Course code	Course group	Volume in ECTS credits	Course valid from		Course valid to	Reg. No.	
APL1003	С	6	2013-06-10		2016-06-10		
Course type				Compulsory			
Course level				I cycle			
Semester the course is delivered				Spring			
Study form				Face-to-face			
Course title	in Lithuanian						
APLINKO	S GEOLOGIJA						

COURSE DESCRIPTION

Course title in English

ENVIRONMENTAL GEOLOGY

Short course annotation in Lithuanian

Kursas skirtas susipažinti su Žemės planeta (kilme, vidine sandara, dydžiais ir lt.), jos plutos sandara bei sudėtimi, geodinaminiais procesais, geologinių sluoksnių amžiumi ir jo nustatymo būdais, geologinės istorijos etapais, bendrąja stratigrafine skale ir atskirais geologiniais periodais (aplinkos kitimas, paleogeografija, uolienos, fosilijos), geologiniais ištekliais ir jų gavybos ir naudojimo poveikiu aplinkai bei pagrindiniais geocheminiais principais.

Short course annotation in English

The aim of the course is to focus on basic properties of Earth (origin, structure and composition of inner Earth and it crust), geodynamic processes, geologic time and methods of it determination, geological history, general stratigraphic scale and geological periods changes in environment, paleogeography, rocks, fossils), geological resources and to understand the environmental consequences of extracting them and to introduce with the main principles of geochemistry.

Prerequisites for entering the course

Basic ecology

Course aim

The objective of this course is to give understanding of fundamentals of geology, geological resources and the environmental consequences of extracting them and to introduce with the main principles of geochemistry.

Study programme outcomes	Course outcomes	Criteria of learning achievement evaluation				
	1. To characterize the main properties of Earth.	Characterized Earth origin, the main properties of Earth, crust structure.				
1. Define the main natural and anthropogenic	2. To explain the main geodynamic processes.	Explained endogenic and exogenous geological processes.				
components of the environment, their interaction and impact on	3. To describe the geological history.	Described age of Earth layers and geochronology.				
the state of the natural	4. To define types of the main minerals and rocks.	Defined properties of minera and rocks, identified their type				
environment.	5. To explain the main geochemical principles.	Explained the main geochemical principles.				
	6. To define geochemical properties of elements.	Defined chemical and physical properties of elements,				

Links between study programme outcomes, course outcomes and criteria of learning achievement evaluation

		occurrence, use, hazards.			
2. Explain the main local, regional and global	7. To characterize geochemical anomalies.	Characterized sources of geochemical pollution and parameters of anomalies.			
environmental issues caused by human activity.	8. To assess the technogenic pollution of surface lithosphere layer.	Assessed the technogenic pollution degree of soil and potential hazards.			
3. Apply quantitative and qualitative methods for environmental monitoring and assessment of the state of the environment and its anthropogenic changes.	9. To apply geochemical methods.	Applied appropriate and effective geochemical methods according to properties of research object.			
5. Summarize the key environmental problems, factors determining them and potential threats to the natural environmental and human health.	10. To characterize environmental consequences of extracting geological resources.	Characterized use tendencies of geological resources and environmental consequences of their extraction.			
Link between course outcon	nes and content				
Course outcomes	Content (t	opics)			
1. To characterize the main Earth properties.	Earth origin, shape, size, density, temperature, chemical composition. Earth crust, it geological and geochemical structure and composition.				
2. To explain the main geodynamic processes.	Geodynamic processes. Endodynamic processes: sources of Earth internal energy, plate tectonics, magmatism, tectonic movements, fold and fracture. Exogenous processes: weathering, landslides, activities of wind and rivers, activities of sea and lakes, activities of groundwater, snow, ice (glacier), impact of meteorites.				
3. To describe the geological history.	Age of Earth layers and geochronology: relative and absolute age, their determination methods. General stratigraphic scale. The main features of geological periods in Lithuania and world.				
4. To define types of the main mineral and rock.	Minerals, classification, characterist rocks, their characteristics, identification	ics, identification. Sedimentary on. Rocks in Lithuania.			
5. To explain the main geochemical principles.	Thermodynamics and kinetics. Solubility.	Oxidation-reduction reactions.			
6. To define geochemical properties of elements.	Groups of chemical elements. Classification of elements, movement of rate of reactions. Accumulation and di	Chemical bonds, geochemical of elements: diffusion, adsorption, spersion of chemical elements.			
 7. To characterize geochemical anomalies. 8. To assess the technogenic pollution of surface lithosphere layer. 	Geochemical pollution sources and parameters of anomalies. Methodology of geochemical researches and assessment. Collection of samples, main investigation tools, interpretation of methods and data.				
9. To apply geochemical methods.	Geochemical parameters of environmental condition. Sources of hazardous chemical elements. Location of accumulation and background levels. Legislation for assessment of geochemical pollution, degree of pollution.				

10.	To char	acterize	Geological resources. Characteristics, classification and identification of						
environmental			geological resources. Tendencies of extraction in the world. Lithuanian						
consequences of extracting			geological res	geological resources and environmental consequences of their					
geological resources.			extraction.	extraction.					
Study	(teaching an	d learni	ng) methods						
Teac	hing methods	: Tellir	ng, disquisition,	present	ation of	example	es, d	iscussion, pr	actical tasks
form	ulation and ex	planatio	n, consulting.	1		1			
Lear	ning methods:	tasks so	olving, information	n search	n, literatur	e analys	is, pro	esentation pre	eparation.
Meth	ods of learnin	g achiev	vement assessme	nt		ť		*	-
Oper	n written test, a	issessme	ent of tasks solution	ons, ass	essment o	f presen	tatior	l.	
Distri	bution of wor	kload f	or students (cont	act and	d indepen	dent wo	ork ho	ours)	
Lect	ures		45 hours		I -				
Lab	oratory work		30 hours						
Indi	vidual sti	idents	85 hours						
worl	k st	iuciius	oe nouis						
		Total:	160 hours						
Struc	ture of cumul	ative sc	ore and value of	its con	stituent n	arts			
Surac	cure or cumun		ore and value or		servativ p				
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Course programme designed by dr. Gintarė Sujetovienė, dr. A.Kleišmantas