



## PRESENTACIÓN

### Breve descripción:

This subject aims to help the student gain insight into the importance of environmental management systems in order to reduce the effects of human activity on the environment. An Environmental Management System is a structured system designed to help organizations reduce their environmental impacts while improving their operating efficiency. Nowadays quality and environmental management are strategic objectives for any kind of organization, both public institutions or agencies and private companies and therefore makes the knowledge of these systems an essential competence in the training of a graduate in Environmental Sciences. The subject is eminently practical and indispensable for students who intend to dedicate themselves to the environmental management in any type of institution.

The main objectives of the subject are:

- To implement and develop an environmental management system in an organization according to the requirements of the standard ISO 14001:2015 and the EU Eco-Management and Audit Scheme (EMAS)
  - To identify the environmental aspects of the organization and identify those that have or can have a significant environmental impact
  - To prepare documentation and procedures of the environmental management system
  - To plan and carry out environmental audits
- 
- **Titulación:** Ciencias Ambientales/Doble grado en Biología y Ciencias Ambientales (Environmental Sciences/Double degree in Biology and Environmental Sciences)
  - **Módulo/Materia:** Gestión empresarial y administrativa (Business Management and Administration)
  - **ECTS:** 6
  - **Curso, semestre:** 2º Ciencias Ambientales/5º Doble grado Biología Ciencias Ambientales; 2º semestre (2nd Environmental Sciences/5th Biology Environmental Sciences; 2nd semester)
  - **Carácter:** Obligatorio (Compulsory)
  - **Profesorado:** David Elustondo & Blanca de Ulibarri
  - **Idioma:** Inglés (English)
  - **Aula, Horario:** Aula 16 - Miércoles 15:00 a 17:00 h (Room 16 - Wednesday 15:00 -17:00 h)

## RESULTADOS DE APRENDIZAJE (Competencias)

### Specific competences

CE20 Know the processes related to natural and technological hazards

CE21 Develop plans for the prevention and mitigation of risks

CE25 Implement systems of environmental management



CE28 Plan environmental management systems according to national and international regulations

CE35 Describe standardized procedures for environmental monitoring and audit

General and basic competences

CG3 Development of critical thinking

CG4 Working in a team

CG5 Develop a sense of responsibility towards the Environment and the Ecosystems

CG6 Managing the information properly

CG7 Communicate environmental issues in written and oral form, with a style and language appropriate to the situation and the interlocutor

CB3 Students must develop the ability to gather and interpret relevant data (usually within their area of knowledge) in order to make judgments that include a deep reflection on relevant social, scientific or ethical issues

CB4 Students must be able to transmit information, ideas and solutions to both a specialized audience and the general public

CB5 Student will develop those learning skills needed to undertake further studies with a high degree of autonomy

## **PROGRAMA**

### **Theoretical Program**

#### ***I. Environmental Management Systems***

Unit 1. Introduction to the Environmental Management (1 h)

Unit 2. Environmental Management Systems: history, Deming cycle (1 h)

Unit 3. Environmental Management System in accordance to the ISO 14001:2015 standard (10 h)

Unit 4. Eco-Management and Audit Scheme (2 h)

#### ***II. Environmental Audit***

Unit 5. Introduction: regulations, definitions, objectives. Different audit schemes. Audit planning (2 h)

Unit 6. Environmental Audit (2 h)

#### ***III. Life Cycle Analysis (LCA)***

Unit 7. Life Cycle Analysis (8 h)

#### ***Seminars***



# Universidad de Navarra

- Management of Environmental Aspects: Emissions, Spills, Wastes, Water, Noise, Hazardous materials (6 h)
- ISO 9001:2015 Quality management systems - Requirements (2 h)

## Practical program

- Practical sessions based on real cases (2 h): Management of Environmental Aspects (Emissions, Spills, Wastes, Water and energy consumption,...), Legal compliance, Identification and evaluation of Environmental Aspects, Objectives and Environmental Programs, Emergency plans, Corrective Actions. TOTAL: 10 h
- Life Cycle Analysis (2 h): use and performance of SimaPro (LCA software), LCA case-studies (organization, product,...). TOTAL: 6 h
- Environmental Audit: external audit of the Environmental Performance in a real organization that intend to get the accreditation according to the ISO 14001:2015 standard. TOTAL: 10 h

## ACTIVIDADES FORMATIVAS

- Lectures (26 h) - room 16
- Case studies (18 h) - computer room
- Seminars (6 h)
- Internal Environmental Audit project (10 h) - Audit of the Environmental Performance in a real organization

## EVALUACIÓN

### CONVOCATORIA ORDINARIA

- The theoretical part will be graded with a final exam. It will include multiple choice questions, short questions and test cases and correspond to 50% of the final mark.
- The practical part will have to parts:
  - Preparation of a final report with the contents given in the sessions of Case studies (25%)
  - Execution of a External Audit of compliance with waste regulation to a department from the University of Navarra (25%)

### CONVOCATORIA EXTRAORDINARIA

- The theoretical exam will be repeated. In the practical part, the grade obtained in the ordinary exam will be kept.

## HORARIOS DE ATENCIÓN

Dr David Elustondo ([delusto@unav.es](mailto:delusto@unav.es))

- Despacho 1100 Edificio de Investigación Planta 1ª
- Horario de tutoría: fijar reunión a través del correo electrónico

## BIBLIOGRAFÍA



Universidad  
de Navarra

Recommended literature:

- Roberts, Hewitt; Robinson, Gary. **ISO 14001 EMS: manual de sistemas de gestión medioambiental**. Editorial Paraninfo, Madrid. 2008. [Find it in the Library](#)
- **ISO 14001:2015**. Sistemas de gestión ambiental. Requisitos con orientación para su uso. [Find it in the Library](#)
- **ISO 14004:2016**. Sistemas de gestión ambiental. Directrices generales sobre la implementación. [Find it in the Library](#)
- **ISO 19011:2012**. Directrices para la auditoría de sistemas de gestión. [Find it in the Library](#)
- Reglamento (CE) 1221/2009 de Parlamento Europeo y del Consejo de 25 de Noviembre de 2009 relativo a la **participación voluntaria de organizaciones en un sistema comunitario de gestión y auditoría medioambientales (EMAS)**
- Conesa Fernández-Vítora, Vicente; Conesa Ripoll, Vicente; Capella Calatayud, Verónica; Conesa Ripoll, L. Alberto. **Auditorías medioambientales: guía metodológica**. Mundi-Prensa Libros, Madrid. 1997-552 páginas. [Find it in the Library](#)
- Whitelaw, Ken. **ISO 14001 environmental systems handbook**. Amsterdam; Boston: Elsevier /Butterworth Heinemann, 2004-237 páginas. [Find it in the Library](#)