School of Agriculture
Course Unit Syllabus

Level of qualification:
Short cycle (TESP)
Study cycle:
Environmental Protection Systems

Course Unit: **223508** – **Introduction to GIS**

Year 1 **Semester 1** **ISCED Code: 731** **ECTS: 3,0**

Tipe of Course Unit: Compulsory **Delivery Mode:** Face-to-face **Language of Instruction:** Portuguese

COURSE COORDINATOR: Luis Miguel Pinheiro da Luz

HOURS OF WORK

TOTAL HOURS	Contact Hours								Hours in autonomous work
	Theory	Theory and practice	Practical and laboratory work	Field work	Seminar	Internship	Tutorial guidance	Other	
75		**30**							**45**

Prerequisites (if applicable): Not applicable

LEARNING OUTCOMES (knowledge, skills and competence)

Introduce students to the basic concepts of Geographic Information Systems by performing practical assignments and solving spatial problems.

CONTENTS

Coordinate systems used in Portugal;

Geographic Information Systems:

-Basic notions;

- The Raster or quadric model - Advantages and disadvantages of this model in spatial analysis;

- The Vectorial Model - Advantages and disadvantages of this model in spatial analysis;

- Methods of collecting spatial data.

DEMONSTRATION OF THE CONTENTS COHERENCE WITH THE COURSE UNIT'S LEARNING OUTCOMES

Students begin the course by taking contact with general concepts regarding the use of geo-referenced data (or spatial data). The Students will be introduced to the characterization of geo-referenced data, by the use of geographic information modeling techniques. Then, two techniques for the representation of geospatial data are described, notably: vector and raster modeling. The techniques for spatial data analysis are presented and also will be made some presentations of case studies in various professional fields. Finally, the students will understand about the utility of Geographic Information Systems, especially to support decisions made by decision makers, and the need to evaluate the advantages/disadvantages of their implementation.

TEACHING METHODOLOGIES

The practical lectures complements the syllabus of the course, in order to allow students to do the appropriate spatial data analysis tasks under laboratory environment. The student should themselves implement spatial analysis functions.

DEMONSTRATION OF THE COHERENCE BETWEEN THE TEACHING METHODOLOGIES AND THE LEARNING OUTCOMES

The main course learning outcomes is to give to the Student the an introduction to the design of a geo-processing system. Using a computer environment, the student will implement the necessary spatial analysis functions, either vector model or raster model. With the implementation of a small geo-processing system, the main learning outcome is reached. With the investigation project about the use of the Geographic Information Systems, the Student will identify the advantages and disadvantages related with the usage of the system implemented, and will provide the necessary feedback regarding its use to support decisions based on

the system implemented. Through the written test the student must be able to clearly write about the subjects learned.

EVALUATION METHODS

The final exam shall consist on the design of a Geographic Information System made under laboratory environment, on a working group of two students, after chosen a professional topic, and also a investigation project about the use of Geographic Information Systems on Agriculture. There is also a small writing test that as a value of 20% of the final grade.

MAIN BIBLIOGRAPHY

Webpage of Course Unit

João Matos, Fundamentos de Informação Geográfica - 5ª Edição Atualizada e Aumentada; ISBN: 978-972-757-514-5; Editora: Lidel, 2010.

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