



COURSE UNIT (MODULE) DESCRIPTION

Course unit (module) title							Code				
Paleontological Methods in Geology											
Lecturer(s)				Department(s) where the course unit (module) is delivered							
Coordinator: dr. Sigitas Radzevičius, dr. Giedrė Vaikutienė				Department of Geology and Mineralogy, Institute of Geoscience, Faculty of Chemistry and Geoscience, Vilnius University, M.K.Čiurlionio str. 21/27, LT-03101 Vilnius.							
Study cycle				Type of the course unit (module)							
second				elective							
Mode of delivery			Period when the course unit (module) is delivered			Language(s) of instruction					
Face-to-face			autumn semester			Lithuanian/English					
Requirements for students											
Prerequisites: Paleontology					Additional requirements (if any): knowledge of English						
Course (module) volume in credits		Total student's workload		Contact hours			Self-study hours				
5		133		80			53				
Purpose of the course unit (module): programme competences to be developed											
Introduce students to paleontological research methods in Geology, its possibilities and techniques of application. During exercise time - to practice the investigation of paleontological remnants found in rocks, learn to present and interpret results.											
Learning outcomes of the course unit (module)				Teaching and learning methods			Assessment methods				
<ul style="list-style-type: none"> – have knowledge about different paleontological remnants and sedimentological environment which is the most suitable for persisting. To be able to choose proper interval of sediment section for applying of different paleontological research method. – have knowledge about possibilities of different paleontological methods (information which can be obtained). – have knowledge about the main laboratory techniques and to be able analyze prepared sediment samples under the microscope. – have knowledge about presentation of analysis results and to be able to interpret it. 				Lectures, problem based learning, exercises, self-study, individual work under the microscope			Presentation, seminars, written–oral exam				
Content: breakdown of the topics				Contact hours					Self-study work: time and assignments		
				Lectures	Tutorials	Seminars	Exercises	Laboratory work	Internship/work placement	Contact hours	Self-study hours
1. Fossils and fossils tapes.				2					2	2	Self-study of reference material
2. Fossils preservation.				2					2	2	Self-study of reference material
3. Acritarch analysis.				4					4	2	Self-study of reference material
4. Pollen analysis. Possibilities of pollen				4					4	2	Self-study of reference material

analysis in reconstruction of vegetation and climate.									material
5. Diatom analysis. Diatom analysis application for reconstruction of water basins paleoenvironment.	4						4	2	Self-study of reference material
6. Analysis of fossil fruits and seeds.	4						4	2	Self-study of reference material
7. Cladocera analysis.	4						4	2	Self-study of reference material
8. Ostracoda analysis.	4						4	2	Self-study of reference material
9. Mollusca analysis.	4						4	2	Self-study of reference material
10. Brachiopoda analysis.	4						4	2	Self-study of reference material
11. Graptolite analysis.	2						2	2	Self-study of reference material
12. Conodont analysis.	2						2	2	Self-study of reference material
13. Climate reconstructions.	2		2				4	2	Self-study of reference material
14. Biostratigraphy.	2		8				10	2	Self-study of reference material
15. Problems of palaeontological data analysis.	4		6				10	2	Self-study of reference material
16. Samples analysis by microscope			8				8	10	Analysis of slides under the microscope, list of found paleontological remnants
17. Preparation of presentations			8				8	13	Self-study of reference material
18. Consultation before the exam.									
Total:	48		32				80	53	

Assessment strategy	Weight,%	Deadline	Assessment criteria
Participation in seminars	20%	During the semester	2 points: active in discussion, can answer to questions. 1point:can answer to questions 0: do not participate in seminars.
Presentation (15-20min.)	30%	During the semester	Assessment of presentation: -composition of presentation: presentation has main chapters, material and conclusions obvious (2 points) - presentation of material: clear graphic figures, proper citation of references (1point) If presentation was not prepared -0 point.
Final written-oral exam	50%	Exam session	Answers to the three questions: 5 points – excellent knowledge. 4 points – good knowledge, can be minor mistakes. 3 points – average knowledge, mistakes. 2 points – knowledge is below average, important mistakes. 1point – minimum knowledge, important mistakes. 0 – knowledge is below the minimum requirement.
Author	Year of publication	Title	Issue of a periodical or volume of a publication
Compulsory reading			
Smol J.P, Stoermer E.F. (eds.)	2016	The diatoms: application for the environmental and	Cambridge University Press. 667 p.

		Earth sciences		
Hammer Ø., Harper D.	2006	Paleontological data analysis		Blackwell, Publishing. 351 p.
Green R. O.	2001	A Manual of practical Laboratory and Field Techniques in Palaeobiology		Kluwer Academic Publishers. 539 p.
Berglund B.E. (ed.).	1986	Handbook of holocene palaeoecology and palaeohydrology		John Wiley & Sons. 869 p.
Optional reading				
Saraswati P.K., Srinivasan M.S.	2016	Micropaleontology, principles and applications		Springer Intern. Publ., Switzerland. 224 p.
Jones R.W.	2014	Applications of palaeontology, techniques and case studies		Cambridge University Press. 199 p.
Kabailienė M.	1990	Lietuvos holocenas		Vilnius. 176 p. [in Lithuanian]
T.Hackens, U.Miller (eds.)	1989	Geology and palaeoecology for archeologists	PACT 24	Ravello, European University Centre for Cultural Heritage. 213 p.