

PROGRAMME OF EDUCATION

FACULTY: Geoengineering, Mining, and Geology

MAIN FIELD OF STUDY: mining and geology

in area of technical sciences

EDUCATION LEVEL: 2nd level, magister studies

FORM OF STUDIES: part-time

PROFILE: general academic

SPECIALIZATION: Underground and Surface Mining

LANGUAGE OF STUDY: Polish

Content:

1. Assumed educational effects – attachment no. 1
2. Programme of studies – attachment no. 2

Faculty Council Resolution of .05.09.2012
In effect since 01.10.2012

*delete as applicable

PROGRAMME OF STUDIES

1. Description

<i>Number of semesters: 4</i>	<i>Number of ECTS points necessary to obtain qualifications: 90</i>
<i>Prerequisites (particularly for second-level studies): professional degree of engineer, 1st level qualifications</i>	<i>Upon completion of studies a graduate obtains professional degree of: magister inżynier 2nd level qualifications</i>
<i>Possibility of continuing studies: 3rd level studies (doctoral studies)</i>	<i>Graduate profile, employability:</i> <i>Graduate profile: A graduate will possess abilities to use in-depth knowledge of problems within the domain of basic sciences, main-field-of-study and specialization subjects. The graduate will be able to manage and supervise teams, make high-risk decisions, and use competently their knowledge of law and economics. The graduate will be prepared to design technological processes, carry out research work, and work creatively.</i> <i>Employability: The graduate will be prepared to work for enterprises, engineering supervision bodies, state administration, design offices and research units, where in-depth specialised knowledge of mining, geology and geoengineering is demanded.</i>
<i>Indicate connection with University's mission and its development strategy:</i> <i>Faculty of Geoengineering, Mining, and Geology is a leading scientific and educational centre in Poland and a significant</i>	

<p><i>one in EU. The faculty is a regional leader in science and education in the field of geotechnology and earth sciences. The profile and quality of education are of international level and fit home and European demand.</i></p> <p><i>The faculty educates in technological fields supported by natural and economic sciences. The faculty aims its educational offer at students with aptitude for exact sciences and simultaneously interested in natural and social sciences.</i></p> <p><i>The faculty stimulates international exchange of students and scientists on a large scale. Part of the educational offer is available in English. The faculty creates ties with selected foreign universities and in reasonable cases collaborates in the process leading to granting a double diploma.</i></p>	
---	--

2. Fields of science and scientific disciplines to which educational effects apply:

The field of science: technical sciences

Scientific disciplines: geodesy and cartography, mining and engineering geology

3. Concise analysis of consistency between assumed educational effects and labour market needs

The economic development of the country depends on natural resources, abilities to use them and required adequate technical staff. The assumed educational effects meet economy practice needs in the field of mineral resources management, technologies and techniques of their exploration and prospecting, mining, processing, industrial land reclamation and development, and enterprises (especially mines) management supported by information, environment, and people management with the use of state-of-the-art information and marketing techniques and technologies. Such the integration of economy needs and assumed educational effects makes the labour market favourable for the Faculty graduates.

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

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

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶ KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷ Optional – enter W, obligatory – enter Ob

4. List of education modules:

4.1. List of obligatory modules:

4.1.1 List of general education modules

4.1.1.1 Liberal-managerial subjects module (min. 3 ECTS points):

No..	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational 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	BK classes ¹			university-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	ZMG4401	Finance Management (GK)	1	1	1			K_W17 K_U20 K_K01	30	90	3	2,5	T	E (lec), Z			KO	Ob
Total			1	1	1				30	90	3	2,5						

Altogether for general education modules

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹
lec	cl	lab	pr	sem				
1	1	1			30	90	3	2,5

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

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

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶ KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷ Optional – enter W, obligatory – enter Ob

4.1.2 List of basic sciences modules

4.1.2.2 Physics module

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational 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	BK classes ¹			university-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	FZP1016	Physics-The Structure of Matter	2					K_W02	20	60	2	2	T	Z	O		PD	Ob
		Total	2						20	60	2	2						

Altogether for basic sciences modules:

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹
lec	cl	lab	pr	sem				
2					20	60	2	2

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

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

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶ KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷ Optional – enter W, obligatory – enter Ob

4.1.3 List of specialization modules

4.1.3.1 Obligatory specialization subjects module

No..	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational 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	BK classes ¹			university-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	GEG1412	Geology and Exploration of Mineral Deposits	2			2		K_W04 K_U06 K_K01,02	40	120	4	3	T	E, Z			S	Ob
2	GFG1401	AutoCAD			2			K_U10 K_K01	20	60	2	1	T	Z			S	Ob
3	GEG1403	Geostatistics	1		3			K_W01 K_U04, 09, 10	40	120	4	3	T	Z			S	Ob
4	GGG1408	Rock Mass Mechanics	2			1		K_W03, 09 K_U05, 14 K_K01	30	120	4	3	T	E, Z			S	Ob
5	GGG1401	Surface Mining Technology	2			2		K_W05 K_U07 K_K01	40	150	5	4	T	E, Z			S	Ob
6	ZMG2402	Operational Research in Management	1		1			K_W06 K_U08 K_K01	20	90	3	2	T	Z			S	Ob
7	GKG2401	Rock Mass Changes Monitoring and Mining Area Surface Protection	2		1			K_W10, 15 K_U13 K_K01, 02	30	90	3	2,5	T	Z			S	Ob
8	GGG2415	Rock Engineering in Mines	2			1		K_W03, 09, 11 K_U05, 09, 13, 14 K_K01, 02	30	90	3	2	T	E, Z			S	Ob
9	GGG2401	Underground Mining Technology	2			2		K_W07, 09, K_U12 K_K01, 02	40	150	5	4	T	E, Z			S	Ob
10	ELG2401	Industrial Automation	1		1			K_W12 K_U15	20	60	2	0,8	T	Z			S	Ob

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

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

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷Optional – enter W, obligatory – enter Ob

4.2 List of optional modules

4.2.1 List of general education modules

4.2.1.1 Liberal-managerial subjects modules (min. 1 ECTS points):

No..	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational 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	BK classes ¹			university-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	PSG108837	Liberal-Managerial Subjects	1					K_W19 K_K02	10	30	1	1	T	Z	O		KO	W
Total			1						10	30	1	1						

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

No..	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational 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	BK classes ¹			university-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	JZL100622	Foreign Language		3				K_U14	30	60	2	1	T	Z	O		KO	W
2	JZL100622	Foreign Language		1				K_U13	10	30	1	0,5	T	Z	O		KO	W
Total				4					40	90	3	1,5						

Altogether for general education modules:

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹
lec	cl	lab	pr	sem				
1	4				50	120	4	2,5

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

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

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶ KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷ Optional – enter W, obligatory – enter Ob

4.2.4 List of specialization modules

4.2.4.1 Specialization subjects (e.g. whole specialization) modules (min. 23 ECTS points):

No.	Course/group of courses code	Name of course/group of courses (denote group of courses with symbol GK)	Weekly number of hours					Field-of-study educational 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	BK classes ¹			university-wide ⁴	practical ⁵	kind ⁶	type ⁷
1	GGG020002	Optional Course	3						30	120	4		T	Z			S	W
2	GGG3403	Diploma Seminar					1		10	30	1	1	T	Z			S	W
3	GEG020002	Optional Course	2						20	60	2		T	Z			S	W
4	GGG4405	Diploma Seminar					2		20	30	1	1	T	Z			S	W
5	GGG4408	Diploma Dissertation		4					40	450	15	5	T	Z			S	W
Total			5	4			3		120	690	23	7						

Altogether for specialization modules:

Total number of hours					Total number of ZZU hours	Total number of CNPS hours	Total number of ECTS points	Number of ECTS points for BK classes ¹
lec	cl	lab	pr	sem				
5	4			3	120	690	23	7

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

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

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶ KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷ Optional – enter W, obligatory – enter Ob

4.3 Diploma dissertation module

Type of diploma dissertation	magisterska	
Number of diploma dissertation semesters	Number of ECTS points	Code
1	15	GGG4408
Character of diploma dissertation		
Literature survey, project, computer program, research		
Number of BK¹ ECTS points	5	

5. Ways of verifying assumed educational effects

Type of classes	Ways of verifying assumed educational effects
lecture	examination, progress/final test
class	progress/final test
laboratory	pre-test, report on laboratory
project	project defence
seminar	participation in discussion, topic presentation, essay
training	report on training
diploma dissertation	prepared diploma dissertation

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

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

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶ KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷ Optional – enter W, obligatory – enter Ob

6. Total number of ECTS points, which student has to obtain from classes requiring direct academic teacher-student contact (enter total of ECTS points for courses/groups of courses denoted with code BK¹)

58,3 ECTS

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

Number of ECTS points for obligatory subjects	2
Number of ECTS points for optional subjects	-
Total number of ECTS points	2

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

Number of ECTS points for obligatory subjects (lab, pr)	27
Number of ECTS points for optional subjects (lab, pr)	-
Total number of ECTS points	27

9. Minimum number of ECTS points, which student has to obtain doing education modules 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)

6 ECTS points

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

27 ECTS points

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

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

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶ KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷ Optional – enter W, obligatory – enter Ob

11. Range of diploma examination

1. Types of technological systems and conditions of their application.
2. Planning and design of exploitation conditions.
3. Opening working and its construction stages.
4. Elements and geometry of the slopes (walls) in an open pit: bench faces highwall (working face), side wall, spoil bank, transportation (haulage) slope.
5. Division of an open pit excavation into levels.
6. Technology of the in-pit and out-pit waste dumps construction.
7. Operation of bucket-wheel excavators close to faults and inclined beds.
8. Operation of bucket-wheel excavators in the ground of poor workability.
9. Mining technologies in underground mines.
10. Support of underground development and mining workings.
11. Machines and equipment used in underground mines in Poland and the world.
12. Factors influencing climatic conditions within mine workings.
13. Refrigerating processes in the mine air conditioning.
14. Principles of mine ventilation conditioned by natural hazards.
15. Protection of staff during underground fires, escape ways.
16. Occupational risk-evaluation methods, risk assessment.
17. World energy resource, chemical mineral, and rock mineral deposits.
18. Legal and geological foundation for prospecting of deposits.
19. Geophysical methods of prospecting, exploration and recognition of mineral deposits.
20. Computer-aided prospecting, exploration and recognition of mineral deposits.
21. The basic model of a panel and its environment and their characteristics influence on the rock pressure dynamic indication hazard.
22. Determination of stress within rock by means of various experimental methods.
23. The types of support for underground workings. Classification, operational principles, and their analytical designing.
24. Advanced calculations for belt conveyors with regard to descending (inclined) belt conveyors.
25. Starting a belt conveyor. The wave pattern of stress propagation. Forces within a belt. Stretching equipment work.
26. Characterization of transportation (hoisting) in vertical shafts. Operational safety of the mine hoisting plant.

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

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

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶ KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷ Optional – enter W, obligatory – enter Ob

27. Hoisting plant operating efficiency. Structure, selection and assessment of technical condition of shaft hoist ropes.
28. Basic structures of mining, processing, and converting systems using the example of building materials, ore and coal mining, metallurgy industries and waste management.
29. Types and systematics of operations, information model of operations, the concept of operational system and process, efficiency, productivity, reliability and effective work time.
30. EU instructions concerning mining.
31. PGiG and environmental protection.
32. Organization of mine rescue in Poland.
33. Plan of rescue work and first aid.
34. Plan of fire-fighting.

13. Plan of studies (attachment no. 1)

Approved by faculty student government legislative body:

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

.....
Date, Dean's signature

¹BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students

²Traditional – enter T, remote – enter Z

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

⁴University-wide course /group of courses – enter O

⁵Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses

⁶ KO – general education, PD – basic sciences, K – field-of-studies, S – specialization

⁷ Optional – enter W, obligatory – enter Ob