საქართველოს ტექნიკური უნივერსიტეტი
GEORGIAN TECHNICAL UNIVERSITY

Approved by
Academic Board of GTU
2012, 5th September
Order № 740
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2018, 2 th April
Order № 01-05-04/95

Bachelor's Educational Program

Name of the program

გეოლოგია
Geology

Faculty

სამთო გეოლოგია
Mining and Geology

Program manager

Professor Nodar Poporadze

Qualification and program credits

Bachelor of Geology It will be awarded in a combination of 210 credits of the main specialty available in the educational program and 30 credits of free components, no less than 240 credits.

The language of teaching

Georgian

Precondition for admission to the program

The right to study for a bachelor's degree is available only to a person who has a State certificate certifying full general education or a document identified with it, who will be enrolled under the laws of the Georgian legislation

Description of the program

The Program lasts for 4 years (8 terms) and comprises 240 credits – 210 credits are the subjects of basic specialty and the rest (30 ones) are free components. According to ECTS system 1 credit comprises 25 hours.

Each academic year includes 60 credits. The educational process of each year lasts for 40 weeks: the first term –for 20 weeks and the second one – for 20 weeks. Every semester training course takes 15 weeks; the VIII week is intended for mid-term assessment, which includes current activities and mid-term exams. The maximum assessment for the current activities consists 30 points, minimum total assessment – 15 points. The maximum assessment for a mid-term exam is 30 points and minimum positive assessment equals to 7.5 points. XVII week is for passing document material. The XVII week is intended for the final exam the maximum assessment of which is 40 points, the minimum assessment equals to 10 points. In case a student fails the final exam he is allowed to pass an additional exam (the interval between the exams should be not less than ten days).

Out of 60 credits of the first academic year, 12 credits are dedicated to specialty subjects – dynamic geology and crysallography , 6 credits to each – II term; the rest 48 credits –to general subjects. Mathematics is taught in two semesters (5 credits in each); elective foreign language in two semesters (3-3 credits), general physics in two semesters (5-5 credits), general chemistry I semester (5 credits), computer technologies I semester (4 credits).

I Semester - Engineering Graphics (4 credits), I Semester - elective humanitarian subjects - 3 credits; II semester - Basics of geodesy and topography (6 credits).

Out of the 60 credits for the second academic year, 3 credits are given to the general subject - environmental protection and ecology, the remaining 57 credits are for specialty subjects.

60 credits for the third academic year are intended for elective specialized subjects.

Out of the 60 credits for the fourth academic year, 30 credits are given to free component, 10 credits - to bachelor's work, the rest 20 are intended for the subjects in specialty.

The program consists of 12 subjects in the form of free components, out of which students can choose 30 credit volume subjects (VII semester - 10 credits, VIII semester - 20 credits).

The purpose of the program

The program envisages the preparation of a satisfying up-to-date requirement, competitive, highly qualified specialist, a connoisseur of geological sciences.

The aim of the educational program is to prepare highly qualified specialists for knowledge of the field of geology in the labor market in accordance with the requirements of the Georgian Technical University, with relevant knowledge and practical skills to solve modern geological problems:

- Acquisition of knowledge about the Earth, its structure, substance composition, current processes and history;

- Acquisition of theoretical and practical knowledge in basic and special subjects of geology according to the educational program
- Acquaintance with methods of geological, geophysical, field and laboratory research
- Adoption of the methods of hemological research and understanding the peculiarities of their application
- Development of ability for cameral and laboratory processing of the material, sampled

in the field conditions, and the ability to describe the data obtained
Development of the ability for efficient use of ICT systems as to achieve the ultimate goals of geological works;
- Development of the ability to perceive natural disaster processes, assess risks and define environmental protection measures;
Mastering practical aspects of the field of Geology

Outcomes/competences (general and sectoral)

Knowledge and awareness

knowledge of the origin and structure of the earth; awareness of the geological and geodynamic processes taking place on it both in the past and in the present

– critical assessment and awareness of the facts and phenomena discovered by different branches of geology

– knowledge of basic geological terms

– the study of modern methods of research in the field of geology and their purposeful understanding

Ability to use knowledge in practice:

- Applying proper geological field and laboratory research methods for the definite branch of geology in order to solve geological problems;
- Use of quantitative-statistical methods in geology;
- Processing and interpretation of data obtained in the main disciplines of geology
- Fast-access retrieval and use of fresh geological scientific and technical information;
- Assessment of geological phenomena, comparison of the results obtained
- Independent collection of materials in field-geological conditions, their cameral and laboratory research, analysis of the results obtained, drawing out schematic geological maps and sections;

Ability to draw conclusion

– To draw reasonable conclusions based on an analysis of the collected characteristic data, as well as of the individual ones and situations for solving geological problems
– To draw concrete conclusions based on an understanding of the interdependence of geological and environmental problems
– To draw geologic conclusions based on field geological and laboratory studies

Communication skills:

– Knowledge and use of modern information communication technologies in native and foreign languages for achieving set goals;
– Preparation of a presentation or the ability to formulate information verbally and in written form for specialists and laymen in native and foreign languages;
– Discussion about the use of theoretical positions and principles of geological disciplines;
– Group work skills in field and cameral periods.

Ability to study:

- Determination of the direction of training on the basis of geological professional activity;
- Determination of the direction of training and its continuation on the second stage of training (MA course)

Values

- Protection of professional values (accuracy, punctuality, objectivity, security, environmental ecology, transparency, etc.);
- Observance of the accepted norms of ethics and morality;
- Awareness of geological professional values, evaluation of relationships with colleagues

Methods of achieving learning outcomes (teaching and learning)

☒ Lecture ☒ Seminar (team working) ☒ Practice ☒ Laboratory ☒ Practice
☐ Course paper/project ☒ Consultation ☒ Independent work

Based on the specific course of study in the learning process, the relevant below listed activities of the teaching-learning methods are used, which are reflected in the relevant training courses (syllabus):
(Discussion, debate, presentation, group work, etc.)
Discussion / debate are one of the most common activities of interactive teaching. Discussion process increases the quality and activity of students' engagement. Discussion can be turned into arguments and this process is not limited to the questions asked by the teacher. It develops the ability of the student to reason and justify their opinion.
Cooperative learning is a learning strategy when each member of the group is obliged not only to examine himself but also to help his/her team-mate to study the subject better. Each member of the group works on the problem, until all of them master the issue.
Collaborative work – By using this activity, teaching implies division of the students' group and assignment of teaching tasks to them. The group members individually work on the issue and in parallel share their opinions with other members of the group. Due to the set objective, it is possible to divide the functions among the members during the group's working process. This strategy provides all students maximum engagement in the learning process.

Problem based learning is an activity which uses a specific problem as the initial stages of obtaining new knowledge and integration process.
Brain storming – this activity implies to form and promote radically different opinion, idea on concrete issue/problem. This activity contributes to the development of a creative approach to the problem. Its application is effective in case of a large number of students and consists of several main stages: Problem / issue determination in a creative perspective;– In a certain period of time, without criticism, note the ideas expressed by the– listeners (mainly on the board); Determination of assessment criteria to determine the establish the conformity of– the idea with the aim of the research; Assessment of selected ideas with predetermined criteria;– By process of elimination, distinguish those ideas that are most relevant to the– issue. Demonstration of the highest evaluation idea as the best way to solve the set– problem.
Implication. It is quite effective in terms of achieving the result. In many cases, it is better to provide the students with audio and visual materials simultaneously. The study material can be demonstrated by both the teacher and the student. This activity helps us to demonstrate different levels of learning material, to specify what students will have to do independently; at the same time, this strategy visually reflects the essence of the topic/ problem. Demonstration may be simple.
Induction is such a form of transmitting any knowledge when the process of thinking in the course of the study is directed towards generalization, in other words when delivering the material the process is going from concrete to general.

Deduction is such a form of transmitting any knowledge, which based on general knowledge represents logical process of discovering new knowledge in other words, the process is going from general to concrete.
Analysis helps us to divide the study material into constituent parts. This will simplify the detailed coverage of individual issues within a difficult problem.
The synthesis implies the composition of one whole by grouping individual issues. This activity contributes to the development of the problem to be seen as a whole.
Verbal or orally transmitted. Narration, talking and so forth belong to this activity. In this process the teacher orally transmittes and explaines study material and the students actively perceive and learn it through listening, remembering and thinking.
The script implies the following activities: making extracts, records, notes, theses, abstract or essay and other.
Explanation is based on the discussion on the issue. The teacher gives a concrete example from the material, which is discussed in detail within the given topic.
Action-oriented training requires active involvement of the teacher and student in the teaching process, where the practical interpretation of theoretical material is of special significance.
Project planning and presentation. When working on the project, the student uses the acquired knowledge and skills to solve the real problem. This increases students' motivation and responsibility. Working on the project includes planning, surveying, practical activity and the performance of the results in accordance with the selected issue. The project will be deemed implemented if its results are presented in a clear and convincing way. It can be performed individually, in couples or in groups; also within a subject or within a few subjects (integration of the subjects); after completion, the project can be presented to a big audience.

Student knowledge assessment system

Grading system is based on a 100-point scale.

Positive grades:

- (A) - Excellent - the rating of 91-100 points;
- (B) – Very good - - the rating of 81-90 points
- (C) - Good - the rating of 71-80 points
- (D) - Satisfactory - the rating of 61-70 points
- (E) - Enough - the rating of 51-60 points

Negative grades:

- (FX) - Did not pass - 41-50 points of rating, which means that the student needs more work to pass and is given the right to take the exam once more with independent work;
- (F) – Failed - 40 points and less, which means that the work carried out by the student is not enough and he/she has to learn the subject from the beginning.

Field of employment

Mining Geology enterprises, architecture and construction companies, Ministry of Defense, Ministry of Environmental Protection and Agriculture, Ministry of Finance, Ministry of Economy and Sustainable Development, Ecology and Environmental protection organizations, Oil and Gas exploration companies, corresponding profile educational institutions, Municipal jobs, Emergency Management Agency, Georgian Railway Department and Roads Department of Georgia.

Opportunity to continue learning

Master's Educational Programs

Human and material resources necessary for the implementation of the program

Bachelors educational program is provided by corresponding human and material resources. You can find additional information in the attached file.

Number of attached syllabus: 84

Program subject load

№	Subject	Precondition of admit	ECTS Credits							
			I Year		II Year		III Year		IV Year	
			Semester							
			I	II	III	IV	V	VI	VII	VIII
1	Elements Of Linear Algebra And Calculus	Doesn't have	5							
2	English For Technical Specialities - 1 Russian For Technical Specialities – 1 German For Technical Specialities – 1 French For Technical Specialities – 1	Doesn't have Doesn't have Doesn't have Doesn't have	3							
3	General Physics 1.2	Doesn't have	5							
4	Computer Technologies	Doesn't have	4							
5	The Basics Of Philosophy Introduction To Psychology History Of Georgia Introduction To Sociology Culture And Modernity The Modern Language Of Communications Technologies History Of Technical Design Academic Writing Elements	Doesn't have	3							
6	General Chemistry	Doesn't have	5							
7	Engineering Graphics	Doesn't have	4							
8	Geodesy On The Basis Of Topography	Doesn't have		6						
9	Elements Of Mathematical Analysis	Elements Of Linear Algebra And Calculus		5						
10	General Physics 2.2	General Physics 1.2		5						
11	English For Technical Specialities – 2	English For Technical		3						

	Russian For Technical Specialities – 2 German For Technical Specialities – 2 French For Technical Specialities - 2	Specialities - 1 Russian For Technical Specialities – 1 German For Technical Specialities – 1 French For Technical Specialities – 1								
12	Dinamic Geology	Doesn't have		6						
13	Crystallography	Doesn't have		6						
14	1.Paleontology 2.Geomorphology And Quarternaly Geology	Doesn't have Doesn't have			5					
15	Environment Rotection And Cology 3	Doesn't have			3					
16	Mineralogy	Crystallography			6					
17	Structural Geology	Dinamic Geology			6					
18	History Of Earth Development	Dinamic Geology			5					
19	Geophysics	Dinamic Geology			5					
20	Geological Research Methods Of Rocks And Minerals	Mineralogy				5				
21	Geotectonic	Structural Geology				5				
22	Petrography Of Magmatic Rocks	Mineralogy				5				
23	Lithology	Mineralogy				5				
24	Geomapping	Structural Geology				5				
25	Economy Of Geology	Doesn't have				5				
26	Hydrogeology	Dinamic Geology					5			
27	1.Introduction To Gemology 2.Geochemistry Of Elements And Isotopes	Mineralogy Doesn't have					5			
28	Geological Field Trip (Practice)	Dinamic Geology					5			

29	1.General Engineering Geology 2.Engineering Petrology	Doesn't have Doesn't have					5			
30	1.Geology Of Georgia 2.Stratigraphy	Doesn't have Doesn't have					5			
31	1. Natural Process Of Solid Ore Resources Accumulation 2.Methods Of Hydrogeological Investigations 3.Basic Of Oil And Gas Geology	Structural Geology Doesn't have Doesn't have Dinamic Geology					5			
32	1.Safety At Work In Geological Enterprises 2.Protection of geological environment	Doesn't have Doesn't have						5		
33	1.Marketing And Management Of Geology 2.Economics And Management Of Hidrogeological Researches	Doesn't have Doesn't have						5		
34	The Special Course In Informatics And Computer Graphics	Doesn't have						5		
35	1.Industrial Types Of The Solid Nonmetallic And Fuel Useful Minerals 2.Drinking, Minetal, Thermal, And Industrial Waters Of Georgia	Mineralogy Hydrogeology						7		
36	1.Industrial Type Of The Metallic Deposits 2.Dynamics Of Groundwater	Mineralogy Hydrogeology						8		
37	1.Drilling Of Boreholes 2.Georgian Minerals And Rocks	Dinamic Geology გეოლოგია Doesn't have							5	
38	Mining Affair	Doesn't have							5	
39	1.Principles Of Minerals Enrichment 2.Factors And Principes Of 3.Hydrogeological Division Hydro Geochemistry	Doesn't have Hydrogeology Hydrogeology							5	
40	1.Deposits Precious And Semi-Precious Stones 2.Meliorative Hydrogeology 3.Physical And Colloidal Chemistry	Mineralogy Doesn't have General Chemistry							5	
41	Bachelor Thesis	Doesn't have								10
42	**Free Components**								10	20

1.Numismatics And Bonistics	Doesn't have							5		
2.Financial Institutions And Markets	Doesn't have							5		
3.Administration Of Land	Doesn't have							5		
4.History Of Religions	Doesn't have							5		
5.Tourism	Doesn't have							5		
6. Culture and modernity	Doesn't have							5		
7.Monuments Of World Culture Heritage	Doesn't have							6		
8.Museology	Doesn't have							4		
9. Introduction to GIS	Doesn't have							4		
10.General Technology of Glass and Ceramics	Doesn't have							5		
11.Cultural Heritage And Tourism	Doesn't have							5		
12.Cromatics	Doesn't have							5		
13.Teknospero And Ecosystem	Doesn't have							5		
14.The Basics Of Industrial Aesthetics And Ergonomics	Doesn't have							5		
	Per semester	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	
	Per year	**60**		**60**		**60**		**60**		
	Total	**240**								

Map of learning outcomes

№	Subject	Knowledge and understanding	Ability to use knowledge in practice	Making judgments	Communication skill	Ability to learn	Values
1	Elements Of Linear Algebra And Calculus	X	X			X	
2	English For Technical Specialities - 1	X	X		X	X	
	Russian For Technical Specialities - 1	X	X		X	X	
	German For Technical Specialities – 1	X	X		X	X	
	French For Technical Specialities - 1	X	X		X	X	
3	General Physics 1.2	X		X		X	
4	Computer Technologies	X	X			X	
5	The Basics Of Philosophy	X	X				X
	Introduction To Psychology	X	X		X		

	History Of Georgia	X	X	X	X		
	Introduction To Sociology	X	X	X			X
	Culture And Modernity	X	X				X
	The Modern Language Of Communications Technologies	X	X		X		
	History Of Technical Design	X		X			X
	Academic Writing Elements	X	X		X		
6	General Chemistry	X	X		X	X	
7	Engineering Graphics	X	X		X	X	
8	Geodesy On The Basis Of Topography	X	X	X			
9	Elements Of Mathematical Analysis	X	X			X	
10	General Physics 2.2	X		X		X	
11	English For Technical Specialities - 2	X	X		X	X	
	Russian For Technical Specialities - 2	X	X		X	X	
	German For Technical Specialities – 2	X	X		X	X	
	French For Technical Specialities - 2	X	X		X	X	
12	Dinamic Geology	X	X	X			
13	Crystallography	X	X			X	
14	Paleontology	X	X	X			
	Geomorphology And Quarternaly Geology	X	X	X			
15	Environment Rotection And Cology 3	X	X				X
16	Mineralogy	X	X	X	X	X	
17	Structural Geology	X	X	X			
18	History Of Earth Development	X	X	X			
19	Geophysics	X	X	X			
20	Geological Research Methods Of Rocks And Minerals	X	X	X			
21	Geotectonic	X	X	X			
22	Petrography Of Magmatic Rocks	X	X	X			
23	Lithology	X	X	X			
24	Geomapping	X	X	X			
25	Economy Of Geology	X	X	X	X		
26	Hydrogeology	X	X	X		X	
27	Introduction To Gemology		X			X	X
	Geochemistry Of Elements And Isotopes	X	X	X		X	
28	Geological Field Trip (Practice)	X	X	X	X	X	X
29	General Engineering Geology	X	X	X		X	
	Engineering Petrology	X	X	X			
30	Geology Of Georgia	X	X	X		X	
	Stratigraphy	X	X			X	
31	Natural Process Of Solid Ore Resources Accumulation	X	X			X	
	Methods Of Hydrogeological Investigations	X	X	X	X		
	Basic Of Oil And Gas Geology	X	X	X			
32	Safety At Work In Geological Enterprises	X	X	X			
	Protection of geological environment	X	X				X
33	Marketing And Management Of Geology	X	X	X	X		
	Economics And Management Of Hidrogeological	X	X	X	X		

	Researches						
34	The Special Course In Informatics And Computer Graphics	X	X			X	
35	Industrial Types Of The Solid Nonmetallic And Fuel Useful Minerals	X	X			X	
	Drinking, Minetal, Thermal, And Industrial Waters Of Georgia	X	X		X	X	X
36	Industrial Type Of The Metallic Deposits	X	X			X	
	Dynamics Of Groundwater	X	X	X			
37	Drilling Of Boreholes	X	X	X			
	Georgian Minerals And Rocks	X		X	X		
38	Mining Affair	X	X	X			
39	Principles Of Minerals Enrichment	X	X	X		X	
	Factors And Principes Of Hydrogeological Division	X	X			X	
	Hydro Geochemistry	X	X			X	
40	Deposits Precious And Semi-Precious Stones	X	X	X			
	Meliorative Hydrogeology	X	X	X			
	Physical And Colloidal Chemistry	X	X	X	X		
41	Bachelor Thesis	X	X	X	X	X	X
42	**Free Components**						
	Numismatics And Bonistics	X	X	X	X		
	Financial Institutions And Markets	X	X	X	X	X	
	Administration Of Land	X	X	X		X	
	History Of Religions	X	X	X	X	X	
	Tourism	X	X	X	X	X	
	Culture and modernity	X	X	X	X	X	
	Monuments Of World Culture Heritage	X	X	X		X	
	Museology	X	X	X	X		
	Introduction to GIS	X	X	X			
42	General Technology of Glass and Ceramics	X	X	X		X	
	Cultural Heritage And Tourism	X		X			
	Cromatics	X		X	X		
	Teknospero And Ecosystem	X	X	X	X	X	
	The Basics Of Industrial Aesthetics And Ergonomics	X	X		X	X	

Program curriculum

№	Subject code	Subject	ECTS Credit/Hours	Hours								
				Lecture	Seminar (work in the group)	Practical classes	Laboratory	Practice	Course work/project	Mid-semester exam	Final exam	Independent work
1	MAS34308G1	Elements Of Linear Algebra And Calculus	5/125	15		30				1	2	77
2	LEH14412G1	English For Technical Specialities - 1	3/75			30				1	1	43
	LEH14612G1	Russian For Technical Specialities - 1	3/75			30				1	1	43
	LEH15012G1	German For Technical Specialities – 1	3/75			30				1	1	43
	LEH14812G1	French For Technical Specialities - 1	3/75			30				1	1	43
3	PHS52608G1	General Physics 1.2	5/125	15			30			1	2	77
4	ICT10303G2	Computer Technologies	4/100	4			26			3	1	66
5	HEL30212G1	The Basics Of Philosophy	3/75	15	15					1	1	43
	SOS30312G1	Introduction To Psychology	3/75	15	15					1	1	43
	HEL20212G1	History Of Georgia	3/75	15	15					1	1	43
	SOS40312G1	Introduction To Sociology	3/75	15	15					1	1	43
	SOS40112G1	Culture And Modernity	3/75	15	15					1	1	43
	LEH12012G1	The Modern Language Of Communications Technologies	3/75	15	15					1	1	43
	ART20305G1	History Of Technical Design	3/75	15	15					1	1	43
	LEH12112G1	Academic Writing Elements	3/75	15	15					1	1	43
6	PHS10104G1	General Chemistry	5/125	15			30			1	1	78
7	EET70505G2	Engineering Graphics	4/100	15		15				1	1	68
8	PHS41403G1	Geodesy On The Basis Of Topography	6/150	15			30	25		1	2	77
9	MAS33308G1	Elements Of Mathematical Analysis	5/125	15		30				1	2	77
10	PHS52708G1	General Physics 2.2	5/125	15			30			1	2	77
11	LEH14512G1	English For Technical Specialities - 2	3/75			30				1	1	43
	LEH14712G1	Russian For Technical Specialities - 2	3/75			30				1	1	43
	LEH15112G1	German For Technical Specialities – 2	3/75			30				1	1	43

	LEH14912G1	French For Technical Specialities - 2	3/75			30				1	1	43
12	PHS31403G1	Dinamic Geology	6/150	15			30	25		1	2	77
13	PHS33403G2	Crystallography	5/125	15			30			1	2	77
14	PHS31503G1	Paleontology	5/125	15		30				1	1	78
	PHS30103G2	Geomorphology And Quarternaly Geology	5/125	15		30				1	1	78
15	EET20404G1	Environment Rotection And Cology 3	3/75	15			15			1	1	43
16	PHS33603G1	Mineralogy	6/150	15			30	25		1	2	77
17	PHS32903G1	Structural Geology	6/150	15			45			1	2	87
18	PHS37703G1	History Of Earth Development	5/125	15	15	15				1	1	78
19	MAP56403G1	Geophysics	5/125	15	15	15				1	1	78
20	PHS33503G1	Geological Research Methods Of Rocks And Minerals	5/125	15			30			1	2	77
21	PHS32303G1	Geotectonic	5/125	15		30				1	1	78
22	PHS33403G1	Petrography Of Magmatic Rocks	5/125	15			30			1	2	77
23	PHS38303G1	Lithology	5/125	15			30			1	2	77
24	PHS33003GC	Geomapping	5/125	15			30			1	2	77
25	BUA72003G1	Economy Of Geology	5/125	15	30					1	2	77
26	PHS36003G1	Hydrogeology	5/125	30			15			1	1	78
27	PHS37503G1	Introduction To Gemology	5/125	15			30			1	2	77
	PHS33303G1	Geochemistry Of Elements And Isotopes	5/125	15	30					1	2	77
28	PHS38903G1	Geological Field Trip (Practice)	5/125					60			2	63
29	PHS31003G2	General Engineering Geology	5/125	15		30				1	1	78
	PHS34403G1	Engineering Petrology	5/125	15		30				1	1	78
30	PHS30503G1	Geology Of Georgia	5/125	15		30				1	1	78
	PHS37603G1	Stratigraphy	5/125	15		30				1	1	78
31	PHS39103G1	Natural Process Of Solid Ore Resources Accumulation	5/125	15			30			1	2	77
	PHS31503 G2	Methods Of Hydrogeological Investigations	5/125	15		15				1	1	78
	PHS31803G2	Basic Of Oil And Gas Geology	5/125	15			30			1	1	78
32	HHS22803G1	Safety At Work In Geological Enterprises	5/125	30			15			1	1	78
	PHS35903G1	Protection of geological environment	5/125	15	30					1	1	78

33	BUA72103G1	Marketing And Management Of Geology	5/125	15	30					1	2	77
	BUA75403G1	Economics And Management Of Hidrogeological Researches	5/125	15	30					1	2	77
34	IST11303G2	The Special Course In Informatics And Computer Graphics	5/125	15	30					1	1	78
35	PHS32503G1	Industrial Types Of The Solid Nonmetallic And Fuel Useful Minerals	7/175	15			45			1	1	113
	PHS35803G1	Drinking, Minetal, Thermal, And Industrial Waters Of Georgia	7/175	30		30				1	1	113
36	PHS32403G1	Industrial Type Of The Metallic Deposits	8/200	30			37.5			1	1	130.5
	PHS31403G2	Dynamics Of Groundwater	8/200	30		37.5				1	1.5	130
37	MAP53703G1	Drilling Of Boreholes	5/125	15	30					1	1	78
	PHS37303G1	Georgian Minerals And Rocks	5/125	15			30			1	2	77
38	MAP55103G1	Mining Affair	5/125	15		30				1	1	78
39	MAP42803G1	Principles Of Minerals Enrichment	5/125	15			30			1	1	78
	PHS36103G1	Factors And Principes Of Hydrogeological Division	5/125	15		30				1	1	78
	PHS36503G1	Hydro Geochemistry	5/125	15		30				1	1	78
40	PHS33703G1	Deposits Precious And Semi-Precious Stones	5/125	15		30				1	2	77
	PHS31603G2	Meliorative Hydrogeology	5/125	15		30				1	1	78
	PHS10204G2	Physical And Colloidal Chemistry	5/125	15			30			1	1	78
41		Bachelor Thesis	10/250			30			90			130
42	**Free Components**											
	BUA22213G1	Numismatics And Bonistics	5/125	15	30					1	1	78
	BUA28113G1	Financial Institutions And Markets	5/125	15	30					2	2	76
	BUA43013G1	Administration Of Land	5/125	15	30					1	1	78
	HEL10112G1	History Of Religions	5/125	15	30					1	1	78
	PESI0213G1	Tourism	5/125	15	30					1	1	78
	SOS40513G1	Culture and modernity	5/125	15	30					2	2	76
	HEL22412G1	Monuments Of World Culture Heritage	6/150	30	30					2	2	86
	HEL23112G1	Museology	4/100	15	15					2	1	67
	ICT39603G1	Introduction to GIS	4/100	15		15				1	1	68
	EET16004G2	General Technology of Glass	5/125	15	30					1	1	78

		and Ceramics										
	PES15813G1	Cultural Heritage And Tourism	5/125	15	30					1	1	78
	AAC60106G1	Cromatics	5/125	15	30					1	1	78
	HHS27903G1	Teknospero And Ecosystem	5/125	15	30					1	1	78
	HHS24303G1	The Basics Of Industrial Aesthetics And Ergonomics	5/125	15	30					1	1	78

Program Principle Nodar Poporadze

Faculty of Mining and Geology

Head of Quality Assurance Service Shalva KeleptriShvili

Full name

Dean of the Faculty Anzor Abshilava

Agreed with

Quality Assurance Service of GTU Irma Inashvili

Approved by

Faculty of Mining and Geology

At the meeting of Faculty Board

30.03. 2018, Protocol №3

Chairman of the Faculty Board Anzor Abshilava