



საქართველოს ტექნიკური უნივერსიტეტი  
GEORGIAN TECHNICAL UNIVERSITY

**Approved by**  
Academic Board of GTU  
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Order № 740

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Order № 01-05-04/95

## Bachelor's Educational Program

### Name of the program

ნავთობისა და გაზის ტექნოლოგიები

Oil and gas technologies

### Faculty

სამთო-გეოლოგიური

Mining and Geology

### Program manager

NaniKhundadze

### Qualification and program credits

Bachelor of Mining and Geoengineering

It will be awarded in a combination of 225 credits of the main specialty available in the educational program and 15 credits of free components, no less than 240 credits.

### The language of teaching

Russian

### 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. 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 41 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, 18 credits are dedicated to specialty subjects – the rest 42 credits –to general subjects. Mathematics is taught in two semesters (5 credits in each); elective foreign language in two semesters (3-3 credits), physics in two semesters (4-4 credits).

I Semester –General Chemistry (4 credits), – Informational Technologies 1 (4 credits)  
– Optional humanitarian subject (3 credits) – Introduction in geology (6 credits).

II semester –Engineering graphics (4 credits), Basics of Electrical Engineering and Electronics (3 credits) Basics of geodesy and topography (3 credits), Mineralogy and Petrography (5 credits), Structural geology and geological mapping (4 credits)

Out of the 60 credits for the second academic year, 12 credits are given to the general subject - environmental protection and ecology, the remaining 48 credits are for specialty subjects.

60 credits for the third academic year are intended for specialized subjects. (Out of the 60 credits for the third academic year, 23 credits are given to specialty optional subjects.)

Out of the 60 credits for the fourth academic year, 30 credits are given to specialized subjects, 6credits are given to specialty optional subjects.

VII semester – 5 credits are given to educational practice, 10 credits are given to bachelor's paper, and 15 credits are given to free components.

## The purpose of the program

Preparing professionals, who will implement professional activity not only in Hydrocarbon mining, drilling, processing and exploitation, but also in conservation and transportation of oil and gas. Investigation and study of scientific and technical achievements in disciplines such as: geology, geophysics, geochemistry, well drilling, processing, mining, methods of research and geological-economical appraisal of oil and gas fields.

## Outcomes/competences (general and sectoral)

### Knowledge and awareness

- Specialized theoretical and practical knowledge in mining and geoengineering field, specifically in oil and gas technologies, which represents the basis of oil and gas filed mining, drilling, processing and exploitation;
- Wide knowledge of subjects such as: oil and gas mining, wells drilling, oil and gas extraction, automation of production processes, labor safety, methods of investigation and research of oil and gas, hydrogeological, geochemical and geophysical works and technique and technologies of wells drilling;

- Wide knowledge in subject of oil and gas technologies;
- Capability of achievements and innovations valuation in oil and gas technologies;
- Understanding of production processes in field of oil and gas technologies;
- Knowing and understanding, the normative-technical and safety organizational issues and methods of labor safety, during investigational works on oil wells and oil-gas extractor sessions;
- Comprehension of oil and gas economic significance;
- Knowing the standard practical issues in investigation, extraction, oil and gas transportation and conservation as well as apprehension of separate technological specifications connected with them.

**Ability to use knowledge in practice:**

- Methods of interpretation of materials, received from investigational, geochemical and geophysical research and ability to use their wide specter in practical work;
- Capacity to use investigational, geological, geochemical, hydrogeological, geophysical, (gravimetric, seismic magneto-metric, electrometric) and field geophysical methods during the process of drilling, extracting, transporting and hydrocarbon exploitation;
- Usage of practical capabilities, during the process of oil and gas field processing and exploitation on the basis of theoretical knowledge. Using methods of field processing control according to specific instructions;
- Participation in composure of scientific-technical accounts, explanatory cards, maps, schemes and other established accounts;
- Using the technologies of drilling machines and oil and gas wells drilling according to certain instructions to bring the well to its designed depth;
- Carrying out works in the field of oil and gas technologies, considering the provision of vital and ecological safety;
- Realization of technological processes and equipment delivery according to provided instructions for oil and gas wells construction, reconditioning, reconstruction and reproduction.

**Ability to draw conclusion**

- Ability to process, collect, define, and detect new information, understanding the meaning of received data;
- Collecting: geological, geophysical, geochemical, hydrogeological, field-geological, ecology-geological, stock data. Ability to identify and analyze them, using the relevant and standard methods in field of oil and gas technologies;
- Collecting: geological, geophysical, geochemical, hydrogeological, field-geological, ecology-geological, stock data as well as data and separate situations analysis using separate methods in oil and gas technologies. Ability to justify the conclusions.

**Communication skills:**

- Ability to consistently, briefly and intelligently transfer information, verbally or by writing about professional issues;
- Capability of using the informational-communicational technological recourses to rich the set aim;
- Capacity of joint activity in groups, ability of searching the common goal, contribute to common deal, readiness for cooperation with colleagues and collective.

### Ability to study:

- Defining the direction of education by considering the priorities of arising circumstances;
- Versatile assessment, determination of requirements for further education and cognitive-educational activity;
- Relevant material research for knowledge and experience enrichment in oil and gas technologies, ability to digest and perception the need for constant enlargement of professional level;

### Values

- Participation in process of value formation, ability to match their values and further aspirations to insert them in their lives;
- Participation in morals, ethics and value protection that are accepted by norms and aspiration to inject them in their lives;
- Knowing own principles and values in the field of oil and gas technologies, valuation and sharing with others.

### 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** 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.

**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.

**Method of demonstration** – this method of activity means visualizing information. It is pretty effective in terms of achieving the result. Usually it is better to deliver not only audio material to student, but also the video material. The material can be demonstrated either from teacher or from a student. This method helps us to make distinguish different layers of educational material. It helps students to understand what they are going to do independently in the future, at the time this strategy visualizes the meaning of problem/issue. Demonstration may be easy to understand.

**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 belongs to this activity. In this process the teacher orally transmits and explains study material and the students actively perceive and learn it through listening, remembering and thinking.

**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.

**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-geological enterprises, oil and gas corporations, oil and gas exploration, extraction and transportation companies.

## Opportunity to continue learning

Master's Educational Programs

## Human and material resources necessary for the implementation of the program

This program is provided with relevant human and material resources. See additional information in relevant attachments.

Number of attached syllabus: 75

## 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  | Engineering Mathematics 1  | Absent  | 5            |   |         |     |          |  |         |  |  |
| 2  | Physics 1  | Absent  | 4            |   |         |     |          |  |         |  |  |
| 3  | Information Technologies 1   | Absent  | 4            |   |         |     |          |  |         |  |  |
| 4  | General Chemistry  | Absent  | 4            |   |         |     |          |  |         |  |  |
| 5  | Optional foreign language :<br>5.1 English for Technical Specialties – 1<br>5.2 German for Technical Specialties– 1<br>5.3 French for Technical Specialties - 1    | Absent  | 3            |   |         |     |          |  |         |  |  |
| 6  | Optional humanitarian subjects :<br>6.1 Introduction to Psychology<br>6.2 Basics of Philosophy<br>6.3 General Sociology<br>6.4 History of Georgia                  | Absent  | 3            |   |         |     |          |  |         |  |  |
| 7  | Introduction in geology  | Absent  | 6            |   |         |     |          |  |         |  |  |
| 8  | Engineering graphics   | Absent  |              | 4 |         |     |          |  |         |  |  |
| 9  | Engineering mathematics 2  | Engineering mathematics 1   |              | 5 |         |     |          |  |         |  |  |
| 10 | Physics 2  | Physics1  |              | 4 |         |     |          |  |         |  |  |
| 11 | Optional foreign language :<br>11.1 English for Technical Specialties – 2<br>11.2 Germanfor Technical Specialties – 2<br>11.3 French for Technical Specialties - 2 | English for technical specialty - 1<br>German for technical specialty - 1<br>French for technical specialty - 1 |              | 3 |         |     |          |  |         |  |  |

|    |   |   |  |   |   |   |   |  |  |  |
|----|---|---|--|---|---|---|---|--|--|--|
| 12 | Foundations Geodesy and Topography                    | Absent                                    |  | 3 |   |   |   |  |  |  |
| 13 | Mineralogy and Petrography                            | Absent                                    |  | 5 |   |   |   |  |  |  |
| 14 | Basics of Electrical Engineering and Electronics      | Physics1                                  |  | 3 |   |   |   |  |  |  |
| 15 | Structural geology and geological mapping             | Introduction in geology                   |  | 4 |   |   |   |  |  |  |
| 16 | Theoretical Mechanics                                 | Engineering mathematics<br>1 Physics 1    |  |   | 3 |   |   |  |  |  |
| 17 | Strength of Materials                                 | Engineering mathematics1<br>Physics 1     |  |   | 3 |   |   |  |  |  |
| 18 | Hydrogeology of Oil and Gas Deposits                  | Introduction in geology                   |  |   | 3 |   |   |  |  |  |
| 19 | Geophysics  | Introduction in geology                   |  |   | 5 |   |   |  |  |  |
| 20 | Basic of Oil and Gas Geology                          | Introduction in geology                   |  |   | 6 |   |   |  |  |  |
| 21 | Exploitation of Pump and Compressor Stations          | Absent                                    |  |   | 3 |   |   |  |  |  |
| 22 | Environment Protection and Ecology                    | Absent                                    |  |   | 3 |   |   |  |  |  |
| 23 | Wells Drilling  | Absent                                    |  |   | 4 |   |   |  |  |  |
| 24 | Machine elements                                      | Material durability                       |  |   |   | 3 |   |  |  |  |
| 25 | Underground hydromechanics                            | Oil and gas geology basics                |  |   |   | 5 |   |  |  |  |
| 26 | Grafts Oil and Gas Geology                            | Oil and gas geology basics                |  |   |   | 6 |   |  |  |  |
| 27 | Grafts Geophysics 1                                   | Geophysics;<br>Oil and gas geology basics |  |   |   | 5 |   |  |  |  |
| 28 | Geotectonic together with Geodynamics                 | Absent                                    |  |   |   | 3 |   |  |  |  |
| 29 | Oil and gas pits (wells) drilling technology          | Well drilling                             |  |   |   | 5 |   |  |  |  |
| 30 | Geology of Georgia                                    | Introduction in geology                   |  |   |   | 3 |   |  |  |  |
| 31 | Drilling Solutions                                    | Well drilling                             |  |   |   |   | 5 |  |  |  |
| 32 | Interpretation of the Results of Geophysical research | Geophysics                                |  |   |   |   | 6 |  |  |  |
| 33 | Physics of oil and gas reservoir                      | Oil and gas geology basics                |  |   |   |   | 5 |  |  |  |
| 34 | Technic and technology oil and gas production         | Underground hydro-mechanics               |  |   |   |   | 5 |  |  |  |

|    |  |  |  |  |  |  |  |   |   |  |
|----|--|--|--|--|--|--|--|---|---|--|
| 35 | World,s OilandGasProwince 1  | Oil and gas geology basics   |  |  |  |  |  | 3 |   |  |
| 36 | Economicsand Management of oil and gas enterprises   | Absent   |  |  |  |  |  | 5 |   |  |
| 37 | Labour protection  | Technology of oil and gas well drilling  |  |  |  |  |  | 3 |   |  |
| 38 | Optional subjects :<br>38.1 The rocks are broken down into drilling wells<br>38.2 Drilling borers and Mechanisms<br>38.3 Drilling, testing and development of oil and gas wells  | Well drilling<br><br>Technology of oil and gas well drilling   |  |  |  |  |  | 6 |   |  |
| 39 | Optional subjects :<br>39.1 Calculation and assessment of resources of oil, gas and condensate<br>39.2 Petrology of Sedimentary Rocks<br>39.3 Field-Geological Services during drilling  | Petroleum field geology<br><br>Mineralogy and petrography<br><br>Oil and gas geology basics                                  |  |  |  |  |  | 6 |   |  |
| 40 | Optional subjects :<br>40.1 Methods of search and investigation of accumulation of oil and gas<br>40.2 Bases of forecasting of content of subsoil<br>40.3 Phase zonality of Hydrocarbon and separate forecast of oil and gas<br>40.4 World's OilandGasProvince 2 | Oil and gas geology basics<br><br>Oil and gas geology basics<br>Oil and gas geology basics<br>World's oil and gas province 1 |  |  |  |  |  | 6 |   |  |
| 41 | Grafts Geophysics 2  | Petroleum geophysics 1   |  |  |  |  |  | 5 |   |  |
| 42 | Optional subjects :<br>42.1 Automation and electric equipment of chisel installations.<br>42.2 Pit Well Construction Design fundamentals<br>42.3 Inclined direction and horizontal drilling<br>42.4 Well ccompletion   | Technology of oil and gas well drilling  |  |  |  |  |  | 5 |   |  |
| 43 | Designing of oil and gas pipeline  | Absent   |  |  |  |  |  |   | 6 |  |



|              |  |  |     |    |    |    |    |    |    |    |    |
|--------------|--|--|-----|----|----|----|----|----|----|----|----|
| 44           | Geomechanics   | Absent   |     |    |    |    |    |    |    | 3  |    |
| 45           | Structures and methods of calculation pipelines  | Absent   |     |    |    |    |    |    |    | 3  |    |
| 46           | Construction of oil and gas pipeline   | Absent   |     |    |    |    |    |    |    | 6  |    |
| 47           | Optional subjects :<br>47.1 Development Oil and Gas Formation<br>47.2 Optimization of oil field development  | Technique and technology of oil and gas mining |     |    |    |    |    |    |    | 6  |    |
| 48           | Oil and gas gathering, preparation, transportation   | Absent   |     |    |    |    |    |    |    | 6  |    |
| 49           | Free components :<br>49.1 Culturology (5kr.)<br>49.2 Politology (5kr.)<br>49.3 Precious stones, noble metals and their resources (5kr.)<br>49.4 Basis of PR (4kr.)<br>49.5 Photo & Video technologies (4kr.)<br>49.6 Investigative technology to the mass communications (6kr.)<br>49.7 Advertising in journalism (6kr.) | Absent   |     |    |    |    |    |    |    |    | 15 |
| 50           | Training Practice in Oil and Gas Technology  |  |     |    |    |    |    |    |    |    | 5  |
| 51           | Bachelor's thesis  |  |     |    |    |    |    |    |    |    | 10 |
| Per semester |  |  | 29  | 31 | 30 | 30 | 29 | 31 | 30 | 30 |    |
| Per year     |  |  | 60  |    | 60 |    | 60 |    | 60 |    |    |
| Total        |  |  | 240 |    |    |    |    |    |    |    |    |

### Map of learning outcomes

| No | Subject                               | Knowledge and understanding | Ability to use knowledge in practice | Making judgments | Communication skill | Ability to learn | Values |
|----|---------------------------------------|-----------------------------|--------------------------------------|------------------|---------------------|------------------|--------|
| 1  | Engineering Mathematics 1             | x                           | x                                    |                  |                     | x                |        |
| 2  | Physics 1                             | x                           |                                      | x                | x                   |                  |        |
| 3  | Information Technologies 1            | x                           | x                                    |                  | x                   |                  |        |
| 4  | General Chemistry                     | x                           | x                                    |                  | x                   | x                |        |
| 5  | English for Technical Specialties - 1 | x                           | x                                    |                  | x                   | x                |        |
| 6  | German for Technical Specialties - 1  | x                           | x                                    |                  | x                   | x                |        |
| 7  | French for Technical Specialties - 1  | x                           | x                                    |                  | x                   | x                |        |
| 8  | Introduction to Psychology            | x                           | x                                    | x                |                     |                  |        |

|    |  |   |   |   |   |   |   |
|----|--|---|---|---|---|---|---|
| 9  | Basics of Philosophy   | x | x | x |   |   | x |
| 10 | General Sociology  | x | x | x |   |   |   |
| 11 | History of Georgia   | x | x | x |   |   | x |
| 12 | Introduction in geology  | x | x | x |   |   |   |
| 13 | Engineering graphics   | x | x |   | x | x |   |
| 14 | Engineering Mathematics 2  | x | x |   |   | x |   |
| 15 | Physics 2  |   | x | x |   | x |   |
| 16 | English for Technical Specialties - 2                              | x | x |   | x | x |   |
| 17 | German for Technical Specialties - 2                               | x | x |   | x | x |   |
| 18 | French for Technical Specialties - 2                               | x | x |   | x | x |   |
| 19 | Foundations Geodesy and Topography                                 | x | x |   |   |   | x |
| 20 | Mineralogy and Petrography   | x | x | x |   |   |   |
| 21 | Basics of Electrical Engineering and Electronics                   | x | x | x |   | x |   |
| 22 | Structural geology and geological mapping                          | x | x | x |   |   |   |
| 23 | Theoretical Mechanics  | x | x | x |   | x |   |
| 24 | Strength of Materials  | x | x | x |   | x |   |
| 25 | Hydrogeology of Oil and Gas Deposits                               | x | x | x |   | x |   |
| 26 | geophysics   | x | x | x |   | x |   |
| 27 | Basic of Oil and Gas Geology                                       | x | x | x |   |   |   |
| 28 | Exploitation of Pump and Compressor Stations                       | x | x | x |   |   |   |
| 29 | Environment Protection and Ecology                                 | x | x |   |   |   | x |
| 30 | Wells Drilling   | x | x |   |   | x |   |
| 31 | Machine elements   | x | x |   |   |   |   |
| 32 | Underground hydromechanics   | x | x | x |   |   |   |
| 33 | Grants Oil and Gas Geology   | x | x | x |   | x |   |
| 34 | Grants Geophysics 1  | x |   | x | x | x |   |
| 35 | Geotectonic together with Geodynamics                              | x | x |   |   |   |   |
| 36 | Oil and gas pits (wells) drilling technology                       | x | x | x |   |   |   |
| 37 | Geology of Georgia   | x | x | x |   |   |   |
| 38 | Drilling Solutions   | x | x |   |   | x |   |
| 39 | Interpretation of the Results of Geophysical Research              | x | x | x |   | x |   |
| 40 | Physics of oil and gas reservoir                                   | x | x | x |   |   |   |
| 41 | Technic and technology oil and gas production                      | x | x | x |   |   |   |
| 42 | World's Oil and Gas Province 1                                     | x | x | x |   |   |   |
| 43 | Economics and Management of oil and gas enterprises                | x |   | x | x |   | x |
| 44 | Labour protection  | x | x | x |   | x |   |
| 45 | The rocks are broken down into drilling wells                      | x | x |   |   | x |   |
| 46 | Drilling borers and Mechanisms                                     | x | x | x |   |   |   |
| 47 | Drilling, testing and development of oil and gas wells             | x | x | x |   |   |   |
| 48 | Calculation and assessment of resources of oil, gas and condensate | x | x | x |   |   |   |
| 49 | Petrology of Sedimentary Rocks                                     | x | x | x |   |   |   |
| 50 | Field-Geological Services during drilling                          | x |   | x | x |   |   |
| 51 | Methods of search and investigation of accumulation of oil and gas | x | x | x |   | x |   |
| 52 | Bases of forecasting of content of subsoil                         | x | x | x |   | x |   |

|    |  |   |   |   |   |   |   |
|----|--|---|---|---|---|---|---|
| 53 | Phase zonality of Hydrocarbon and separate forecast of oil and gas | x | x | x |   | x | x |
| 54 | World,s OilandGasProwince 2  | x | x | x |   |   |   |
| 55 | Grafts Geophysics 2  | x | x | x |   | x |   |
| 56 | Automation and electric equipment of chisel installations.         | x | x | x |   | x |   |
| 57 | Pit Well Construction Design fundamentals                          | x | x | x |   |   |   |
| 58 | Inclined direction and horizontal drilling                         | x | x |   |   | x |   |
| 59 | Well ccompletion   | x | x |   |   | x |   |
| 60 | Designing of oil and gas pipeline                                  | x | x | x |   |   | x |
| 61 | Geomechanics   | x | x | x |   |   |   |
| 62 | Structures and methods of calculation pipelines                    | x | x | x |   |   |   |
| 63 | Construction of oil and gas pipeline                               | x | x | x |   |   |   |
| 64 | DevelopmentOilandGasFormation                                      | x | x | x |   |   |   |
| 65 | Optimization of oil field development                              | x | x | x |   |   |   |
| 66 | Oilandgasgathering, preparation, transportation                    | x | x | x |   |   |   |
| 67 | Culturology  | x | x | x | x | x |   |
| 68 | Politology   | x | x | x | x | x |   |
| 69 | Precious stones, noble metals and their resources                  | x | x | x | x | x |   |
| 70 | Basis of PR  |   | x |   | x |   | x |
| 71 | Photo & Video technologies   | x | x |   |   |   | x |
| 72 | Investigative technology to the mass communications                | x | x | x | x | x |   |
| 73 | Advertising in journalism  | x | x | x |   | x |   |
| 74 | Training Practice in Oil and Gas Technology                        | x |   | x | x |   |   |
| 75 | Bachelor's thesis  | x | x | x | x | x |   |

### Program curriculum

| № | Subject code | Subject                               | ECTS Credits/Hours | Hours   |                             |                   |            |          |                     |                   |            |                  |
|---|--------------|---------------------------------------|--------------------|---------|-----------------------------|-------------------|------------|----------|---------------------|-------------------|------------|------------------|
|   |              |                                       |                    | Lecture | Seminar (Work in the group) | Practical classes | Laboratory | Practice | Course work/Project | Mid-semester exam | Final exam | Independent work |
| 1 | MAS30908R1   | Engineering Mathematics 1             | 5/125              | 15      |                             | 30                |            |          |                     | 1                 | 2          | 77               |
| 2 | PHS54908R1   | Physics 1                             | 4/100              | 15      |                             |                   | 15         |          |                     | 1                 | 2          | 67               |
| 3 | ICT12708R1   | Information Technologies 1            | 4/100              | 4       |                             |                   | 26         |          |                     | 1                 | 1          | 68               |
| 4 | PHS16404R1   | General Chemistry                     | 4/100              | 15      |                             |                   | 15         |          |                     | 1                 | 1          | 68               |
| 5 | LEH11812R2   | English for Technical Specialties - 1 | 3/75               |         |                             | 30                |            |          |                     | 1                 | 1          | 43               |
| 6 | LEH11612R2   | German for Technical                  | 3/75               |         |                             | 30                |            |          |                     | 1                 | 1          | 43               |

|    |            | Specialties- 1  |       |    |    |    |    |    |    |  |   |   |    |
|----|------------|---|-------|----|----|----|----|----|----|--|---|---|----|
| 7  | LEH12012R2 | French for Technical Specialties - 1                  | 3/75  |    |    | 30 |    |    |    |  | 1 | 1 | 43 |
| 8  | SOS31412R1 | Introduction to Psychology                            | 3/75  | 15 | 15 |    |    |    |    |  | 1 | 1 | 43 |
| 9  | HEL31012R1 | Basics of Philosophy                                  | 3/75  | 15 | 15 |    |    |    |    |  | 1 | 1 | 43 |
| 10 | SOS43612R1 | General Sociology                                     | 3/75  | 15 | 15 |    |    |    |    |  | 1 | 1 | 43 |
| 11 | HEL21612R1 | History of Georgia                                    | 3/75  | 15 | 15 |    |    |    |    |  | 1 | 1 | 43 |
| 12 | PHS31903R1 | Introduction in geology                               | 6/150 | 15 |    |    | 30 | 30 |    |  | 1 | 1 | 73 |
| 13 | EET71605R1 | Engineering graphics                                  | 4/100 | 15 |    | 15 |    |    |    |  | 1 | 1 | 68 |
| 14 | MAS31008R1 | Engineering Mathematics 2                             | 5/125 | 15 |    | 30 |    |    |    |  | 1 | 2 | 77 |
| 15 | PHS55008R1 | Physics 2   | 4/100 | 15 |    |    | 15 |    |    |  | 1 | 2 | 67 |
| 16 | LEH11912R2 | English for Technical Specialties - 2                 | 3/75  |    |    | 30 |    |    |    |  | 1 | 1 | 43 |
| 17 | LEH11712R2 | German for Technical Specialties - 2                  | 3/75  |    |    | 30 |    |    |    |  | 1 | 1 | 43 |
| 18 | LEH12112R2 | French for Technical Specialties - 2                  | 3/75  |    |    | 30 |    |    |    |  | 1 | 1 | 43 |
| 19 | PHS41103R1 | Foundations Geodesy and Topography                    | 3/75  | 15 |    | 15 |    |    |    |  | 1 | 1 | 43 |
| 20 | PHS30803R2 | Mineralogy and Petrography                            | 5/125 | 15 |    | 30 |    |    |    |  | 1 | 2 | 77 |
| 21 | EET40202R1 | Basics of Electrical Engineering and Electronics      | 3/75  | 15 |    | 15 |    |    |    |  | 1 | 1 | 43 |
| 22 | PHS34203R2 | Structural geology and geological mapping             | 4/100 | 15 |    | 15 |    |    |    |  | 1 | 2 | 67 |
| 23 | MAS37901R1 | Theoretical Mechanics                                 | 3/75  | 15 |    | 15 |    |    |    |  | 1 | 1 | 43 |
| 24 | AAC02801R1 | Strength of Materials                                 | 3/75  | 15 |    | 15 |    |    |    |  | 1 | 1 | 43 |
| 25 | PHS30403R2 | Hydrogeology of Oil and Gas Deposits                  | 3/75  | 15 |    | 15 |    |    |    |  | 1 | 2 | 42 |
| 26 | MAP41403R2 | geophysics  | 5/125 | 15 |    | 30 |    |    |    |  | 1 | 1 | 78 |
| 27 | PHS34303R2 | Basic of Oil and Gas Geology                          | 6/150 | 15 |    |    | 45 |    |    |  | 1 | 1 | 88 |
| 28 | MAP54403R1 | Exploitation of Pump and Compressor Stations          | 3/75  | 15 |    | 15 |    |    |    |  | 1 | 1 | 43 |
| 29 | EET20704R1 | Environment Protection and Ecology                    | 3/75  | 15 |    | 15 |    |    |    |  | 1 | 1 | 43 |
| 30 | MAP53203R1 | Wells Drilling  | 4/100 | 15 |    | 15 |    |    |    |  | 1 | 1 | 68 |
| 31 | EET75105R1 | Machine elements                                      | 3/75  | 15 |    | 15 |    |    |    |  | 1 | 1 | 43 |
| 32 | MAP50503R1 | Underground hydromechanics                            | 5/125 | 15 |    | 30 |    |    |    |  | 1 | 1 | 78 |
| 33 | PHS35603R2 | Grafts Oil and Gas Geology                            | 6/150 | 15 |    |    | 45 |    |    |  | 1 | 1 | 88 |
| 34 | MAP44503R1 | Grafts Geophysics 1                                   | 5/125 | 15 | 30 |    |    |    |    |  | 1 | 1 | 78 |
| 35 | PHS72503R1 | Geotectonic together with Geodynamics                 | 3/75  | 15 |    | 15 |    |    |    |  | 1 | 1 | 43 |
| 36 | MAP53003R1 | Oil and gas pits (wells) drilling technology          | 5/125 | 15 |    | 30 |    |    |    |  | 1 | 1 | 78 |
| 37 | PHS32003R1 | Geology of Georgia                                    | 3/75  | 15 |    | 15 |    |    |    |  | 1 | 1 | 43 |
| 38 | MAP53303R1 | Drilling Solutions                                    | 5/125 | 15 |    | 30 |    |    |    |  | 1 | 1 | 78 |
| 39 | MAP41503R2 | Interpretation of the Results of Geophysical Research | 6/150 | 30 |    | 30 |    |    |    |  | 1 | 1 | 88 |
| 40 | MAP50103R1 | Physics of oil and gas reservoir                      | 5/125 | 15 |    | 15 |    |    | 15 |  | 1 | 1 | 78 |
| 41 | MAP50303R1 | Technic and technology oil and                        | 5/125 | 15 |    | 30 |    |    |    |  | 1 | 1 | 78 |

|    |            |  |       |    |    |    |    |    |  |   |   |    |
|----|------------|--|-------|----|----|----|----|----|--|---|---|----|
|    |            | gas production   |       |    |    |    |    |    |  |   |   |    |
| 42 | PHS34403R2 | World,s OilandGasProwince 1  | 3/75  | 15 |    |    | 15 |    |  | 1 | 1 | 43 |
| 43 | BUA72403R1 | Economicsand Management of oil and gas enterprises                 | 5/125 | 15 | 30 |    |    |    |  | 1 | 2 | 77 |
| 44 | HHS28503R1 | Labour protection  | 3/75  | 15 |    |    | 15 |    |  | 1 | 1 | 43 |
| 45 | MAP53603R1 | The rocks are broken down into drilling wells                      | 6/150 | 30 |    | 30 |    |    |  | 1 | 1 | 88 |
| 46 | MAP52803R1 | Drilling borers and Mechanisms                                     | 6/150 | 30 |    | 30 |    |    |  | 1 | 1 | 88 |
| 47 | MAP52903R1 | Drilling, testing and development of oil and gas wells             | 6/150 | 30 |    | 30 |    |    |  | 1 | 1 | 88 |
| 48 | PHS35703R2 | Calculation and assessment of resources of oil, gas and condensate | 6/150 | 30 |    |    | 15 | 15 |  | 1 | 1 | 88 |
| 49 | PHS30903R2 | Petrology of Sedimentary Rocks                                     | 6/150 | 30 |    |    | 30 |    |  | 1 | 2 | 87 |
| 50 | PHS35503R2 | Field-Geological Services during drilling                          | 6/150 | 15 |    |    | 45 |    |  | 1 | 1 | 88 |
| 51 | PHS34603R2 | Methods of search and investigation of accumulation of oil and gas | 6/150 | 15 |    |    | 30 | 15 |  | 1 | 1 | 88 |
| 52 | PHS34503R2 | Bases of forecasting of content of subsoil                         | 6/150 | 15 |    |    | 45 |    |  | 1 | 1 | 88 |
| 53 | PHS34703R2 | Phase zonality of Hydrocarbon and separate forecast of oil and gas | 6/150 | 15 |    |    | 45 |    |  | 1 | 1 | 88 |
| 54 | PHS35403R2 | World,s OilandGasProwince 2  | 6/150 | 15 |    |    | 45 |    |  | 1 | 1 | 88 |
| 55 | MAP44603R1 | Grafts Geophysics 2  | 5/125 | 15 | 30 |    |    |    |  | 1 | 1 | 78 |
| 56 | MAP53103R1 | Automation and electric equipment of chisel installations.         | 5/125 | 15 |    | 30 |    |    |  | 1 | 1 | 78 |
| 57 | MAP53503R1 | Pit Well Construction Design fundamentals                          | 5/125 | 15 |    | 30 |    |    |  | 1 | 1 | 78 |
| 58 | MAP53403R1 | Inclined direction and horizontal drilling                         | 5/125 | 15 |    | 30 |    |    |  | 1 | 1 | 78 |
| 59 | MAP52703R1 | Well completion  | 5/125 | 15 |    | 30 |    |    |  | 1 | 1 | 78 |
| 60 | MAP48203R1 | Designing of oil and gas pipeline                                  | 6/150 | 30 |    | 30 |    |    |  | 1 | 1 | 88 |
| 61 | MAP48403R1 | Geomechanics   | 3/75  | 15 |    | 15 |    |    |  | 1 | 1 | 43 |
| 62 | MAP48103R1 | Structures and methods of calculation pipelines                    | 3/75  | 15 |    | 15 |    |    |  | 1 | 1 | 43 |
| 63 | MAP48303R1 | Construction of oil and gas pipeline                               | 6/150 | 30 |    | 30 |    |    |  | 1 | 1 | 88 |
| 64 | MAP50603R1 | Development OilandGasFormation                                     | 6/150 | 30 |    | 30 |    |    |  | 1 | 1 | 88 |
| 65 | MAP50403R1 | Optimization of oil field development                              | 6/150 | 30 | 30 |    |    |    |  | 1 | 1 | 88 |
| 66 | MAP50203R1 | Oilandgasgathering, preparation, transportation                    | 6/150 | 15 |    | 30 |    | 15 |  | 1 | 1 | 88 |
| 67 | SOS42411R1 | Culturology  | 5/125 | 15 | 30 |    |    |    |  | 2 | 2 | 76 |
| 68 | SOS20313R1 | Politolgy  | 5/125 | 15 | 30 |    |    |    |  | 2 | 2 | 76 |
| 69 | PHS30203R1 | Precious stones, noble metals and their resources                  | 5/125 | 15 |    |    | 30 |    |  | 1 | 2 | 77 |
| 70 | JOI14612R1 | Basis of PR  | 4/100 | 15 | 15 |    |    |    |  | 1 | 1 | 68 |

|    |            |   |            |    |    |  |  |    |     |   |   |     |
|----|------------|---|------------|----|----|--|--|----|-----|---|---|-----|
| 71 | JOI15712R1 | Photo & Video technologies                          | 4/100      | 15 | 15 |  |  |    |     | 1 | 1 | 68  |
| 72 | JOI15412R1 | Investigative technology to the mass communications | 6/150      | 30 | 30 |  |  |    |     | 1 | 1 | 88  |
| 73 | JOI15512R1 | Advertising in journalism                           | 6/150      | 30 | 30 |  |  |    |     | 1 | 1 | 88  |
| 74 | MAP55003R1 | Training Practice in Oil and Gas Technology         | 5/125      |    |    |  |  | 60 |     | 1 | 1 | 63  |
| 75 | MAP55103R1 | Bachelor's thesis                                   | 10/25<br>0 |    |    |  |  |    | 120 | 1 | 1 | 128 |

Program Principle

Nani Khundadze

Faculty of Mining and Geology  
Head of Quality Assurance Service

Shalva Keleptrishvili

Dean of the faculty

Anzor Abshilava

**Accepted at**

Quality Assurance Service of GTU

Irma Inashvili

**Agreed with**

Mining and Geology

At the Faculty Council Meeting

(№ 3) 30.03.2018

Chairman of the Faculty Board

Anzor Abshilava