26443 - Remote Sensing

Información del Plan Docente

Academic Year	2016/17
Academic center	100 - Facultad de Ciencias
Degree	296 - Degree in Geology
ECTS	5.0
Course	4
Period	First semester
Subject Type	Optional
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

Along this course acquisition of basic concepts in Remote Sensing, learning of methodologies in digital image processing and use of satellite images as a new device that can be utilized in diverse types of surveys will be attained. An onward learning will be obtained by means of theoretical classes, practical classes, seminars and practical works.

5.2.Learning activities

In addition to theoretical classes, where the main topics will be developed, practical classes contribute to strengthen, extend, and apply previous concepts. Seminars stimulate the search, analysis and synthesis of information and contribute

to improve students' oral expression. Short practical works developed in small groups (two or three people) will show the synthesis on theoretical and practical knowledge attained and, also to compare the practical work done with real land cover.

5.3.Program

Program

Remote Sensing: An overview.

Electromagnetic Energy and electromagnetic spectrum

Types of platforms and sensors

Main characteristics of Remote Sensing images

Criteria in image interpretation

Main intervals of wavelengths used in Remote Sensing: optical, thermal infrared and microwave.

Digital image processing: An overview.

D.I.P: Restoration

D.I.P: Enhancement

D.I.P: Transformation in new bands

D.I.P: Unsupervised and supervised classifications

Main applications

Practical sessions

Visual interpretation

True and false colour images

Characteristics of diverse landcovers

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Digital image software

Image enhancement

Restoration

Transformation

Classification

Interpretation of different types of images

Seminars

The students have to read, analyse, summarise and do oral expositions and defense of different aspects of Remote Sensing

With the data obtained in field-work, practical classes and students' homework, two practical works would be developed and explained during these sessions.

Field-work

Survey of diverse land covers in the field

5.4.Planning and scheduling

As scheduled by the Faculty of Sciences

5.5.Bibliography and recomended resources

BB	Campbell, James B.. Introduction to remote sensing / James B. Campbell . - 3rd ed London [etc.] : Taylor & Francis, 2002
BB	Chuvieco Salinero, Emilio. Fundamentos de teledetección espacial / Emilio Chuvieco . - 3a. ed. rev., reimp. corr. Madrid : Rialp, D.L. 2000
BB	Chuvieco Salinero, Emilio. Teledetección ambiental : la observación de la Tierra

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	desde el espacio / Emilio Chuvieco . - 1ª ed. act. Barcelona : Ariel, 2010
BB	Lillesand, Thomas M.. Remote sensing and image interpretation / Thomas M. Lillesand and Ralph W. Kiefer . - 4th ed. New York ; Chichester : Wiley & Sons, 2000
BB	Rees, W.G. Physical principles of Remote Sensing. 3rd. ed. Cambridge University Press. 2012
BB	Sabins, Floyd F. Remote sensing : principles and interpretation / Floyd F. Sabins . 3rd ed. New York : W.H. Freeman and Co, cop. 1997
BB	Schoengerdt, R.A.. Remote Sensing. Models and methods for image processing. 3rd. ed. Academic Press. 2006