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: full-time
PROFILE: general academic
SPECIALIZATION: Underground and Surface Mining
LANGUAGE OF STUDY: Polish

Content:

Faculty Council Resolution of 05.09.2012
In effect since 01.10.2012

*delete as applicable

Attachment no. 2 to Programme of Education

PROGRAMME OF STUDIES

1. Description

Number of semesters: 3	*Number of ECTS points necessary to obtain qualifications: 90*
Prerequisites (particularly for second-level studies): *professional degree of engineer, 1st level qualifications*	*Upon completion of studies a graduate obtains* *professional degree of: magister inżynier* *2nd level qualifications*
Possibility of continuing studies: 3rd level studies (doctoral studies)	*Graduate profile, employability:* *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.* *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.*
Indicate connection with University's mission and its development strategy: *Faculty of Geoengineering, Mining, and Geology is a leading scientific and educational centre in Poland and a significant*	

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. *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.* *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.*	

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.

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[4]University-wide course /group of courses – enter O
[5]Practical 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	ZMG3301	Finance Management (GK)	1	1	1			K_W17 K_U20 K_K01	45	90	3	2,5	T	E (lec), Z			KO	Ob
		Total	1	1	1				45	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**			**45**	**90**	**3**	**2,5**

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[4]University-wide course /group of courses – enter O
[5]Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
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[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	FZP1013	Physics-The Structure of Matter	2					K_W02	30	60	2	2	T	Z	O		PD	Ob
		Total	2						30	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					**30**	**60**	**2**	**2**

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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	GGG1301	Surface Mining Technology	2			2		K_W05 K_U07 K_K01	60	150	5	4	T	E, Z			S	Ob
2	GGG1304	Rock Mass Mechanics	2			1		K_W03, 09 K_U05, 14 K_K01	45	120	4	4	T	E, Z			S	Ob
3	ZMG1302	Operational Research in Management	1		1			K_W06 K_U08 K_K01	30	60	2	1,5	T	Z			S	Ob
4	GFG1301	AutoCAD			2			K_U10 K_K01	30	60	2	1	T	Z			S	Ob
5	GEG1310	Geology and Exploration of Mineral Deposits	2			2		K_W04 K_U06 K_K01,02	60	120	4	3	T	E, Z			S	Ob
6	GEG1301	Geostatistics	1		3			K_W01 K_U04, 09, 10	60	150	5	3	T	Z			S	Ob
7	MMG2305	Machinery Systems	2		1	1		K_W08 K_U11	60	180	6	5	T	E, Z			S	Ob
8	GGG2301	Underground Mining Technology	2			2		K_W07, 09, K_U12 K_K01, 02	60	150	5	4	T	E, Z			S	Ob
9	ING2306	Computer-Aided Mine Planning and Design	2		3			K_W06, 07 K_U09, 10	75	150	5	4	T	E, Z			S	Ob
10	ELG2301	Industrial Automation	1		1			K_W12 K_U15 K_K01	30	60	2	1	T	E, Z			S	Ob
11	GGG2304	Rock Engineering in Mines	2			1		K_W03, 09, 11 K_U05, 09,	45	90	3	2	T	E, Z			S	Ob

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[5]Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
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[7] Optional – enter W, obligatory – enter Ob

								13, 14 K_K01, 02										
12	GKG2301	Rock Mass Changes Monitoring and Mining Area Surface Protection	2		1			K_W10, 15 K_U13 K_K01, 02	45	90	3	3	T	Z			S	Ob
13	PRG3301	Geological and Mining Law and Rescue Work	1	1			1	K_W14 K_U18 K_K02	45	90	3	2,5	T	E, Z			S	Ob
14	GGG3309	Mine Ventilation and Fires	1			2		K_W16 K_U19 K_K01, 02	45	60	2	1,5	T	E, Z			S	Ob
15	GGG3308	Occupational Safety and Health	1		1			K_W18 K_U21 K_K01	30	60	2	2	T	Z			S	Ob
16	GGG3307	Processing Systems (GK)	1			2		K_W13 K_U16 K_K01	45	60	2	1,5	T	E (lec), Z			S	Ob
17	OSG3310	Environment Management (GK)	2				1	K_W15 K_U01, 18 K_K01	45	60	2	1,5	T	Z (lec)			S	Ob
		Total	25	1	13	13	2		810	1710	57	44,5						

Altogether (for specialization subjects 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				
25	**1**	**13**	**13**	**2**	**810**	**1710**	**57**	**44,5**

[1]BK – number of ECTS points assigned to hours of classes requiring direct contact of teachers with students
[2]Traditional – enter T, remote – enter Z
[3]Exam – 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)
[4]University-wide course /group of courses – enter O
[5]Practical course / group of courses – enter P. For the group of courses – in brackets enter the number of ECTS points assigned to practical courses
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[7] Optional – 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	PSG108838	Liberal-Managerial Subjects	1					K_W19 K_K02	15	30	1	1	T	Z	O		KO	W
		Total	1						15	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	JZL000000BK	Foreign Language		3				K_U14	45	60	2	1	T	Z	O		KO	W
2	JZL000000BK	Foreign Language		1				K_U13	15	30	1	0,5	T	Z	O		KO	W
		Total		4					60	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**				**75**	**120**	**4**	**2,5**

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[4]University-wide course /group of courses – enter O
[5]Practical 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	GEG104262	Optional Course	2						30	90	3		T	Z			S	W
2	GEG104262	Optional Course	2						30	90	3		T	Z			S	W
3	GGG2303	Diploma Seminar					1		15	30	1	1	T	Z			S	W
4	GGG3310	Diploma Seminar					2		30	30	1	1	T	Z			S	W
5	GGG3311	Diploma Dissertation		3					45	450	15	5	T	Z			S	W
		Total	4	3			3		150	690	24	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				
4	**3**			**3**	**150**	**690**	**24**	**7**

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[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	GGG3311
Character of diploma dissertation		
Literature survey, project, computer program, research		
Number of BK[1] 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

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 BK[1])

58,5 ECTS

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

28 ECTS points

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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.

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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

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