

Course title : Earth observation

Course Basic Information	
Academic Unit:	Faculty of Civil Engineering
Course title:	Earth observation
Level:	Master
Course Status:	Mandatory
Year of Study:	Year 2; Semester 3
Number of Classes per Week:	2+2
ECTS Credits:	6 ECTS
Time /Location:	According to the timetable
Teacher:	Assoc.Prof.Dr. Bashkim Idrizi
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Course Description:	This is an advanced course of Earth observation through remote sensing and aims to teach sophisticated methods and techniques in gathering information, processing and analyzing it, applying remote research in spatial planning, environmental monitoring and management. of natural resources. In this course, special importance will be given to image processing, image analysis, image classification, RS and GIS integration and RS application in various fields.
Course Goals:	Students will gain theoretical knowledge and practical skills on digital image processing, analysis, and applying these techniques in various remote sensing applications.
Expected Learning Outcomes:	After completing this course students should be able : <ul style="list-style-type: none"> - Remote Sensing - Image Processing - Image Analysis - Image Classification - Digital Change Detection - Remote Sensing Applications

Student Workload (should be in compliance with student's Learning Outcomes)			
Activity	Hours	Day/ Week	Total
Lectures	2	15	30
Theory/ Lab Work/Exercises	1	15	15
Practical Work	1	15	15
Consultations with the teacher	1	7	7
Field Work			
Test, seminar paper	5	4	20
Homework	1	7	7
Self-study (library or home)	2	15	30

Preparation for final exam	8	2	16
Assessment time (test, quiz, final exam)	3	2	6
Projects, presentations, etc.	2	2	4
Total			150

Teaching Methods:	<ul style="list-style-type: none"> - Lecture - Discussion during lectures - Exercises - Work in group
Assessment Methods:	<p>Prerequisite for assessment: more than 50% attendance in lectures and positive evaluation of seminar paper by the lecturer.</p> <p>First valuation: 25%</p> <p>Second Valuation: 25%</p> <p>Homework: 10%</p> <p>Attendance: 10%</p> <p>Final Exam: 30%</p> <p>Total: 100%</p>

Primary Literature:	<ol style="list-style-type: none"> 1.Jensen, J.R., 2015. Introductory Digital Image Processing: A Remote Sensing Perspective, 4rd edition, Prentice Hall, 2.Richards J.A., Jia X. Remote Seinsing digjital imag analyses. 2005. 3.Nikolli P., Kabashi I. Perpunimi i imazheve satelitore. 2018.
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Additional Literature:	Gonzalez C. R, Woods E. R: Digital Image Processing, 2007 CRCSI (2017-2020) Earth Observation: Data, Processing and Applications. Volume 1,2,3
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Designed teaching plan

Week	Title of the Lecture
Week 1:	<i>Introduction to the fundamentals of remote sensing</i>
Week 2:	<i>Sources of remotely sensed data</i>
Week 3:	<i>Base characteristics of data, Images, pixels, size and scale</i>
Week 4:	<i>Characteristics of satellites, the way of describe, Their projection on the surface of the Earth, quadratic covers.</i>
Week 5:	<i>Sensors and satellites.</i>
Week 6:	<i>Mathematical models of correction and referencing of satellite images.</i>
Week 7:	<i>Interpretation and analysis of satellite images TD.</i>
Week 8:	<i>First evaluation The qualifying first colloquium</i>
Week 9:	<i>Processing of satellite images</i>
Week 10:	<i>Analysis of images</i>
Week 11:	<i>Classification of images</i>
Week 12:	<i>Digital detection of changes</i>
Week 13:	<i>Use of Remote Sensing.</i>

Week 14:	<i>The applications of satellite image in the topography, cartography, urban planning, land use.</i>
Week 15:	<i>Second evaluation The qualifying second colloquium</i>

Academic Policies and Code of Conduct

We start and finish class on time.

Tools used during class must be cleaned and stored away at the end of class.

Mobile/smart phones, and other electronic devices (e.g. iPods) must be turned off (or on vibrate) and hidden from view during class time.

Laptop and tablet computers are allowed for quiet use only; other activities such as checking personal e-mail or browsing the Internet are prohibited.

Note | If a student has more than 3 class assignments evaluated below 50% he/she loses the right on taking the final exam. Evaluation is done from 0-100 %.