

Course Unit	Geographic Information Systems and Remote Sensing		Field of study	Environmental Science	
Master in	Management of Forest Resources		School	School of Agriculture	
Academic Year	2023/2024	Year of study	1	Level	2-1
Type	Semestral	Semester	2	ECTS credits	6.0
Code	6363-808-1104-00-23				
Workload (hours)	162	Contact hours	T -	TP -	PL -
			TC -	S -	E -
			OT -	O -	

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) José Manuel Correia Santos Ferreira Castro, João Paulo Miranda Castro

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:
Remote Sensing and Geographical Information Systems applied in ecology and land management. The students should get skills in specific software and hardware

Prerequisites

Before the course unit the learner is expected to be able to:
1. Computing
2. Ecology

Course contents

GIS applications: spatial manipulations of geographical and geophysical data for spatial interpolation and geostatistics. Support Decision Making applied to ecology and spatial planning. DR Applications: Thematic Cartography, Evaluation and Monitoring Silvopastoral, Erosion, Nature Conservation, Physiography, drainage, and relief.

Course contents (extended version)

1. Applied Geographic Information Systems (GIS)
 - Spatial analysis of geographic data;
 - Geophysical spatial interpolation and Geostatistics;
 - Support for Decision Making: multi-criterion and multi-objective evaluation;
 - Geographic information through the WWW
2. Applied Remote Sensing
 - Supervised and no-supervised classification of satellite imagery
 - Vegetation indexes
 - Analysis of Change and Time Series Data

Recommended reading

1. Avery, T. E. e Berlin, G. L. , 1992. Fundamentals of Remote Sensing and Airphoto Interpretation. V Ed. Macmillam Publishing Company. New York.
2. Burrough, P. , y McDonnell, R. , 1998. Principles of Geographical Information Systems, 98-161, Oxford University Press, Oxford.
3. Congalton, R. G. , Green, K. , 1999. Assessing the Accuracy of Remotely Sensed Data: Principles and Practices. Lewis Publishers. CRC Press, Inc. New York.
4. Eastman, J. R. , 2003 (a). IDRISI Kilimanjaro. Guide to GIS and Image Processing. Manual Version 14. 00. Clark Labs. Clark University. 950 Main Street. Worcester, MA. 01610-1477 USA.
5. Lillesand, T. M. , Kiefer, R. W. 2000. Remote Sensing and Image Interpretation, Fourth edition, John Wiley and sons. New York.

Teaching and learning methods

Four-hour lectures with labs integrated in a computer laboratory. Theoretical introduction during 20 minutes followed by practical applicatons using tutorial models and supervision from the instructor.

Assessment methods

- Final Evaluation - (Regular, Student Worker) (Final, Supplementary, Special)
- Practical Work - 100%

Language of instruction

1. Portuguese
2. English

Electronic validation

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03-02-2024	03-02-2024	03-02-2024	05-02-2024