MODULE DESCRIPTION

General

School	Geotechnical Sciences
Department	Forest and Natural Environment Sciences

Module Information

Title	ENVIRONMENTAL REMOTE SENSING
Course Code	F.Y.5
Level of Studies	UNDERGRADUATE
Teaching Period	SPRING TERM
Attendance Type	COMPULSORY
Prerequisites	

Orientation	Weekly Hours		Year	Semester	ECTS
	Lectures	Laboratory work			
ECOLOGY AND BIODIVERSITY CONSERVATION	2	2	3	6	5

Faculty Instructor

PANTELEIMON XOFIS

Type of Module

☑ General Foundation

☐ Specific Foundation / Core

☐ Knowledge Deepening / Consolidation

Mode of Delivery

☑ Face to face

☑ Distance learning

Digital Module availability

☑ E-Study Guide

☑ Departments Website

☐ E-Learning

Language

	Teaching	Examination
Greek	☑	☑
English	☐	☐

Erasmus

☑ The course is offered to exchange programme students

Learning Outcomes

Upon successful completion of the course, students will know: The principles of satellite remote sensing and its applications in the management and protection of the environment. The distinguishing features of satellite imagery as well as ways of obtaining satellite data from various sources. They will also know the basic steps required before the final analysis and processing of satellite images such as error correction techniques, spatial and spectral improvement techniques and spectral index extraction. They will be able to apply basic and advanced satellite image analysis techniques with the appropriate software. Finally they will be able to generate thematic maps using the results of their analysis.

List of General Competences

☑ Apply knowledge in practice

☑ Work autonomously

☑ Work in teams

☑ Work in an international context

☑ Work in an interdisciplinary team

☑ Respect natural environment

☑ Advance free, creative and causative thinking

Module Content (Syllabus)

- Historical development of remote sensing

- Electromagnetic spectrum and its characteristics

- Spectral signature and behavior of geographical objects in the electromagnetic spectrum.

- Separating characteristics of satellite images (spatial, spectral, radiometric and temporal resolution)

- Satellite systems and possibilities for obtaining data from the internet

- Spectral and spatial image enhancement (image registration, geometric correction, atmospheric correction, filters)

- Spectral channels and spectral horses (vegetation indices, humidity indices, etc.)

- Satellite image classification - objectives, technical approaches.

- Pixel-based satellite image classification, supervised and unsupervised.

- Object-oriented satellite image classification

Educational Material Types

☑ Book

☑ Notes

☑ Slide presentations

☐ Video lectures

☑ Multimedia

☑ Interactive exercises

☐ Other:

Use of Information and Communication Technologies

☑ Use of ICT in Course Teaching

☑ Use of ICT in Laboratory Teaching

☑ Use of ICT in Communication with Students

☑ Use of ICT in Student Assessment

Module Organization

Please fill in the workload of each course activity

Course Activity	Workload (hours)
Lectures	26
Laboratory work	26
Field Trip/Short Individual Assignments	40
Independent Study	33
Total	125

* 1 ECTS unit corresponds to 25 hours of workload

Student Assessment Methods

☑ Written Exam with Multiple Choice Questions

☑ Written Exam with Short Answer Questions

☑ Written Exam with Extended Answer Questions

☑ Written Assignment

☑ Report

☑ Oral Exams

☑ Laboratory Assignment

Suggested Bibliography (Eudoxus and additional bibliography)

1. Καρτάλης Κ. και Φείδας Χ. (2013). «Αρχές και εφαρμογές δορυφορικής τηλεπισκόπησης» Εκδόσεις Τζιόλα

2. Παρχαρίδης Ι. (2013). «Αρχές Δορυφορικής Τηλεπισκόπησης» Ηλεκρονικό Σύγγραμμα, «Καλιπος».

3. Campbell, J.B. και Wynne, R. H. (2011) Introduction to Remote Sensing, 5th Edition. The Guilford Press.