Course title	**Geoinformatics and remote sensing**
Code	??
Study	Postgraduate Interdisciplinary University Study Programme *Environment Protection and Nature Conservation*
Semester	III
ECTS	5
Course state	General ~~E~~elective
Professors	prof. dr. sc. Oleg Antonić, full professor and ~~i~~ prof. dr. sc. Mladen Jurišić, full professor
Colaborators	
Entrance conditions	None
Aim	The aim of the course is to guide students in the basics of geoinformatics and remote sensing research, with an emphasis on its application in nature protection and the environment.
Learning outcomes	After successfully completing the course, the students will be able to: 1. Establish the organization of spatial data obtained by sampling within a biological experiment. 2. Choose between raster and vector spatial data records for a specific problem in practice. 3. Understand the physical basics and fundamental principles of remote sensing. 4. Perform subjective interpretation and delineation of aero-photogrammetric and satellite imagery. 5. Understand the application of geoinformation technologies in different specific examples in practice.

Connections between students activity, learning outcomes and evaluation

Students activity	ECTS	Learning outcomes	Course activity	Evaluation methods	Points*	
					min	max
Attendance and active participation	2	1-5	Lectures	Minutes	20	40
Preparation for the exam	3	1-5	Final exam	Oral exam	35	60
Total	**5**				**55**	**100**

Consultations	According to the students need		
Teaching form	**Lectures**	**Seminars**	**Exercises**
No. of hours	10		5
Content	Definition and scope of geoinformatics. Organization and display of spatial data. Geographic Information System (GIS). Georeferencing. Raster and Vector GIS. Thematic layers. Attribute table. Operations over raster and vector themes. Digital terrain model and geomorphometric derivatives. Space Interpolation. Spatial data modeling. The Physical Basics of Remote Sensing Research. Photogrammetry and Photo Interpretation. Orthophoto. Multispectral scanners. Spectral signature of Earth's surface. Passive and active sensors. The most important satellite platforms. Spatial, temporal, spectral and thematic resolution. Subjective interpretation and delineation. Supervised and unsupervised automatic classification. Spectral channels as continuous		

	estimators of biological and environmental variables. Spatio-temporal series and monitoring on large areas. Significance of geoinformation technologies in nature and environment protection with demonstration on specific examples of practice.
Compulsory literature	Burrough, P.A., McDonnell, R.A. (1998): Principles of geographical information systems. Barret, E.C., Curtis, L.F. (1999): Environmental Remote Sensing. Jurišić, M., Plaščak, I. (2009): Geoinformacijski sustavi u poljoprivredi i zaštiti okoliša. Hengl, T., Reuter, H.I. (2009): Geomorphometry: Concepts, Software, Applications. Elsevier, Amsterdam, London, New York.
Optional literature	Bernhardsen, T. (2002): Geographic Information System, An Introduction, 3rd ed., John Willey and Sons, Toronto. Frančula, N. (2003): Digitalna kartografija. Oluić, M. (2001): Snimanje i istraživanje Zemlje iz Svemira: sateliti, senzori, primjena. Hengl, T. (2004): Geografski informacijski sustavi u inventarizaciji prirodnih resursa. Sveučilište u Osijeku, Osijek.
Completion condition	Active participation in the course
Exam form	Seminar and oral
Possible teaching languages	Croatian or English
Form of quality monitoring	~~Minutes of lectures and seminars, s~~Student questionaire