

ΔΠΥ731-REMOTE SENSING AND TELEMETRY

1. GENERAL

SCHOOL	School of Technology		
DEPARTMENT	Department of Forestry, Wood Sciences, and Design		
LEVEL	<i>Undergraduate</i>		
CODE	ΔΠΥ731	STUDENT SEMESTER	5 th
COURSE TITLE	Remote Sensing and Telemetry		
ACTIVITIES	WEEKLY HRS	ECTS	
Lectures and Laboratory Sessions	3	6	
TYPE OF COURSE	Scientific area		
PREREQUISITES:	None		
LANGUAGE TEACHING AND EXAMINATION:	Greek		
THE COURSE OFFERED TO STUDENTS ERASMUS	No		
WEBPAGES COURSE (URL)	https://eclass.uth.gr/courses/FWSD_U_154/		

2. LEARNING OUTCOMES

Learning Outcomes
<p>The aim of the course is to provide basic knowledge concerning methods of collection and use of remote sensing data using current technologies, with emphasis to photointerpretation of aerial photos and satellite images.</p> <p>At the end of the course students will be able to:</p> <ul style="list-style-type: none"> • Know the basic concepts and principles of remote sensing and telemetry physics • Know the basic satellite and airborne remote sensing data recording systems • Understand and develop various vegetation indices • Apply digital classification of satellite images
General Skills
<p>Upon successful completion of the course, the students will be able to develop and cultivate basic professional and social skills:</p> <ul style="list-style-type: none"> • Search, analysis and synthesis of data and information, using the necessary technologies • Adaptation to new situations • Decision making • Autonomous work • Teamwork • Demonstration of social, professional and moral responsibility and sensitivity to gender issues • Exercise criticism and self-criticism • Promoting free, creative and inductive thinking

3. COURSE CONTENT

In the theoretic part the following topics are described:

Introduction, Definitions, Remote Sensing and Telemetry Principles. Remote sensing data recording instruments. Earth observation satellites. Digital image analysis. Digital image processing. Thermal radiation in remote sensing. Microwave radiation in remote sensing. Unmanned aerial vehicles and recording instruments. Vegetation indices. Remote Sensing case studies in Forestry.

The laboratory part is taught 1 hour every week and focuses on practical application of the theoretic concepts through targeted exercises, group sessions and targeted assignments.

The final semester assignment requires submission of the assignment materials as well as a 10 minute oral presentation at week 12. The semester assignment counts for 20% of the total course assessment and the remaining 80% is obtained through written examination.

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY METHOD	Face to face	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Use of a course website on the e-class platform for posting (a) notes, (b) internet links, (c) announcements, search tools and social networks Furthermore, use of equipment such as as video projector, interactive board, and use of server and terminal stations at the laboratory room.	
TEACHING ORGANISATION	Activity	Semester Workload
	Interactive Teaching – Lectures	26
	Laboratory exercises	13
	Semester assignments	51
	Self-study	60
	Course Total	150
STUDENT EVALUATION	Both intermediate and final evaluation is applied. The evaluation of the theoretical part is carried out by: <ol style="list-style-type: none"> 1. Optional intermediate written examination 2. Semester assignment 3. Final written exam The evaluation of the laboratory part is carried out by: <ol style="list-style-type: none"> 1. Two short written exams on 4th and 8th semester week which involve multiple choice questions 2. Laboratory assignments delivered on a weekly basis 3. Final exam carried out on week 14 	

5. RECOMMENDED-BIBLIOGRAPHY

- Recommended literature:

- Καρτάλης Κ. και Φείδας Χ., 2006. Αρχές και Εφαρμογές Δορυφορικής Τηλεπισκόπησης, εκδόσεις Γκιούρδας, Αθήνα. [Κωδικός Βιβλίου στον Εύδοξο: 22767582]. (in Greek)
- Μερτίκας Σ., 2006. Τηλεπισκόπηση και Ψηφιακή Ανάλυση Εικόνας, Εκδόσεις Ίων, Αθήνα. (in Greek)
- Περάκης, Κ., Μωυσιάδης, Α., Φαρασλής, Ι., 2015. *Η τηλεπισκόπηση σε 13 ενότητες*. [ηλεκτρ. βιβλ.] Αθήνα: Σύνδεσμος Ελληνικών Ακαδημαϊκών Βιβλιοθηκών. Διαθέσιμο στο: <http://hdl.handle.net/11419/1840>. (in Greek)

- *Relevant scientific journals:*

- ISPRS Journal of Photogrammetry and Remote Sensing
- Remote Sensing of Environment
- Remote Sensing
- Applied Earth Observation and Geoinformation