



საქართველოს ტექნიკური უნივერსიტეტი
GEORGIAN TECHNICAL UNIVERSITY

Approved by
Resolution № 733 of the
Academic Council of GTU
dated July 6, 2012

Amended by
Resolution № 01-05-04/92 of
the Academic Council of GTU
dated July 27, 2022

Master's Educational Program

Program Title

გეოლოგია

Geology

Faculty

სამთო-გეოლოგიური

Mining and Geology

Program Head/Heads

Associate Professor Olga SESKURIA

Qualification to be Awarded

Master of Geology

Will be awarded upon completion of at least 120 credits of the educational program

Language of Teaching

Georgian

Prerequisite for Admission to the Program

A person with at least a bachelor's degree or equivalent academic degree, who is enrolled based on the results of the master's exams (general master's exam and exam/exams determined by GTU), has the right to study in the master's program. Examination questions/tests will be posted on the website of the Department of Education of GTU at least one month before the examinations.

Those wishing to enroll in the program must present a relevant certificate confirming knowledge of a foreign language (English, German, French, Russian) at least B2 level or must pass an exam at the GTU examination center. Enrollment in the program without passing the master's exams is possible according to the rules established by the Ministry of Education, Science, Culture and Sports of Georgia.

Program Description

The program is compiled by the European Credit Transfer and Accumulation System (ECTS). At the Georgian Technical University, 1 ECTS credit is equal to 25 hours, which includes both contact and independent work hours. The distribution of credits (ECTS) according to subjects is presented in the curriculum.

The duration of the program is 2 years.

The program includes teaching and research components. 10 ECTS credits are intended for the elective (business communication in a foreign language, theory and practice of sectoral text translation) component; 40 ECTS credits are intended for the compulsory component;

The program provides four concentrations and each volume is 70 ECTS credits:

1. Stratigraphy and paleontology;
2. Applied mineralogy and petrology;
3. Geology of deposits;
4. Hydrogeology.

Each concentration consists of compulsory components (35 ECTS credits), and 35 ECTS credits are devoted to the research component (execution and defense of the master's thesis).

Program Objective

The objective of the master's program in geology

- To give students a deep and systematic knowledge of the field of geology, about the processes taking place in the earth and its interior, their observation and study, taking into account some of the latest achievements;
- To equip the graduate, using modern methods, with the ability to independently obtain, process, critically understand and evaluate the data needed to solve various local or regional geological problems;
- To develop the ability to search for original ways of solving existing problems in the field of geology using the latest methods and approaches.

Learning Outcomes/Competences (general and professional)

- describes modern research methods of minerals, rocks, ores, mineral deposits and geological structures, geological sections, groups of fossil organisms, regularities of evolution, physico-chemical processes of origin of research minerals, hydrogeological structures, groundwater formation processes;
- determines the stages of the search for metallic and non-metallic minerals, the regularities of the distribution of groundwater in the earth's crust, the peculiarities of paragenetic associations of different genesis in igneous, metamorphic and sedimentary rocks, the remains of fossilized organisms, technogenic, exogenous and endogenous processes and substantiates their impact on the environment;
- discusses the geological criteria and signs of the search for minerals, hydrodynamic calculation schemes of filtration on a specific deposit, biostratigraphy importance of different groups of fauna and flora, typomorphism of minerals in connection with the genesis of deposits;
- uses the latest methods and approaches of geological studies in the research of various geological objects, mineral deposits and organizes field-geological works taking into account safety measures;
- determines the genesis of minerals in rocks and different types of deposits, hydrogeological parameters, maps of hydrogeological regions and hydrogeochemical zonation; taphonomic classification of fossils, quantity and quality of precious, storage, paving and construction stones, their artificial products, synthetic analogues and imitations;
- chooses methods of planning deposits related to rocks of different genesis; forms and quality of mineral processing, ore types of metallic and non-metallic deposits, types of underground water according to the

conditions of origin, conditions of fossilization of organisms;

- justifies the existence of aquifer horizon areas, the evolutionary development of fossils and their stratigraphic significance, the localization conditions of endogenous deposits located in different structural units, the results of exploration work, the importance of sedimentology and sedimentation basins for the planning of mineral deposits and engineering-geological works;
- collects information obtained as a result of field and laboratory works, reconstructs past geological events, paleogeographical conditions using geographic information systems;
- shares the norms established in the professional field, recognized by society and approved by the state.

All four concentrations provided by the program, with the learning outcomes of the training courses with the names optimally selected for them (concentration 1 - stratigraphy and paleontology, concentration 2 - applied mineralogy and petrology, concentration 3 - geology of deposits, concentration 4 - hydrogeology), are integrated into the learning outcomes of the educational program.

Methods of achieving learning outcomes (teaching-learning)

- Lecture Seminar (group work) Practical Laboratory Practice
 Course work/Project Master's Thesis Consultation Independent work

In the learning process, depending on the specifics of the specific training course program, the following activities of teaching-learning methods are used, which are reflected in the relevant training course programs (syllabi):

Discussion/debate, cooperative learning, group work, case study, brain storming, demonstration, deductive, analysis, synthesis, verbal, written work, explanation, action focused learning.

Student's Knowledge Assessment System

The student's knowledge is assessed on a 100-point scale.

Positive grades are:

- (A)-Excellent - 91-100 points;
- (B)-Very Good – 81-90 points;
- (C)-Good – 71-80 points;
- (D)-Satisfactory – 61-70 points;
- (E)-Sufficient – 51-60 points.

Negative grades are:

- (FX) - Failed to pass – 41-50 points, which means that the student needs more work to pass and is allowed to take an additional exam once with independent work;
- (F) - Failed - 40 points or less, which means that the work done by the student is insufficient and he/she will have to study the subject again.

In case of receiving FX, an additional exam is prescribed, not less than 5 days after the announcement of the results. The grade obtained in the additional exam is not added to the grade obtained in the final assessment.

Fields of Employment

Graduates with appropriate qualifications will be able to work:

Enterprises and companies of mining-geological profile,
design and construction companies,
Ministry of Environment Protection and Agriculture of Georgia,
Ministry of Economy and Sustainable Development of Georgia,
Ministry of Defense of Georgia,
Department of Highways,
Customs Department,
Banks, museums, educational institutions of the relevant profile.

Opportunities for continuing education

PhD educational programs

Human and material resources needed to implement the program

The program is provided with adequate human and material resources. For additional information, please find the attached documentation

Number of attached syllabi: 42