

## 25220 - Natural risks

### Syllabus Information

**Academic year:** 2023/24

**Subject:** 25220 - Natural risks

**Faculty / School:** 201 - Escuela Politécnica Superior

**Degree:** 571 - Degree in Environmental Sciences

**ECTS:** 6.0

**Year:** 3

**Semester:** First Four-month period

**Subject type:** Compulsory

**Module:**

### 1. General information

This subject enables students to analyse and evaluate those processes of change and disturbance of the natural environment that may cause a risk situation for the population as well as the use of different methodologies and tools for their prediction, prevention and mitigation.

These approaches and Goals are aligned with some of the Sustainable Development Goals (SDGs) of the Agenda 2030 and certain specific Goals contributing to some extent to their achievement: Objective 4.7 of Goal 4, Objective 6.4 and 6.a of Goal 6, Objective 11.5 and 11.b of Goal 11, Objective 13.1, 13.2 and 13.3 of Goal 13, Objective 15.3 of Goal 15.

It is recommended that students have a basic knowledge of Geology, Geomorphology, Hydrology, and Meteorology.

In addition, in order to be able to perform some of the practices, they must have previously taken the subject of Cartography and Geographic Information Systems.

### 2. Learning results

The subject will enable students to obtain a series of knowledge and skills related to natural hazards, such as

- Differentiate and define the different terms and concepts associated with the study of natural hazards.
- Understand and value the role of natural hazards as limiting phenomena of human actions and their importance in territorial planning and management.
- Know how to identify and analyse the activity of potentially hazardous natural environmental processes.
- Describe and apply, in some cases, the main methodologies used in the spatial and temporal prediction of potentially hazardous processes
- Evaluate the specific risk of a given region based on the different components that comprise it.
- Describe and know how to propose and plan possible actions in natural risk mitigation and prevention plans.

### 3. Syllabus

The program of the subject is organized in 10 topics, including theoretical and practical sessions:

- Topic 1. Conceptual and methodological aspects of natural hazards.
- Topic 2. Natural risk management and sustainable development.
- Topic 3. Risks associated with slope processes.
- Topic 4. Climatic risks.
- Topic 5. Hydrological risks.
- Topic 6. Risks associated with forest fires.
- Topic 7. Seismic risk.
- Topic 8. Volcanic risk.
- Topic 9. Risks associated with tsunamis.
- Topic 10. Risks associated with subsidence.

### 4. Academic activities

The program offers the students help to achieve the expected results and comprises the following activities:

- Theory sessions. In these sessions the theoretical contents of the subject will be presented, alternating the explanation supported by PowerPoint presentations, with access to web pages with illustrative examples related to the subject matter. In addition, various activities will be organized in the classroom to encourage participation in groups, brainstorming, forums, etc..

- Practical sessions. These sessions will be held in the regular classroom or in the computer room. In these classes the students will use different computer programs, such as Geographic Information Systems, statistical programs , and data representation programs. In addition, students will analyse the data obtained in order to obtain useful information for the management of natural hazards.
- Group work. The work will refer to a natural event that occurred in the past and caused damage to society. The work will consist of a manuscript and an oral presentation of the same, which will include the following sections: description of the study area, analysis of the processes that originated the disaster situation, enumeration of the socioeconomic damages, description of the predictive and preventive measures, as well as damage management, and finally a critical assessment of the natural risk studied.
- Tutoring. The face-to-face and mandatory tutorials will be used to follow up on the academically directed work, and any doubts that may arise in relation to the subject.

## 5. Assessment system

The subject consists of a global evaluation that will be composed of the following activities:

- Written examination. The exam will be related to the theoretical-practical contents of the subject, which will consist of open questions. The evaluation will represent 60% of the overall grade of the subject. Assessment criteria: ability to synthesise, clarity of explanation and writing, precision in the handling of concepts and the degree of understanding and assimilation of concepts, principles and fundamentals.
- Teamwork. The work will be about an event in the past that has caused significant damage to society. This work must be presented in writing and orally at the end of the term. Its evaluation will represent 30% of the overall grade of the subject. Assessment criteria: the adequacy of the content to the required sections , the rigorous use of the concepts, the number and quality of the sources of information consulted. In the written work in addition: that it conforms to good formal standards (writing, spelling, bibliographic references , layout). In the oral presentation: the quality of the presentation, the adequate use of ICT tools, the ability to synthesise and explanatory organization as well as a correct oral communication.
- Portfolio of practical sessions. A portfolio will be made with all the practices carried out, including a personal reflection of the work done and the results obtained. Its valuation will represent 10% of the overall grade . Assessment criteria: the adequacy of the commentary to the different sections to be considered, that the assessment is reflective and justified, and the formal presentation.

All tests and exercises will be graded from 0 to 10. They will be passed with a minimum grade of 5 points and may be averaged from 4.5. The deadline for the delivery of the same will be the date established for the exam. After this date, they will be graded in the next call.

The success rate of the subject in the last three years is: 2019/2020 = 93%; 2020/2021 = 100%; 2021/2022 = 100%.