



საქართველოს ტექნიკური უნივერსიტეტი
GEORGIAN TECHNICAL UNIVERSITY

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Master's Educational Programmes

Name of the program

სამთო და გეოინჟინერია

Mining and geoengineering

Faculty

სამთო-გეოლოგიური

Mining and Geology Faculty

Program supervisor

Associate Professor Akaki Gocholeishvili

Awarded qualification

Master of Mining and Geoengineering in the specialization relevant to the selected Master them:

- Master of Mining and Geoengineering in Mining specialization
- Master of Mining and Geoengineering in Engineering Geology specialization

will awarded In case of implementation of no less than 120 credits of the educational program

The language of teaching

Georgian

Prerequisite for the access to the program

The person has the right to study at Master's program with an academic degree at least a Bachelor or equivalent degree which will be based on the results of the Master's Examinations (general Master Exam and Test / Exams defined by GTU). Examination issues / tests will be posted on the website of the GTU Teaching Department <http://www.gtu.ge/study/index.php> at least one month before the start of the exams. Enrollment in the program without passing the master's exams is possible in accordance with Georgian legislation.

Description of the program

The program is compiled by ECTS system, 1 credit is equal to 25 hours, which involves the contact and the independent work hours. Credits distribution is presented in the curriculum. The program lasts 2 years (4 semesters) and includes 120 credits. The study component - 75 credits and research component is 45 credits. The master's research project / prospectus - 5 credits, theoretical / experimental research / colloquium - 10 credits, master thesis - 30 credits. One mid-term examination is conducted within the semester. It is a necessary component of mid- assessment. Based on the specifications of the teaching cycle, the course of study and methods of current activities, it is recommended to use no less than 2 (any). The quantity of current assessment methods, form, content, maximum scores, criteria and scales of their conduct are determined by the syllabus author and described in the syllabus, depending on the specifics of the subject.

Each form and component of the evaluation from the general score of the assessment (100 points) is defined in the final assessment. In particular, the maximum score of intermediate exam is 60, the maximum score of the final exam is - 40, the minimum positive score - 20. Maximum score of mid-semester exam is 30, minimum positive assessment is 15 points. Maximum current activity score is 30, minimum total positive rating - 15 points.

The duration of the first academic year is 40 weeks (2 semesters). Master's student will pass 11 learning courses. Lectures, seminars and practical exercises are conducted within 30 weeks (15 weeks per semester). In the course of the first academic year, 45 credits from 60 usable credits are defined for the speciality subjects, optional - 10 and 5 credits are the research component. Program credits and studying courses of the first academic year are divided into three subjects: "Mining Case", "Mining Electro Mechanics and Automation", "Geological Engineering".

The duration of the second academic year is 40 weeks (2 semesters). Master's student will pass 4 learning courses. 20 credits are provided to specialty subjects from 60 usable credits, and 40 credits are the research component.

Elements of research components

Master's Research Project - Prospectus is the outcome of review and analysis, the preliminary draft of the master's thesis that the post-graduate student must complete in the second semester.

The importance of research issue, theoretical, practical value of the selected topic should be pointed out in Prospectus. The author should know what are the basic types of resources (literature, statistics) and where to find this resource. Prospectus should include the results of processing the relevant literature and the necessary bibliography, also the history of the research. It should be briefly presented what was done in this direction and what is currently being done (who works and in what direction). The author should set out the main issues of the research and present a work plan. In case of positive assessment of the prospectus (51 and more points), the Master's student continues to study. In case of negative assessment of the prospectus (less than 51 points), the master will reiterate the work according to the existing rule.

The theoretical-experimental research /on the colloquium, the Master's student begins to work from the second year of his studies, which implies presenting and making the presentation in the third semester within the scope of the study he is obliged to prepare one colloquium. This work is part of a master's thesis. Some work, that is related to master's thesis, or to the separate parts of it, must be presented. The main purpose of the Colloquium is to systemize the knowledge of the Master's student, present the results of the work, and the ability to communicate with the professional community. In the colloquium, the Master's student should demonstrate how thoroughly is the particular topic studied and must present the results. Results of the survey for colloquial assessment shall be submitted to the Faculty Dean, which will create a 3-5-member commission before the completion of the corresponding semester (no later than 15th week). Representatives of academic personnel of the relevant field, should be included in the Commission. The work of the Commission must be attended by the supervisor of the Master's student. At the commission the Master's student represents the results of his/her research at this particular stage. Each member of the commission estimates the colloquium based on 5 components. The maximum score is 100 points.

In case of positive assessment of the colloquium (51 and more points), the post-graduate student continues to study. In case of negative assessment (less than 51 points), the Master's student will represent the work again in according to the existing rule.

Completion and protection of master thesis work. The qualification work is a major part of the research

component. The completed qualification work should be the result of independent research work. It should be conducted in the theoretical / experimental research results. Procedures for presenting the completed qualification work, public defense and final assessment procedures are established by the Academic Council of Georgia "Regulation of the Technical University of Georgia about Master's studies" (Rule No. 704 26of June, 2012yThe qualification work is evaluated by 100 points. His public protection is essential.

The examination commission comprising 5-7 members assesses public protection of the qualification work with the 100-point assessment system, relevant criteria.

The assessment of the master's degree is defined by the average arithmetic of scores earned by each member of the Commission, also the qualification work is not considered to defend if the majority of the examination commission assesses it by less than 51 points. In the case of equal number of voting at the polling, the voting of the chair of the examination commission is decisive. On the basis of the decision of the examination commission the protocol of the examination commission shall be drawn up.

The assessment system allows:

- **Five types of positive assessment:**
- (A) Excellent - 91% of Maximum assessment and more ;
- (B) very good - 81-90% of Maximum assessment ;
- (C) good - 71-80 of Maximum assessment;
- (D) satisfactory - 61-70% of Maximum assessment;
- (E) enough - 51-60% of Maximum assessment;

Negative assessment:

- (FX) Failed - 41-50% of Maximum assessment, Which means that the master needs more work and is given the opportunity to process the work and the right to defend the work once again.

(F) Failed - 40% of Maximum assessment and less, that means that the work done by the post-graduate student is not enough.

(FX) In case of this assessment , the post-graduate student is assigned the right to reprocess the master's thesis work and defend it once more.

(F) In case of this assessment, the post-graduate student loses the right to defend the same thesis.

The goal of the program

Master's Program aims to prepare qualified, competitive master, specializing in mining technologies and geoengineering,(Search for mineral deposits, engineering and geological studies, modern technologies for processing and re- processing, power supply, mechanization of mining enterprises), which will be able to guide mining-technological processes appropriately , define appropriate measures, conduct engineering-geological studies for agricultural use, plan and implement the mining technological and engineering geological surveys by means of modern methods.

Learning Outcomes and Competences (General and Sectoral)

Knowledge and understanding:

- Wide theoretical knowledge of the field of mining and geoengineering;
- Knowledge of principles, values of mining and geoengineering;
- Critical assessment of current achievements and innovations of mining and geoengineering;
- Understanding the relationship between the main areas of mining and geoengineering;
- Knowledge of mining and geoengineering terminology;
- Knows modern mining equipment constructions, their electric and hydrodesigns, features of operation and repair, possesses the methods of constructing these cars and their nodes;
- Research, analysis and synthesis methods of technological machines and automated complexes and profound knowledge of it
- **Ability using the knowledge in practice:**
- Argumental reasoning on the theoretical provisions and principles of mining and geoengineering;
- Analytical research and effective technological solutions of mining and geo-engineering problems, use of quantitative-statistical methods in the method of technical-economic assessment methods;

- Finding, processing and interpreting new technical and technological information of mining and geoinaging;
- • Evaluation of modern trends of mining and geoenineering, reconciliation and synthesis of the results, generalized conclusions and prediction;s, generalized conclusions and prediction;
- Use of research and analysis methods for automated regulation and management systems used in mining and geoin engineers;
- Use of methods of complex structural mechanisms, motions of systems and calculation of kinetostatics and dynamics of machine-devices;devices;
- Can search deposit minerals and and their industrial-economic assessment, engineering-geological study, construction of ores and underground structures, processing and reprocessing of minerals according to the traditional and modern progressive technological process, and its mechanization-automatization and the creation of the scheme how to supply the whole enterprise with electricity.
- Ability to select tunneling and combustible combines, crane-transport vehicles and mechanisms to plan their work and guide them to perform the production order. If needed it has the ability to calculate, reconstruct and moderate the technical data of the vehicles
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- It is possible to understand the modern mining machinery in the constructions and in their electric management systems, to install, to serve and to repair, and to modernize the existing ones;

Production of technological machines and automated complexes independently by using the latest methods.

Making judgments

- Analyze new and inferred data and / or situations to solve the problems of mining and geoenineering and establishing grounded conclusions on them;
- Issue of conclusions and recommendations on dynamic-qualitative indicators of machinery;
- Conclusion on the basis of technical and economic analysis of machine-tools;
- Issue of conclusion and recommendation on operational safety;
- Has ability to manage the work of crane-transport, processed and processing machines, their services and repair processes In case of need to analyze the work of the car, make a decision on transferring their reconstructions to another facility in order to be more productive and in the shortest possible time carry out production tasks;
- Establish the well-founded conclusion on the basis of critical analysis of used machines in the industry and functioning of automotive complexes
- Establish the well-founded conclusion of innovative synthesis of complex and incomplete information, and critical analysis and research, based on the recent information
- The ability to give reasonable conclusions, take part in team work decisions and be initiative.
- • Establishing grounded conclusions based on innovative synthesis of critical and incomplete information, based on critical analysis and researches of latest data;
 - The ability to reveal initiative and well-grounded conclusions , participate in team work decisions;

communication skill:

- • Ability to present its conclusions, argumentative judgments, research methods and the results obtained in a comprehensive and understandable manner in academic and professional societies in Georgian and foreign languages;
- Defending the standards of academic honesty in publication of research and their results;
 - Presentation of research results, methods and field problems with academic and vocational community using modern information communication technologies.

Ability to learn:

- independently conducting the learning process, understanding the peculiarities of the learning process and high level of strategic planning.
- Determine the directions of their own learning to enrich professional knowledge and experience;

Values:

- Protecting the established norms of values, morals and ethics , and assessing others and his/her own attitudes towards the professional values, contribute to the establishment of new values.

Methods of achieving learning outcomes (teaching and learning)

Lecture seminar (working in the group Practical Laboratory Practical Course work / project Master's thesis work Consultation Independent work

Based on the specific study course in the learning process, the relevant activities of the teaching-learning methods mentioned below are used in the program of the course (in the syllabus):

One particular issue can not be studied in the teaching process by only one method. The teacher often has to use different methods in the teaching process, and in many cases methods are mixed. Methods complement each other in the teaching process. Offering the most common methods of teaching and learning and their explanations. The teacher will select the required method from them, based on the specific goal and objective.

1. **Discussion / debate** – One of the most common methods of interactive teaching. Discussion process increases the quality and activity of student engagement. The discussion can be transformed into the debate and this process is not limited to the questions asked by the teacher.. It develops the student's ability to reason and justify their opinion.

2. **Cooperative teaching** – It is a learning strategy when each member of the group is obliged not only to learn himself but also to help his team-mate to study the subject. Each member of the group works on the problem, until all of them acquire the knowledge of the issue.

3. **(collaborative) Team work** – By using this activity, teaching involves dividing students into groups and giving them the task. The group members work on the issue individually and at the same time they share their opinions with other group members. Based on the set objective, it is possible to divide the functions among the members of the Group's work process. This strategy ensures the maximum involvement of all the students in the learning process.

4. **The demonstration method**- This method of activity implies visual representation of information. In terms of achieving the result it is quite effective. In many cases, it is best to provide the materials simultaneously with audio and visual means. The study material can be demonstrated by both the teacher and the student as well. This method helps us to visualize the different levels of learning material, to specify what students will have to do independently; At the same time, this strategy will visually represent the essence of the task / problem. Demonstration may be simple.

5. **The inductive method** determines such form of transmitting of any knowledge when the course of thinking in the process of studying is directed from the facts to general, so during the explaining the material, the process is directed from concrete to general

6. **The deductive method** determines such form of transmission of any knowledge, which is a logical process of discovering new knowledge based on general knowledge, ie the process is going from general to concrete;

7. **method of analysis** -It helps us to break into pieces the studying material as a whole. This will simplify detailed coverage of individual issues within a difficult problem.

8. **The synthesis method** implies the creation of one whole group by grouping separate issues. This method promotes the development of the problem as a whole.

9. **Verbal or oral method**

10. **Writing work method** - which implies the following activities: Extract and recordings, consolidation of material, composing the thesis, performing essay or abstract etc.

11. **Laboratory Method** - implies the following types of actions: **Setting of Tests, Video Production, Dynamic Material Display, etc.**

12. **Practical methods** combine all forms of learning that shapes students' practical skills. In this case, the student, based on the acquired knowledge, independently perform certain actions, such as manufacturing and pedagogical practice, field work, etc.

13. **The explanatory method** is based on a discussion on the particular issue. The teacher provides a concrete example of the content of the material, which is discussed in detail within the topic.

14. **Action-oriented teaching** - requires active involvement of the teacher and student in the teaching process, where the practical interpretation of the theoretical material is of major importance.

Student knowledge assessment system

assessment is done with a 100-point scale.

- Positive assessments are:
 - **(A)** - Excellent - 91-100 score of assessment;
 - **(B)** - very good- 81-90 score of assessment;
 - **(C)** - good - 71-80 score of assessment;
 - **(D)** - satisfactory - 61-70 score of assessment;
 - **(E)** - enough - 51-60 score of assessment.
- Negative assessments are:
 - **(FX)** - Failed- 41-50 score of assessment, Which means that the student needs more time for work to pass the exam and is given the right to take the exam once more by means of independent work
 - **(F)** - Failed - 40 score of assessment and less, that means that the work carried out by the student is not enough and he has to study the subject from the very beginning.

The Syllabus provides the relevant forms and methods of assessing the student's knowledge. The educational program is attached to the descriptions, criteria and scales of the evaluation forms, and is available at the University website <http://www.gtu.ge/quality/axali/shefasebisforma.pdf>

Assessment rule of research component is given on the university website http://www.gtu.ge/study/scavleba/samag_Sefas.pdf

Field of employment

Mining and processing industries (Georgian Industrial Group subordinated enterprises, LTD „Saqnakhshiri“, LTD „Jorjianmanganezi“, „Madneuli“, Marabda rocky open-cast mine, LTD „Jeoingineri“, LTD „Hidrosainzhgeo“, LTD „Stiqia“, LTD „Geologia da mineraluri resursebi“ Mining and geological profile companies, institute of mineral raw materials of Tbilisi State University, Institute of Mining Mechanics of Ministry of Defense, Ministry of Environment, Ministry of Energy and Natural Resources.

Opportunity to continue learning

Doctoral Educational Programs

Human and material resources necessary for the implementation of the program

The program is provided with appropriate human and material resources. For more information see attached syllabus.

Number of attached syllables -56

Program subject Load

The subject load of specialization of master's subject matter of "Samto Sakme"

№	Course Title	Precondition of admit	ECTS Credits			
			I Year		I Year	
			Semester			
			I	II	III	IV
1	1. Business Communication (English) 2. Business Communication (French) 3. Business Communication (German) 4. Business Communication (Russian)	N/A N/A N/A N/A	5			
2	1. Theory and Practice of Specialized Translation (English) 2. Theory and Practice of Specialized Translation (Franch) 3. Theory and Practice of Specialized Translation (German) 4. Theory and Practice of specialized Translation (Russian)	N/A N/A N/A N/A		5		
3	Operations and Production Management	N/A	5			
4	4.1 Underground Mine and the Construction of Modern Methods 4.2. Processing of Minerals in Difficult Mining-Geological Conditions	N/A N/A	5			
5	5.1 Research Methods for Enriching Minerals 5.2 Research on an Enrichment of Minerals by the Special and Combined Methods	N/A N/A	5			
6	6.1 Informatics 6.2 Mineralogy, Petrology 6.3 factors of localisation of Solid minerals 6.4 Hydrogeology and Engineering Geology	N/A N/A N/A N/A	5			
7	7.1 Operational-dispatch management and tele-mechanics systems of main pipelines 7.2 Hydroaeromechanics and Hydro-Pneumo Installations 7.3 The Mine of Substation and to Distribute Devices	N/A N/A N/A	5			
8	Management of Mountainous Mass	N/A		5		
9	The Open Design of Mining Activities	N/A		5		
10	Plotatsiuri Mineral Enrichment Technology Research Reagents and Fleet Technology	N/A		5		
11	Gravitational Enrichment of Minerals Technology Research	N/A		5		
12	12.1. Managing an Array of Rocks on the Mountain 12.2. Projecting of Underground Buildings Construction	N/A N/A			5	
13	Modern methods of construction of shafts and their reconstruction	N/A			5	
14	Ore Mineral Enrichment Technology to Design Factories	N/A			5	
15	Coal Technology to Design Factories	N/A			5	

		Per semester	30	25	20	
		Total:	75			
Research Component:						
	Master Research Project / Prospectus			5		
	Theoretical / experimental research / colloquium				10	30
	Accomplishment and Defense of Master's Thesis					
		Total per semester:	30	30	30	30
		Total per year:	60		60	
		Total:	120			

**The subject load of “samtoeleqtromeqanika” and “avtomatizacia of“ Samto Sakme”
specialization master’s subject matter”**

№	Course Title	Precondition of admit	ECTS Credits			
			I Year		I Year	
			Semester			
			I	II	III	IV
1	1. Business Communication (English) 2. Business Communication (French) 3. Business Communication (German) 4. Business Communication (Russian)	N/A N/A N/A N/A	5			
2	1. Theory and Practice of Specialized Translation (English) 2. Theory and Practice of Specialized Translation (Franch) 3. Theory and Practice of Specialized Translation (German) 4. Theory and Practice of specialized Translation (Russian)	N/A N/A N/A N/A		5		
3	Operations and Production Management	N/A	5			
4	4.1. Underground Mine and the Construction of Modern Methods 4.2. Processing of Minerals in Difficult Mining-Geological Conditions	N/A N/A	5			
5	5.1 Research Methods for Enriching Minerals 5.2 Research on an Enrichment of Minerals by the Special and Combined Methods	N/A N/A	5			
6	6.1 Informatics 6.2 Mineralogy, Petrology 6.3 factors of localisation of Solid minerals 6.4 Hydrogeology and Engineering Geology	N/A N/A N/A N/A	5			
7	7.1 Operational-dispatch management and tele-mechanics systems of main pipelines 7.2 Hydroaeromechanics and Hydro-Pneumo Installations 7.3 The Mine of Substation and to Distribute Devices	N/A N/A N/A	5			
8	8.1 Experiment Planning and Data Processing	N/A		5		

	8.2 Mathematical Description of Controlled Objects	N/A				
9	9.1 Calculation of Control Design Systems 9.2 Automation of Mining Industry Systems	N/A N/A		5		
10	10.1 Dynamics of the Mining lifting machines 10.2 Electrification of Underground Works	N/A N/A		5		
11	11.1 Design Electromechanical Equipment of Ropeways 11.2 Control Systems of Mining machines	N/A N/A		5		
12	12.1 Mathematical Modeling Of Mining Enterprises 12.2 Automation of Enriching Processes	Mathematical Description of Controlled Objects N/A			5	
13	13.1 Computer Modeling and Research of Control Systems 13.2 Computer modeling and design of ropeway systems	Informatics N/A			5	
14	14.1 Transient processes in mining electro-mechanical systems 14.2 Optimal control of the Mining electromechanical systems	N/A N/A			5	
15	Optimization of the Dynamical processes of the Mining electromechanical systems	N/A			5	
Per semester			30	25	20	
Total:				75		
Research Component:						
	Master Research Project / Prospectus					
	Theoretical / experimental research / colloquium			5		
	Accomplishment and Defense of Master's Thesis				10	
Total per semester:						30
Total per year:			60		60	
Total:					120	

The subject load of “geologiuri inzhineria “of “ Samto Sakme” specialization master’s subject matter”

№	Course Title	Precondition of admit	ECTS Credits			
			I Year		I Year	
			Semester			
			I	II	III	IV
1	1. Business Communication (English) 2. Business Communication (French) 3. Business Communication (German) 4. Business Communication (Russian)	N/A N/A N/A N/A	5			
2	1.Theory and Practice of Specialized Translation (English) 2.Theory and Practice of Specialized Translation (Franch) 3.Theory and Practice of Specialized Translation (German)	N/A N/A N/A		5		

	4.Theory and Practice of specialized Translation (Russian)	N/A				
3	Operations and Production Management	N/A	5			
4	4.1. Underground Mine and the Construction of Modern Methods 4.2. Processing of Minerals in Difficult Mining-Geological Conditions	N/A N/A	5			
5	5.1 Research Methods for Enriching Minerals 5.2 Research on an Enrichment of Minerals by the Special and Combined Methods	N/A N/A	5			
6	6.1 Informatics 6.2 Mineralogy, Petrology 6.3 factors of localisation of Solid minerals 6.4 Hydrogeology and Engineering Geology	N/A N/A N/A N/A	5			
7	7.1 Operational-dispatch management and tele-mechanics systems of main pipelines 7.2 Hydroaeromechanics and Hydro-Pneumo Installations 7.3 The Mine of Substation and to Distribute Devices	N/A N/A N/A	5			
8	8.1 Dangerous geological phenomenon and aggressive medium 8.2 Engineering - hydrogeological melioration	Hydrogeology and Engineering Geology N/A	5			
9	9.1 Theoretical Basis of Engineering Geology 9.2 Special Engineering Geology	N/A N/A	5			
10	10.1 Industrial Types of Solid Mineral Resources and their Rational Using 10.2 Search explore of mineral resources deposits	N/A N/A	5			
11	11.1 Mineragraphy 11.2 Testing and documentation during geological works	N/A N/A	5			
12	Reserve evaluation of solid minerals and commercial-economic evaluation	N/A			5	
13	Geological survey of mining services	N/A			5	
14	Engineering Geology of Georgia	N/A			5	
15	Investigation of physic-mechanical and deformative properties of rocks	N/A			5	
			per semester:	30	25	20
			Total:	75		
Research Component:						
	Master Research Project / Prospectus	N/A				
	Theoretical / experimental research / colloquium	Master Research Project / Prospectus	5			

Accomplishment and Defense of Master's Thesis	All the necessary training and research components			10	
Total per semester:					30
Total per year:			60		60
Total:			120		

სწავლის შედეგების რუკა

№	Course Title	Knowledge and understanding	Ability to use knowledge in practice	Making judgments	communication skill	ability to learn	Values
1	Business Communication (English)	X	X		X	X	X
2	Business Communication (French)	X	X		X	X	X
3	Business Communication (German)	X	X		X	X	X
4	Business Communication (Russian)	X	X		X	X	X
5	Theory and Practice of Specialized Translation (English)	X	X	X	X		
6	Theory and Practice of Specialized Translation (Franch)	X	X	X	X		
7	Theory and Practice of Specialized Translation (German)	X	X	X	X		X
8	Theory and Practice of specialized Translation (Russian)	X	X	X	X		
9	Operations and Production Management	X	X	X			
10	Underground Mine and the Construction of Modern Methods	X	X			X	
11	Processing of Minerals in Difficult Mining-Geological Conditions	X			X	X	
12	Research Methods for Enriching Minerals	X	X	X		X	
13	Research on an Enrichment of Minerals by the Special and Combined Methods	X	X	X		X	
14	Informatics	X	X			X	
15	Mineralogy, Petrology	X	X	X		X	
16	factors of localisation of Solid minerals	X	X			X	
17	Hydrogeology and Engineering Geology	X	X	X		X	
18	Operational-dispatch management and tele-mechanics systems of main pipelines	X	X	X			
19	Hydroaeromechanics and Hydro-Pneumo Installations		X	X		X	
20	The Mine of Substation and to Distribute Devices	X	X	X			
subject matter of“ Samto Sakme”							
21	Management of Mountainous Mass	X			X	X	
22	The Open Design of Mining Activities		X			X	X
23	Plotatsiuri Mineral Enrichment Technology Research Reagents and Fleet Technology	X	X	X		X	
24	Gravitational Enrichment of Minerals Technology	X	X	X			

	Research						
25	Managing an Array of Rocks on the Mountain		X		X	X	
26	Projecting of Underground Buildings Construction	X	X			X	
27	Modern methods of construction of shafts and their reconstruction	X	X			X	
28	Ore Mineral Enrichment Technology to Design Factories	X	X	X		X	
29	Coal Technology to Design Factories	X	X	X			
The subject load of “samtoeleqtromeqanika” and “avtomatizacia							
30	Experiment Planning and Data Processing		X	X		X	
31	Mathematical Description of Controlled Objects	X	X			X	
32	Calculation of Control Design Systems	X	X	X			
33	Automation of Mining Industry Systems	X	X	X			
34	Dynamics of the Mining lifting machines	X	X	X		X	
35	Electrification of Underground Works	X	X	X			
36	Design Electromechanical Equipment of Ropeways	X	X		X	X	
37	Control Systems of Mining machines	X	X	X		X	
38	Mathematical Modeling Of Mining Enterprises	X	X			X	
39	Automation of Enriching Processes	X	X	X			
40	Computer Modeling and Research of Control Systems	X	X			X	
41	Computer modeling and design of ropeway systems	X	X				
42	Transient processes in mining electro-mechanical systems	X	X	X		X	
43	Optimal control of the Mining electromechanical systems	X	X	X		X	
44	Optimization of the Dynamical processes of the Mining electromechanical systems	X	X	X		X	
The subject load of “geologiuri inzhineria “							
45	Dangerous geological phenomenon and aggressive medium	X	X	X		X	
46	Engineering - hydrogeological melioration	X	X	X			
47	Theoretical Basis of Engineering Geology	X		X		X	
48	Special Engineering Geology	X	X	X		X	
49	Industrial Types of Solid Mineral Resources and their Rational Using	X	X	X			
50	Search explore of mineral resources deposits	X	X	X			
51	Mineragraphy	X	X			X	
52	Testing and documentation during geological works	X	X	X			
53	Reserve evaluation of solid minerals and commercial-economic evaluation	X	X	X			
54	Geological survey of mining services	X	X	X	X	X	
55	Engineering Geology of Georgia	X		X		X	
56	Investigation of physic-mechanical and deformative properties of rocks	X	X	X		X	
Research Component:							
	Master Research Project / Prospectus						
	Theoretical / experimental research / colloquium						
	Accomplishment and Defense of Master’s Thesis						

Program curriculum

№	Course code	Course Title	ESTS credits / hours	ბსსოო								
				Lecture	Seminar (work in the group)	Practical classes:	Laboratory	Practice	Course paper / project	Mid-semester exam	Final exam	Independent work
1.	LEN12412 G1	Business Communication (English)	5/125			45				2	2	76
2.	LEN12212 G1	Business Communication (French)	5/125			45				2	2	76
3.	LEN12612 G1	Business Communication (German)	5/125			45				2	2	76
4.	LEN12812 G1	Business Communication (Russian)	5/125			45				2	2	76
5.	LEN12512 G1	Theory and Practice of Specialized Translation (English)	5/125	15		30				2	2	76
6.	LEN12312 G1	Theory and Practice of Specialized Translation (Franch)	5/125	15		30				2	2	76
7.	LEN12712 G1	Theory and Practice of Specialized Translation (German)	5/125	15		30				2	2	76
8.	LEN12912 G1	Theory and Practice of specialized Translation (Russian)	5/125	15		30				2	2	76
9.	BUA72803 G1	Operations and Production Management	5/125	15	30					1	1	78
10.	MAP41203 G1	Underground Mine and the Construction of Modern Methods	5/125	15		30				1	1	78
11.	MAP55203 G1	Processing of Minerals in Difficult Mining-Geological Conditions	5/125	15		30				1	1	78
12.	MAP40103 G1	Research Methods for Enriching Minerals	5/125	15			30			1	1	78
13.	MAP40503 G1	Research on an Enrichment of Minerals by the Special and Combined Methods	5/125	15			30			1	1	78
14.	ICT11503G 2	Informatics	5/125	15		30				1	1	78
15.	PNS38703 G1	Mineralogy, Petrology	5/125	15			30			1	1	78
16.	PHS33503 G2	factors of localisation of Solid minerals	5/125	15			30			1	1	78
17.	PHS350036 1G1	Hydrogeology and Engineering Geology	5/125	15		30				1	1	78

18.	MAP41103 G2	Operational-dispatch management and tele-mechanics systems of main pipelines	5/125	30		15				1	1	78
19.	MAP48603 G1	Hydroaeromechanics and Hydro-Pneumo Installations	5/125	15		30				1	1	78
20.	MAP44003 G1	The Mine of Substation and to Distribute Devices	5/125	15		30				1	1	78
subject matter of“ Samto Sakme”												
21.	MAP55803 G1	Management of Mountainous Mass	5/125	15		30				1	1	78
22.	MAP55503 G1	The Open Design of Mining Activities	5/125	15		30				1	1	78
23.	MAP42203 G1	Plotatsiuri Mineral Enrichment Technology Research Reagents and Fleet Technology	5/125	15		15	15			1	1	78
24.	MAP43101 G1	Gravitational Enrichment of Minerals Technology Research	5/125	15		30				1	1	78
25.	MAP55403 G1	Managing an Array of Rocks on the Mountain	5/125	15		30				1	1	78
26.	MAP41603 G1	Projecting of Underground Buildings Construction	5/125	15		30				1	1	78
27.	MAP41103 G1	Modern methods of construction of shafts and their reconstruction	5/125	15		30				1	1	78
28.	MAP42303 G1	Ore Mineral Enrichment Technology to Design Factories	5/125	15		30				1	1	78
29.	MAP41903 G1	Coal Technology to Design Factories	5/125	15		30				1	1	78
The subject load of “samtoeleqtromeqanika” and “avtomatizacia”												
30.	JCT38903G 1	Experiment Planning and Data Processing	5/125	15		30				1	1	78
31.	JCT39103G 1	Mathematical Description of Controlled Objects	5/125	15		30				1	1	78
32.	MAP46203 G1	Calculation of Control Design Systems	5/125	15		30				1	1	78
33.	MAP46102 G1	Automation of Mining Industry Systems	5/125	15		30				1	1	78
34.	MAP57903 G1	Dynamics of the Mining lifting machines	5/125	15		30				1	1	78
35.	MAP43903 G1	Electrification of Underground Works	5/125	15		30				1	1	78
36.	MAP41203 G2	Design Electromechanical Equipment of Ropeways	5/125	15		30				1	1	78
37.	MAP41303 G2	Control Systems of Mining machines	5/125	15		30				1	1	78
38.	JCT39203G 1	Mathematical Modeling Of Mining Enterprises	5/125	15		30				1	1	78
39.	MAP46003 G1	Automation of Enriching Processes	5/125	15		30				1	1	78
40.	ICT39003G 1	Computer Modeling and Research of Control Systems	5/125	15		30				1	1	78

41.	MAP46503 G1	Computer modeling and design of ropeway systems	5/125	15		30			1	1	78
42.	MAP57703 G1	Transient processes in mining electro-mechanical systems	5/125	15		30			1	1	78
43.	MAP57603 G1	Optimal control of the Mining electromechanical systems	5/125	15		30			1	1	78
44.	MAP56703 G1	Optimization of the Dynamical processes of the Mining electromechanical systems	5/125	15		30			1	1	78
The subject load of “geologiuri inzhineria “											
45.	PHS35603 G1	Dangerous geological phenomenon and aggressive medium	5/125	15	15	15			1	1	78
46.	PHS32403 G2	Industrial Types of Solid Mineral Resources and their Rational Using	5/125	10		30			1	1	78
47.	PHS35103 G1	Engineering - hydrogeological melioration	5/125	15		30			1	1	78
48.	PHS33103 G2	Search explore of mineral resources deposits	5/125	15		30			1	1	78
49.	PHS35303 G1	Theoretical Basis of Engineering Geology	5/125	15	30				1	1	78
50.	PHS33603 G2	Mineragraphy	5/125	15		30			1	1	78
51.	PHS35503 G1	Special Engineering Geology	5/125	15		30			1	1	78
52.	PHS32903 G2	Testing and documentation during geological works	5/125	15		30			1	1	78
53.	PHS32803 G2	Reserve calculation of solid minerals and commercial-economic evaluation	5/125	15		30			1	1	78
54.	PHS33003 G2	Geological survey of mining services	5/125	15		30			1	1	78
55.	PHS35403 G1	Engineering Geology of Georgia	5/125	15		30			1	1	78
56.	PHS35203 G1	Investigation of physic-mechanical and deformative properties of rocks	5/125	15		30			1	1	78

program Supervisor

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Shalva Keleprishvili

Dean of the faculty

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Irma Inashvili

Approved by

Mining-Geology

At the meeting of Faculty Board

30.03.2018

Chairman of the Faculty Board

Anzor Abshilava