

# KLAIPEDA STATE UNIVERSITY OF APPLIED SCIENCES

## Faculty of Technologies

**STUDY PROGRAMME:** GEODESY  
**STUDY SUBJECT:** GEOLOGY  
**SUBJECT CODE:** TF-G-2-012

Subject group*	Subject type**	Form of studies	Structure***				Hours, total	Credits
			T	P	K	S		
SK	P	Full-time (NL)	16	28	3	33	80	3
		Part-time (I)	10	8	29	33		

\*Subject group: BS—general study subjects; SK—subjects of the study field.

\*\*Subject type: P—compulsory subject; A—optional subject (alternative), LP—elective.

\*\*\*Structure T—theory; P—seminars, placements, laboratory works; K—consulting; S—self-studying.

### Annotation

The subject analyses the importance of geology science, the significance of ecogeology and geological phenomena. The programme is aimed at students seeking to acquire theoretical and practical knowledge in the field of geology. Theoretical knowledge about the structure of the Earth's middle and crust, global tectonics is provided. Practical skills to analyse and evaluate geological environment, Lithuanian soil types, soil plans are developed; to create a hydrogeological profile and perform an analysis.

### Links between the learning outcomes of the programme and the outcomes of the study subject as well as the study methods and the student performance assessment methods

Learning outcomes of the programme	Learning outcomes of the study subject	Study methods	Student performance assessment methods
A1. Demonstrates knowledge and understanding required to achieve the objectives of fundamental humanities and social sciences, measurements of nature and its phenomena, the engineering profession, and to develop wider erudition and philosophical worldview,	A1.1. Knows and understands natural phenomena, the importance of geological science. A1.2. Able to assess the geological environment, name geological processes.	Demonstration and teaching of theoretical material by using Power Point program, explanation, self-studying of teaching materials. Discussion.	Oral questioning.
A3. Demonstrates knowledge and understanding relating to traditional and innovative measurement engineering technologies and their applications, significant in the field of technology science research, design and development, and also has a holistic approach to making engineering decisions, coordinating costs, benefits, safety, quality, reliability and environmental impact, applying the principles of sustainable development.	A3.1. Knows and understands the ways and means of protecting and using the soil. A3.2. Understands the importance of ecogeology.	Demonstration and teaching of theoretical material by using Power Point program, explanation, self-studying of teaching materials. Discussion.	Written survey.
C1. Applies measurement information for engineering research and solving other applied tasks, designing various maps and IS	C1.1. Knows and is able to apply legislation related to geological science. C1.2. Is able to use soil	Analysis and application of legislation analysis of methodical material, search for	Application in practical work. Assessment of practical work.

measurement databases, and applying legal acts in professional activities.	maps.  C1.3. Understands engineering geological conditions and is able to describe them.	literature and its analysis.  Discussion.	
E1. Able to communicate with colleagues, executives and clients in a correct and logical written and oral manner in Lithuanian and at least one foreign language, using modern information and communication technologies, and to work in a multidisciplinary group/team.	E1.1. Able to correctly, logically identify, describe and submit written practical and independent works in geology. E1.2. Able to communicate with others, work in a team when seeking information, processing data and presenting results.	Theoretical lecture. Practical work. Discussion.	Submission of results of practical and individual works.

### Subject content and scope

Topic name and content description	Number of contact hours, full-time			Number of contact hours, part-time			S	Hours, total
	T	P	K	T	P	K		
<b>1. Geological science. Structure of the Earth's middle.</b> Concept of geological science. Man and geology. Current issues in geology. Engineering geology and GIS. Ecogeology. Analysis of the map of ecogeological recommendations. Earth, the structure of its middle and crust. Practical work No. 1 Structure of the Earth's middle. Purpose: to draw the structure of the Earth's middle and provide written and oral description of it. Analysis of the map of potential hotbeds of pollution and ecological studies. Independent work: literature studies, introduction to the State Geological Information System.	2	4	1	2	1	4	4	11
<b>2. Hydrogeology. Hydrogeological research. Primer properties. Groundwater, regime</b> Practical work No. 2. Hydrogeological profile. Aim: according to the given task, to draw a hydrogeological profile and analyse hydrogeological conditions. Independent work: to analyse the Lithuanian hydrogeological map, the map of underground water basins, the map of underground water reservoirs.	3	8	1	2	2	8	6	18
<b>3. GIS utilization in geology. Basics of geological mapping. Spatial datasets: exploitations, mineral deposits (mining plots), geological register (reservoirs, wells, surveys), etc.</b> Independent work: map analysis, including operating underground wells, geotopes, wells, cartographic wells.	2	-	-	1	-	1	4	6
<b>Formation of soil rocks. Minerals. Search for minerals, deep-lying minerals by using Geoportal.lt.</b> Practical work No. 3 Minerals. With the help of the State Geological Information System (GEOLIS), to find affected areas and information about them, to determine the coordinates of a graphic or another object of the geological register, to determine areas, distances. Physical properties of minerals. Rocks. Aims: to get to know the physical properties of minerals and the methodology used to identify them; get to know various types of mineral aggregates. Get to know the main, most common minerals that form rocks. Independent work: To prepare a Power Point presentation about a selected rock or mineral. Using the State Geological Information System, to analyse mineral deposits in	1	4	-	1	1	3	8	13

Lithuania.								
<b>5. Geomorphologic features of Lithuanian terrain. Geological processes. Relief-forming endogenous and exogenous processes.</b> Practical work No. 4. Analysis of the geomorphological map and the map of geological processes and phenomena. Aims: to analyse the genetic types of Lithuanian terrain and the geomorphological regionalisation of Lithuania. Independent work: analysis of quaternary, quaternary geological sections, pre-quaternary geological maps.	2	2	-	1	2	1	2	6
<b>6. Lithuanian soil types.</b> Soil and its components. Soil processes. Soil cover studies. Soil protection. Independent work: literature analysis.	2	-	-	1	-	1	4	6
Independent work: summary of results.	4	10	1	2	2	11	5	20
<b>Total number of hours</b>	<b>16</b>	<b>28</b>	<b>3</b>	<b>10</b>	<b>8</b>	<b>29</b>	<b>33</b>	<b>80</b>

#### Evaluation system for subject learning outcomes

Subject learning outcome No.	Subject learning outcome evaluation criteria
A1.1.	Knowledge of and ability to describe geological processes.
A1.2.	Assessment of the geological environment.
A3.1.	Understanding and ability to describe the importance of ecogeology and soil protection.
A3.2.	Demonstration of understanding of the importance of ecogeology.
C2.1.	Use of legislation when writing a report.
C2.2.	Reading and interpretation of maps.
C2.3.	Knowledge of and ability to describe geological conditions.
D1.1.	Quality of the submission of practical and individual works, summary of results.
D1.2.	Collective work, discussions.

#### Assessment procedure

A ten-point criterion scale and a cumulative assessment system are applied.

$$IKV = \sum_{i=1}^n X_i \times k_i$$

n—number of intermediate assignments (4),

X<sub>i</sub>—assessment of intermediate assignments and the examination,

k<sub>i</sub>—weighted coefficients of intermediate assignments and the examination.

Examinations can be sat by students with an average intermediate assignment score of at least 5.

#### Recommended literature and other sources of information

Key literature and sources of information			
No.	Literature and sources of information	Number of copies	
		At the library of the Faculty of Technologies	At other libraries of the University
1.	Dobkevičius M. (2001) <i>Hidrogeodinamika</i> . Vilnius. Publishing house: Enciklopedija, 358 p.	1	1
2.	Kemėšis V., Linčius A., Paškevičius J. , (2009) <i>Enciklopedinis geologijos terminų žodynas. I dalis</i> Publishing house of Vilnius University. 650 p. – SBN 978-9955-33-461-3	1	1
3.	Kemešis V., Linčius A., Paškevičius J. (2009) <i>Enciklopedinis geologijos terminų žodynas. II dalis</i> Vilnius : Publishing house of Vilnius University, 200 p. - SBN 978-9955-33-468-2	1	1
4.	Juodkazis, V., Marcinonis, A. (2008) <i>Aplinkos hidrogeologija</i> . Vilnius: Vilnius University, ISBN 978-9955-918-02-8.	1	1
5.	Motuza, G. (2006) <i>Magminių ir metamorfinių uolienu petrologija</i> . Vilnius: Publishing house of Vilnius University, 332 p.	1	1

Additional literature and sources of information	
No.	Literature and sources of information

1.	Allaby, M. A (2008) <i>Dictionary of earth sciences</i> . Oxford University Press. 654 p.
2.	Stenley S.M. (1999) <i>Earth System History</i> . W.H. Freeman and Company, 615 p.
3.	Thompson, G.R., Turk , J. (1993) <i>Modern physical geology</i> . Saunders College Publishing, 608 p.
4.	Venkatramaiah, C. (2007) <i>Geotechnical engineering</i> . New Age International, 926 p.
5.	Prušinskienė, S. (2006) <i>Mineralų ir uolienu makroskopinis apibūdinimas. Laboratorinių darbų metodikos nurodymai</i> . Vilnius: Technika, 60 p.

**Subject description drawn up by:**

Lecturer

(position)

(signature)

Giedrė Ivavičiūtė

(degree, name, surname)