60423 - Basic notions about SIGs

1.General information

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

4.1.Assessment tasks (description of tasks, marking system and assessment criteria)

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

The learning and teaching methodology developed in the course is aimed to promote the achievement of the learning objectives. The course has a predominantly theoretical character, thus teaching and learning activities are developed using the lecture approach. In addition, several practical activities are also scheduled, always related to the theoretical and conceptual aspects of GIS.

Extensive material will be available *via* the Moodle site of the course. This offers a variety of resources including a repository of the lecture notes used in class, a course syllabus as well as other forms of course-specific materials, including a discussion forum.

5.2.Learning tasks

The course includes the following learning tasks:

- Lectures: 15 hours
- Practical activities: Interactive, individual or group activities: 5 hours
- Assessment: 1 hour

5.3.Syllabus

The course will address the following topics:

Topic 1. Context, definition and components of GIS

- Social, scientific and technological development of GIS context.
- Definitions and the elements of GIS.

Topic 2. The nature of geographic information and its representation in GIS

- The nature of geographic information and its contents.
- Principles, concepts and elements of modeling of geographic information in GIS.
- Data models in GIS: vector and raster.

Topic 3. Collection and organization of data: database creation and maintenance of spatial and thematic data

- Information sources in the GIS.
- Capturing and editing spatial databases.
- Principles and techniques for creating thematic databases.
- Sources, meaning and treatment of errors.

Topic 4. Principal analysis functions of GIS

- Classification and types of functions.
- Analysis functions with vector data.
- Analysis functions with raster data.

Topic 5. Visualizing data in GIS
Topic 6. Considerations on the implementation of GIS into organizations

5.4.Course planning and calendar

The sessions (20 hours) are developed, during the first month of the academic year prior to those of the course "Introduction to geographic information technologies" in which the management of specific computer programs for GIS is addressed.
For this course the student should not submit any work, being only subject to a written test.

5.5.Bibliography and recommended resources
- Bosque Sendra, Joaquín. Sistemas de información geográfica / Joaquín Bosque Sendra . - 2a. ed. corr. Madrid : Rialp, 1997

60423 - Basic notions about SIGs

- Bernhardsen, Tor. Geographic information systems : an introduction / Tor Bernhardsen . - 3rd ed. New York : John Wiley & Sons, cop. 2002
- Comas, David. Fundamentos de los sistemas de información geográfica / David Comas y Ernest Ruiz Barcelona : Ariel, 1993
- Geographic information system and science / Paul A. Longley [et. al] . - 2nd ed. Chichester : John Wiley & Sons, cop. 2005
- Encyclopedia of GIS / Shashi Shekar, Hui Xiong (Eds.) New York : Springer, cop. 2008
- Albrech, J.. Key Concepts & Techniques in GIS / J. Albrech. London : Sage Publication, 2007
- Quirós Hernández, M.. Tecnologías de la Información Geográfica (TIG). Cartografía, fotointerpretación, teledetección y SIG / M. Quirós Hernández Salamanca : Universidad de Salamanca, 2011
- Gutiérrez Puebla, Javier. SIG : Sistemas de Información Geográfica / Javier Gutiérrez Puebla, Michael Gould . 1a. reimp Madrid : Síntesis, 2000