

## COURSE OF DOCTORAL STUDIES

Course title	Field of science (branch) code	University / Faculty	Institute / Department
Cartology	Natural Sciences (Physical Geography) N 006	Vilnius University / Faculty of Chemistry and Geosciences	Institute of Geosciences / Department of Cartography and Geoinformatics
Study methods	Number of credits allocated	Study methods	Number of credits allocated
Lectures		Seminars	
Individual work	8	Consultations	2
Course annotation			
<p>The aim of the subject is to understand the theoretical bases of cartology, to analyse the main concepts of cartology, the basic ideas of the main schools of cartography and the development of modern cartography ideas.</p> <p>Cartography on the background of geography. Thematic and topographic mapping. The place of cartology in cartography. The connection between cartology and cartography.</p> <p>Development of cartographic ideas.</p> <p>Basic definitions of cartology science. Problems of cartology and cartographic terminology.</p> <p>Variety of cartographic models. Application of space and aerial photographs in mapping. Cartographic-mathematical modelling.</p> <p>Schemes of cartographic structure.</p> <p>Forms of cartographic research method. Structure of the cartographic research method. Relationship between cartographic research method and mapping methods. Application and improvement of cartographic research method.</p> <p>Assumptions of complex mapping. Systematic approach. Hierarchical structuring of mapped phenomena. Mapping of geosystems and social systems.</p> <p>The relationship between cartography and informatics. Adequacy of cartographic information. Cartographic symbols and information transmission problems.</p> <p>GIS and cartography. Theoretical validity of automation processes in cartography.</p> <p>Problems of cartographic generalization. Systemic principles of generalization.</p> <p>Problems of map using.</p> <p>Problems of cartographic image perception.</p> <p>Problems of cartographic formalization.</p> <p>Cartography and semiotics. The semiotic meaning of cartographic symbols. Semiotic cartographic studies. Syntax of cartographic images. Semantics of cartographic images. Pragmatics of cartographic images. Cartosemiotic investigations.</p> <p>Linguistic principles in cartography. Linguistic aspects of cartographic symbols.</p> <p>Logical aspects of cartographic symbol creation.</p> <p>The relationship between cartography and psychology. Psychophysical surveys of map perception and basic attitudes.</p>			
Required readings			
<p><i>Cartography in the European Renaissance</i>. 2007. Ed. D. Woodward. Chicago: The University of Chicago Press. 2272 p.</p> <p>Lambert N., Zanin Ch. 2020. <i>Practical Handbook of Thematic Cartography Principles, Methods, and Applications</i>. Routledge: Taylor and Francis group. 224 p.</p> <p>MacEachren A.M. 200). <i>How maps work: presentation, visualization and design</i>. New York – London: The Guilford Press. 513 p.</p> <p>Wood D., Fels J. 2008. <i>The natures of maps: cartographic constructions of the natural world</i>. Chicago: University of Chicago Press. 231 p.</p>			
Consulting lecturers Name, surname	Degree	The most important works in the field of science (branch) have been published during the last 5 years	
Algimantas Česnulevičius	dr. habil.	Morkūnaitė R., Bautrėnas A., Česnulevičius A., 2017. The recent investigations and providences about active aeolian forms in Curonian Spit (Lithuania). <i>Acta Geographica Silesiana</i> . 11(1), 23- 29.	

	<p>Łabuz T.A., Grunewald R., Bobykina V., Chubarenko B., Česnulevičius A., Bautrėnas A., Morkūnaitė R., Tõnisson H., 2018. Coastal dunes of the Baltic Sea shores: a review. <i>Quaestiones Geographicae</i>, 37(1). 47–71.</p> <p>Morkūnaitė R., Bautrėnas A., Česnulevičius A., Dobrotin N., Baubinienė A., Jankauskaitė M., Kalesnikas A., Mačiulevičiūtė-Turlienė, N. 2018. Changes in quantitative parameters of active wind dunes on the south-east Baltic Sea coast during the last decade (Curonian Spit, Lithuania). <i>Geological Quarterly</i>, 62(1), 38–47,</p> <p>Česnulevičius A., Bautrėnas A., Bevainis L., Ovodas D., Papšys K. 2018. Applicability of Unmanned Aerial Vehicles in Research on Aeolian Processes. <i>Pure and Applied Geophysics</i>, 175, 3179–3191.</p> <p>Česnulevičius A., Bautrėnas A., Bevainis L., Mačiulevičiūtė-Turlienė, N. 2019. Comparison of Accuracy of UAV Aerials and Ground Measurements in the Curonian Spit Dunes. <i>Baltic Journal of Modern Computing</i>, 7(4), 571-585</p> <p>Česnulevičius A., Bautrėnas A., Bevainis L., Ovodas D. 2019. A Comparison of the Influence of Vegetation Cover on the Precision of an UAV 3D Model and Ground Measurement Data for Archaeological Investigations: A Case Study of the Lepelionys Mound, Middle Lithuania. <i>Sensors</i>, 19(23), 5303.</p> <p>Česnulevičius A., Štiniienė L., Krikščiūnienė V., Svilienė R., Mačiulevičiūtė-Turlienė N., Bautrėnas A., Beconytė G., Ovodas D., Bevainis L. 2019. The structure of Volume III of the National Atlas of Lithuania and techniques of cartographic visualization. <i>Polish Cartographical Review</i>. 51(1). 19-27.</p>
<p>Approved by the Doctoral Committee for Physical Geography (N006) on 9th of March 2021, protocol no. (4.20 E) 610000-KT-24</p>	
<p>Committee Chairman assoc. prof. dr. D. Pupienis</p>	