental impact assessment procedures and their legal regulations, factors influencing such an assessment, its stages, and the effectiveness of the applied research methods; knows the basic concepts and frameworks of environmental risk and human health exposure assessments		P7S_WG P7S_WK	P7S_WG_inž P7S_WK_inž
K2_GIG_W14	has broadened knowledge of the threats that occur in mining and mineral engineering and knows how to counteract them		P7S_WG	P7S_WG_inž
K2_GIG_W15	has basic knowledge of computer modeling of geological structures, computer aided design, and monitoring of mining or geoengineering objects	P7U_W	P7S_WG P7S_WK	P7S_WG_inž P7S_WK_inž
K2_GIG_W16	has knowledge of changes in the rock mass under the influence of mining, with particular emphasis on its impact on the ground surface and methods of monitoring to protect the surface		P7S_WG	P7S_WG_inž

K2_GIG_W17	knows the methodology and techniques of occupational risk assessment in light of Polish and international law; knows the basics of organization and management of work safety, necessary for management and traffic supervision in mining, geoengineering and mineral engineering	P7U_W	P7S_WG P7S_WK	P7S_WG_inż P7S_WK_inż
K2_GIG_W18	knows methods and tools for designing, calculating, and optimizing systems for the extraction and processing of minerals and waste with the use of mathematical modelling and digital simulation of technological operations	P7U_W	P7S_WG P7S_WK	P7S_WG_inż P7S_WK_inż
K2_GIG_W19	has knowledge of machine systems used in raw material technologies and geoengineering, their reliability and life cycle		P7S_WG P7S_WK	P7S_WG_inż P7S_WK_inż
SKILLS (U)				
K2_GIG_U01	has linguistic resources appropriate for a specialist language and is able to use the specialist language in all linguistic activities to communicate in a professional environment in the field of studied discipline		P7S_UK	
K2_GIG_U02	has language skills in accordance with the requirements specified for the B2 + level of the European System for the Description of Languages (CEFR) in the foreign language in which learning is continued; understands and interprets professional texts in the field of mining and geology; speaks and writes using academic and engineering language.		P7S_UK	
K2_GIG_U03	concerning the second foreign language, understands quite well the content and intentions of an oral statement or written text on a topic known from everyday and professional life; can write a short text on a known topic, including a utility text (e.g. an informal letter); is able to participate in conversations on known topics and to a limited extent expresses themselves about studies and professional work, using socio-cultural knowledge		P7S_UK	
K2_GIG_U04	is able to use analytical methods and IT tools, including digital simulation, to design, calculate, optimize systems for extraction, processing, processing of minerals and waste or revitalization of post-mining facilities	P7U_U	P7S_UW	P7S_UW_inż

K2_GIG_U05	is able to select and apply appropriate methods and IT tools for systemic management of environmental components under the given geological and mining conditions	P7U_U	P7S_UW	P7S_UW_inż
K2_GIG_U06	is able to build a simple financial model of an investment, examine its profitability and conduct a risk analysis on the ground of historical data and financial forecasts		P7S_UW	P7S_UW_inż
K2_GIG_U07	is able to design processes and technological systems used in geoengineering, mining or processing of mineral resources, is able to program basic models/algorithms of technological operations when applied to analyze the effectiveness of a complex industrial system	P7U_U	P7S_UW	P7S_UW_inż
K2_GIG_U08	understands the need for lifelong learning and is able to organize the learning of other people	P7U_U	P7S_UU	
K2_GIG_U09	is able to work in a group and lead a team to fully use its potential to solve assigned tasks	P7U_U	P7S_UO	
K2_GIG_U10	can use the knowledge of the sciences describing the phenomena that are the basis of technologies used in mining and mineral engineering and the sciences explaining the phenomena and threats accompanying mining, mineral engineering, and environmental protection for calculations, analyzes, and design of facilities, processes and technologies	P7U_U	P7S_UW P7S_UU	P7S_UW_inż
K2_GIG_U11	is able to carry out an occupational risk assessment for selected factors of the working environment with the use of computer tools; is able to independently develop elements of work safety documents required by law	P7U_U	P7S_UW P7S_UO P7S_UK	P7S_UW_inż
K2_GIG_U12	is able to carry out an assessment of the impact of industrial activities on the environment for a simple case study; is able to interpret the documentation regarding the risk assessment of the negative impact of mining activities on the health of the population and independently perform simple risk calculations		P7S_UW P7S_UO	P7S_UW_inż
K2_GIG_U13	is able to critically assess and draw conclusions from various sources and to prepare written documentation or oral presentations on the area of mineral resource engineering		P7S_UW P7S_UK	P7S_UW_inż

K2_GIG_U14	is able to apply and interpret basic decision models with the use of IT tools/applications	P7U_U	P7S_UW P7S_UO P7S_UU	P7S_UW_inż
K2_GIG_U15	is able to make a critical analysis of technical and organizational solutions used in mining, geoengineering and mineral engineering		P7S_UW P7S_UK	P7S_UW_inż
SOCIAL COMPETENCES (K)				
K2_GIG_K01	can think and act creatively and enterprisingly		P7S_KK P7S_KR	
K2_GIG_K02	understands the need to formulate and communicate to society, including through the mass media, information and opinions on the achievements of the mining industry, geoengineering and mineral engineering and other aspects of the engineer's activity; makes efforts to convey such information and opinions in a commonly understandable manner, presenting different points of view; is aware of the value and need of shaping a safety culture work and responsibility for the health and life of other employees	P7S_K	P7S_KK P7S_KO P7S_KR	
K2_GIG_K03	is aware of the importance of nontechnical effects of engineering activities, including their impact on the environment and the related responsibility for decisions made	P7U_K	P7S_KO P7S_KR	

FACULTY: **of Geoengineering, Mining and Geology**

MAIN FIELD OF STUDY: **Mining and Geology**

LANGUAGE OF STUDY: English

SPECIALIZATION: **Mineral Resources Exploration**

- Track UNI MISKOLC-WUST

DESCRIPTION OF THE PROGRAM OF STUDIES

Main field of study MINING AND GEOLOGY**Profile** general academic**Level of studies** second level studies**Form of studies** full-time studies**1. General description**

1.1 Number of semesters: 4	1.2 Total number of ECTS points necessary to complete studies at a given level: 120
1.3 Total number of hours: 1290	1.4 Prerequisites (particularly for second-level studies): Bachelor of Science in Engineering diploma, interview
1.5 Upon completion of studies graduate obtains professional degree of: magister inżynier - 2nd degree qualifications	1.6 Graduate profile, employability: <i>The program will train T-shaped earth science specialists having a strong background in classical disciplines of geology and geophysics complemented with modern 3D modelling as well as data processing and interpretation skills, while the boundary-crossing competences will cover skills in innovative mineral exploration techniques and technologies used in the field, in laboratories, in an underground and underwater environment. Students will also be trained in sustainability, social responsibility and social licence to operate. T-shaped mineral explorers will use Industry 4.0-derived tools and methods for mineral resource exploration, mentored by experts.</i> <i>They will be prepared to work in enterprises, technical supervision institutions, public state and local administration, in research and development organisations, in Poland and</i>

	<p><i>abroad, will also be prepared to start own business or work as free lanced exploration geologists. The graduates will be able to use English freely and will be prepared to work in an international environment and intercultural groups during their professional career.</i></p>
<p><i>1.7 Possibility of continuing studies: eligibility to apply for admission to a doctoral school, non-degree postgraduate programmes</i></p>	<p><i>1.8 Indicate connection with University’s mission and its development strategy: The study programs of all specializations within the field of study Mining and Geology respond to the strategic goals of the University (Strategia Politechniki Wrocławskiej 2023–2030), by rising the level of correlation of the study offer with the needs of the market (C3), by enhancing the quality of education through didactic interdisciplinarity and by cooperation with industrial partners as well as increasing the level of entrepreneurship, creativity and involvement of students in research processes (C4, C2). Graduates of the faculty should be creative, professional, have theoretical background and practical abilities, as well as have interpersonal skills and cross-cultural experience (C5). The Faculty of Geoengineering, Mining and Geology, as one of the units of the Wrocław University of Science and Technology, educates in the field of engineering, broadened by knowledge in natural and economic sciences. The profile and quality of education are at the international level and are adapted to the needs of the national and global mineral industries.</i></p>

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

2. Detailed description

2.1 Total number of learning outcomes in the program of study: W (knowledge) = 19, U (skills) = 15, K (competences) = 3,
W + U + K = 37

~~2.2 For the main field of study assigned to more than one discipline – the number of learning outcomes assigned to the discipline:~~

~~_____ D1 (major) (this number must be greater than half the total number of learning outcomes)~~

~~_____ D2~~

~~_____ D3~~

~~_____ D4~~

~~2.3 For the main field of study assigned to more than one discipline – percentage share of the number of ECTS points for each discipline:~~

~~_____ D1% ECTS points~~

~~_____ D2% ECTS points~~

~~_____ D3% ECTS points~~

~~_____ D4% ECTS points~~

2.4a. For the general academic profile of the main field of study – the number of ECTS points assigned to the classes related to the University's academic activity in the discipline or disciplines to which the main field of study is assigned – DN (must be greater than 50% of the total number of ECTS points from 1.2) 98 ECTS

~~2.4b. For the practical profile of the main field of study – the number of ECTS points assigned to the classes shaping practical skills (must be greater than 50% of the total number of ECTS points from 1.2)~~

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2.5 Concise analysis of compliance of the assumed learning outcomes with the needs of the labor market

The economic development of the country is closely dependent on natural resources, the ability to use them and having appropriate engineering workforce. The assumed learning outcomes correspond to the needs of practice in the field of the generally understood management of mineral resources - technologies and techniques for their identification, valuation, extraction, processing, revitalization of industrial areas, and the practice of managing an enterprise (especially mining) in the sense of managing information, environment and people, using the latest IT and marketing techniques and methods. This integration of economic needs and assumed educational effects favorably shape the labor market for the graduates of the Faculty. Additionally, a good command of English and experience of working in an international group will open up the possibility of working in foreign branches of Polish enterprises and in foreign companies.

2.6. The total number of ECTS points that a student must obtain in classes requiring direct participation of academic teachers or other persons conducting classes and students (enter the sum of ECTS points for courses / groups of courses marked with the BU¹ code) **63,2 ECTS**

2.7. Total number of ECTS points, which student has to obtain from basic sciences classes

Number of ECTS points for obligatory subjects	6
Number of ECTS points for optional subjects	0
Total number of ECTS points	6

2.8. Total number of ECTS points, which student has to obtain from practical classes, including project and laboratory classes (enter total number of ECTS points for courses/group of courses denoted with code P)

Number of ECTS points for obligatory subjects	18
Number of ECTS points for optional subjects	63
Total number of ECTS points	81

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⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

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2.9. Minimum number of ECTS points, which student has to obtain doing education blocks offered as part of University-wide classes or other main field of study (enter number of ECTS points for courses/groups of courses denoted with code O)

3 ECTS points

2.10. Total number of ECTS points, which student may obtain doing optional blocks (min. 30% of total number of ECTS points)

92 ECTS points

3. Description of the process leading to learning outcomes acquisition:

1. Upon starting classes in each subject, the student has an appropriate level of knowledge and skills which constitute the prerequisites for a given course (it is verified by the teacher or the dean's office).
2. The student participates in classes organized at the university.
3. The student carries out the assigned work in class and at home (projects, computational tasks, analyzes, prepares presentations) and studies the literature and materials recommended by the teacher.
4. The student uses the appointed hours of the tutor's consultation, explaining his uncertainties and verifying the correct understanding of the course content.
5. The student participates in periodic tests of knowledge and skills, completes the tests available on the e-portal and is familiar with the correct answers, grades and comments from the teacher.
6. In some subjects, the student participates in group tasks, taking part in the organization of the group's work, assessment of the activities of individual participants and takes responsibility for the result of the group's work.
7. The student is encouraged to become involved in the work of research clubs, student organizations, discussion clubs, sports groups, participation in social life through work in public welfare organizations, voluntary work, thus gaining valuable interpersonal skills and social competences.
8. The student participates in meetings with companies from the industry, technical excursions, job fairs, tries to gain knowledge about the labor market and additional advantages when applying for a job
9. The student is encouraged to participate in an international student exchange, and through contact with foreigners at the faculty, he or she acquires additional interpersonal, cultural and language qualifications

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4. List of education blocks:

4.1. List of obligatory blocks:

4.1.1 List of general education blocks

4.1.1.1 Liberal-managerial subjects block (6 ECTS points):

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3012G	Exploration Entrepreneurship GK	1			1	2	K2_GIG_W03,W05,W09 K2_GIG_U08,U09 K2_GIG_K01,K02,K03	60	100	4		3,0	Z	Z			P(3)	KO
2	W06GIG-SM3013P	SOC Internship				2		K2_GIG_W05,W09 K2_GIG_U08,U09 K2_GIG_K01,K02,K03	30	50	2		1,5	T	Z			P(2)	KO
Total			1			3	2		90	150	6		4,5					5	

Altogether for general education blocks

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
1			3	2	90	150	6		4,5

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³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

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4.1.2 List of basic sciences blocks

4.1.2.1 Mathematics block

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3002W	Computer Aided Geological Modelling & Geostatistics (część: Geostatistics) w	1					K2_GIG_W06,W08,W15 K2_GIG_U04,U08,U14	15	50	2		0,8	T	Z				PD
2	W06GIG-SM3002L	Computer Aided Geological Modelling & Geostatistics (część: Geostatistics) l			1				15	25	1		0,6	T	Z			P (1)	PD
Total			1	0	1	0	0		30	75	3		1,4					1	

4.1.2.3 Physics block

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3004W	Engineering Geophysics w	1					K2_GIG_W02,W08,W10 K2_GIG_U04,U13	15	25	1	1	0,8	T/Z	Z		DN		PD
2	W06GIG-SM3004P	Engineering Geophysics p				1			15	50	2	2	0,9	T	Z		DN	P(2)	PD
Total			1	0	0	1	0		30	75	3	3	1,7					2	

Altogether for basic sciences blocks:

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
2	0	1	1	0	60	150	6	3	3,1

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⁴University-wide subject /group of classes – enter O

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4.1.3 List of the main field of study blocks

4.1.3.1 Obligatory main field of study blocks

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			Unive ⁴ rsity-wide	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3002L	Computer Aided Geological Modelling & Geostatistics (Część: Computer Aided Geological Modelling)			2			K2_GIG_W06,W08,W15 K2_GIG_U04,U08,U14	30	50	2	2	1,3	T	Z		DN	P(2)	K
2	W06GIG-SM3000W	Digital Mine w	1					K2_GIG_W07,W12,W18,W19 K2_GIG_U04,U07,U08	15	25	1	1	0,8	T/Z(w)	Z		DN		K
3	W06GIG-SM3000L	Digital Mine l			1				15	25	1	1	0,8	T	Z		DN	P(1)	K
4	W06GIG-SM3005W	Occupational Health and Safety w	1					K2_GIG_W11,W12,W14,W17 K2_GIG_U11,	15	25	1	1	0,7	T/Z(w)	Z		DN		K
5	W06GIG-SM3005P	Occupational Health and Safety p				1		K2_GIG_K02, K03	15	25	1	1	0,8	T	Z		DN	P(1)	K
6	W06GIG-SM3007W	Principles and Application of InSAR and GIS in mining w	2					K2_GIG_W15,W16,W18 K2_GIG_U04,U07,U08	30	50	2	2	1,4	T/Z(w)	E		DN		K
7	W06GIG-SM3007L	Principles and Application of InSAR and GIS in mining l			3				45	75	3	3	2,0	T	Z		DN	P(3)	K
8	W06GIG-SM3055W	Geochemistry	2					K2_GIG_W02,W10 K2_GIG_K03	30	50	2	2	1,4	T/Z(w)	Z	O	DN		PD
9	W06GIG-SM3016P	Applied Field Exploration				3		K2_GIG_W08,W15 K2_GIG_U04,U09,U10,U13 K2_GIG_K02	45	75	3	1	2,1	T	Z		DN	P(3)	S
Total			6	0	6	4			240	400	16	14	11,3					10	

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

Altogether (for main field of study blocks):

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
6	0	6	4	0	240	400	16	14	11,3

4.2 List of optional blocks

4.2.1 List of general education blocks

4.2.1.2 Foreign languages block (min. 3 ECTS points):

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	SJO-SM0003	Foreign Language 1		3				K2_GIG_U03	45	60	2		1,6	T	Z	O		P (2)	KO
2	SJO-SM0004	Foreign Language 2		1				K2_GIG_U01,U02	15	30	1		0,6	T	Z	O		P(1)	KO
Total			0	4	0	0	0		60	90	3		2,2					3	

Altogether for general education blocks:

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
0	4	0	0	0	60	90	3	0	2,2

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

4.2.4 List of specialization blocks

4.2.4.1 Specialization subjects (e.g. whole specialization) blocks (68 ECTS points):

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3017G	Physical Geology GK	2			1		K2_GIG_W08,W10 K2_GIG_UU10,U13 K2_GIG_K02,03	45	100	4	4	2,4	T/Z(w)	E		DN	2	S
2	W06GIG-SM3018G	Mineralogy and Geochemistry GK	2		1			K2_GIG_W02,W08,W10 K2_GIG_U08,U10,U13 K2_GIG_K03	45	100	4	4	2,2	T/Z(w)	E		DN	2	S
3	W06GIG-SM3019G	Geophysical Exploration Methods I GK	2		1			K2_GIG_W02,W08,W10 K2_GIG_U07,U10,U13 K2_GIG_K01,K03	45	100	4	4	2,2	T/Z(w)	E		DN	2	S
4	W06GIG-SM3048G	Engineering physics GK	2				1	K2_GIG_W02 K2_GIG_U01, U13 K2_GIG_K02	45	100	4		2,2	T/Z(w)	E			2	S
5	W06GIG-SM3047G	Numerical methods and optimization GK	1		1			K2_GIG_W02,W09 K2_GIG_U04,U13,U14 K2_GIG_K01,K03	30	50	2	2	1,5	T/Z(w)	Z		DN	1	S
6	W06GIG-SM3049G	Geodesy, spatial informatics GK	2				1	K2_GIG_W02,W08,W15,W16 K2_GIG_U04,U10,U13 K2_GIG_K01,K03	45	100	4	4	2,2	T/Z(w)	E		DN	2	S
7	W06GIG-SM3050L	Computer science for engineers			2			K2_GIG_U04,U13 K2_GIG_K01,K03	30	50	2	2	1,4	T	Z		DN	2	S
8	W06GIG-SM3051G	Data and information processing GK	2				1	K2_GIG_W02,W15,W16 K2_GIG_U04,U13 K2_GIG_K01,K03	45	100	4	4	2,1	T/Z(w)	Z		DN	2	S
	W06GIG-SM3031S	Graduate research seminar					2	K2_GIG_W01,W07,W10 K2_GIG_U01,U08,U13 K2_GIG_K02	30	50	2	2	1,4	T/Z(w)	Z		DN	2	S
9	W06GIG-SM3025G	Structural geology GK	1			2		K2_GIG_W02,W08,W10,W15 K2_GIG_U04,U07,U10,U13 K2_GIG_K03	45	100	4	4	2,4	T/Z(w)	E		DN	2	S
10	W06GIG-SM3026G	Mineral Deposits GK	2		1			K2_GIG_W08,W09,W10 K2_GIG_U01,U10,U13 K2_GIG_K03	45	100	4	4	2,2	T/Z(w)	E		DN	2	S
11	W06GIG-SM3027G	Engineering geology and hydrogeology GK	2		1			K2_GIG_W02,W08,W10,W14 K2_GIG_U04,U07U10,U13 K2_GIG_K03	45	100	4	4	2,2	T/Z(w)	E		DN	2	S
12	W06GIG-SM3028G	Analytical technics in mineralogy and petrology GK	1		1			K2_GIG_W02,W08,W10 K2_GIG_U04,U10,U13 K2_GIG_U_K03	30	50	2	2	1,5	T/Z(w)	Z		DN	1	S
13	W06GIG-SM3052G	Geophysical measurements GK	2		1			K2_GIG_W02,W07,W08 K2_GIG_U08,U10,U13	45	100	4	4	2,2	T/Z(w)	E			2	S

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²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject / group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

14	W06GIG-SM3030G	Geological mapping GK	1		2	K2_GIG_U_K03 K2_GIG_W08,W10,W11 K2_GIG_U04,U10 K2_GIG_K03	45	100	4	4	2,4	T/Z(w)	E		DN	2	S
16	W06GIG-SM3053G	Historical geology GK	2		1	K2_GIG_W08,W10 K2_GIG_U10,U13 K2_GIG_K02,03	45	100	4	4	2,2	T/Z(w)	E			2	S
17	W06GIG-SM3054G	Geophysical exploration methods II GK	2		1	K2_GIG_W02,W08,W10 K2_GIG_U07,U10,U13 K2_GIG_K01,K03	45	100	4	4	2,2	T/Z(w)	E			2	S
18	GIG-SM0001AN	Free Elective	1				15	25	1		0,7		Z				S
19	W06GIG-SM3056P	Research in Innovative Exploration			6	K2_GIG_W01,W08,W10,W12 K2_GIG_U01,U07,U08,U10,U13 K2_GIG_K01,K02	90	175	7	4	3,9	T	Z		DN	7	S
Total			27	0	9	11	7	810	1700	68	60	39,5				39	

4.2.4.2 Diploma (e.g. diploma profile) block (21 ECTS points):

No	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3014S	Diploma Seminar					1	K2_GIG_W01 K2_GIG_U01,U13 K2_GIG_K03	15	25	1	1	0,8	T	Z		DN	P(1)	S
2	W06GIG-SM3015D	Master Thesis				1		K2_GIG_W01,W05,W10 K2_GIG_U01,U04, U08,U10,U13,U15 K2_GIG_K01,K03	15	500	20	20	1,8	T	Z		DN	P(20)	S
Total			0	0	0	1	1		30	525	21	21	2,6					21	

Altogether for specialization blocks:

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
27	0	9	12	8	840	2225	89	81	42,1

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

4.3 Training block - concerning principles of training crediting – attachment no. ...

Opinion of the Advisory Faculty Council concerning the rules of crediting training block

Name of training			
Number of ECTS points	Number of ECTS points for BU ¹ classes	Training crediting mode	Code
Training duration		Training objective	
		Internship	

4.4 „Diploma dissertation” block (if it is foreseen at first level studies)

Type of diploma dissertation	Licencjat / inżynier / magister / magister inżynier*	
Number of diploma dissertation semesters	Number of ECTS points	Code
1	20	W06GIG-SM3015D
Character of diploma dissertation		
Literature survey, project, computer program, etc.		
Number of BU ¹ ECTS points	1,8	

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⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

5. Ways of verifying assumed learning outcomes

Form of classes	Ways of verifying assumed learning outcomes
lecture	e.g. examination, progress/final test
class	e.g. progress/final test
laboratory	e.g. pretest, report from laboratory
project	e.g. project defence
seminar	e.g. participation in discussion, topic presentation, essay
training	e.g. report from training
diploma dissertation	prepared diploma dissertation

6. Range of diploma examination

1. Occupational risk assessment methods. Identification of harmful, dangerous and nuisance factors in the work environment.
2. Variogram and methods of its modelling
3. Kriging, its properties and types
4. Geophysical methods of exploration and identification of deposits.
5. Surface seismic methods. Reflective and refractive seismics.
6. Computer aided exploration and identification of deposits.
7. Optimisation techniques used in engineering.
8. Advances of technology & methods of future mining operations.
9. Aims, benefits, drawbacks of automation and industrial revolutions.
10. Applications of Interferometric Synthetic Aperture Radar.
11. Applications of map algebra and spatial statistics to determine surface deformation models
12. Perfectly elastic body vs linearly elastic body
13. Plate tectonic background of the geological processes
14. Magneto-, chemo-, seismic, sequence, and cycle stratigraphy
15. Surface geophysical methods
16. Geophysical methods used in boreholes
17. Classification of applied geophysical methods
18. Physical properties of rocks controlling the development of fractures, folds and other structural features

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²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

19. Ore forming geological processes which create different deposits
20. Genetic classification of deposits
21. Soil formation, soil classification methods
22. Hydrogeochemistry, transport processes
23. Analytical methods used in mineralogy and geology
24. Application of geophysical methods in different exploration phases
25. Different methods of stratigraphical correlation and their significance in raw material prospecting.
26. Rock mass age-determining methods
27. Geochemical aspects of the genesis of a chosen mineral
28. Principles of the distribution of chemical elements in the Earth
29. Applications of geo-informatics and GIS programs in mineral exploration
30. Modern measuring techniques in Geodesy
31. Sedimentary environments
32. Rock-forming processes
33. Characteristic of a selected minerals group
34. Plate tectonics and large scale structures
35. Water management issues
36. Sustainability and protection of groundwater
37. Vulnerability of groundwater
38. Laws and regulations related to exploration and exploitation of minerals / water
39. Mining legislation. Categorisation and classification of mineral reserves.
40. Groundwater chemistry and its impact on water use and legislation
41. Hydrogeological objects (wells, piezometers), construction and use.
42. Definitions of terms: ore mineral and industrial mineral. Classifications of industrial minerals.

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³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

7. Requirements concerning deadlines for crediting courses/groups of courses for all courses in particular blocks

No.	Subject / group of classes code	Name of subject / group of classes	Crediting by deadline of... (number of semester)
1	W06GIG-SM3017G	Physical Geology	1-4
2	W06GIG-SM3018G	Mineralogy and Geochemistry	1-4
3	W06GIG-SM3019G	Geophysical Exploration Methods I	1-4
4	W06GIG-SM3047G	Numerical methods and optimization GK	1-4
5	W06GIG-SM3048G	Engineering physics GK	1-4
6	W06GIG-SM3049G	Geodesy, spatial informatics GK	1-4
7	W06GIG-SM3050L	Computer science for engineers	1-4
8	W06GIG-SM3051G	Data and information processing GK	1-4
9	W06GIG-SM3031S	Graduate research seminar	1-4
10	W06GIG-SM3025G	Structural geology GK	2-4
11	W06GIG-SM3026G	Mineral Deposits GK	1-4
12	W06GIG-SM3027G	Engineering geology and hydrogeology GK	2-4
13	W06GIG-SM3028G	Analytical technics in mineralogy and petrology GK	2-4
14	W06GIG-SM3052G	Geophysical measurements GK	2-4
15	W06GIG-SM3030G	Geological mapping GK	2-4
16	W06GIG-SM3053G	Historical geology GK	2-4
17	W06GIG-SM3054G	Geophysical exploration methods II GK	2-4
18	W06GIG-SM3007	Principles and Application of InSAR and GIS in mining	3-4
19	W06GIG-SM3002	Computer Aided Geological Modelling & Geostatistics	3-4
20	W06GIG-SM3004	Engineering Geophysics	3-4
21	W06GIG-SM3005	Occupational Health and Safety	3-4
22	W06GIG-SM3000	Digital Mine	3-4
23	SJO-SM0003	Foreign language 1	3-4
24	SJO-SM0004	Foreign language 2	3-4
25	W06GIG-SM3055W	Geochemistry	3-4
26	GIG-SM0001AN	Free Elective	3-4

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27	W06GIG-SM3056P	Research in Innovative Exploration	3-4
28	W06GIG-SM3012G	Exploration Entrepreneurship	1-4
29	W06GIG-SM3013P	SOC Internship	1-4
30	W06GIG-SM3016P	Applied Field Exploration	1-4
31	W06GIG-SM3015D	Master Thesis	4
32	W06GIG-SM3014S	Diploma Seminar	4

8. Plan of studies (attachment no. 4)

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⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

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Approved by faculty student government legislative body:

POLITECHNIKA WROCLAWSKA
WYDZIAŁ GEOINŻYNIERII
GÓRNICWA I GEOLOGII
Samorząd Studencki Wydziału Geoinżynierii,
Górnictwa i Geologii
50-421 Wrocław, Na Grobli 15, pokój 370

Jakub Dobrzański

Jakub Dobrzański
Chairman of the Student Government
of the Faculty of Geoengineering, Mining and Geology

.....
name and surname, signature of student representative

28.09.23

Date

DZIEKAN

prof. dr hab. inż. Radosław Zimroz

.....
Dean's signature

28.09.23

Date

PLAN OF STUDIES

FACULTY: Geoengineering, Mining and Geology

MAIN FIELD OF STUDY: Mining and geology

EDUCATION LEVEL: second-level studies

FORM OF STUDIES: full-time studies

PROFILE: general academic

SPECIALIZATION: Mineral Resources Exploration - Track UM - WUST

LANGUAGE OF STUDY: English

In effect since academic year 2023/24

	Winter		Summer		Winter		Summer	
semester	1	ECTS	2	ECTS	3		4	ECTS
hours	UM		UM		WUST		WUST	
1	Physical Geology 20001 E W06GIG-SM3017G	4	Structural geology 10020 E W06GIG-SM3025G	4	Computer Aided Geological Modelling & Geostatistics 10300Z W06GIG- SM3002	5	Exploration entrepreneurship (EFG) 10012 Z W06GIG-SM3012G	4
2								
3								
4	Mineralogy and Geochemistry 20100 E W06GIG-SM3018G	4	Mineral Deposits 20100 E W06GIG-SM3026G	4	Engineering Geophysics 10010 Z W06GIG- SM3004	3	Diploma Seminar 00001Z W06GIG-SM3012G	1
5								
6								
7	Geophysical Exploration Methods I 20100E W06GIG-SM3019G	4	Engineering geology and hydrogeology 20001 E W06GIG-SM3027G	4	Principles and Application of InSAR and GIS in mining 20300E W06GIG- SM3007	5	Master Thesis 00010 Z W06GIG-SM3015D	20
8								
9								
10	Numerical methods and optimization 10100 Z W06GIG-SM3047G	2	Analytical technics in mineralogy and petrology 10100Z W06GIG-SM3028G	2	Digital Mine 10100 Z W06GIG- SM3006	2		
11								
12	Engineering physics 200001E W06GIG-SM3048G	4	Geophysical measurements 20100 E W06GIG-SM3052G	4	Geochemistry 20000Z W06GIG- SM3055W	2	SOC Internship 00020 Z W06GIG-SM3013P	2
13								
14								
15	Geodesy, spatial informatics 200001E W06GIG-SM3049G	4	Geological mapping 10020 E W06GIG-SM3030G	4	Foreign Language 2 01000 Z SJO-SM0004	1	Applied field exploration 00030 Z W06GIG-SM3013P	3
16								
17								
18	Computer science for engineers 00200 Z W06GIG-SM3050L	2	Historical geology 20001 E W06GIG-SM3053G	4	Research in innovative exploration 00060 Z W06GIG-SM3056P	7		
19								
20	Data and information processing 20001 Z W06GIG-SM3051G	4	Geophysical exploration methods II. 20001 E W06GIG-SM3054G	4	Free Elective 10000 GIG-SM0001AN	1		
21								
22	Graduate research seminar 00002 Z W06GIG-SM3031S	2			Occupational Health and Safety 100100Z W06GIG- SM3005	2		
23								
24								
25					Foreign Language 1 03000 Z SJO-SM0003	2		
26								
27								
Total ECTS		30		30		30		30

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1. Set of obligatory and optional subjects and groups of classes in semestral arrangement

Semester 1

Obligatory subjects / groups of classes (0 ECTS points)

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1																			
Total																			

Optional subjects / groups of classes Number of ECTS points 30

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3017G	Physical Geology GK	2			1		K2_GIG_W08,W10 K2_GIG_UU10,U13 K2_GIG_K02,03	45	100	4	4	2,4	T/Z(w)	E		DN	2	S
2	W06GIG-SM3018G	Mineralogy and Geochemistry GK	2		1			K2_GIG_W02,W08,W10 K2_GIG_U08,U10,U13 K2_GIG_K03	45	100	4	4	2,2	T/Z(w)	E		DN	2	S
3	W06GIG-SM3019G	Geophysical Exploration Methods I GK	2		1			K2_GIG_W02,W08,W10 K2_GIG_U07,U10,U13 K2_GIG_K01,K03	45	100	4	4	2,2	T/Z(w)	E		DN	2	S
4	W06GIG-SM3047G	Numerical methods and optimization GK	1		1			K2_GIG_W02,W09 K2_GIG_U04,U13,U14 K2_GIG_K01,K03	30	50	2	2	1,5	T/Z(w)	Z		DN	1	S
5	W06GIG-SM3048G	Engineering physics GK	2				1	K2_GIG_W02 K2_GIG_U01, U13 K2_GIG_K02	45	100	4		2,2	T/Z(w)	E			2	S
6	W06GIG-SM3049G	Geodesy, spatial informatics GK	2				1	K2_GIG_W02,W08,W15,W16 K2_GIG_U04,U10,U13 K2_GIG_K01,K03	45	100	4	4	2,2	T/Z(w)	E		DN	2	S
7	W06GIG-SM3050L	Computer science for engineers			2			K2_GIG_U04,U13 K2_GIG_K01,K03	30	50	2	2	1,4	T	Z		DN	2	S
8	W06GIG-SM3051G	Data and information processing GK	2				1	K2_GIG_W02,W15,W16 K2_GIG_U04,U13 K2_GIG_K01,K03	45	100	4	4	2,1	T/Z(w)	Z		DN	2	S

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

9	W06GIG-SM3031S	Graduate research seminar				2	K2_GIG_W01,W07,W10 K2_GIG_U01,U08,U13 K2_GIG_K02	30	50	2	2	1,4	T/Z(w)	Z		DN	2	S
Total			13	5	1	5		360	750	30	24	17,6					17	

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
13	0	5	1	5	360	750	30	24	17,6

Semester 2

Obligatory subjects / groups of classes (0 ECTS points)

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1																			
		Total																	

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

Optional subjects / groups of classes
Number of ECTS points 30

No	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3025G	Structural geology GK	1			2		K2_GIG_W02,W08,W10,W15 K2_GIG_U04,U07,U10,U13 K2_GIG_K03	45	100	4	4	2,4	T/Z(w)	E		DN	2	S
2	W06GIG-SM3026G	Mineral Deposits GK	2		1			K2_GIG_W08,W09,W10 K2_GIG_U01,U10,U13 K2_GIG_K03	45	100	4	4	2,2	T/Z(w)	E		DN	2	S
3	W06GIG-SM3027G	Engineering geology and hydrogeology GK	2		1			K2_GIG_W02,W08,W10,W14 K2_GIG_U04,U07U10,U13 K2_GIG_K03	45	100	4	4	2,2	T/Z(w)	E		DN	2	S
4	W06GIG-SM3028G	Analytical technics in mineralogy and petrology GK	1		1			K2_GIG_W02,W08,W10 K2_GIG_U04,U10,U13 K2_GIG_U_K03	30	50	2	2	1,5	T/Z(w)	Z		DN	1	S
5	W06GIG-SM3052G	Geophysical measurements GK	2		1			K2_GIG_W02,W07,W08 K2_GIG_U08,U10,U13 K2_GIG_U_K03	45	100	4	4	2,2	T/Z(w)	E			2	S
6	W06GIG-SM3030G	Geological mapping GK	1			2		K2_GIG_W08,W10,W11 K2_GIG_U04,U10 K2_GIG_K03	45	100	4	4	2,4	T/Z(w)	E		DN	2	S
7	W06GIG-SM3053G	Historical geology GK	2				1	K2_GIG_W08,W10 K2_GIG_U10,U13 K2_GIG_K02,03	45	100	4	4	2,2	T/Z(w)	E			2	S
8	W06GIG-SM3054G	Geophysical exploration methods II GK	2				1	K2_GIG_W02,W08,W10 K2_GIG_U07,U10,U13 K2_GIG_K01,K03	45	100	4	4	2,2	T/Z(w)	E			2	S
Total			13		4	4	2		345	750	30	30	17,3					15	

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
13		4	4	2	345	750	30	30	17,3

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

Semester 3

Obligatory subjects / groups of classes Number of ECTS points¹⁹

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3002W	Computer Aided Geological Modelling & Geostatistics	1					K2_GIG_W06,W08,W15	15	50	2		0,8	T/Z	Z				PD/K
2	W06GIG-SM3002L	Computer Aided Geological Modelling & Geostatistics			3			K2_GIG_U04,U08,U14	45	75	3	2	1,9	T	Z		DN	3	PD/K
3	W06GIG-SM3004W	Engineering Geophysics	1					K2_GIG_W02,W08,W10	15	25	1	1	0,8	T/Z	Z		DN		PD
4	W06GIG-SM3004P	Engineering Geophysics				1		K2_GIG_U04,U13	15	50	2	2	0,9	T	Z		DN	2	PD
50	W06GIG-SM3007W	Principles and Application of InSAR and GIS in mining	2					K2_GIG_W15,W16,W18	30	50	2	2	1,4	T/Z(w)	E		DN		K
6	W06GIG-SM3007L	Principles and Application of InSAR and GIS in mining			3			K2_GIG_U04,U07,U08	45	75	3	3	2,0	T	Z		DN	3	K
7	W06GIG-SM3005W	Occupational Health and Safety	1					K2_GIG_W11,W12,W14,W17	15	25	1	1	0,7	T/Z(w)	Z		DN		K
8	W06GIG-SM3005P	Occupational Health and Safety				1		K2_GIG_U11, K2_GIG_K02, K03	15	25	1	1	0,8	T	Z		DN	1	K
9	W06GIG-SM3000W	Digital Mine	1					K2_GIG_W07,W12,W18,W19	15	25	1	1	0,8	T/Z(w)	Z		DN		K
10	W06GIG-SM3000L	Digital Mine			1			K2_GIG_U04,U07,U08	15	25	1	1	0,8	T	Z		DN	1	K
11	W06GIG-SM3055W	Geochemistry	2					K2_GIG_W02,W10 K2_GIG_K03	30	50	2	2	1,4	T/Z(w)	Z	O	DN		PD
Total			8		7	2			255	475	19	16	12,3					10	

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²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

Optional subjects / groups of classes (11 ECTS points)

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	SJO-SM0003	Foreign Language 1		3				K2_GIG_U03	45	60	2		1,6	T	Z	O		2	KO
2	SJO-SM0004	Foreign Language 2		1				K2_GIG_U01,U02	15	30	1		0,6	T	Z	O		1	KO
3	GIG-SM0001AN	Free Elective	1						15	25	1		0,7	T/Z(w)	Z				S
4	W06GIG-SM3056P	Research in Innovative Exploration					6	K2_GIG_W01,W08,W10,W12 K2_GIG_U01,U07,U08,U10,U13 K2_GIG_K01,K02	90	175	7	4	3,9	T	Z		DN	7	S
Total			1	4	0	6			165	290	11	4	6,8					10	

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
9	4	7	8	0	420	765	30	20	19,1

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²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

Semester 4

Obligatory subjects / groups of classes

Number of ECTS points 9

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3012G	Exploration Entrepreneurship GK	1			1	2	K2_GIG_W03,W05,W09 K2_GIG_U08,U09 K2_GIG_K01,K02,K03	60	100	4		3,0	Z	Z			P(3)	S
2	W06GIG-SM3013P	SOC Internship				2		K2_GIG_W05,W09 K2_GIG_U08,U09 K2_GIG_K01,K02,K03	30	50	2		1,5	T	Z			P(2)	S
3	W06GIG-SM3016P	Applied Field Exploration				3		K2_GIG_W08,W15 K2_GIG_U04,U09,U10,U13 K2_GIG_K02	45	75	3	1	2,1	T	Z		DN	P(3)	S
Total			1	0	0	6	2		135	225	9	1	6,6					8	

Optional subjects / groups of classes (21 ECTS points)

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3014S	Diploma Seminar					1	K2_GIG_W01 K2_GIG_U01,U13 K2_GIG_K02,K03	15	25	1	1	0,8	T	Z		DN	P(1)	S
2	W06GIG-SM3015D	Master Thesis				1		K2_GIG_W01,W05,W10 K2_GIG_U01,U04,U08,U10,U13,U15 K2_GIG_K01,K02,K03	15	500	20	20	1,8	T	Z		DN	P(20)	S
Total			0	0	0	1	1		30	525	21	21	2,6					21	

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
1	0	0	7	3	165	750	30	22	9,2

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³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

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2. Set of examinations in semestral arrangement

Subject / groups of classes code	Names of subjects / groups of classes ending with examination	Semester
W06GIG-SM3017G	1. Physical Geology	1
W06GIG-SM3018G	2. Mineralogy and Geochemistry	1
W06GIG-SM3019G	3. Geophysical Exploration Methods I	1
W06GIG-SM3048G	4. Engineering physics	1
W06GIG-SM3049G	5. Geodesy, spatial informatics	1
W06GIG-SM3017G	1. Structural geology	2
W06GIG-SM3018G	2. Mineral Deposits	2
W06GIG-SM3019G	3. Engineering geology and hydrogeology	2
W06GIG-SM3030G	4. Geological mapping	2
W06GIG-SM3052G	5. Geophysical measurements	2
W06GIG-SM3053G	6. Historical geology	2
W06GIG-SM3054G	7. Geophysical exploration methods II	2
W06GIG-SM3007	1. Principles and Applications of InSAR in Mining	3
	Final diploma examination	4

3. Numbers of allowable deficit of ECTS points after particular semesters

Semester	Allowable deficit of ECTS points after semester
1	12
2	8
3	0

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Opinion of student government legislative body

POLITECHNIKA WROCLAWSKA
WYDZIAŁ GEOINŻYNIERII
GÓRNICTWA I GEOLOGII
Samorząd Studencki Wydziału Geoinżynierii,
Górnictwa i Geologii
50-421 Wrocław, Na Grebli 15, pokój 370

28.09.23

Jakub Dobrzański

Jakub Dobrzański
Chairman of the Student Government
of the Faculty of Geoengineering, Mining and Geology

Date

Name and surname, signature of student representative

28.09.23

DZIEKAN
RD
prof. dr hab. inż. Radosław Zimroz
(1)

Date

Dean's signature

FACULTY: **of Geoengineering, Mining and Geology**

MAIN FIELD OF STUDY: **Mining and Geology**

LANGUAGE OF STUDY: English

SPECIALIZATION: **Mineral Resources Exploration**

- Track -WUST - UNI MISKOLC

DESCRIPTION OF THE PROGRAM OF STUDIES

Main field of study MINING AND GEOLOGY**Profile** general academic**Level of studies** second level studies**Form of studies** full-time studies**1. General description**

<i>1.1 Number of semesters: 4</i>	<i>1.2 Total number of ECTS points necessary to complete studies at a given level: 120</i>
<i>1.3 Total number of hours: 1365</i>	<i>1.4 Prerequisites (particularly for second-level studies): Bachelor of Science in Engineering diploma, interview</i>
<i>1.5 Upon completion of studies graduate obtains professional degree of: magister inżynier - 2nd degree qualifications</i>	<p><i>1.6 Graduate profile, employability:</i></p> <p><i>The program will train T-shaped earth science specialists having a strong background in classical disciplines of geology and geophysics complemented with modern 3D modelling as well as data processing and interpretation skills, while the boundary-crossing competences will cover skills in innovative mineral exploration techniques and technologies used in the field, in laboratories, in an underground and underwater environment. Students will also be trained in sustainability, social responsibility and social licence to operate. T-shaped mineral explorers will use Industry 4.0-derived tools and methods for mineral resource exploration, mentored by experts.</i></p> <p><i>They will be prepared to work in enterprises, technical supervision institutions, public state and local administration, in research and development organisations, in Poland and</i></p>

	<p><i>abroad, will also be prepared to start own business or work as free lanced exploration geologists. The graduates will be able to use English freely and will be prepared to work in an international environment and intercultural groups during their professional career.</i></p>
<p><i>1.7 Possibility of continuing studies: eligibility to apply for admission to a doctoral school, non-degree postgraduate programmes</i></p>	<p><i>1.8 Indicate connection with University’s mission and its development strategy: The study programs of all specializations within the field of study Mining and Geology respond to the strategic goals of the University (Strategia Politechniki Wrocławskiej 2023–2030), by rising the level of correlation of the study offer with the needs of the market (C3), by enhancing the quality of education through didactic interdisciplinarity and by cooperation with industrial partners as well as increasing the level of entrepreneurship, creativity and involvement of students in research processes (C4, C2). Graduates of the faculty should be creative, professional, have theoretical background and practical abilities, as well as have interpersonal skills and cross-cultural experience (C5). The Faculty of Geoengineering, Mining and Geology, as one of the units of the Wrocław University of Science and Technology, educates in the field of engineering, broadened by knowledge in natural and economic sciences. The profile and quality of education are at the international level and are adapted to the needs of the national and global mineral industries.</i></p>

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⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

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2. Detailed description

2.1 Total number of learning outcomes in the program of study: W (knowledge) = 19, U (skills) = 15, K (competences) = 3,
W + U + K = 37

~~2.2 For the main field of study assigned to more than one discipline – the number of learning outcomes assigned to the discipline:~~

~~_____ D1 (major) (this number must be greater than half the total number of learning outcomes)~~

~~_____ D2~~

~~_____ D3~~

~~_____ D4~~

~~2.3 For the main field of study assigned to more than one discipline – percentage share of the number of ECTS points for each discipline:~~

~~_____ D1% ECTS points~~

~~_____ D2% ECTS points~~

~~_____ D3% ECTS points~~

~~_____ D4% ECTS points~~

2.4a. For the general academic profile of the main field of study – the number of ECTS points assigned to the classes related to the University's academic activity in the discipline or disciplines to which the main field of study is assigned – DN (must be greater than 50% of the total number of ECTS points from 1.2) 95 ECTS

~~2.4b. For the practical profile of the main field of study – the number of ECTS points assigned to the classes shaping practical skills (must be greater than 50% of the total number of ECTS points from 1.2)~~

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³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

2.5 Concise analysis of compliance of the assumed learning outcomes with the needs of the labor market

The economic development of the country is closely dependent on natural resources, the ability to use them and having appropriate engineering workforce. The assumed learning outcomes correspond to the needs of practice in the field of the generally understood management of mineral resources - technologies and techniques for their identification, valuation, extraction, processing, revitalization of industrial areas, and the practice of managing an enterprise (especially mining) in the sense of managing information, environment and people, using the latest IT and marketing techniques and methods. This integration of economic needs and assumed educational effects favorably shape the labor market for the graduates of the Faculty. Additionally, a good command of English and experience of working in an international group will open up the possibility of working in foreign branches of Polish enterprises and in foreign companies.

2.6. The total number of ECTS points that a student must obtain in classes requiring direct participation of academic teachers or other persons conducting classes and students (enter the sum of ECTS points for courses / groups of courses marked with the BU¹ code) **67,5ECTS**

2.7. Total number of ECTS points, which student has to obtain from basic sciences classes

Number of ECTS points for obligatory subjects	6
Number of ECTS points for optional subjects	0
Total number of ECTS points	6

2.8. Total number of ECTS points, which student has to obtain from practical classes, including project and laboratory classes (enter total number of ECTS points for courses/group of courses denoted with code P)

Number of ECTS points for obligatory subjects	24
Number of ECTS points for optional subjects	58
Total number of ECTS points	82

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

2.9. Minimum number of ECTS points, which student has to obtain doing education blocks offered as part of University-wide classes or other main field of study (enter number of ECTS points for courses/groups of courses denoted with code O)

3 ECTS points

2.10. Total number of ECTS points, which student may obtain doing optional blocks (min. 30% of total number of ECTS points)

84 ECTS points

3. Description of the process leading to learning outcomes acquisition:

1. Upon starting classes in each subject, the student has an appropriate level of knowledge and skills which constitute the prerequisites for a given course (it is verified by the teacher or the dean's office).
2. The student participates in classes organized at the university.
3. The student carries out the assigned work in class and at home (projects, computational tasks, analyzes, prepares presentations) and studies the literature and materials recommended by the teacher.
4. The student uses the appointed hours of the tutor's consultation, explaining his uncertainties and verifying the correct understanding of the course content.
5. The student participates in periodic tests of knowledge and skills, completes the tests available on the e-portal and is familiar with the correct answers, grades and comments from the teacher.
6. In some subjects, the student participates in group tasks, taking part in the organization of the group's work, assessment of the activities of individual participants and takes responsibility for the result of the group's work.
7. The student is encouraged to become involved in the work of research clubs, student organizations, discussion clubs, sports groups, participation in social life through work in public welfare organizations, voluntary work, thus gaining valuable interpersonal skills and social competences.
8. The student participates in meetings with companies from the industry, technical excursions, job fairs, tries to gain knowledge about the labor market and additional advantages when applying for a job
9. The student is encouraged to participate in an international student exchange, and through contact with foreigners at the faculty, he or she acquires additional interpersonal, cultural and language qualifications

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

4. List of education blocks:

4.1. List of obligatory blocks:

4.1.1 List of general education blocks

4.1.1.1 Liberal-managerial subjects block (7 ECTS points):

No.	Subject/ group of classes code	Name of subject/group of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/gr oup of courses	Way ³ of crediting	Subject/ group of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University -wide ⁴	Concerni ng scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG- SM3003G	Project Management, Appraisal and Risk Evaluation (GK)	1		2	1		K2_GIG_W03,W05,W11 K2_GIG_U04,U06,U08,U15 K2_GIG_K01	60	100	4	4	3,1	T/Z(w)	E(w), Z(l,p)		DN	P (3)	KO
2	W06GIG- SM3000W	Operations Research	1					K2_GIG_W06 K2_GIG_U10,U14 K2_GIG_K01	15	25	1	1	0,8	T/Z	Z		DN		KO
3	W06GIG- SM3000L	Operations Research			1				15	50	2	2	0,7	T	Z		DN	P (2)	KO
Total			2	0	3	1	0		90	175	7	7	4,6					5	

Altogether for general education blocks

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
2	0	3	1	0	90	175	7	7	4,6

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

4.1.2 List of basic sciences blocks

4.1.2.1 Mathematics block

No.	Subject/ group of classes code	Name of subject/group of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/gr oup of courses	Way ³ of crediting	Subject/ group of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University -wide ⁴	Concerni ng scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG- SM3002W	Computer Aided Geological Modelling & Geostatistics (część: Geostatistics)	1					K2_GIG_W06,W08,W15 K2_GIG_U04,U08,U14	15	50	2		0,8	T	Z				PD
2	W06GIG- SM3002L	Computer Aided Geological Modelling & Geostatistics (część: Geostatistics)			1				15	25	1		0,6	T	Z			P (1)	PD
Total			1	0	1	0	0		30	75	3		1,4					1	

4.1.2.3 Physics block

No.	Subject/ group of classes code	Name of subject/group of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/gr oup of courses	Way ³ of crediting	Subject/group of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University -wide ⁴	Concerni ng scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG- SM3004W	Engineering Geophysics	1					K2_GIG_W02,W08,W10 K2_GIG_U04,U13	15	25	1	1	0,8	T/Z	Z		DN		PD
	W06GIG- SM3004P	Engineering Geophysics				1			15	50	2	2	0,9	T	Z		DN	P(2)	PD
Total			2	0	0	0	0		30	75	3	3	1,7					2	

Altogether for basic sciences blocks:

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
3	0	1	0	0	60	150	6	3	3,1

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

4.1.3 List of the main field of study blocks

4.1.3.1 Obligatory main field of study blocks

No.	Subject/ group of classes code	Name of subject/group of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/gr oup of courses	Way ³ of crediting	Subject/group of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ clas ses	BU ¹ clas ses			Unive rsity- wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG- SM3002L	Computer Aided Geological Modelling & Geostatistics (Część: Computer Aided Geological Modelling)			2			K2_GIG_W06,W08,W15 K2_GIG_U04,U08,U14	30	50	2	2	1,3	T	Z		DN	P(2)	K
2	W06GIG- SM3006W	Digital Mine	1					K2_GIG_W07,W12,W18,W19 K2_GIG_U04,U07,U08	15	25	1	1	0,8	T/Z(w)	Z		DN		K
3	W06GIG- SM3006L	Digital Mine			1				15	25	1	1	0,8	T	Z		DN	P(1)	K
4	W06GIG- SM3005W	Occupational Health and Safety	1					K2_GIG_W11,W12,W14,W17 K2_GIG_U11, K2_GIG_K02, K03	15	25	1	1	0,7	T/Z(w)	Z		DN		K
5	W06GIG- SM3005P	Occupational Health and Safety				1			15	25	1	1	0,8	T	Z		DN	P(1)	K
6	W06GIG- SM3007W	Principles and Application of InSAR and GIS in mining	2					K2_GIG_W15,W16,W18 K2_GIG_U04,U07,U08	30	50	2	2	1,4	T/Z(w)	E		DN		K
7	W06GIG- SM3007L	Principles and Application of InSAR and GIS in mining			3				45	75	3	3	2,0	T	Z		DN	P(3)	K
8	W06GIG- SM3001W	Environmental Management	2					K2_GIG_W04,W12,W13,W18 K2_GIG_U05,U10,U11,U12 K2_GIG_K02,K03	30	50	2	2	1,3	T/Z(w)	Z		DN		K
9	W06GIG- SM3001S	Environmental Management					1		15	25	1	1	0,8	T	Z		DN	P(1)	K
10	W06GIG- SM3012G	Exploration Entrepreneurship GK	1			1	2	K2_GIG_W03,W05,W09 K2_GIG_U08,U09 K2_GIG_K01,K02,K03	60	100	4		3,0	Z	Z			P(3)	S
11	W06GIG- SM3013P	SOC Internship				2		K2_GIG_W05,W09 K2_GIG_U08,U09 K2_GIG_K01,K02,K03	30	50	2		1,5	T	Z			P(2)	S
12	W06GIG- SM3016P	Applied Field Exploration				3		K2_GIG_W08,W15 K2_GIG_U04,U09,U10,U13 K2_GIG_K02	45	75	3	1	2,1	T	Z		DN	P(3)	S
Total			7	0	6	7	3		345	575	23	15	16,5					16	

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

Altogether (for main field of study blocks):

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
7	0	6	7	3	345	575	23	15	16,5

4.2 List of optional blocks

4.2.1 List of general education blocks

4.2.1.2 Foreign languages block (min. 3 ECTS points):

No.	Subject/group of classes code	Name of subject/group of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject/group of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	SJO-SM0003	Foreign Language 1		3				K2_GIG_U03	45	60	2		1,6	T	Z	O		P (2)	KO
2	SJO-SM0004	Foreign Language 2		1				K2_GIG_U01,U02	15	30	1		0,6	T	Z	O		P(1)	KO
Total			0	4	0	0	0		60	90	3		2,2					3	

Altogether for general education blocks:

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
0	4	0	0	0	60	90	3	0	2,2

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

4.2.4 List of specialization blocks

4.2.4.1 Specialization subjects (e.g. whole specialization) blocks (60 ECTS points):

No.	Subject/ group of classes code	Name of subject/group of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/gr oup of courses	Way ³ of crediting	Subject/group of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			Universi ty-wide ⁴	Concerni ng scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG- SM3017G	Physical Geology GK	2			1		K2_GIG_W08,W10 K2_GIG_UU10,U13 K2_GIG_K02,03	45	100	4	4	2,4	T/Z(w)	E		DN	2	S
2	W06GIG- SM3018G	Mineralogy and Geochemistry GK	2		1			K2_GIG_W02,W08,W10 K2_GIG_U08,U10,U13 K2_GIG_K03	45	100	4	4	2,2	T/Z(w)	E		DN	2	S
3	W06GIG- SM3019G	Geophysical Exploration Methods I GK	2		1			K2_GIG_W02,W08,W10 K2_GIG_U07,U10,U13 K2_GIG_K01,K03	45	100	4	4	2,2	T/Z(w)	E		DN	2	S
4	W06GIG- SM3020G	Geological Interpretation and Prospecting GK	2			2		K2_GIG_W02,W08,W10 K2_GIG_U04,U06,U09,U10,U13 K2_GIG_K01	60	100	4	2	3,0	T/Z(w)	E		DN	2	S
5	W06GIG- SM3021G	Geophysical Interpretation and Prospecting GK	2			2		K2_GIG_W02,W08,W09,W11,W15 K2_GIG_U04,U10,U13 K2_GIG_K02	60	100	4	3	3,0	T/Z(w)	E		DN	2	S
6	W06GIG- SM3022G	Geoelectric lectureship GK	2			2		K2_GIG_W02,W08,W10 K2_GIG_U04,U10 K2_GIG_K03	60	100	4		3,0	T/Z(w)	Z			2	S
7	W06GIG- SM3023G	Global environmental geophysics GK	1				1	K2_GIG_W02, W10,W12 K2_GIG_U01,U05,U08 K2_GIG_K03	30	50	2		1,7	T/Z(w)	Z			1	S
8	W06GIG- SM3024G	Non-metallic industrial minerals GK	2		2			K2_GIG_W02,W08,W10, K2_GIG_U07,U10 K2_GIG_K01	60	100	4	4	2,7	T/Z(w)	Z		DN	2	S
9	W06GIG- SM3025G	Structural geology GK	1			2		K2_GIG_W02,W08,W10,W15 K2_GIG_U04,U07,U10,U13 K2_GIG_K03	45	100	4	4	2,4	T/Z(w)	E		DN	2	S
10	W06GIG- SM3026G	Mineral Deposits GK	2		1			K2_GIG_W08,W09,W10 K2_GIG_U01,U10,U13 K2_GIG_K03	45	100	4	4	2,2	T/Z(w)	E		DN	2	S
11	W06GIG- SM3027G	Engineering geology and hydrogeology GK	2		1			K2_GIG_W02,W08,W10,W14 K2_GIG_U04,U07U10,U13 K2_GIG_K03	45	100	4	4	2,2	T/Z(w)	E		DN	2	S
12	W06GIG- SM3028G	Analytical technics in mineralogy and petrology GK	1		1			K2_GIG_W02,W08,W10 K2_GIG_U04,U10,U13 K2_GIG_U_K03	30	50	2	2	1,5	T/Z(w)	Z		DN	1	S
13	W06GIG- SM3029G	Geochemical prospecting methods GK	1			2		K2_GIG_W02,W08,W10 K2_GIG_U04,U10,U13 K2_GIG_K02	45	100	4	4	2,3	T/Z(w)	Z		DN	2	S
14	W06GIG- SM3030G	Geological mapping GK	1			2		K2_GIG_W08,W10,W11 K2_GIG_U04,U10 K2_GIG_K03	45	100	4	4	2,4	T/Z(w)	E		DN	2	S

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

15	W06GIG-SM3031S	Graduate research seminar					2	K2_GIG_W01,W07,W10 K2_GIG_U01,U08,U13 K2_GIG_K02	30	50	2	2	1,4	T/Z(w)	Z		DN	2	S
16	W06GIG-SM3032P	Student research project				6		K2_GIG_W01,W08,W10,W12 K2_GIG_U01,U07,U08,U10,U13 K2_GIG_K01,K02	90	150	6	4	3,9	T/Z(w)	Z		DN	6	S
Total			23	0	7	19	3		780	1500	60	49	38,5					34	

4.2.4.2 Diploma (e.g. diploma profile) block (21 ECTS points):

No	Subject/ group of classes code	Name of subject/group of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/gr oup of courses	Way ³ of crediting	Subject/group of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University -wide ⁴	Concerni ng scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3014S	Diploma Seminar					1	K2_GIG_W01 K2_GIG_U01,U13 K2_GIG_K03	15	25	1	1	0,8	T	Z		DN	P(1)	S
2	W06GIG-SM3015D	Master Thesis				1		K2_GIG_W01,W05,W10 K2_GIG_U01,U04, U08,U10,U13,U15 K2_GIG_K01,K03	15	500	20	20	1,8	T	Z		DN	P(20)	S
Total			0	0	0	1	1		30	525	21	21	2,6					21	

Altogether for specialization blocks:

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
23	0	7	20	4	810	2025	81	70	41,1

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

4.3 Training block - concerning principles of training crediting – attachment no. ...

Opinion of the Advisory Faculty Council concerning the rules of crediting training block

Name of training			
Number of ECTS points	Number of ECTS points for BU ¹ classes	Training crediting mode	Code
Training duration		Training objective	
		Internship	

4.4 „Diploma dissertation” block (if it is foreseen at first level studies)

Type of diploma dissertation	Licencjat / inżynier / magister / magister inżynier*	
Number of diploma dissertation semesters	Number of ECTS points	Code
1	20	W06GIG-SM3015D
Character of diploma dissertation		
Literature survey, project, computer program, etc.		
Number of BU ¹ ECTS points	1,8	

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

5. Ways of verifying assumed learning outcomes

Form of classes	Ways of verifying assumed learning outcomes
lecture	e.g. examination, progress/final test
class	e.g. progress/final test
laboratory	e.g. pretest, report from laboratory
project	e.g. project defence
seminar	e.g. participation in discussion, topic presentation, essay
training	e.g. report from training
diploma dissertation	prepared diploma dissertation

6. Range of diploma examination

1. Occupational risk assessment methods. Identification of harmful, dangerous and nuisance factors in the work environment.
2. Costs as the subject of cost accounting. Variable and fixed costs. Break even point.
3. Capital budgeting, evaluation of different methods
4. Liquidity vs profitability of a company. Ways of their evaluation
5. Environmental management systems
6. Characteristics of hazards for the natural environment resulting from human activities
7. Variogram and methods of its modelling
8. Kriging, its properties and types
9. Geophysical methods of exploration and identification of deposits.
10. Surface seismic methods. Reflective and refractive seismics.
11. Computer aided exploration and identification of deposits.
12. Decision models used in management.
13. Advances of technology & methods of future mining operations.
14. Aims, benefits, drawbacks of automation and industrial revolutions.
15. Applications of Interferometric Synthetic Aperture Radar.
16. Applications of map algebra and spatial statistics to determine surface deformation models
17. Plate tectonic background of the geological processes

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²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

18. Magneto-, chemo-, seismic, sequence, and cycle stratigraphy
19. Surface geophysical methods
20. Geophysical methods used in boreholes
21. Classification of applied geophysical methods
22. Physical properties of rocks controlling the development of fractures, folds and other structural features
23. Ore forming geological processes which create the different deposits
24. Genetic classification of deposits
25. Mineral exploration methods, quality control and quality assurance
26. Soil formation, soil classification methods
27. Hydrogeochemistry, transport processes
28. Analytical methods used in mineralogy and geology
29. Basic methods of resource estimation
30. Water exploration by geophysical methods
31. The most important well logging methods
32. Geophysical methods in geothermal exploration
33. Composition of the Earth' interior based on seismic tomography, the most significant boundaries
34. Physical basics of direct current (DC) geoelectric methods
35. Physical basics of alternating current (AC) electromagnetic methods
36. Main geochemical mineral exploration methods
37. Geological characteristics of deposits of two chosen non-metallic minerals
38. Sedimentary environments
39. Rock-forming processes
40. Characteristic of a selected minerals group
41. Plate tectonics and large scale structures
42. Water management issues
43. Sustainability and protection of groundwater
44. Vulnerability of groundwater
45. Laws and regulations related to exploration and exploitation of minerals / water

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²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

7. Requirements concerning deadlines for crediting courses/groups of courses for all courses in particular blocks

No.	Subject / group of classes code	Name of subject / group of classes	Crediting by deadline of.. (number of semester)
1	W06GIG-SM3007	Principles and Application of InSAR and GIS in mining	1-4
2	W06GIG-SM3002	Computer Aided Geological Modelling & Geostatistics	1-4
3	W06GIG-SM3003G	Project Management, Appraisal and Risk Evaluation	1-4
4	W06GIG-SM3004	Engineering Geophysics	1-4
5	W06GIG-SM3001	Environmental Management	1-4
6	W06GIG-SM3005	Occupational Health and Safety	1-4
7	SJO-SM0003	Foreign language 1	1-4
8	SJO-SM0004	Foreign language 2	1-4
9	W06GIG-SM3006	Digital Mine	1-4
10	W06GIG-SM3000	Operations Research	1-4
11	W06GIG-SM3017G	Physical Geology	2-4
12	W06GIG-SM3018G	Mineralogy and Geochemistry	2-4
13	W06GIG-SM3019G	Geophysical Exploration Methods I	2-4
14	W06GIG-SM3020G	Geological Interpretation and Prospecting	2-4
15	W06GIG-SM3021G	Geophysical Interpretation and Prospecting	2-4
16	W06GIG-SM3022G	Geoelectric lectureship	2-4
17	W06GIG-SM3023G	Global environmental geophysics	2-4
18	W06GIG-SM3024G	Non-metallic industrial minerals	2-4
19	W06GIG-SM3025G	Structural geology GK	2-4
20	W06GIG-SM3026G	Mineral Deposits GK	2-4
21	W06GIG-SM3027G	Engineering geology and hydrogeology GK	2-4
22	W06GIG-SM3028G	Analytical technics in mineralogy and petrology GK	2-4
23	W06GIG-SM3029G	Geochemical prospecting methods GK	2-4
24	W06GIG-SM3030G	Geological mapping GK	2-4
25	W06GIG-SM3031S	Graduate research seminar	2-4
26	W06GIG-SM3032P	Student research project	2-4

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⁴University-wide subject /group of classes – enter O

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⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

27	W06GIG-SM3012G	Exploration Entrepreneurship	1-4
28	W06GIG-SM3013P	SOC Internship	1-4
29	W06GIG-SM3016P	Applied Field Exploration	1-4
30	W06GIG-SM3014S	Master Thesis	4
31	W06GIG-SM3015D	Diploma Seminar	4

8. Plan of studies (attachment no. 4)

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⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

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Approved by faculty student government legislative body:

POLITECHNIKA WROCLAWSKA
WYDZIAŁ GEOINŻYNIERII
GÓRNICTWA I GEOLOGII
Samorząd Studencki Wydziału Geoinżynierii,
Górnictwa i Geologii
50-421 Wrocław, Na Grobli 15, pokój 370

Jakub Dobrzański

Jakub Dobrzański
Chairman of the Student Government
of the Faculty of Geoengineering, Mining and Geology

.....
name and surname, signature of student representative

28.09.23

.....
Date

DZIEKAN

prof. dr hab. inż. Radosław Zimroz

.....
Dean's signature

28.09.23

.....
Date

PLAN OF STUDIES

FACULTY: Geoengineering, Mining and Geology

MAIN FIELD OF STUDY: Mining and geology

EDUCATION LEVEL: second-level studies

FORM OF STUDIES: full-time studies

PROFILE: general academic

SPECIALIZATION: Mineral Resources Exploration - Track WUST - UM

LANGUAGE OF STUDY: English

In effect since academic year 2023/24

	Summer		Winter		Summer		Winter	
semester	1	ECTS	2	ECTS	3	ECTS	4	ECTS
hours	WUST		UM		UM		WUST	
1	Operations Research 10100Z W06GIG- SM3000	3	Physical Geology 20010 E W06GIG-SM3017G	4	Structural geology 10020 E W06GIG-SM3025G	4	Exploration entrepreneurship (EFG) 10012 Z W06GIG-SM3012G	4
2								
3								
4	Environmental Management 20001Z W06GIG-SM3001	3	Mineralogy and Geochemistry 20100 E W06GIG-SM3018G	4	Mineral Deposits 20100 E W06GIG-SM3026G	4	Diploma Seminar 00001Z W06GIG-SM3014S	1
5								
6	Computer Aided Geological Modelling & Geostatistics 10300Z W06GIG-SM3002	5	Geophysical Exploration Methods I 20100E W06GIG-SM3019G	4	Engineering geology and hydrogeology 20100 E W06GIG-SM3027G	4	Master Thesis W06GIG-SM3015D	20
7								
8								
9	Project Management, Appraisal and Risk Evaluation 10210E W06GIG-SM3003G	4	Geological Interpretation and Prospecting 20020E W06GIG-SM3020G	4	Analytical technics in mineralogy and petrology 10100Z W06GIG-SM3028G	2	SOC Internship 00020Z W06GIG-SM3013P	2
10								
11								
12								
13	Engineering Geophysics 10010 Z W06GIG- SM3004	3	Geophysical Interpretation and Prospecting 20020E W06GIG-SM3021G	4	Geochemical prospecting methods 10020 z W06GIG-SM3029G	4	Applied field exploration 00030Z W06GIG-SM3016P	3
14								
15	Occupational Health and Safety 100100Z W06GIG- SM3005	2			Geological mapping 10000 1 E W06GIG-SM3030G	4		
16								
17	Foreign Language 1 03000 Z SJO- SM0003	2	Goelectric lectureship 20020Z W06GIG-SM3022G	4	Graduate research seminar 00002Z W06GIG-SM3031S	2		
18								
19								
20	Digital Mine 10100 Z W06GIG-SM3006	2	Global environmental geophysics 10001Z W06GIG-SM3023G	2	Student research project 00060Z W06GIG-SM3032P	6		
21								
22	Principles and Application of InSAR and GIS in mining 20300E W06GIG- SM3007	5	Non-metallic industrial minerals 20200Z W06GIG-SM3024G	4				
23								
24								
25	Foreign Language 2 01000 Z SJO-SM0004	1						
26								
27								
28								
Total ECTS		30		30		30		30

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1. Set of obligatory and optional subjects and groups of classes in semestral arrangement

Semester 1

Obligatory subjects / groups of classes Number of ECTS points 27

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/g group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3000W	Operations Research	1					K2_GIG_W06	15	25	1	1	0,8	T /Z	Z		DN		KO
2	W06GIG-SM3000L	Operations Research			1			K2_GIG_U10,U14 K2_GIG_K01	15	50	2	2	0,7	T	Z		DN	P (2)	KO
3	W06GIG-SM3002W	Computer Aided Geological Modelling & Geostatistics	1					K2_GIG_W06,W08,W15	15	50	2		0,8	T /Z	Z		DN		PD/K
4	W06GIG-SM3002L	Computer Aided Geological Modelling & Geostatistics			3			K2_GIG_U04,U08,U14	45	75	3	2	1,9	T	Z		DN	P (3)	PD/K
5	W06GIG-SM3003G	Project Management, Appraisal and Risk Evaluation (GK)	1		2	1		K2_GIG_W03,W05,W11 K2_GIG_U04,U06,U08,U15 K2_GIG_K01	60	100	4	4	3,1	T/Z(w)	E(w), Z(l,p)		DN	P (3)	KO
6	W06GIG-SM3001W	Environmental Management	2					K2_GIG_W04,W12,W13,W18	30	50	2	2	1,3	T /Z(w)	Z		DN		K
7	W06GIG-SM3001S	Environmental Management					1	K2_GIG_U05,U10,U11,U12 K2_GIG_K02,K03	15	25	1	1	0,8	T	Z		DN	P(1)	K
8	W06GIG-SM3004W	Engineering Geophysics	1					K2_GIG_W02,W08,W10	15	25	1	1	0,8	T /Z	Z		DN		PD
9	W06GIG-SM3004P	Engineering Geophysics				1		K2_GIG_U04,U13	15	50	2	2	0,9	T	Z		DN	P(2)	PD
10	W06GIG-SM3007W	Principles and Application of InSAR and GIS in mining	2					K2_GIG_W15,W16,W18	30	50	2	2	1,4	T/Z(w)	E		DN		K
11	W06GIG-SM3007L	Principles and Application of InSAR and GIS in mining			3			K2_GIG_U04,U07,U08	45	75	3	3	2,0	T	Z		DN	P(3)	K
12	W06GIG-SM3005W	Occupational Health and Safety	1					K2_GIG_W11,W12,W14,W17	15	25	1	1	0,7	T /Z(w)	Z		DN		K
13	W06GIG-SM3005P	Occupational Health and Safety				1		K2_GIG_U11, K2_GIG_K02, K03	15	25	1	1	0,8	T	Z		DN	P(1)	K
14	W06GIG-SM3000W	Digital Mine	1					K2_GIG_W07,W12,W18,W19	15	25	1	1	0,8	T /Z(w)	Z		DN		K
15	W06GIG-SM3000L	Digital Mine			1			K2_GIG_U04,U07,U08	15	25	1	1	0,8	T	Z		DN	P(1)	K
Total			10	0	10	3	1		360	675	27	24	17,6					16	

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⁴University-wide subject /group of classes – enter O

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Optional subjects / groups of classes (3 ECTS points)

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	SJO-SM0003	Foreign Language 1		3				K2_GIG_U03	45	60	2		1,6	T	Z	O		P(2)	KO
2	SJO-SM0004	Foreign Language 2		1				K2_GIG_U01,U02	15	30	1		0,6	T	Z	O		P(1)	KO
Total			0	4	0	0			60	90	3	0	2,2					3	

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
10	4	10	3	1	420	765	30	24	19,8

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³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

Semester 2

Obligatory subjects / groups of classes (0 ECTS points)

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes				
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷	
1																				
Total																				

Optional subjects / groups of classes

Number of ECTS points 30

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3017G	Physical Geology GK	2			1		K2_GIG_W08,W10 K2_GIG_UU10,U13 K2_GIG_K02,03	45	100	4	4	2,4	T/Z(w)	E		DN	2	S
2	W06GIG-SM3018G	Mineralogy and Geochemistry GK	2		1			K2_GIG_W02,W08,W10 K2_GIG_U08,U10,U13 K2_GIG_K03	45	100	4	4	2,2	T/Z(w)	E		DN	2	S
3	W06GIG-SM3019G	Geophysical Exploration Methods I GK	2		1			K2_GIG_W02,W08,W10 K2_GIG_U07,U10,U13 K2_GIG_K01,K03	45	100	4	4	2,2	T/Z(w)	E		DN	2	S
4	W06GIG-SM3020G	Geological Interpretation and Prospecting GK	2			2		K2_GIG_W02,W08,W10 K2_GIG_U04,U06,U09,U10,U13 K2_GIG_K01	60	100	4	2	3,0	T/Z(w)	E		DN	2	S
5	W06GIG-SM3021G	Geophysical Interpretation and Prospecting GK	2			2		K2_GIG_W02,W08,W09,W11,W15 K2_GIG_U04,U10,U13 K2_GIG_K02	60	100	4	3	3,0	T/Z(w)	E		DN	2	S
6	W06GIG-SM3022G	Geoelectric lectureship GK	2			2		K2_GIG_W02,W08,W10 K2_GIG_U04,U10 K2_GIG_K03	60	100	4		3,0	T/Z(w)	Z			2	S
7	W06GIG-SM3023G	Global environmental geophysics GK	1				1	K2_GIG_W02, W10,W12 K2_GIG_U01,U05,U08 K2_GIG_K03	30	50	2		1,7	T/Z(w)	Z			1	S
8	W06GIG-SM3024G	Non-metallic industrial minerals GK	2		2			K2_GIG_W02,W08,W10, K2_GIG_U07,U10 K2_GIG_K01	60	100	4	4	2,7	T/Z(w)	Z		DN	2	S
Total			15	4	7	1			405	750	30		20,2					15	

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³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
15		4	7	1	405	750	30		20,3

Semester 3

Obligatory subjects / groups of classes (0 ECTS points)

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1																			
		Total																	

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

Optional subjects / groups of classes
Number of ECTS points 30

No	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3025G	Structural geology GK	1			2		K2_GIG_W02,W08,W10,W15 K2_GIG_U04,U07,U10,U13 K2_GIG_K03	45	100	4	4	2,4	T/Z(w)	E		DN	2	S
2	W06GIG-SM3026G	Mineral Deposits GK	2		1			K2_GIG_W08,W09,W10 K2_GIG_U01,U10,U13 K2_GIG_K03	45	100	4	4	2,2	T/Z(w)	E		DN	2	S
3	W06GIG-SM3027G	Engineering geology and hydrogeology GK	2		1			K2_GIG_W02,W08,W10,W14 K2_GIG_U04,U07U10,U13 K2_GIG_K03	45	100	4	4	2,2	T/Z(w)	E		DN	2	S
4	W06GIG-SM3028G	Analytical technics in mineralogy and petrology GK	1		1			K2_GIG_W02,W08,W10 K2_GIG_U04,U10,U13 K2_GIG_U_K03	30	50	2	2	1,5	T/Z(w)	Z		DN	1	S
5	W06GIG-SM3029G	Geochemical prospecting methods GK	1			2		K2_GIG_W02,W08,W10 K2_GIG_U04,U10,U13 K2_GIG_K02	45	100	4	4	2,3	T/Z(w)	Z		DN	2	S
6	W06GIG-SM3030G	Geological mapping GK	1			2		K2_GIG_W08,W10,W11 K2_GIG_U04,U10 K2_GIG_K03	45	100	4	4	2,4	T/Z(w)	E		DN	2	S
7	W06GIG-SM3031S	Graduate research seminar					2	K2_GIG_W01,W07,W10 K2_GIG_U01,U08,U13 K2_GIG_K02	30	50	2	2	1,4	T/Z(w)	Z		DN	2	S
8	W06GIG-SM3032P	Student research project				6		K2_GIG_W01,W08,W10,W12 K2_GIG_U01,U07,U08,U10,U13 K2_GIG_K01,K02	90	150	6	4	3,9	T/Z(w)	Z		DN	6	S
Total			8	2	12	3			375	750	30		18,3					19	

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
8		2	12	3	375	750	30		18,3

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

Semester 4

Obligatory subjects / groups of classes Number of ECTS points 9

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes				
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷	
1	W06GIG-SM3012G	Exploration Entrepreneurship GK	1				1	2	K2_GIG_W03,W05,W09 K2_GIG_U08,U09 K2_GIG_K01,K02,K03	60	100	4		3,0	Z	Z			P(3)	S
2	W06GIG-SM3013P	SOC Internship					2		K2_GIG_W05,W09 K2_GIG_U08,U09 K2_GIG_K01,K02,K03	30	50	2		1,5	T	Z			P(2)	S
3	W06GIG-SM3016P	Applied Field Exploration					3		K2_GIG_W08,W15 K2_GIG_U04,U09,U10,U13 K2_GIG_K02	45	75	3	1	2,1	T	Z		DN	P(3)	S
Total			1	0	0	6	2		135	225	9	1	6,6					8		

Optional subjects / groups of classes (21 ECTS points)

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes				
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷	
1	W06GIG-SM3014S	Diploma Seminar					1		K2_GIG_W01 K2_GIG_U01,U13 K2_GIG_K02,K03	15	25	1	1	0,8	T	Z		DN	P(1)	S
2	W06GIG-SM3015D	Master Thesis					1		K2_GIG_W01,W05,W10 K2_GIG_U01,U04,U08,U10,U13,U15 K2_GIG_K01,K02,K03	15	500	20	20	1,8	T	Z		DN	P(20)	S
Total			0	0	0	1	1		30	525	21	21	2,6					21		

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
1	0	0	7	3	165	750	30	22	9,2

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

2. Set of examinations in semestral arrangement

Course / group of courses code	Names of courses / groups of courses ending with examination	Semester
W06GIG-SM3003G W06GIG-SM3007	1. Project Management, Appraisal and Risk Evaluation 2. Principles and Applications of InSAR in Mining	1 1
W06GIG-SM3017G W06GIG-SM3018G W06GIG-SM3019G W06GIG-SM3020G W06GIG-SM3021G	1. Physical Geology 2. Mineralogy and Geochemistry 3. Geophysical Exploration Methods I 4. Geological Interpretation and Prospecting 5. Geophysical Interpretation and Prospecting	2 2 2 2 2
W06GIG-SM3025G W06GIG-SM3026G W06GIG-SM3027G W06GIG-SM3030G	1. Structural geology 2. Mineral Deposits 3. Engineering geology and hydrogeology 4. Geological mapping	3 3 3 3
	Final diploma examination	4

3. Numbers of allowable deficit of ECTS points after particular semesters

Semester	Allowable deficit of ECTS points after semester
1	12
2	8
3	0

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

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³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

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Opinion of student government legislative body

POLITECHNIKA WROCLAWSKA
WYDZIAŁ GEOINŻYNIERII
GÓRNICTWA I GEOLOGII
Samorząd Studencki Wydziału Geoinżynierii,
Górnictwa i Geologii
50-421 Wrocław, Na Grebli 15, pokój 370

28.09.23

Jakub Dobrzański

Jakub Dobrzański
Chairman of the Student Government
of the Faculty of Geoengineering, Mining and Geology

Date

Name and surname, signature of student representative

28.09.23

DZIEKAN
RD
prof. dr hab. inż. Radosław Zimroz
(1)

Date

Dean's signature

FACULTY: **of Geoengineering, Mining and Geology**

MAIN FIELD OF STUDY: **Mining and Geology**

LANGUAGE OF STUDY: English

SPECIALIZATION: **Mineral Resources Exploration**

- Track: UNI ZAGREB -WUST

DESCRIPTION OF THE PROGRAM OF STUDIES

Main field of study MINING AND GEOLOGY**Profile** general academic**Level of studies** second level studies**Form of studies** full-time studies**1. General description**

1.1 Number of semesters: 4	1.2 Total number of ECTS points necessary to complete studies at a given level: 120
1.3 Total number of hours: 1395	1.4 Prerequisites (particularly for second-level studies): Bachelor of Science in Engineering diploma, interview
1.5 Upon completion of studies graduate obtains professional degree of: magister inżynier - 2nd degree qualifications	1.6 Graduate profile, employability: <i>The program will train T-shaped earth science specialists having a strong background in classical disciplines of geology and geophysics complemented with modern 3D modelling as well as data processing and interpretation skills, while the boundary-crossing competences will cover skills in innovative mineral exploration techniques and technologies used in the field, in laboratories, in an underground and underwater environment. Students will also be trained in sustainability, social responsibility and social licence to operate. T-shaped mineral explorers will use Industry 4.0-derived tools and methods for mineral resource exploration, mentored by experts.</i> <i>They will be prepared to work in enterprises, technical supervision institutions, public state and local administration, in research and development organisations, in Poland and</i>

	<p><i>abroad, will also be prepared to start own business or work as free lanced exploration geologists. The graduates will be able to use English freely and will be prepared to work in an international environment and intercultural groups during their professional career.</i></p>
<p><i>1.7 Possibility of continuing studies: eligibility to apply for admission to a doctoral school, non-degree postgraduate programmes</i></p>	<p><i>1.8 Indicate connection with University’s mission and its development strategy: The study programs of all specializations within the field of study Mining and Geology respond to the strategic goals of the University (Strategia Politechniki Wrocławskiej 2023–2030), by rising the level of correlation of the study offer with the needs of the market (C3), by enhancing the quality of education through didactic interdisciplinarity and by cooperation with industrial partners as well as increasing the level of entrepreneurship, creativity and involvement of students in research processes (C4, C2). Graduates of the faculty should be creative, professional, have theoretical background and practical abilities, as well as have interpersonal skills and cross-cultural experience (C5). The Faculty of Geoengineering, Mining and Geology, as one of the units of the Wrocław University of Science and Technology, educates in the field of engineering, broadened by knowledge in natural and economic sciences. The profile and quality of education are at the international level and are adapted to the needs of the national and global mineral industries.</i></p>

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³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

2. Detailed description

2.1 Total number of learning outcomes in the program of study: W (knowledge) = 19, U (skills) = 15, K (competences) = 3,

$$W + U + K = 37$$

2.2 ~~For the main field of study assigned to more than one discipline – the number of learning outcomes assigned to the discipline:~~

~~_____ D1 (major) (this number must be greater than half the total number of learning outcomes)~~

~~_____ D2~~

~~_____ D3~~

~~_____ D4~~

2.3 ~~For the main field of study assigned to more than one discipline – percentage share of the number of ECTS points for each discipline:~~

~~_____ D1% ECTS points~~

~~_____ D2% ECTS points~~

~~_____ D3% ECTS points~~

~~_____ D4% ECTS points~~

2.4a. For the general academic profile of the main field of study – the number of ECTS points assigned to the classes related to the University's academic activity in the discipline or disciplines to which the main field of study is assigned – DN (must be greater than 50% of the total number of ECTS points from 1.2) 89 ECTS

2.4b. ~~For the practical profile of the main field of study – the number of ECTS points assigned to the classes shaping practical skills (must be greater than 50% of the total number of ECTS points from 1.2)~~

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²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

2.5 Concise analysis of compliance of the assumed learning outcomes with the needs of the labor market

The economic development of the country is closely dependent on natural resources, the ability to use them and having appropriate engineering workforce. The assumed learning outcomes correspond to the needs of practice in the field of the generally understood management of mineral resources - technologies and techniques for their identification, valuation, extraction, processing, revitalization of industrial areas, and the practice of managing an enterprise (especially mining) in the sense of managing information, environment and people, using the latest IT and marketing techniques and methods. This integration of economic needs and assumed educational effects favorably shape the labor market for the graduates of the Faculty. Additionally, a good command of English and experience of working in an international group will open up the possibility of working in foreign branches of Polish enterprises and in foreign companies.

2.6. The total number of ECTS points that a student must obtain in classes requiring direct participation of academic teachers or other persons conducting classes and students (enter the sum of ECTS points for courses / groups of courses marked with the BU¹ code) **67,6 ECTS**

2.7. Total number of ECTS points, which student has to obtain from basic sciences classes

Number of ECTS points for obligatory subjects	5
Number of ECTS points for optional subjects	0
Total number of ECTS points	5

2.8. Total number of ECTS points, which student has to obtain from practical classes, including project and laboratory classes (enter total number of ECTS points for courses/group of courses denoted with code P)

Number of ECTS points for obligatory subjects	24
Number of ECTS points for optional subjects	60
Total number of ECTS points	84

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

2.9. Minimum number of ECTS points, which student has to obtain doing education blocks offered as part of University-wide classes or other main field of study (enter number of ECTS points for courses/groups of courses denoted with code O)

3 ECTS points

2.10. Total number of ECTS points, which student may obtain doing optional blocks (min. 30% of total number of ECTS points)

84 ECTS points

3. Description of the process leading to learning outcomes acquisition:

1. Upon starting classes in each subject, the student has an appropriate level of knowledge and skills which constitute the prerequisites for a given course (it is verified by the teacher or the dean's office).
2. The student participates in classes organized at the university.
3. The student carries out the assigned work in class and at home (projects, computational tasks, analyzes, prepares presentations) and studies the literature and materials recommended by the teacher.
4. The student uses the appointed hours of the tutor's consultation, explaining his uncertainties and verifying the correct understanding of the course content.
5. The student participates in periodic tests of knowledge and skills, completes the tests available on the e-portal and is familiar with the correct answers, grades and comments from the teacher.
6. In some subjects, the student participates in group tasks, taking part in the organization of the group's work, assessment of the activities of individual participants and takes responsibility for the result of the group's work.
7. The student is encouraged to become involved in the work of research clubs, student organizations, discussion clubs, sports groups, participation in social life through work in public welfare organizations, voluntary work, thus gaining valuable interpersonal skills and social competences.
8. The student participates in meetings with companies from the industry, technical excursions, job fairs, tries to gain knowledge about the labor market and additional advantages when applying for a job
9. The student is encouraged to participate in an international student exchange, and through contact with foreigners at the faculty, he or she acquires additional interpersonal, cultural and language qualifications

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

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³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

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4. List of education blocks:

4.1. List of obligatory blocks:

4.1.1 List of general education blocks

4.1.1.1 Liberal-managerial subjects block (7 ECTS points):

No.	Subject / groups of classescode	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3003G	Project Management, Appraisal and Risk Evaluation (GK)	1		2	1		K2_GIG_W03,W05,W11 K2_GIG_U04,U06,U08,U15 K2_GIG_K01	60	100	4	4	3,1	T/Z(w)	E(w), Z(L,p)		DN	P (3)	KO
2	W06GIG-SM3000W	Operations Research w	1					K2_GIG_W06 K2_GIG_U10,U14 K2_GIG_K01	15	25	1	1	0,8	T/Z	Z		DN		KO
3	W06GIG-SM3000L	Operations Research l			1			K2_GIG_U10,U14 K2_GIG_K01	15	50	2	2	0,7	T	Z		DN	P (2)	KO
Total			2	0	3	1	0		90	175	7	7	4,6					5	

Altogether for general education blocks

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
2	0	3	1	0	90	175	7	7	4,6

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject/group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

4.1.2 List of basic sciences blocks

4.1.2.1 Mathematics block

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3002W	Computer Aided Geological Modelling & Geostatistics (część: Geostatistics) w	1					K2_GIG_W06,W08,W15 K2_GIG_U04,U08,U14	15	50	2		0,8	T	Z				PD
2	W06GIG-SM3002L	Computer Aided Geological Modelling & Geostatistics (część: Geostatistics) l			1				15	25	1		0,6	T	Z			P (1)	PD
Total			1	0	1	0	0		30	75	3		1,4					1	

4.1.2.3 Physics block

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3004W	Engineering Geophysics w	1					K2_GIG_W02,W08,W10 K2_GIG_U04,U13	15	25	1	1	0,8	T/Z	Z		DN		PD
2	W06GIG-SM3004P	Engineering Geophysics p				1			15	50	2	2	0,9	T	Z		DN	P(2)	PD
Total			2	0	0	0	0		30	75	3	3	1,7					2	

Altogether for basic sciences blocks:

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
3	0	1	0	0	60	150	6	3	3,1

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject / group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

4.1.3 List of the main field of study blocks

4.1.3.1 Obligatory main field of study blocks

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			Unive ⁴ rsity-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3002L	Computer Aided Geological Modelling & Geostatistics (Część: Computer Aided Geological Modelling)			2			K2_GIG_W06,W08,W15 K2_GIG_U04,U08,U14	30	50	2	2	1,3	T	Z		DN	P(2)	K
2	W06GIG-SM3006W	Digital Mine w	1					K2_GIG_W07,W12,W18,W19 K2_GIG_U04,U07,U08	15	25	1	1	0,8	T/Z(w)	Z		DN		K
3	W06GIG-SM3006L	Digital Mine l			1				15	25	1	1	0,8	T	Z		DN	P(1)	K
4	W06GIG-SM3005W	Occupational Health and Safety w	1					K2_GIG_W11,W12,W14,W17 K2_GIG_U11, K2_GIG_K02, K03	15	25	1	1	0,7	T/Z(w)	Z		DN		K
5	W06GIG-SM3005P	Occupational Health and Safety p				1			15	25	1	1	0,8	T	Z		DN	P(1)	K
6	W06GIG-SM3007W	Principles and Application of InSAR and GIS in mining w	2					K2_GIG_W15,W16,W18 K2_GIG_U04,U07,U08	30	50	2	2	1,4	T/Z(w)	E		DN		K
7	W06GIG-SM3007L	Principles and Application of InSAR and GIS in mining l			3				45	75	3	3	2,0	T	Z		DN	P(3)	K
8	W06GIG-SM3001W	Environmental Management w	2					K2_GIG_W04,W12,W13,W18 K2_GIG_U05,U10,U11 K2_GIG_K02,K03	30	50	2	2	1,3	T/Z(w)	Z		DN		K
9	W06GIG-SM3001S	Environmental Management s				1			15	25	1	1	0,8	T	Z		DN	P(1)	K
10	W06GIG-SM3012G	Exploration Entrepreneurship GK	1			1	2	K2_GIG_W03,W05,W09 K2_GIG_U08,U09 K2_GIG_K01,K02,K03	60	100	4		3,0	Z	Z			P(3)	S
11	W06GIG-SM3013P	SOC Internship				2		K2_GIG_W05,W09 K2_GIG_U08,U09 K2_GIG_K01,K02,K03	30	50	2		1,5	T	Z			P(2)	S
12	W06GIG-SM3016P	Applied Field Exploration				3		K2_GIG_W08,W15 K2_GIG_U04,U09,U10,U13 K2_GIG_K02	45	75	3	1	2,1	T	Z		DN	P(3)	S
Total			7	0	6	7	3		345	575	23	15	16,5					16	

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

Altogether (for main field of study blocks):

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
7	0	6	7	3	345	575	24	16	16,5

4.2 List of optional blocks

4.2.1 List of general education blocks

4.2.1.2 Foreign languages block (min. 3 ECTS points):

No.	Subject / groups of classescode	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	SJO-SM0003	Foreign Language 1		3				K2_GIG_U03	45	60	2		1,6	T	Z	O		P (2)	KO
2	SJO-SM0004	Foreign Language 2		1				K2_GIG_U01,U02	15	30	1		0,6	T	Z	O		P(1)	KO
Total			0	4	0	0	0		60	90	3		2,2					3	

Altogether for general education blocks:

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
0	4	0	0	0	60	90	3	0	2,2

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

4.2.4 List of specialization blocks

4.2.4.1 Specialization subjects (e.g. whole specialization) blocks (60 ECTS points):

No.	Subject / groups of classescode	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3033G	Sedimentology GK	2			3		K2_GIG_W01,W02 K2_GIG_U01,U13 K2_GIG_K02	75	125	5	3	3,6	T/Z(w)	E		DN	3	S
2	W06GIG-SM3034G	Mineral deposits exploration GK	2			3		K2_GIG_W01, W08,W11,W15, K2_GIG_U01,U13 K2_GIG_K03	75	125	5	3	3,6	T/Z(w)	E		DN	3	S
3	W06GIG-SM3035G	Petroleum geology GK	2			3		K2_GIG_W01,W2,W08, W11, K2_GIG_U01,U4,U10,U13 K2_GIG_K03	75	125	5		3,6	T/Z(w)	E			3	S
4	W06GIG-SM3036G	Engineering geological investigations GK	2			2		K2_GIG_W2,W07, W10, K2_GIG_U01,U04,U10 K2_GIG_K03	60	125	5	3	3,0	T/Z(w)	E		DN	3	S
5	W06GIG-SM3037G	Exploration geochemistry GK	2			1		K2_GIG_W01,W02,W18 K2_GIG_U01,U04,U09,U10,U13 K2_GIG_K02	45	100	4	3	2,3	T/Z(w)	Z		DN	2	S
6	W06GIG-SM3038G	Remote sensing of mineral resources GK	1		1			K2_GIG_W01,W02,W08,W15 K2_GIG_U01,U04,U13,U15 K2_GIG_K03	30	75	3	3	1,5	T/Z(w)	E		DN	2	S
7	W06GIG-SM3039G	GIS in exploration of mineral resources GK	1		1			K2_GIG_W01,W02,W08,W14,W15 K2_GIG_U01,U04,U13,U15 K2_GIG_K01	30	75	3	3	1,5	T/Z(w)	Z		DN	2	S
8	W06GIG-SM3040G	Regional hydrogeology GK	2			2		K2_GIG_W01,W2,W10, W15 K2_GIG_U01,U4,U13 K2_GIG_K03	60	100	4	4	2,9	T/Z(w)	E		DN	2	S
9	W06GIG-SM3041G	Seismotectonics GK	2			1		K2_GIG_W2,W10, W14 K2_GIG_U01,U4,U10,U13 K2_GIG_K01	45	100	4	4	2,4	T/Z(w)	E		DN	2	S
10	W06GIG-SM3042G	Industrial mineral deposits and applications GK	2				2	K2_GIG_W1,W07, W12 K2_GIG_U01,U10,U13 K2_GIG_K01,K02	60	125	5	5	2,8	T/Z	E		DN	3	S
11	W06GIG-SM3043G	Analytical methods in ore deposits GK	2		2			K2_GIG_W1,W02, W10 K2_GIG_U02,U07,U13 K2_GIG_K01	60	125	5	4	2,8	T/Z(w)	E		DN	3	S
12	W06GIG-SM3044W	Geophysical exploration and mineral resources	2					K2_GIG_W1,W02, W08,W10 K2_GIG_K01	30	75	3	3	1,4	T/Z	E		DN		S
13	W06GIG-SM3045G	Analyses of mineral paragenesis GK	1		2			K2_GIG_W1,W02 K2_GIG_U01,U13 K2_GIG_K01	45	75	3		2,2	T/Z(w)	E			2	S
14	W06GIG-SM3046P	Field and laboratory practicum				8		K2_GIG_U01,U04,U13 K2_GIG_K02,K03	120	150	6	4	5,0	T	Z		DN	6	S
Total			23	0	6	23	2		810	1500	60	42	38,6					36	

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

4.2.4.2 Diploma (e.g. diploma profile) block (21 ECTS points):

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3014S	Diploma Seminar					1	K2_GIG_W01 K2_GIG_U01,U13 K2_GIG_K03	15	25	1	1	0,8	T	Z		DN	P(1)	S
2	W06GIG-SM3015D	Master Thesis					1	K2_GIG_W01,W05,W10 K2_GIG_U01,U04,U08,U10,U13,U15 K2_GIG_K01,K03	15	500	20	20	1,8	T	Z		DN	P(20)	S
Total			0	0	0	1	1		30	525	21	21	2,6					21	

Altogether for specialization blocks:

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
23	0	6	24	3	840	2025	81	63	41,2

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject/group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

4.3 Training block - concerning principles of training crediting – attachment no. ...

Opinion of the Advisory Faculty Council concerning the rules of crediting training block

Name of training			
Number of ECTS points	Number of ECTS points for BU ¹ classes	Training crediting mode	Code
Training duration		Training objective	
		Internship	

4.4 „Diploma dissertation” block (if it is foreseen at first level studies)

Type of diploma dissertation	Licencjat / inżynier / magister / magister inżynier*	
Number of diploma dissertation semesters	Number of ECTS points	Code
1	20	
Character of diploma dissertation		
Literature survey, project, computer program, etc.		
Number of BU ¹ ECTS points	1,8	

5. Ways of verifying assumed learning outcomes

Form of classes	Ways of verifying assumed learning outcomes
lecture	e.g. examination, progress/final test
class	e.g. progress/final test
laboratory	e.g. pretest, report from laboratory
project	e.g. project defence
seminar	e.g. participation in discussion, topic presentation, essay
training	e.g. report from training
diploma dissertation	prepared diploma dissertation

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

6. Range of diploma examination

1. Occupational risk assessment methods. Identification of harmful, dangerous and nuisance factors in the work environment.
2. Costs as the subject of cost accounting. Variable and fixed costs. Break even point.
3. Capital budgeting, evaluation of different methods
4. Liquidity vs profitability of a company. Ways of their evaluation
5. Environmental management systems
6. Characteristics of hazards for the natural environment resulting from human activities
7. Variogram and methods of its modelling
8. Kriging, its properties and types
9. Geophysical methods of exploration and identification of deposits.
10. Surface seismic methods. Reflective and refractive seismics.
11. Computer aided exploration and identification of deposits.
12. Decision models used in management.
13. Advances of technology & methods of future mining operations.
14. Aims, benefits, drawbacks of automation and industrial revolutions.
15. Applications of Interferometric Synthetic Aperture Radar.
16. Applications of map algebra and spatial statistics to determine surface deformation models
17. Facies cycles and sedimentary sequences
18. Basic features of modern and paleo - depositional environments
19. Geological methods of exploring mineral deposits.
20. Geological criteria in the exploration of mineral deposits
21. Calculation of mineral reserves
22. Examples of appropriate level of site investigations for the purpose of different types of studies and projects in geotechnical engineering.
23. Examples of potential geotechnical problems in different rock types in geotechnical engineering.
24. Basic principles of geochemical prospecting
25. Instrumental analytical methods of geochemical prospecting
26. Application of remote sensing in mineral exploration
27. Characteristics of electromagnetic radiation for the purposes of remote sensing of mineral resources
28. Applications of GIS software in mineral exploration
29. Stress types and distribution in Earth's crust in respect to tectonic plate boundary types
30. Basic properties of global and local seismicity
31. Definition of the concept of scale in hydrogeology and its effect related to permeability properties
32. Basic concept of the Earth's thermal regime
33. Physicochemical and geological conditions for the formation of deposits of chosen industrial minerals

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

34. Types of deposits of industrial minerals
35. The most important analytical methods applied in mineral deposits investigation
36. Special geophysical methods of measurement and interpretation applied in the exploration of construction materials deposits and solid mineral raw materials
37. Mineral paragenesis of magmatic and metamorphic rocks and its interpretation
38. The ways of the origin of primary and secondary mineral parageneses in magmatic rocks.
39. Mining legislation. Categorisation and classification of mineral reserves.
40. Groundwater chemistry and its impact on water use and legislation
41. Hydrogeological objects (wells, piezometers), construction and use.
42. Definitions of terms: ore mineral and industrial mineral. Classifications of industrial minerals.

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³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

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⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

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7. Requirements concerning deadlines for crediting subject/groups of subject for all courses in particular blocks

No.	Course / group of courses code	Name of course / group of courses	Crediting by deadline of... (number of semester)
1	W06GIG-SM3033G	Sedimentology GK	1-4
2	W06GIG-SM3034G	Mineral deposits exploration GK	1-4
3	W06GIG-SM3035G	Petroleum geology GK	1-4
4	W06GIG-SM3036G	Engineering geological investigations GK	1-4
5	W06GIG-SM3037G	Exploration geochemistry GK	1-4
6	W06GIG-SM3038G	Remote sensing of mineral resources GK	1-4
7	W06GIG-SM3039G	GIS in exploration of mineral resources GK	1-4
8	W06GIG-SM3040G	Regional hydrogeology GK	2-4
9	W06GIG-SM3041G	Seismotectonics GK	2-4
10	W06GIG-SM3042G	Industrial mineral deposits and applications GK	2-4
11	W06GIG-SM3043G	Analytical methods in ore deposits GK	2-4
12	W06GIG-SM3044W	Geophysical exploration and mineral resources	2-4
13	W06GIG-SM3045G	Analyses of mineral paragenesis GK	2-4
14	W06GIG-SM3046P	Field and laboratory practicum	2-4
15	W06GIG-SM3007	Principles and Application of InSAR and GIS in mining	3-4
16	W06GIG-SM3002	Computer Aided Geological Modelling & Geostatistics	3-4
17	W06GIG-SM3003G	Project Management, Appraisal and Risk Evaluation	3-4
18	W06GIG-SM3004	Engineering Geophysics	3-4
19	W06GIG-SM3001	Environmental Management	3-4
20	W06GIG-SM3005	Occupational Health and Safety	3-4
21	SJO-SM0003	Foreign language 1	3-4
22	SJO-SM0004	Foreign language 2	3-4
23	W06GIG-SM3006	Digital Mine	3-4
24	W06GIG-SM3000	Operations Research	3-4
27	W06GIG-SM3012G	Exploration Entrepreneurship	1-4
28	W06GIG-SM3013P	SOC Internship	1-4
29	W06GIG-SM3016P	Applied Field Exploration	1-4
30	W06GIG-SM3014S	Master Thesis	4
31	W06GIG-SM3015D	Diploma Seminar	4

8. Plan of studies (attachment no. 4)

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

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⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

Approved by faculty student government legislative body:

POLITECHNIKA WROCLAWSKA
WYDZIAŁ GEOINŻYNIERII
GÓRNICWA I GEOLOGII
Samorząd Studencki Wydziału Geoinżynierii,
Górnictwa i Geologii
50-421 Wrocław, Na Grobli 15, pokój 370

Jakub Dobrzański

Jakub Dobrzański
Chairman of the Student Government
of the Faculty of Geoengineering, Mining and Geology

.....
name and surname, signature of student representative

28.09.23

.....
Date

DZIEKAN

prof. dr hab. inż. Radosław Zimroz

.....
Dean's signature

28.09.23

.....
Date

PLAN OF STUDIES

FACULTY: Geoengineering, Mining and Geology

MAIN FIELD OF STUDY: Mining and geology

EDUCATION LEVEL: second-level studies

FORM OF STUDIES: full-time studies

PROFILE: general academic

SPECIALIZATION: Mineral Resources Exploration - Track UNI ZAGREB-WUST

LANGUAGE OF STUDY: English

In effect since academic year 2023/24

	Winter		Summer		Winter		Summer							
semester	1	ECTS	2	ECTS	3	ECTS	4	ECTS						
hours	UNIZG		UNIZG		WUST		WUST							
1	Sedimentology 20030 E W06GIG-SM3033G	5	Regional Hydrogeology 20020E W06GIG-SM3040G	4	Operations Research 10100Z W06GIG- SM3000	3	Exploration entrepreneurship (EFG) 10012 Z W06GIG-SM3012G	4						
2					Environmental Management 20001Z W06GIG- SM3001				3					
3						Seismotectonics 20100E W06GIG-SM3041G				4	Diploma Seminar 00002Z SM3014S	1		
4					Mineral Deposits Exploration 20030E W06GIG-SM3034G				5				Industrial Mineral Deposits and Applications 20002E W06GIG-SM3042G	5
5	Project Management, Appraisal and Risk Evaluation 10210E W06GIG- SM3003G	4												
6			Petroleum Geology 20030E W06GIG-SM3035G	5		Analytical Methods in Ore Deposits 20200E W06GIG-SM3043G	5	SOC Internship 00020 Z W06GIG-SM3013P		2				
7	Engineering Geophysics 10010 Z W06GIG- SM3004	3												
8					Engineering Geological Investigations 20020E W06GIG-SM3036G			5	Geophysical Exploration of Mineral Resources 20000E W06GIG-SM3044W	3	Occupational Health and Safety 100100Z W06GIG-SM3005	2	Applied field exploration 00030Z W06GIG-SM3016P	3
9	Analyses of mineral paragenesis 10200E W06GIG-SM3045G	3												
10			Exploration Geochemistry 20010Z W06GIG-SM3037G	4		Field and laboratory practicum 00080 Z W06GIG-SM3046P	6							
11	Digital Mine 10100 Z W06GIG- SM3006	2												
12					Remote sensing of mineral resources 10100E W06GIG-SM3038G			3	Foreign Language 2 01000 Z SJO- SM0004	1				
13	GIS in Exploration of Mineral Resources 10100Z W06GIG-SM3039G	3												
14														
15														
16														
17														
18														
19														
20														
21														
22														
23														
24														
25														
26														
27														
28														
Total ECTS		30		30		30		30						

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³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

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1. Set of obligatory and optional subjects and groups of classes in semestral arrangement

Semester 1

Obligatory subjects / groups of classes (0 ECTS points)

No.	Subject / groups of classescode	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1																			
Total																			

Optional subjects / groups of classes Number of ECTS points 30

No.	Subject / groups of classescode	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-M3033G	Sedimentology GK	2			3		K2_GIG_W01,W02 K2_GIG_U01,U13 K2_GIG_K02	75	125	5	3	3,6	T/Z(w)	E		DN	3	S
2	W06GIG-SM3034G	Mineral deposits exploration GK	2			3		K2_GIG_W01, W08,W11,W15, K2_GIG_U01,U13 K2_GIG_K03	75	125	5	3	3,6	T/Z(w)	E		DN	3	S
3	W06GIG-SM3035G	Petroleum geology GK	2			3		K2_GIG_W01,W2,W08, W11, K2_GIG_U01,U4,U10,U13 K2_GIG_K03	75	125	5		3,6	T/Z(w)	E			3	S
4	W06GIG-SM3036G	Engineering geological investigations GK	2			2		K2_GIG_W2,W07, W10, K2_GIG_U01,U04,U10 K2_GIG_K03	60	125	5	3	3,0	T/Z(w)	E		DN	3	S
5	W06GIG-SM3037G	Exploration geochemistry GK	2			1		K2_GIG_W01,W02,W18 K2_GIG_U01,U04,U09,U10,U13 K2_GIG_K02	45	100	4	3	2,3	T/Z(w)	Z		DN	2	S
6	W06GIG-SM3038G	Remote sensing of mineral resources GK	1		1			K2_GIG_W01,W02,W08,W15 K2_GIG_U01,U04,U13,U15 K2_GIG_K03	30	75	3	3	1,5	T/Z(w)	E		DN	2	S
7	W06GIG-SM3039G	GIS in exploration of mineral resources GK	1		1			K2_GIG_W01,W02,W08,W14,W15 K2_GIG_U01,U04,U13,U15 K2_GIG_K01	30	75	3	3	1,5	T/Z(w)	Z		DN	2	S
Total			12		2	12			390	750	30	18	19,1					18	

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³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
12		2	12		390	750	30	18	19,1

Semester 2

Obligatory subjects / groups of classes (0 ECTS points)

No.	Subject / groups of classescode	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1																			
		Total																	

Optional subjects / groups of classes Number of ECTS points 30

No.	Subject / groups of classescode	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3040G	Regional hydrogeology GK	2			2		K2_GIG_W01,W2,W10, W15 K2_GIG_U01,U4,U13 K2_GIG_K03	60	100	4	4	2,9	T/Z(w)	E		DN	2	S
2	W06GIG-SM3041G	Seismotectonics GK	2			1		K2_GIG_W2,W10, W14 K2_GIG_U01,U4,U10,U13 K2_GIG_K01	45	100	4	4	2,4	T/Z(w)	E		DN	2	S
3	W06GIG-SM3042G	Industrial mineral deposits and applications GK	2				2	K2_GIG_W1,W07, W12 K2_GIG_U01,U10,U13 K2_GIG_K01,K02	60	125	5	5	2,8	T/Z	E		DN	3	S
4	W06GIG-SM3043G	Analytical methods in ore deposits GK	2		2			K2_GIG_W1,W02, W10 K2_GIG_U02,U07,U13 K2_GIG_K01	60	125	5	4	2,8	T/Z(w)	E		DN	3	S
5	W06GIG-SM3044W	Geophysical exploration and mineral resources	2					K2_GIG_W1,W02, W08,W10 K2_GIG_K01	30	75	3	3	1,4	T/Z	E		DN		S
6	W06GIG-SM3045G	Analyses of mineral paragenesis GK	1		2			K2_GIG_W1,W02 K2_GIG_U01,U13 K2_GIG_K01	45	75	3		2,2	T/Z(w)	E			2	S
7	W06GIG-SM3046P	Field and laboratory practicum				8		K2_GIG_U01,U04,U13 K2_GIG_K02,K03	120	150	6	4	5,0	T	Z		DN	6	S
		Total	11		4	11	2		420	750	30	24	19,5					18	

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
11		4	11	2	420	750	30	24	19,5

Semester 3

Obligatory subjects / groups of classes Number of ECTS points 27

No.	Subject / groups of classescode	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/g roup of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3000W	Operations Research	1					K2_GIG_W06	15	25	1	1	0,8	T/Z	Z		DN		KO
2	W06GIG-SM3000L	Operations Research			1			K2_GIG_U10,U14 K2_GIG_K01	15	50	2	2	0,7	T	Z		DN	P (2)	KO
3	W06GIG-SM3002W	Computer Aided Geological Modelling & Geostatistics	1					K2_GIG_W06,W08,W15	15	50	2		0,8	T/Z	Z		DN		PD/K
4	W06GIG-SM3002L	Computer Aided Geological Modelling & Geostatistics			3			K2_GIG_U04,U08,U14	45	75	3	2	1,9	T	Z		DN	P (3)	PD/K
5	W06GIG-SM3003G	Project Management, Appraisal and Risk Evaluation (GK)	1		2	1		K2_GIG_W03,W05,W11 K2_GIG_U04,U06,U08,U15 K2_GIG_K01	60	100	4	4	3,1	T/Z(w)	E(w), Z(l,p)		DN	P (3)	KO
6	W06GIG-SM3001W	Environmental Management	2					K2_GIG_W04,W12,W13,W18	30	50	2	2	1,3	T/Z(w)	Z		DN		K
7	W06GIG-SM3001S	Environmental Management				1		K2_GIG_U05,U10,U11 K2_GIG_K02,K03	15	25	1	1	0,8	T	Z		DN	P(1)	K
8	W06GIG-SM3004W	Engineering Geophysics	1					K2_GIG_W02,W08,W10	15	25	1	1	0,8	T/Z	Z		DN		PD
9	W06GIG-SM3004P	Engineering Geophysics				1		K2_GIG_U04,U13	15	50	2	2	0,9	T	Z		DN	P(2)	PD
10	W06GIG-SM3007W	Principles and Application of InSAR and GIS in mining	2					K2_GIG_W15,W16,W18	30	50	2	2	1,4	T/Z(w)	E		DN		K
11	W06GIG-SM3007L	Principles and Application of InSAR and GIS in mining			3			K2_GIG_U04,U07,U08	45	75	3	3	2,0	T	Z		DN	P(3)	K
12	W06GIG-SM3005W	Occupational Health and Safety	1					K2_GIG_W11,W12,W14,W17	15	25	1	1	0,7	T/Z(w)	Z		DN		K
13	W06GIG-SM3005P	Occupational Health and Safety				1		K2_GIG_U11, K2_GIG_K02, K03	15	25	1	1	0,8	T	Z		DN	P(1)	K
14	W06GIG-SM3006W	Digital Mine	1					K2_GIG_W07,W12,W18,W19	15	25	1	1	0,8	T/Z(w)	Z		DN		K
15	W06GIG-SM3006L	Digital Mine			1			K2_GIG_U04,U07,U08	15	25	1	1	0,8	T	Z		DN	P(1)	K
Total			10	0	10	3	1		360	675	27	24	17,6					16	

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²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

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Optional subjects / groups of classes (3 ECTS points)

No.	Subject / groups of classescode	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/g roup of courses	Way ³ of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU1 classes			University -wide ⁴	Concerni ng scientific activities ⁵	Practical ⁶	Type ⁷
1	SJO-SM0003	Foreign Language 1		3				K2_GIG_U03	45	60	2		1,6	T	Z	O		P(2)	KO
2	SJO-SM0004	Foreign Language 2		1				K2_GIG_U01,U02	15	30	1		0,6	T	Z	O		P(1)	KO
Total			0	4	0	0			60	90	3	0	2,2					3	

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
10	4	10	3	1	420	765	30	24	19,8

Semester 4

Obligatory subjects / groups of classes Number of ECTS points 9

No.	Subject / groups of classescode	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/g roup of courses	Way ³ of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU1 classes			University -wide ⁴	Concerni ng scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3012G	Exploration Entrepreneurship GK	1			1	2	K2_GIG_W03,W05,W09 K2_GIG_U08,U09 K2_GIG_K01,K02,K03	60	100	4		3,0	Z	Z			P(3)	S
2	W06GIG-SM3013P	SOC Internship				2		K2_GIG_W05,W09 K2_GIG_U08,U09 K2_GIG_K01,K02,K03	30	50	2		1,5	T	Z			P(2)	S
3	W06GIG-SM3016P	Applied Field Exploration				3		K2_GIG_W08,W15 K2_GIG_U04,U09,U10,U13 K2_GIG_K02	45	75	3	1	2,1	T	Z		DN	P(3)	S
Total			1	0	0	6	2		135	225	9	1	6,6					8	

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²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

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Optional subjects / groups of classes (21 ECTS points)

No.	Subject / groups of classescode	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Course/group of courses			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concernin g scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3014S	Diploma Seminar					1	K2_GIG_W01 K2_GIG_U01,U13 K2_GIG_K02,K03	15	25	1	1	0,8	T	Z		DN	P(1)	S
2	W06GIG-SM3015D	Master Thesis					1	K2_GIG_W01,W05,W10 K2_GIG_U01,U04,U08,U10,U13,U15 K2_GIG_K01,K02,K03	15	500	20	20	1,8	T	Z		DN	P(20)	S
Total			0	0	0	1	1		30	525	21	21	2,6					21	

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
1	0	0	7	3	165	750	30	22	9,2

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2. Set of examinations in semestral arrangement

Course / group of courses code	Names of subjects / groups of classes ending with examination	Semester
W06GIG-SM3033G	1. Sedimentology	1
W06GIG-SM3034G	2. Mineral deposits exploration	1
W06GIG-SM3035G	3. Petroleum geology	1
W06GIG-SM3036G	4. Engineering geological investigations	1
W06GIG-SM3038G	5. Remote sensing of mineral resources	1
W06GIG-SM3040G	1. Regional hydrogeology	2
W06GIG-SM3041G	2. Seismotectonics	2
W06GIG-SM3042G	3. Industrial mineral deposits and applications	2
W06GIG-SM3043G	4. Analytical methods in ore deposits	2
W06GIG-SM3044W	5. Geophysical exploration and mineral resources	2
W06GIG-SM3045G	6. Analyses of mineral paragenesis	2
W06GIG-SM3003G	1. Project Management, Appraisal and Risk Evaluation	3
W06GIG-SM3007	2. Principles and Application of InSAR and GIS in mining	3
	Final diploma examination	4

3. Numbers of allowable deficit of ECTS points after particular semesters

Semester	Allowable deficit of ECTS points after semester
1	12
2	8
3	0

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Opinion of student government legislative body

POLITECHNIKA WROCLAWSKA
WYDZIAŁ GEOINŻYNIERII
GÓRNICTWA I GEOLOGII
Samorząd Studencki Wydziału Geoinżynierii,
Górnictwa i Geologii
50-421 Wrocław, Na Grebli 15, pokój 370

28.09.23

Jakub Dobrzański

Jakub Dobrzański
Chairman of the Student Government
of the Faculty of Geoengineering, Mining and Geology

Date

Name and surname, signature of student representative

28.09.23

DZIEKAN
RD
prof. dr hab. inż. Radosław Zimroz
(1)

Date

Dean's signature

FACULTY: **of Geoengineering, Mining and Geology**

MAIN FIELD OF STUDY: **Mining and Geology**

LANGUAGE OF STUDY: English

SPECIALIZATION: **Mineral Resources Exploration**

- Track: WUST - UNI ZAGREB

DESCRIPTION OF THE PROGRAM OF STUDIES

Main field of study MINING AND GEOLOGY**Profile** general academic**Level of studies** second level studies**Form of studies** full-time studies**1. General description**

1.1 Number of semesters: 4	1.2 Total number of ECTS points necessary to complete studies at a given level: 120
1.3 Total number of hours: 1395	1.4 Prerequisites (particularly for second-level studies): Bachelor of Science in Engineering diploma, interview
1.5 Upon completion of studies graduate obtains professional degree of: magister inżynier - 2nd degree qualifications	1.6 Graduate profile, employability: The program will train T-shaped earth science specialists having a strong background in classical disciplines of geology and geophysics complemented with modern 3D modelling as well as data processing and interpretation skills, while the boundary-crossing competences will cover skills in innovative mineral exploration techniques and technologies used in the field, in laboratories, in an underground and underwater environment. Students will also be trained in sustainability, social responsibility and social licence to operate. T-shaped mineral explorers will use Industry 4.0-derived tools and methods for mineral resource exploration, mentored by experts. They will be prepared to work in enterprises, technical supervision institutions, public state and local administration, in research and development organisations, in Poland and

	<p><i>abroad, will also be prepared to start own business or work as free lanced exploration geologists. The graduates will be able to use English freely and will be prepared to work in an international environment and intercultural groups during their professional career.</i></p>
<p><i>1.7 Possibility of continuing studies: eligibility to apply for admission to a doctoral school, non-degree postgraduate programmes</i></p>	<p><i>1.8 Indicate connection with University’s mission and its development strategy: The study programs of all specializations within the field of study Mining and Geology respond to the strategic goals of the University (Strategia Politechniki Wrocławskiej 2023–2030), by rising the level of correlation of the study offer with the needs of the market (C3), by enhancing the quality of education through didactic interdisciplinarity and by cooperation with industrial partners as well as increasing the level of entrepreneurship, creativity and involvement of students in research processes (C4, C2). Graduates of the faculty should be creative, professional, have theoretical background and practical abilities, as well as have interpersonal skills and cross-cultural experience (C5). The Faculty of Geoengineering, Mining and Geology, as one of the units of the Wrocław University of Science and Technology, educates in the field of engineering, broadened by knowledge in natural and economic sciences. The profile and quality of education are at the international level and are adapted to the needs of the national and global mineral industries.</i></p>

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2. Detailed description

2.1 Total number of learning outcomes in the program of study: W (knowledge) = 19, U (skills) = 15, K (competences) = 3,
W + U + K = 37

~~2.2 For the main field of study assigned to more than one discipline – the number of learning outcomes assigned to the discipline:~~

~~_____ D1 (major) (this number must be greater than half the total number of learning outcomes)~~

~~_____ D2~~

~~_____ D3~~

~~_____ D4~~

~~2.3 For the main field of study assigned to more than one discipline – percentage share of the number of ECTS points for each discipline:~~

~~_____ D1% ECTS points~~

~~_____ D2% ECTS points~~

~~_____ D3% ECTS points~~

~~_____ D4% ECTS points~~

2.4a. For the general academic profile of the main field of study – the number of ECTS points assigned to the classes related to the University's academic activity in the discipline or disciplines to which the main field of study is assigned – DN (must be greater than 50% of the total number of ECTS points from 1.2) 88 ECTS

2.4b. ~~For the practical profile of the main field of study – the number of ECTS points assigned to the classes shaping practical skills (must be greater than 50% of the total number of ECTS points from 1.2)~~

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⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

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2.5 Concise analysis of compliance of the assumed learning outcomes with the needs of the labor market

The economic development of the country is closely dependent on natural resources, the ability to use them and having appropriate engineering workforce. The assumed learning outcomes correspond to the needs of practice in the field of the generally understood management of mineral resources - technologies and techniques for their identification, valuation, extraction, processing, revitalization of industrial areas, and the practice of managing an enterprise (especially mining) in the sense of managing information, environment and people, using the latest IT and marketing techniques and methods. This integration of economic needs and assumed educational effects favorably shape the labor market for the graduates of the Faculty. Additionally, a good command of English and experience of working in an international group will open up the possibility of working in foreign branches of Polish enterprises and in foreign companies.

2.6. The total number of ECTS points that a student must obtain in classes requiring direct participation of academic teachers or other persons conducting classes and students (enter the sum of ECTS points for courses / groups of courses marked with the BU¹ code) 67,6 ECTS

2.7. Total number of ECTS points, which student has to obtain from basic sciences classes

Number of ECTS points for obligatory subjects	6
Number of ECTS points for optional subjects	0
Total number of ECTS points	6

2.8. Total number of ECTS points, which student has to obtain from practical classes, including project and laboratory classes (enter total number of ECTS points for courses/group of courses denoted with code P)

Number of ECTS points for obligatory subjects	24
Number of ECTS points for optional subjects	60
Total number of ECTS points	84

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³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

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2.9. Minimum number of ECTS points, which student has to obtain doing education blocks offered as part of University-wide classes or other main field of study (enter number of ECTS points for courses/groups of courses denoted with code O)

3 ECTS points

2.10. Total number of ECTS points, which student may obtain doing optional blocks (min. 30% of total number of ECTS points)

84 ECTS points

3. Description of the process leading to learning outcomes acquisition:

1. Upon starting classes in each subject, the student has an appropriate level of knowledge and skills which constitute the prerequisites for a given course (it is verified by the teacher or the dean's office).
2. The student participates in classes organized at the university.
3. The student carries out the assigned work in class and at home (projects, computational tasks, analyzes, prepares presentations) and studies the literature and materials recommended by the teacher.
4. The student uses the appointed hours of the tutor's consultation, explaining his uncertainties and verifying the correct understanding of the course content.
5. The student participates in periodic tests of knowledge and skills, completes the tests available on the e-portal and is familiar with the correct answers, grades and comments from the teacher.
6. In some subjects, the student participates in group tasks, taking part in the organization of the group's work, assessment of the activities of individual participants and takes responsibility for the result of the group's work.
7. The student is encouraged to become involved in the work of research clubs, student organizations, discussion clubs, sports groups, participation in social life through work in public welfare organizations, voluntary work, thus gaining valuable interpersonal skills and social competences.
8. The student participates in meetings with companies from the industry, technical excursions, job fairs, tries to gain knowledge about the labor market and additional advantages when applying for a job
9. The student is encouraged to participate in an international student exchange, and through contact with foreigners at the faculty, he or she acquires additional interpersonal, cultural and language qualifications

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⁴University-wide subject /group of classes – enter O

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⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

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4. List of education blocks:

4.1. List of obligatory blocks:

4.1.1 List of general education blocks

4.1.1.1 Liberal-managerial subjects block (7 ECTS points):

No.	Subject/ group of classes code	Name of subject/group of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/gr oup of courses	Way ³ of crediting	Subject/group of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University -wide ⁴	Concerni ng scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG- SM3003G	Project Management, Appraisal and Risk Evaluation (GK)	1		2	1		K2_GIG_W03,W05,W11 K2_GIG_U04,U06,U08,U15 K2_GIG_K01	60	100	4	4	3,1	T/Z(w)	E(w), Z(l,p)		DN	P (3)	KO
2	W06GIG- SM3000W	Operations Research	1					K2_GIG_W06 K2_GIG_U10,U14 K2_GIG_K01	15	25	1	1	0,8	T/Z	Z		DN		KO
3	W06GIG- SM3000L	Operations Research			1				15	50	2	2	0,7	T	Z		DN	P (2)	KO
Total			2	0	3	1	0		90	175	7	7	4,6					5	

Altogether for general education blocks

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
2	0	3	1	0	90	175	7	7	

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

4.1.2 List of basic sciences blocks

4.1.2.1 Mathematics block

No.	Subject/ group of classes code	Name of subject/group of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/gr oup of courses	Way ³ of crediting	Subject/group of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University -wide ⁴	Concerni ng scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG- SM3003G	Computer Aided Geological Modelling & Geostatistics (część: Geostatistics)	1					K2_GIG_W06,W08,W15 K2_GIG_U04,U08,U14	15	50	2		0,8	T	Z				PD
2	W06GIG- SM3000W	Computer Aided Geological Modelling & Geostatistics (część: Geostatistics)			1				15	25	1		0,6	T	Z			P (1)	PD
Total			1	0	1	0	0		30	75	3		1,4					1	

4.1.2.3 Physics block

No.	Subject/ group of classes code	Name of subject/group of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/gr oup of courses	Way ³ of crediting	Subject/group of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University -wide ⁴	Concerni ng scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG- SM3004W	Engineering Geophysics	1					K2_GIG_W02,W08,W10 K2_GIG_U04,U13	15	25	1	1	0,8	T/Z	Z		DN		PD
	W06GIG- SM3004P	Engineering Geophysics				1			15	50	2	2	0,9	T	Z		DN	P(2)	PD
Total			2	0	0	0	0		30	75	3	3	1,7					2	

Altogether for basic sciences blocks:

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
3	0	1	0	0	60	150	6	3	3,1

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²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

4.1.3 List of the main field of study blocks

4.1.3.1 *Obligatory main field of study blocks*

No.	Subject/ group of classes code	Name of subject/group of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/gr oup of courses	Way ³ of crediting	Subject/group of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ clas ses	BU ¹ clas ses			Unive rsity- wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG- SM3002L	Computer Aided Geological Modelling & Geostatistics (Część: Computer Aided Geological Modelling)			2			K2_GIG_W06,W08,W15 K2_GIG_U04,U08,U14	30	50	2	2	1,3	T	Z		DN	P(2)	K
2	W06GIG- SM3006W	Digital Mine	1					K2_GIG_W07,W12,W18,W19 K2_GIG_U04,U07,U08	15	25	1	1	0,8	T/Z(w)	Z		DN		K
3	W06GIG- SM3006L	Digital Mine			1				15	25	1	1	0,8	T	Z		DN	P(1)	K
4	W06GIG- SM3005W	Occupational Health and Safety	1					K2_GIG_W11,W12,W14,W17 K2_GIG_U11, K2_GIG_K02, K03	15	25	1	1	0,7	T/Z(w)	Z		DN		K
5	W06GIG- SM3005P	Occupational Health and Safety				1			15	25	1	1	0,8	T	Z		DN	P(1)	K
6	W06GIG- SM3007W	Principles and Application of InSAR and GIS in mining	2					K2_GIG_W15,W16,W18 K2_GIG_U04,U07,U08	30	50	2	2	1,4	T/Z(w)	E		DN		K
7	W06GIG- SM3007L	Principles and Application of InSAR and GIS in mining			3				45	75	3	3	2,0	T	Z		DN	P(3)	K
8	W06GIG- SM3001W	Environmental Management	2					K2_GIG_W04,W12,W13,W18 K2_GIG_U05,U10,U11,U12 K2_GIG_K02,K03	30	50	2	2	1,3	T/Z(w)	Z		DN		K
9	W06GIG- SM3001S	Environmental Management					1		15	25	1	1	0,8	T	Z		DN	P(1)	K
10	W06GIG- SM3012G	Exploration Entrepreneurship GK	1			1	2	K2_GIG_W03,W05,W09 K2_GIG_U08,U09 K2_GIG_K01,K02,K03	60	100	4		3,0	Z	Z			P(3)	S
11	W06GIG- SM3013P	SOC Internship				2		K2_GIG_W05,W09 K2_GIG_U08,U09 K2_GIG_K01,K02,K03	30	50	2		1,5	T	Z			P(2)	S
12	W06GIG- SM3016P	Applied Field Exploration				3		K2_GIG_W08,W15 K2_GIG_U04,U09,U10,U13 K2_GIG_K02	45	75	3	1	2,1	T	Z		DN	P(3)	S
Total			7	0	6	7	3		345	575	23	15	16,5					16	

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³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

Altogether (for main field of study blocks):

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
7	0	6	7	3	345	575	23	15	16,5

4.2 List of optional blocks

4.2.1 List of general education blocks

4.2.1.2 Foreign languages block (min. 3 ECTS points):

No.	Subject/group of classes code	Name of subject/group of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject/group of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	SJO-SM0003	Foreign Language 1		3				K2_GIG_U03	45	60	2		1,6	T	Z	O		P (2)	KO
2	SJO-SM0004	Foreign Language 2		1				K2_GIG_U01,U02	15	30	1		0,6	T	Z	O		P(1)	KO
Total			0	4	0	0	0		60	90	3		2,2					3	

Altogether for general education blocks:

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
0	4	0	0	0	60	90	3	0	2,2

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⁴University-wide subject / group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

4.2.4 List of specialization blocks

4.2.4.1 Specialization subjects (e.g. whole specialization) blocks (60 ECTS points):

No.	Subject/ group of classes code	Name of subject/group of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/gr oup of courses	Way ³ of crediting	Subject/group of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			Universi ty-wide ⁴	Concerni ng scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG- SM3033G	Sedimentology GK	2			3		K2_GIG_W01,W02 K2_GIG_U01,U13 K2_GIG_K02	75	125	5	3	3,6	T/Z(w)	E		DN	3	S
2	W06GIG- SM3034G	Mineral deposits exploration GK	2			3		K2_GIG_W01, W08,W11,W15, K2_GIG_U01,U13 K2_GIG_K03	75	125	5	3	3,6	T/Z(w)	E		DN	3	S
3	W06GIG- SM3035G	Petroleum geology GK	2			3		K2_GIG_W01,W2,W08, W11, K2_GIG_U01,U4,U10,U13 K2_GIG_K03	75	125	5		3,6	T/Z(w)	E			3	S
4	W06GIG- SM3036G	Engineering geological investigations GK	2			2		K2_GIG_W2,W07, W10, K2_GIG_U01,U04,U10 K2_GIG_K03	60	125	5	3	3,0	T/Z(w)	E		DN	3	S
5	W06GIG- SM3037G	Exploration geochemistry GK	2			1		K2_GIG_W01,W02,W18 K2_GIG_U01,U04,U09,U10,U13 K2_GIG_K02	45	100	4	3	2,3	T/Z(w)	Z		DN	2	S
6	W06GIG- SM3038G	Remote sensing of mineral resources GK	1		1			K2_GIG_W01,W02,W08,W15 K2_GIG_U01,U04,U13,U15 K2_GIG_K03	30	75	3	3	1,5	T/Z(w)	E		DN	2	S
7	W06GIG- SM3039G	GIS in exploration of mineral resources GK	1		1			K2_GIG_W01,W02,W08,W14,W15 K2_GIG_U01,U04,U13,U15 K2_GIG_K01	30	75	3	3	1,5	T/Z(w)	Z		DN	2	S
8	W06GIG- SM3040G	Regional hydrogeology GK	2			2		K2_GIG_W01,W2,W10, W15 K2_GIG_U01,U4,U13 K2_GIG_K03	60	100	4	4	2,9	T/Z(w)	E		DN	2	S
9	W06GIG- SM3041G	Seismotectonics GK	2			1		K2_GIG_W2,W10, W14 K2_GIG_U01,U4,U10,U13 K2_GIG_K01	45	100	4	4	2,4	T/Z(w)	E		DN	2	S
10	W06GIG- SM3042G	Industrial mineral deposits and applications GK	2			2		K2_GIG_W1,W07, W12 K2_GIG_U01,U10,U13 K2_GIG_K01,K02	60	125	5	5	2,8	T/Z	E		DN	3	S
11	W06GIG- SM3043G	Analytical methods in ore deposits GK	2		2			K2_GIG_W1,W02, W10 K2_GIG_U02,U07,U13 K2_GIG_K01	60	125	5	4	2,8	T/Z(w)	E		DN	3	S
12	W06GIG- SM3044W	Geophysical exploration and mineral resources	2					K2_GIG_W1,W02, W08,W10 K2_GIG_K01	30	75	3	3	1,4	T/Z	E		DN		S
13	W06GIG- SM3045G	Analyses of mineral paragenesis GK	1		2			K2_GIG_W1,W02 K2_GIG_U01,U13 K2_GIG_K01	45	75	3		2,2	T/Z(w)	E			2	S
14	W06GIG- SM3046P	Field and laboratory practicum				8		K2_GIG_U01,U04,U13 K2_GIG_K02,K03	120	150	6	4	5,0	T	Z		DN	6	S
Total			23	0	6	23	2		810	1500	60	42	38,6					36	

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⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

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4.2.4.2 Diploma (e.g. diploma profile) block (21 ECTS points):

No.	Subject/ group of classes code	Name of subject/group of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/g roup of courses	Way ³ of crediting	Subject/group of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University -wide ⁴	Concerni ng scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG- SM3014S	Diploma Seminar					1	K2_GIG_W01 K2_GIG_U01,U13 K2_GIG_K03	15	25	1	1	0,8	T	Z		DN	P(1)	S
2	W06GIG- SM3015D	Master Thesis					1	K2_GIG_W01,W05,W10 K2_GIG_U01,U04,U08,U10,U13,U15 K2_GIG_K01,K03	15	500	20	20	1,8	T	Z		DN	P(20)	S
Total			0	0	0	1	1		30	525	21	21	2,6					21	

Altogether for specialization blocks:

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
23	0	6	24	3	840	2025	81	63	41,2

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²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

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4.3 Training block - concerning principles of training crediting – attachment no. ...

Opinion of the Advisory Faculty Council concerning the rules of crediting training block

Name of training			
Number of ECTS points	Number of ECTS points for BU ¹ classes	Training crediting mode	Code
Training duration	Training objective		
	Internship		

4.4 „Diploma dissertation” block (if it is foreseen at first level studies)

Type of diploma dissertation	Licencjat / inżynier / magister / magister inżynier*	
Number of diploma dissertation semesters	Number of ECTS points	Code
1	20	W06GIG-SM3015D
Character of diploma dissertation		
Literature survey, project, computer program, etc.		
Number of BU ¹ ECTS points	1,8	

5. Ways of verifying assumed learning outcomes

Form of classes	Ways of verifying assumed learning outcomes
lecture	e.g. examination, progress/final test
class	e.g. progress/final test
laboratory	e.g. pretest, report from laboratory
project	e.g. project defence
seminar	e.g. participation in discussion, topic presentation, essay
training	e.g. report from training
diploma dissertation	prepared diploma dissertation

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³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

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⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

6. Range of diploma examination

1. Occupational risk assessment methods. Identification of harmful, dangerous and nuisance factors in the work environment.
2. Costs as the subject of cost accounting. Variable and fixed costs. Break even point.
3. Capital budgeting, evaluation of different methods
4. Liquidity vs profitability of a company. Ways of their evaluation
5. Environmental management systems
6. Characteristics of hazards for the natural environment resulting from human activities
7. Variogram and methods of its modelling
8. Kriging, its properties and types
9. Geophysical methods of exploration and identification of deposits.
10. Surface seismic methods. Reflective and refractive seismics.
11. Computer aided exploration and identification of deposits.
12. Decision models used in management.
13. Advances of technology & methods of future mining operations.
14. Aims, benefits, drawbacks of automation and industrial revolutions.
15. Applications of Interferometric Synthetic Aperture Radar.
16. Applications of map algebra and spatial statistics to determine surface deformation models
17. Facies cycles and sedimentary sequences
18. Basic features of modern and paleo - depositional environments
19. Geological methods of exploring mineral deposits.
20. Geological criteria in the exploration of mineral deposits
21. Calculation of mineral reserves
22. Examples of appropriate level of site investigations for the purpose of different types of studies and projects in geotechnical engineering.
23. Examples of potential geotechnical problems in different rock types in geotechnical engineering.
24. Basic principles of geochemical prospecting
25. Instrumental analytical methods of geochemical prospecting
26. Application of remote sensing in mineral exploration
27. Characteristics of electromagnetic radiation for the purposes of remote sensing of mineral resources
28. Applications of GIS software in mineral exploration
29. Stress types and distribution in Earth's crust in respect to tectonic plate boundary types
30. Basic properties of global and local seismicity
31. Definition of the concept of scale in hydrogeology and its effect related to permeability properties
32. Basic concept of the Earth's thermal regime
33. Physicochemical and geological conditions for the formation of deposits of chosen industrial minerals

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³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

34. Types of deposits of industrial minerals
35. The most important analytical methods applied in mineral deposits investigation
36. Special geophysical methods of measurement and interpretation applied in the exploration of construction materials deposits and solid mineral raw materials
37. Mineral paragenesis of magmatic and metamorphic rocks and its interpretation
38. The ways of the origin of primary and secondary mineral parageneses in magmatic rocks.
39. Mining legislation. Categorisation and classification of mineral reserves.
40. Groundwater chemistry and its impact on water use and legislation
41. Hydrogeological objects (wells, piezometers), construction and use.
42. Definitions of terms: ore mineral and industrial mineral. Classifications of industrial minerals.

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²Traditional – enter T, remote – enter Z

³Exam – enter E, crediting – enter Z. For the group of classes – after the letter E or Z - enter in brackets the final subject form (lec, cl, lab, pr, sem)

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⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

7. Requirements concerning deadlines for crediting courses/groups of courses for all courses in particular blocks

No.	Subject / group of classes code	Name of subject / group of classes	Crediting by deadline of... (number of semester)
1	W06GIG-SM3007	Principles and Application of InSAR and GIS in mining	1-4
2	W06GIG-SM3002	Computer Aided Geological Modelling & Geostatistics	1-4
3	W06GIG-SM3003G	Project Management, Appraisal and Risk Evaluation	1-4
4	W06GIG-SM3004	Engineering Geophysics	1-4
5	W06GIG-SM3001	Environmental Management	1-4
6	W06GIG-SM3005	Occupational Health and Safety	1-4
7	SJO-SM0003	Foreign language 1	1-4
8	SJO-SM0004	Foreign language 2	1-4
9	W06GIG-SM3006	Digital Mine	1-4
10	W06GIG-SM3000	Operations Research	1-4
11	W06GIG-SM3033G	Sedimentology GK	2-4
12	W06GIG-SM3034G	Mineral deposits exploration GK	2-4
13	W06GIG-SM3035G	Petroleum geology GK	2-4
14	W06GIG-SM3036G	Engineering geological investigations GK	2-4
15	W06GIG-SM3037G	Exploration geochemistry GK	2-4
16	W06GIG-SM3038G	Remote sensing of mineral resources GK	2-4
17	W06GIG-SM3039G	GIS in exploration of mineral resources GK	2-4
18	W06GIG-SM3040G	Regional hydrogeology GK	2-4
19	W06GIG-SM3041G	Seismotectonics GK	2-4
20	W06GIG-SM3042G	Industrial mineral deposits and applications GK	2-4
21	W06GIG-SM3043G	Analytical methods in ore deposits GK	2-4
22	W06GIG-SM3044W	Geophysical exploration and mineral resources	2-4
23	W06GIG-SM3045G	Analyses of mineral paragenesis GK	2-4
24	W06GIG-SM3046P	Field and laboratory practicum	2-4
27	W06GIG-SM3012G	Exploration Entrepreneurship	1-4
28	W06GIG-SM3013P	SOC Internship	1-4
29	W06GIG-SM3016P	Applied Field Exploration	1-4
30	W06GIG-SM3014S	Master Thesis	4
31	W06GIG-SM3015D	Diploma Seminar	4

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8. Plan of studies (attachment no. 4)

¹BU – number of ECTS points assigned to hours of classes requiring direct participation of academic teachers and other persons conducting classes

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⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

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⁷KO – general education courses, PD – basic sciences courses, K – main field of study courses, S – specialization courses

Approved by faculty student government legislative body:

POLITECHNIKA WROCLAWSKA
WYDZIAŁ GEOINŻYNIERII
GÓRNICWA I GEOLOGII
Samorząd Studencki Wydziału Geoinżynierii,
Górnictwa i Geologii
50-421 Wrocław, Na Grobli 15, pokój 370

Jakub Dobrzański

Jakub Dobrzański
Chairman of the Student Government
of the Faculty of Geoengineering, Mining and Geology

.....
name and surname, signature of student representative

28.09.23

.....
Date

DZIEKAN

prof. dr hab. inż. Radosław Zimroz

.....
Dean's signature

28.09.23

.....
Date

PLAN OF STUDIES

FACULTY: Geoengineering, Mining and Geology

MAIN FIELD OF STUDY: Mining and geology

EDUCATION LEVEL: second-level studies

FORM OF STUDIES: full-time studies

PROFILE: general academic

SPECIALIZATION: Mineral Resources Exploration - Track WUST-UNI ZAGREB

LANGUAGE OF STUDY: English

In effect since academic year 2023/24

	Summer		Winter		Summer		Winter			
semester	1	ECTS	2	ECTS	3	ECTS	4	ECTS		
hours	WUST		UNIZG		UNIZG		WUST			
1	Operations Research 10100Z	3	Sedimentology 20030 E W06GIG-SM3033G	5	Regional Hydrogeology 20020E W06GIG-SM3040G	4	Exploration entrepreneurship (EFG) 10012 Z W06GIG-SM3012G	4		
2	W06GIG-SM3002									
3	Environmental Management 20001Z W06GIG-SM3001	3			Seismotectonics 20100E W06GIG-SM3041G	4			Diploma Seminar 00001Z W06GIG-SM3014S	1
4										
5										
6	Computer Aided Geological Modelling & Geostatistics 10300Z W06GIG-SM3002	5	Mineral Deposits Exploration 20030E W06GIG-SM3034G	5	Industrial Mineral Deposits and Applications 20002E W06GIG-SM3042G	5	Master Thesis 00010Z W06GIG-SM3015D	20		
7										
8										
9										
10	Project Management, Appraisal and Risk Evaluation 10210E W06GIG-SM3003G	4	Petroleum Geology 20030E W06GIG-SM3035G	5	Analytical Methods in Ore Deposits 20200E W06GIG-SM3043G	5	SOC Internship 00020 Z W06GIG-SM3013P	2		
11										
12										
13	Engineering Geophysics 10010 Z W06GIG-SM3004	3	Engineering Geological Investigations 20020E W06GIG-SM3036G	5	Geophysical Exploration of Mineral Resources 20000E W06GIG-SM3044W	3	Applied field exploration 00030Z W06GIG-SM3016P	3		
14										
15	Occupational Health and Safety 100100Z W06GIG-SM3005	2	Exploration Geochemistry 20010Z W06GIG-SM3037G	4	Analyses of mineral paragenesis 10200E W06GIG-SM3045G	3				
16										
17	Foreign Language 1 03000 Z SJO-SM0003	2	Remote sensing of mineral resources 10100E W06GIG-SM3038G	3	Field and laboratory practicum 00080 Z W06GIG-SM3046P	6				
18										
19	Digital Mine 10100 Z W06GIG-SM3006	2	GIS in Exploration of Mineral Resources 10100Z W06GIG-SM3039G	3						
20										
21	Principles and Application of InSAR and GIS in mining 20300E W06GIG-SM3007	5								
22										
23										
24										
25	Foreign Language 2 01000Z SJO-SM0004	1								
26										
27										
28										
Total ECTS		30		30		30		30		

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1. Set of obligatory and optional subjects and groups of classes in semestral arrangement

Semester 1

Obligatory subjects / groups of classes Number of ECTS points 27

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/g group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3000W	Operations Research	1					K2_GIG_W06	15	25	1	1	0,8	T/Z	Z		DN		KO
2	W06GIG-SM3000L	Operations Research			1			K2_GIG_U10,U14 K2_GIG_K01	15	50	2	2	0,7	T	Z		DN	P (2)	KO
3	W06GIG-SM3002W	Computer Aided Geological Modelling & Geostatistics	1					K2_GIG_W06,W08,W15	15	50	2		0,8	T/Z	Z				PD/K
4	W06GIG-SM3002L	Computer Aided Geological Modelling & Geostatistics			3			K2_GIG_U04,U08,U14	45	75	3	2	1,9	T	Z		DN	P (3)	PD/K
5	W06GIG-SM3003G	Project Management, Appraisal and Risk Evaluation (GK)	1		2	1		K2_GIG_W03,W05,W11 K2_GIG_U04,U06,U08,U15 K2_GIG_K01	60	100	4	4	3,1	T/Z(w)	E(w), Z(l,p)		DN	P (3)	KO
6	W06GIG-SM3001W	Environmental Management	2					K2_GIG_W04,W12,W13,W18	30	50	2	2	1,3	T/Z(w)	Z		DN		K
7	W06GIG-SM3001S	Environmental Management					1	K2_GIG_U05,U10,U11,U12 K2_GIG_K02,K03	15	25	1	1	0,8	T	Z		DN	P(1)	K
8	W06GIG-SM3004W	Engineering Geophysics	1					K2_GIG_W02,W08,W10	15	25	1	1	0,8	T/Z	Z		DN		PD
9	W06GIG-SM3004P	Engineering Geophysics				1		K2_GIG_U04,U13	15	50	2	2	0,9	T	Z		DN	P(2)	PD
10	W06GIG-SM3007W	Principles and Application of InSAR and GIS in mining	2					K2_GIG_W15,W16,W18	30	50	2	2	1,4	T/Z(w)	E		DN		K
11	W06GIG-SM3007L	Principles and Application of InSAR and GIS in mining			3			K2_GIG_U04,U07,U08	45	75	3	3	2,0	T	Z		DN	P(3)	K
12	W06GIG-SM3005W	Occupational Health and Safety	1					K2_GIG_W11,W12,W14,W17	15	25	1	1	0,7	T/Z(w)	Z		DN		K
13	W06GIG-SM3005P	Occupational Health and Safety				1		K2_GIG_U11, K2_GIG_K02, K03	15	25	1	1	0,8	T	Z		DN	P(1)	K
14	W06GIG-SM3006W	Digital Mine	1					K2_GIG_W07,W12,W18,W19	15	25	1	1	0,8	T/Z(w)	Z		DN		K
15	W06GIG-SM3006L	Digital Mine			1			K2_GIG_U04,U07,U08	15	25	1	1	0,8	T	Z		DN	P(1)	K
Total			10	0	10	3	1		360	675	27	24	17,6					16	

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Optional subjects / groups of classes (3 ECTS points)

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	SJO-SM0003	Foreign Language 1		3				K2_GIG_U03	45	60	2		1,6	T	Z	O		P(2)	KO
2	SJO-SM0004	Foreign Language 2		1				K2_GIG_U01,U02	15	30	1		0,6	T	Z	O		P(1)	KO
Total			0	4	0	0			60	90	3	0	2,2					3	

Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
10	4	10	3	1	420	765	30	24	19,8

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⁴University-wide subject /group of classes – enter O

⁵DN - number of ECTS points assigned to the classes related to the University's academic activity in the discipline/disciplines to which the main field of study is assigned

⁶Practical subject / group of classes – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

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Semester 2

Obligatory subjects / groups of classes (0 ECTS points)

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1																			
		Total																	

Optional subjects / groups of classes

Number of ECTS points 30

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3033G	Sedimentology GK	2			3		K2_GIG_W01,W02 K2_GIG_U01,U13 K2_GIG_K02	75	125	5	3	3,6	T/Z(w)	E		DN	3	S
2	W06GIG-SM3034G	Mineral deposits exploration GK	2			3		K2_GIG_W01, W08,W11,W15, K2_GIG_U01,U13 K2_GIG_K03	75	125	5	3	3,6	T/Z(w)	E		DN	3	S
3	W06GIG-SM3035G	Petroleum geology GK	2			3		K2_GIG_W01,W2,W08, W11, K2_GIG_U01,U4,U10,U13 K2_GIG_K03	75	125	5		3,6	T/Z(w)	E			3	S
4	W06GIG-SM3036G	Engineering geological investigations GK	2			2		K2_GIG_W2,W07, W10, K2_GIG_U01,U04,U10 K2_GIG_K03	60	125	5	3	3,0	T/Z(w)	E		DN	3	S
5	W06GIG-SM3037G	Exploration geochemistry GK	2			1		K2_GIG_W01,W02,W18 K2_GIG_U01,U04,U09,U10,U13 K2_GIG_K02	45	100	4	3	2,3	T/Z(w)	Z		DN	2	S
6	W06GIG-SM3038G	Remote sensing of mineral resources GK	1		1			K2_GIG_W01,W02,W08,W15 K2_GIG_U01,U04,U13,U15 K2_GIG_K03	30	75	3	3	1,5	T/Z(w)	E		DN	2	S
7	W06GIG-SM3039G	GIS in exploration of mineral resources GK	1		1			K2_GIG_W01,W02,W08,W14,W15 K2_GIG_U01,U04,U13,U15 K2_GIG_K01	30	75	3	3	1,5	T/Z(w)	Z		DN	2	S
		Total	12		2	12			390	750	30	18	19,1					18	

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Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
12		2	12		390	750	30	18	19,1

Semester 3

Obligatory subjects / groups of classes (0 ECTS points)

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1																			
		Total																	

Optional subjects / groups of classes

Number of ECTS points 30

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3040G	Regional hydrogeology GK	2			2		K2_GIG_W01,W2,W10, W15 K2_GIG_U01,U4,U13 K2_GIG_K03	60	100	4	4	2,9	T/Z(w)	E		DN	2	S
2	W06GIG-SM3041G	Seismotectonics GK	2			1		K2_GIG_W2,W10, W14 K2_GIG_U01,U4,U10,U13 K2_GIG_K01	45	100	4	4	2,4	T/Z(w)	E		DN	2	S
3	W06GIG-SM3042G	Industrial mineral deposits and applications GK	2				2	K2_GIG_W1,W07, W12 K2_GIG_U01,U10,U13 K2_GIG_K01,K02	60	125	5	5	2,8	T/Z	E		DN	3	S
4	W06GIG-SM3043G	Analytical methods in ore deposits GK	2		2			K2_GIG_W1,W02, W10 K2_GIG_U02,U07,U13 K2_GIG_K01	60	125	5	4	2,8	T/Z(w)	E		DN	3	S
5	W06GIG-SM3044W	Geophysical exploration and mineral resources	2					K2_GIG_W1,W02, W08,W10 K2_GIG_K01	30	75	3	3	1,4	T/Z	E		DN		S
6	W06GIG-SM3045G	Analyses of mineral paragenesis GK	1		2			K2_GIG_W1,W02 K2_GIG_U01,U13 K2_GIG_K01	45	75	3		2,2	T/Z(w)	E			2	S
7	W06GIG-SM3046P	Field and laboratory practicum				8		K2_GIG_U01,U04,U13 K2_GIG_K02,K03	120	150	6	4	5,0	T	Z		DN	6	S
		Total	11	4	11	2			420	750	30	24	19,5					18	

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Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
11		4	11	2	420	750	30	24	19,5

Semester 4

Obligatory subjects / groups of classes Number of ECTS points 9

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/g group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3012G	Exploration Entrepreneurship GK	1			1	2	K2_GIG_W03,W05,W09 K2_GIG_U08,U09 K2_GIG_K01,K02,K03	60	100	4		3,0	Z	Z			P(3)	S
2	W06GIG-SM3013P	SOC Internship				2		K2_GIG_W05,W09 K2_GIG_U08,U09 K2_GIG_K01,K02,K03	30	50	2		1,5	T	Z			P(2)	S
3	W06GIG-SM3016P	Applied Field Exploration				3		K2_GIG_W08,W15 K2_GIG_U04,U09,U10,U13 K2_GIG_K02	45	75	3	1	2,1	T	Z		DN	P(3)	S
Total			1	0	0	6	2		135	225	9	1	6,6					8	

Optional subjects / groups of classes (21 ECTS points)

No.	Subject / groups of classes code	Name of subject / groups of classes (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course/g group of courses	Way ³ of crediting	Subject / groups of classes			
			lec	cl	lab	pr	sem		ZZU	CNPS	Total	DN ⁵ classes	BU ¹ classes			University-wide ⁴	Concerning scientific activities ⁵	Practical ⁶	Type ⁷
1	W06GIG-SM3014S	Diploma Seminar					1	K2_GIG_W01 K2_GIG_U01,U13 K2_GIG_K02,K03	15	25	1	1	0,8	T	Z		DN	P(1)	S
2	W06GIG-SM3015D	Master Thesis				1		K2_GIG_W01,W05,W10 K2_GIG_U01,U04,U08,U10,U13,U15 K2_GIG_K01,K02,K03	15	500	20	20	1,8	T	Z		DN	P(20)	S
Total			0	0	0	1	1		30	525	21	21	2,6					21	

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Altogether in semester

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Total number of ECTS points for DN classes ⁵	Number of ECTS points for BU classes ¹
lec	cl	lab	pr	sem					
1	0	0	7	3	165	750	30	22	9,2

2. Set of examinations in semestral arrangement

Subjects / groups of classes	Names of subjects / groups of classes ending with examination	Semester
W06GIG-SM3003G	1. Project Management, Appraisal and Risk Evaluation	1
W06GIG-SM3007	2. Principles and Applications of InSAR in Mining	1
W06GIG-SM3033G	1. Sedimentology	2
W06GIG-SM3034G	2. Mineral deposits exploration	2
W06GIG-SM3035G	3. Petroleum geology	2
W06GIG-SM3036G	4. Engineering geological investigations	2
W06GIG-SM3038G	5. Remote sensing of mineral resources	2
W06GIG-SM3040G	1. Regional hydrogeology	3
W06GIG-SM3041G	2. Seismotectonics	3
W06GIG-SM3042G	3. Industrial mineral deposits and applications	3
W06GIG-SM3043G	4. Analytical methods in ore deposits	3
W06GIG-SM3044W	5. Geophysical exploration and mineral resources	3
W06GIG-SM3045G	6. Analyses of mineral paragenesis	3
	Final diploma examination	4

3. Numbers of allowable deficit of ECTS points after particular semesters

Semester	Allowable deficit of ECTS points after semester
1	12
2	8
3	0

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Opinion of student government legislative body

POLITECHNIKA WROCLAWSKA
WYDZIAŁ GEOINŻYNIERII
GÓRNICTWA I GEOLOGII
Samorząd Studencki Wydziału Geoinżynierii,
Górnictwa i Geologii
50-421 Wrocław, Na Grebli 15, pokój 370

28.09.23

Jakub Dobrzański

Jakub Dobrzański
Chairman of the Student Government
of the Faculty of Geoengineering, Mining and Geology

Date

Name and surname, signature of student representative

28.09.23

DZIEKAN
RD
prof. dr hab. inż. Radosław Zimroz
(1)

Date

Dean's signature