

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 (3 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**

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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 Lulea**

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: 3</i>	<i>1.2 Total number of ECTS points necessary to complete studies at a given level: 90</i>
<i>1.3 Total number of hours: 1035</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>

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) 62 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) **49,3 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	42,5
Total number of ECTS points	65,5

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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)

54 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 (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

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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/ 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
2	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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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/ 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

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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

4.2.4 List of specialization blocks

4.2.4.1 Specialization subjects (e.g. whole specialization) blocks (30 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- SM3011P	Senior design project in ore geology				8		K2_GIG_W01, K2_GIG_U08,U10,U13 K2_GIG_K01,K03	120	187,5	7,5	3	5,3	T /Z	Z		DN	P(7,5)	S
2	W06GIG- SM3008G	Exploration GK	5			2		K2_GIG_W02,W07,W08,W10,W11, W14 K2_GIG_U08,U10,U13,U15 K2_GIG_K01,K03	105	187,5	7,5	3	4,8	T /Z(w)	E, Z		DN	P(3)	S
3	W06GIG- SM3009G	Geochemical exploration GK	3			4		K2_GIG_W02,W07,W08, W10, W14 K2_GIG_U08,U10 K2_GIG_K03	105	187,5	7,5	5	4,8	T /Z(w)	E, Z		DN	P(4)	S
4	W06GIG- SM3010G	Mining geology GK	4			4		K2_GIG_W03,W05,W07,W08,W10, W14,W15,W16,W18 K2_GIG_U04,U06,U10,U13,U15 K2_GIG_K01,K02,K03	120	187,5	7,5	5	5,4	T /Z(w)	E, Z		DN	P(4)	K
Total			12	0	0	18	0		450	750	30	16	20,3					18,5	

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	

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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 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					
12	0	0	19	1	480	1275	51	37	22,9

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. 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. Geological and geochemical exploration methods
14. Factors controlling metal prices and long-term trends in exploration and ore extraction.
15. Strategies for selecting target areas in exploration and the importance of local conditions
16. Cut-off theory and its effect on size and grade of mineral resources
17. Different drilling methods, logging and sampling of drill cores

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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. The modifying factors which affect conversion of mineral resources to mineral reserves
19. The importance of different strategies for grade control and mine mapping in operating mines
20. Basic geochemical processes that control geochemical anomalies and their application during exploration
21. Mobility of elements at the Earth surface. Ion exchange and sorption
22. Advances of technology & methods of future mining operations.
23. Aims, benefits, drawbacks of automation and industrial revolutions.
24. Applications of Interferometric Synthetic Aperture Radar.
25. Applications of map algebra and spatial statistics to determine surface deformation models.
26. Sedimentary environments
27. Rock-forming processes
28. Characteristic of a selected minerals group
29. Plate tectonics and large scale structures
30. Water management issues
31. Sustainability and protection of groundwater
32. Vulnerability of groundwater
33. Laws and regulations related to exploration and exploitation of minerals / water

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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-SM3003G	Principles and Application of InSAR and GIS in mining	1-3
2	W06GIG-SM3002	Computer Aided Geological Modelling & Geostatistics	1-3
3	W06GIG-SM3003G	Project Management, Appraisal and Risk Evaluation	1-3
4	W06GIG-SM3004	Engineering Geophysics	1-3
5	W06GIG-SM3001	Environmental Management	1-3
6	W06GIG-SM3005	Occupational Health and Safety	1-3
7	SJO-SM0003	Foreign language 1	1-3
8	SJO-SM0004	Foreign language 2	1-3
9	W06GIG-SM3006	Digital Mine	1-3
10	W06GIG-SM3000	Operations Research	1-3
11	W06GIG-SM3011P	Senior design project in ore geology	2-3
12	W06GIG-SM3008G	Exploration	2-3
13	W06GIG-SM3010G	Mining geology	2-3
14	W06GIG-SM3009G	Geochemical exploration	2-3
15	W06GIG-SM3012G	Exploration Entrepreneurship	1-3
16	W06GIG-SM3013P	SOC Internship	1-3
17	W06GIG-SM3016P	Applied Field Exploration	1-3
18	W06GIG-SM3015D	Master Thesis	3
19	W06GIG-SM3014S	Diploma Seminar	3

8. Plan of studies (attachment no. 4)

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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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Approved by faculty student government legislative body:

POLITECHNIKA WROCLAWSKA
WYDZIAŁ GEOINŻYNIERII
GÓRNICICTWA 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 Lulea

LANGUAGE OF STUDY: English

In effect since academic year 2023/24

	Summer		Winter		Summer			
semester	1	ECTS	2	ECTS	3	ECTS		
hours	WUST		LTU		WUST			
1	Operations Research 10100Z W06GIG- SM3000	3	Exploration 50020E W06GIG-SM3008G	7,5	Exploration entrepreneurship (EFG) 10012Z W06GIG-SM3012G	4		
2								
3	Environmental Management 20001Z W06GIG-SM3001	3					SOC Internship 00020Z W06GIG-SM3013P	2
4								
5								
6	Computer Aided Geological Modelling & Geostatistics 10300Z W06GIG- SM3002	5			Geochemical exploration 30040E W06GIG-SM3009G	7,5	Diploma Seminar 00001Z W06GIG-SM3014S	1
7								
8								
9								
10	Project Management, Appraisal and Risk Evaluation 10210E W06GIG- SM3003G	4	Master Thesis W06GIG-SM3015D	20				
11								
12								
13								
14	Engineering Geophysics 10010 Z W06GIG- SM3004	3	Mining geology 40040E W06GIG-SM3010G	7,5			Applied field exploration 00030Z W06GIG-SM3016P	3
15								
16	Occupational Health and Safety 100100Z W06GIG- SM3005	2						
17								
18	Foreign Language 1 03000 Z SJO- SJO- SM0003	2						
19								
20	Digital Mine 10100 Z W06GIG- SM3006	2						
21								
22	Principles and Application of InSAR and GIS in mining 20300E W06GIG- SM3007	5	Senior design project in ore geology 00080Z	7,5				
23								
24								
25								
26								
27	Foreign Language 2 01000 Z SJO- SM0004	1						
28								
29								
30								
31								
Total ECTS		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	1		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 K2_GIG_U11, K2_GIG_K02, K03	15	25	1	1	0,7	T/Z(w)	Z		DN		K

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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

13	W06GIG-SM3005P	Occupational Health and Safety				1				15	25	1	1	0,8	T	Z		DN	P(1)	K
14	W06GIG-SM3006W	Digital Mine	1							15	25	1	1	0,8	T/Z(w)	Z		DN		K
15	W06GIG-SM3006L	Digital Mine			1					15	25	1	1	0,8	T	Z		DN	P(1)	K
Total			10	0	10	3	1			360	675	27	24	17,6					15	

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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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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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-SM3011P	Senior design project in ore geology				8		K2_GIG_W01, K2_GIG_U08,U10,U13 K2_GIG_K01,K03	120	187,5	7,5	3	5,3	T/Z	Z		DN	P(7,5)	S
2	W06GIG-SM3008G	Exploration GK	5			2		K2_GIG_W02,W07,W08,W10,W11, W14 K2_GIG_U08,U10,U13,U15 K2_GIG_K01,K03	105	187,5	7,5	3	4,8	T/Z(w)	E, Z		DN	P(3)	S
3	W06GIG-SM3010G	Mining geology GK	4			4		K2_GIG_W03,W05,W07,W08,W10, W14,W15,W16,W18 K2_GIG_U04,U06,U10,U13,U15 K2_GIG_K01,K02,K03	120	187,5	7,5	5	5,4	T/Z(w)	E, Z		DN	P(4)	K
4	W06GIG-SM3009G	Geochemical exploration GK	3			4		K2_GIG_W02,W07,W08, W10, W14 K2_GIG_U08,U10 K2_GIG_K03	105	187,5	7,5	5	4,8	T/Z(w)	E, Z		DN	P(4)	S
Total			12	0	0	18	0		450	750	30	16	20,3					18,5	

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	0	0	18	0	450	750	30	16	20,3

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 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 courses / groups of courses (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		

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					
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-SM3007W	2. Principles and Applications of InSAR in Mining	1
W06GIG-SM3008G	1. Exploration	2
W06GIG-SM3010G	2. Mining geology	2
W06GIG-SM3009G	3. Geochemical exploration	2
	Final diploma examination	3

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

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

Opinion of student government legislative body

POLITECHNIKA WROCLAWSKA
WYDZIAŁ GEOINŻYNIERII
GÓRNICICTWA 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