

Study programme: MAS Geography			
Course title: GIS application in environmental monitoring and protection			
Teacher(s): dr Laslo Muči			
Status: elective			
ECTS: 5			
Requirements: none			
Learning objectives Ecological planning requires an interdisciplinary approach in solving the problems of conflict between natural resource exploitation and conservation. Geospatial data, GIS, software, models and simulations are used as methods and tools to facilitate the planning process, with the goal of finding sustainable balance between economic, social and natural factors. The goal of this course is to instruct the students in geospatial methods and applications in monitoring and managing protected natural areas and ecosystems. Through practical examples the students will learn the most important theoretic foundations of ecological planning.			
Learning outcomes Knowledge of environmental geospatial monitoring methods , remote sensing, application of sensors and measuring devices. Understanding the basic concepts related to the indicators of environment al conditions and quality assesment. Understanding the concepts of natural and anthropogenic hazard and risk.			
Syllabus <i>Theoretical part:</i> Methods of data acquisition. Remote sensing. Analysis of multispectral, hyperspectral, thermal, radar images in environmental condition monitoring. Stochastic simulations of natural processes. Monitoring the indicators of environment in real time. Analysis of time series. Methods of hazard and risk assesment. <i>Practical part:</i> Field survey and measurement, using GIS programs in analysis and interpretation of geospatial data obtained from remote sensing and sensor network.			
Literature Burrough, P., McDonnell, R. (2006) Principi geografskih informacionih sistema. Građevinski fakultet, Beograd. Bruns, D.A., Wiersma, G.B., (2004): Design of environmental monitoring systems: a geospatial perspective. In: Wiersma, G.B. (ed.), Environmental Monitoring, pp. 1–35. Lewis Publishers Randolph, J., (2004): Environmental Land Use Planning and Management. Island Press, Washington, DC. Marsh W., Grossa, J., (2002): Environmental Geography, science, Land use and Earth System, John Wiley & Sons, Inc., New York.			
Weekly teaching load		Lectures: 2	Exercises: 2
Methods of Teaching Lectures, Illustration and Demonstration, Practical skills on PC. Seminar paper writing.			
Grading method (maximu 100 points)			
Pre-examination assignments	points	Final examination	points
Activities during lectures	0-5	Written examination	
Activities during exercises	0-5	Oral examination	30-45
Colloquia	10-20	
Seminar paper	0-25		