

28721 - Cartography, Geographical Information Systems and Remote Sensing

Información del Plan Docente

Academic Year	2018/19
Subject	28721 - Cartography, Geographical Information Systems and Remote Sensing
Faculty / School	175 - Escuela Universitaria Politécnica de La Almunia
Degree	423 - Bachelor's Degree in Civil Engineering
ECTS	6.0
Year	3
Semester	First semester
Subject Type	Compulsory
Module	---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

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

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The learning process designed for this subject is based on the following:

Strong interaction between the teacher/student. This interaction is brought into being through a division of work and responsibility between the student and the teacher. Nevertheless, it must be taken into account that, to a certain degree, students can set their learning pace based on their availability, following the guidelines set by the teacher.

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The current subject is conceived as a stand-alone combination of contents, yet organized into three fundamental and complementary theoretical concepts of each teaching unit, the solving of problems or resolution of questions and laboratory work, at the same time as activities

The organization of teaching will be carried out using the following steps:

– **Theory Classes:** Theoretical activities carried out mainly through exposition by the teacher, where the theoretical support is displayed, highlighting the fundamental, structuring them in topics and or sections, interrelating them.

– **Practical Classes:** The teacher resolves practical problems or cases for demonstrative purposes. This type of teaching is shown in the lectures with practical aspects.

– **Laboratory Workshop:** The lecture group is divided up into various groups, according to the number of registered students, more than 20 students, in order to make up smaller sized groups.

– **Individual Tutorials:** Those carried out giving individual, personalized attention with a teacher from the department. This can be done in person or online.

4.2.Learning tasks

Programmed learning activities

The programme offered to the student to help them achieve their results is made up of the following activities...

Involves the active participation of the student, in which the objectives to be achieved in the learning process are developed, and already set out, the activities are the following:

– **Face-to-face generic activities:**

– **Theory Classes:** The theoretical concepts are explained and illustrative examples are developed when necessary.

– **Practical Classes:** Problems and practical exercises complementary to the theoretical concepts studied.

– **Laboratory Workshop:** This work is carried out in groups of no more than 20 students.

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– **Generic non-class activities:**

• Study and understanding of the theory

• Understanding and assimilation of the problems solved in the practical classes.

• Preparation of seminars, solutions to problems

• Preparation of laboratory workshops, practical reports.

• Preparation of the written tests for continuous exams.

The subject has 6 ECTS credits, which represent 60 hours in the subject during the trimester, in other words 12 weeks of class.

A summary of a weekly timetable guide can be seen in the subject file. These figures are obtained from the subject file of the degree, taking into account the level of effort that the said subject is moderate.

Activity	Weekly school hours
Lectures	3
Laboratory Workshop	1
Other Activities	6

Nevertheless the previous table can be shown in the following account the following overall distribution:

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— 40 hours of lectures, with 50% theoretical and 50% solving type problems.

— 10 hours of laboratory workshop, in 1 course.

— 6 hours of written assessment tests, on 1 course.

— 4 hours of PPT presentations.

— 90 hours of personal study, divided up between the 1st and 2nd semester.

There is a tutorial calendar timetable set by the teachers, requested by the students who want a tutorial.

4.3.Syllabus

The program that the student is offered to help you achieve the expected results includes the following activities
The following table lists the contents to be taught is. These correspond to the topics presented in the course content.

Content

Topic 1: Mapping Applications

Practice 1: cartographic resources management in IDEs

Item 2: Maps and coordinate systems: General concepts and scales.

Practice 2: managing physical maps

Item 2: Maps and coordinate systems

Practice 3: Working cartographic information

Item 2: Maps and coordinate systems

Practice 4: GIS, options and settings

Item 3: S.I.G. : Basic principles

Practice 5: GIS I

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1. Mapping

- 1.1. Cartography. Types of maps
- 1.2. Cartographic production centers.
- 1.3. digital cartography

Study guide.

a general introduction to the subject and a reminder and fixing previous basics of mapping is provided. Management of cartographic databases available.

Topic 2.

2. Maps: Coordinates.

- 2.1. Map projection systems. The projection U.T.M.
- 2.2. Conventional Digital representation and modeling.
- 2.3. Scale and measurements.

Study guide.

It is intended to provide criteria for understanding the concept of levelto in order to extract quantitative information available mapping and use in Civil Engineering.

Item 3.

3. GIS

- 3.1. Basics of a Geographic Information System
- 3.2. GIS features, components, functionality. Metadata. vector and raster models.
- 3.3. Criteria in the design of the components of a GIS.
- 3.4. Structuring information.
- 3.5. Information analysis, spatial analysis procedures.
- 3.6. Disclosure of information.

Study guide.

It is intended that the student is able to understand and use different Geographic Information Technologies .. item 4

4. Basic principles of remote sensing.

- 4.1. Concept of remote sensing. physical principles. Systems and resolutions. Types of platforms.
- 4.2. Image interpretation. visual and digital analysis.
- 4.3. geometric correction of images. Georeferencing.

Study guide.

a study of the different methods to be used for remote sensing is done, knowing the bodies, institutions and companies that produce cartographic material, in order to analyze the suitability of each to the different circumstances of the land and the purpose of work. Learn to fluently read documents to identify geographic facts present on aerial photographs and space images, identifying with reality.

Práctco.

Practice 1.

Management of cartographic information

Practice 2.

Information platforms

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Practice 3.

Basic course in gvSIG

Practice 4.

GvSIG applications

Practice 5.

Obtaining and interpreting images

practice 6

Work integrated design of a GIS model

4.4.Course planning and calendar

Planning & timetable

Class hall sessions & work presentations timetable

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The dates of the final exams will be those that a
<http://www.eupla.es/secretaria/academica/exam>

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The planning orientation shown below

— Week 1, 2, 3 and 4: Topic 1.

— Week 5 and 6: Topic 2.

— Week 7, 8 and 9 : Topic 3.

— Week 10: Topic 4.

— Week 11: Topic 5.

— Week 11 and 12: Topic 6.

— Week 13: Topic 7.

— Week 14 and 15: Topic 8.

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4.5. Bibliography and recommended resources