25220 - Natural risks

Academic Year	2016/17
Academic center	201 - Escuela Politécnica Superior
Degree	277 - Degree in Environmental Sciences
ECTS	6.0
Course	3
Period	First Four-month period
Subject Type	Compulsory
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

The learning and teaching methodology developed in the course *Riesgos Naturales* is aimed to promote the attainment of its objectives. A wide range of teaching and learning activities is implemented , such as interactive lessons, practical exercises, individual or group activities, directed activities, and private study. 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 as well as other forms of course-specific complementary materials.

5.2.Learning activities

25220 - Natural risks

Lecture sessions: in these sessions, conceptual and methodological aspects of the program will be presented, alternating the exhibition of PowerPoint presentations, with the access to web pages in which there appear illustrative examples related to the boarded theme.

The students will have in the ADD of complementary material (articles, linkage of web pages, exercises, etc.) and will have to consult the same way the recommended bibliography.

Practical sessions: they will take place in the computer classroom. Beginning every session the necessary information will be facilitated to the student to carry out the tasks to be developed in the practice, and in case the above mentioned practice has to join to the briefcase of learning, additional information about how it will have to appear.

The practices will include, between others: comment and critical evaluation of different cartographies of susceptibility, hazard and risk, compilation and evaluation of information about different events, calculation of maximum expected water throughflow for a return-period, identification and cartography of areas exposed to floods, making of maps of susceptibility to slope processes, maps of probable areas of avalanches, etc.

Directed work: in groups of 4 students. The work will refer to a natural event happened in the past that has caused damages to the society. The general subject-matter (not the concrete case of study, which will be able to be chosen by the components of the group of work) will be assigned by drawing, and the paragraphs that will have to be contemplated in the same one, will be facilitated to the students.

Tutorships: They are implemented to help the students to carry out the works and exercises that they must solve individually or in group, and also as a help to solve doubts related with the theoretical and practical program of the course.

5.3.Program

The subjects of this course are divided into 9 modules, which include the following theory and exercise sessions:

Module 1.Natural Risks: conceptual and methodological aspects.

Module 2.The natural risks in territory management.

Module 3. Risks associated with slope processes.

Module 4. Seismic risks.

Module 5. Volcanic risks.

Module 6. Risks associated with subsidence.

Module 7. Climatic risks.

Module 8.Geoclimatic risks: floods.

Module 9.-Risks associated to fire.

5.4.Planning and scheduling

For further details concerning the timetable, classroom and other information of the course please refer to the: *Escuela Politécnica Superior de Huesca* web site (http://eps.unizar.es/academico/horarios-ccaa).

5.5.Bibliography and recomended resources

BASIC BIBLIOGRAPHY

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- Keller, Edward A.. Riesgos naturales : procesos de la Tierrra como riesgos, desastres y catástrofes / Edward A. Keller , Robert H. Blodgett . [1ª ed.] Madrid : Pearson , D. L. 2007

COMPLEMENTARY BIBLIOGRAPHY

- Nuhfer, Edward B.. Guía ciudadana de los riesgos geológicos : Guía para comprender los riesgos geológicos, incluyendo suelos expansivos, asbestos, radón, terremotos, volcanes, deslizamientos, subsidencia, inundaciones y riesgos costeros / Realizado por el Instituto Americano de Geólogos profesionales ; Autores Edward B. Nuhfer, Richard J. Proctor, Paul H. Moser ; con Jhon E. Allen... [et al.] ; adaptdo al español por José L. Barrera... [et al.] ; editado en versión española por Luis Suárez y Manuel Regueiro . Madrid : Colegio oficial de Geólogos de España, D.l. 1997
- Catálogo nacional de riesgos geológicos = Geological hazards catalogue : with english summary / [Francisco J. Ayala Carcedo...[et al.] . Madrid : Instituto Tecnológico Geominero de España, 1988
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- Calvo García-Tornel, Francisco. Sociedades y territorios en riesgo / Francisco Calvo García-Tornel . Madrid : Ediciones del Serbal, 2001
- Dagorne, Andrée. Les risques naturels : la cindynique / Andrée Dagorne, René Dars . 2e. ed. mise a jour Paris : Presses Universitaires de France, 2001
- Murck, Barbara W.. Dangerous earth : an introduction to geographic hazards / Barbara W. Murck, Brian J. Skinner, Stephen C. Porter New York [etc.] : John Wiley, cop. 1997
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- Smith, Keith. Environmental Hazards : Assessing risk and reducing disaster / Keith Smith . - 3ª ed., 2ª reimp. London ; New York : Routledge, cop. 2003
- Ledoux, B. (2005). La gestion du risque inondation. París: Lavoisier