Universidad Zaragoza

60423 - Introduction to Geographic Information Systems

Syllabus Information

Academic year: 2024/25
Subject: 60423 - Introduction to Geographic Information Systems
Faculty / School: 103 - Facultad de Filosofía y Letras
Degree: 352 - Master's in Geographic Information Science and Technology for Land Management: Geographic Information Systems and Remote Sensing
ECTS: 2.0
Year: 1
Semester: Annual
Subject type: Optional
Module:

1. General information

The objective of this subject is to provide the conceptual foundations of geographic information and the models and data structures that geographic information systems (GIS) use to organize, analyse and represent it.
The contents of this subject are transversal to all the Sustainable Development Goals (SDGs) and are more precisely aligned with SDG 4: Quality Education.
This is an elective designed as a training complement for students who have not taken a subject on GIS, with the ultimate goal of ensuring a minimum level that allows them to follow the development of other specialized subjects.

2. Learning results

The student, in order to pass this subject, must demonstrate the following results:
1. Describe the social, scientific and technological context of GIS development, define it correctly and indicate its components, listing the fields of application of this GIT.
2. Clearly explain the nature of geographic information and the principles, concepts and elements of its modelling in a GIS environment, differentiating between vector and raster data models.
3. Describe reasonably the sources of information useful for GIS and the procedures for obtaining and editing spatial databases, indicating the different sources of error and their forms of treatment.
4. Compare the different principles and techniques for creating thematic databases and explain and apply the principles and techniques of the Relational Database Management System for modelling thematic information and creating databases.
5. Explain the analysis functions of GIS with vector data and with raster data.
6. Cite the different types of output formats offered by GIS for data visualization.

3. Syllabus

1. Context, definition, components, and applications of geographic information systems (GIS)
2. The representation of the geographic space in GIS: data models
3. Obtaining and organizing information. Creation and maintenance of spatial and thematic databases
4. GIS and geographic analysis: basic concepts
5. Visualization of geographic data in GIS

4. Academic activities

The program offers the students help to achieve the expected results and comprises the following activities:
1. Oral presentation by the teacher of the theoretical-practical contents of the subject.
2. Practical and classroom activities
3. Tutoring.
4. Personal study.
5. Assessment tests.

5. Assessment system

The student can opt for the CONTINUOUS EVALUATION or for the GLOBAL EVALUATION. In both cases, the evaluation is based on the same type of tests and criteria, although the global evaluation is carried out during the official evaluation period established in the University's academic calendar, while the continuous evaluation is carried out during the class period.

First call:
Written test (weighting in the final grade): 100% It consists of multiple choice questions, short answer questions, short exercises and an exercise on relational database design for geographic information modelling.
Evaluation criteria: correctness of the answer, mastery of the concepts handled, accuracy in the use of terminology.

Second call:
Written test (weighting in the final grade): 100% It consists of multiple choice questions, short answer questions, short exercises and an exercise on relational database design for geographic information modelling.
Evaluation criteria: correctness of the answer, mastery of the concepts handled, accuracy in the use of terminology.

6. Sustainable Development Goals

4 - Quality Education