

NAME OF THE COURSE		GIS AND REMOTE SENSING APPLICATION					
Code		Year of study	1, I. semester				
Course teacher	Tea Duplančić Leder, PhD, Assistant Professor	Credits (ECTS)	5.0				
Associate teachers		Type of instruction (number of hours)	L	S	E	F	
			30		15		
Status of the course	compulsory	Percentage of application of e-learning	/				
COURSE DESCRIPTION							
Course objectives	Introducing students to the basics of GIS and RS technologies used in water resources management.						
Course enrolment requirements and entry competences required for the course	Undergraduate qualification (6th level of EQF or CROQF).						
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	<p>At the completion of the course, the student should be able to:</p> <ul style="list-style-type: none"> - understand the basic principles of GIS and remote sensing - select an appropriate analysis method to solve a given spatial research question - work with vector and raster data and conduct spatial analysis functions using GIS - perform Geostatistical analysis functions on spatial data using GIS 						
Course content broken down in detail by weekly class schedule (syllabus)	Introduction. GIS definition. Geographic Information Systems (GIS): history, data types, components. Spatial databases. Geodetic data. Matching geodetic data to existing maps. Relational and object-oriented data models. Presentation of spatial data. Vector and raster data. Spatial data management. Digital terrain models. GIS data analysis. Spatial analysis. Modelling and topological data modelling. Spatial statistics. Photogrammetry and remote sensing. Orthophotomap. Raster data. Geocoding raster data. GPS – basic concepts and operation mode. GPS measurements and errors. DGPS correction. Free Google Earth software. Location Base Services LBS. Integration of vector and GPS data and Google Earth layers.						
Format of instruction	<input checked="" type="checkbox"/> lectures <input checked="" type="checkbox"/> seminars and workshops <input checked="" type="checkbox"/> exercises <input type="checkbox"/> <i>on line</i> in entirety <input type="checkbox"/> partial e-learning <input checked="" type="checkbox"/> field work			<input checked="" type="checkbox"/> independent assignments <input type="checkbox"/> multimedia <input type="checkbox"/> laboratory <input type="checkbox"/> work with mentor			
Student responsibilities	Regular attendance of classes. Preparation of a written assignment. Oral exam.						
Screening student work (<i>name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course</i>)	Class attendance		Research		Practical training		
	Experimental work		Report				
	Essay		Seminar essay	1.0			
	Tests		Oral exam	1.0			
	Written exam	2.0	Project	1.0			
Grading and evaluating student	Attending classes and preparation of written assignment (40%). Oral exam (60%):						

work in class and at the final exam			
Required literature (available in the library and via other media)	Title	Number of copies in the library	Availability via other media
	Bolstad, P 2012, GIS Fundamentals, 4th edn. White Bear Lake, Minnesota.		
	Berry, JK 2013, Beyond Mapping III, BASIS Press. Web site: http://www.innovativegis.com/basis		
	CCRS, Fundamentals of Remote Sensing, Canada Centre for Remote Sensing		
	Dana, PH 2004, Coordinate systems overview, The University of Colorado, Web site: http://www.colorado.edu/geography/gcraft/notes		
Optional literature (at the time of submission of study programme proposal)	<p>(1) Longley, PA Goodchild, MF Maguire, DJ Rhind, DW 2008, Geographic information systems and science, 2nd edn. John Wiley & Sons Ltd.</p> <p>(2) Snyder, JP 1987, Map Projections: A Working Manual, USGS,.</p> <p>(3) de Smith, MJ Goodchild, MF Longley, PA 2013, Geospatial Analysis - A comprehensive guide, 4th edn. Web site: http://www.spatialanalysisonline.com/</p> <p>(4) Hengl, T 2009, A Practical Guide to Geostatistical Mapping, University of Amsterdam.</p> <p>(5) Levin, N 1999, Fundamentals of Remote Sensing, IMO - IMA, Trieste, Italy. Web site: http://geography.huji.ac.il/personal/Noam%20Levin/1999-fundamentals-of-remote-sensing.pdf</p> <p>(6) Meijerink, AM 1994, Introduction to the Use of Geographic Information Systems for Practical Hydrology, ITC, Enschede.</p>		
Quality assurance methods that ensure the acquisition of exit competences	<p>Quality assurance will be performed at three levels:</p> <p>(1) University level, through questionnaires; (2) Faculty level by Quality Control Committee; (3) Lecturer's level.</p>		
Other (as the proposer wishes to add)			