Course Syllabus

1. COURSE DESCRIPTION

Undergraduate Degree:	**ENVIRONMENTAL SCIENCES**
Combined Undergraduate Degree:	
Subject:	**ENVIRONMENTAL AND QUALITY MANAGEMENT SYSTEMS**
Module:	**Environmental Management, Quality, Conservation and Planning**
Department:	**PHYSICAL, CHEMICAL AND NATURAL SYSTEMS**
Academic Year:	**2017-2018**
Semester:	**FIRST SEMESTER**
ETCS:	**6**
Year:	**Fourth Year**
Typology:	**Compulsory Subject**
Language:	**Spanish**

Typology of teaching:	**C2**	
a. **EB:**		50%
b. **EPD:**		35%
c. **AD:**		15%

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2. TEACHING TEAM

2.1. Person responsible for the subject	Pilar Ortiz Calderón

2.2. Lecturers	
Name:	Pilar Ortiz Calderón
Centre:	Faculty of Experimental Sciences
Department:	Physical, Chemical and Natural Systems
Area:	Crystallography and Mineralogy
Category:	Senior Lecturer
Office Hours:	1st semester: Tuesdays 9:00-11:00, 15:00-16:00 & Thursdays 15:00-18:00 2nd semester: Thursdays 15:00-21:00 Previous appointment is required by BB9*
Office:	22.4.6
Email:	mportcal@upo.es
Telephone:	+34 954 34 95 26

*Changes in office hours will be published in BB9.

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3. SITUATION WITHIN THE TRAINING PLAN

3.1. Course Objectives

The course is part of the module "Environmental Management, Quality, Conservation and Planning".
This comprehensive module aims to monitor, control and design programs and activities of environmental nature.
The aim of the course includes the implementation of environmental management systems, the ISO 14001 or EMAS certification being prominent among them, as well as quality management systems.

3.2. Contributions to the Training Plan

By the end of the semester, students should be able to:
Apply management methodology. Write a Quality and Environmental Management manual, describing the working procedures and technical instructions depending on the business sector (services, industry and agriculture); and including an analysis of the environmental aspects and impacts associated with productive and secondary activities, and the applicable legislation.
Approach a work plan for the implementation of the management system in models integrated with other management systems, to evaluate and resolve potential problems working as a team.
Plan a certification audit and a follow-up audit of environmental management and / or of quality, through the carrying out of the audit, the writing of the audit report and the non-conformities report, and the effective presentation of the audit results.
All this enables students to know the Management Systems, including the environmental management systems (ISO 14001 or EMAS) and the quality management systems. These management systems are applicable to the sphere of private companies and to the administration.

3.3. Necessary Previous Knowledge

Knowledge of environmental regulation.

Basic knowledge of air pollution, water waste management, solid waste management, land and energy management.

Use of word processors, spreadsheets and database.

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4.1 Skills developed through this course

Basic Skills: CB2, CB4 and CB5: Ability to analyze and synthesize. Development and defense of arguments, Oral and written communication to all kind of public and Independent learning.

General skills:

CG2. Ability to analyze and synthesize. Development and defense of arguments.
CG3. Oral and written communication.
CG4. Problem solving and decision making.
CG5. Teamwork.
CG7. Critical thinking.
CG9. Independent learning.
CG11. Ability to gather and interpret relevant data to make judgments that include reflection about social, scientific or ethical issues.
CG12. Motivation for quality.
CG14. Ability to apply theoretical knowledge to real cases.

4.2. Skills module developed through this course

This module is based mainly on the development of skills related to monitoring, control and design of programs and activities of an environmental nature. These programs and activities can also be applied in very different fields; in this course they will be applied to companies and administration and, on the other hand, to the natural environment and urban field.

4.3 Specific skills of this course

CE55. To be able to develop and implement environmental management systems.
CE56. To be able to develop and implement quality management systems.
CE57. To be able to design, develop and implement environmental audit procedures.

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5. COURSE OUTLINE

Unit 1. Fundamentals of Management Systems: Introduction and concepts. Certification and Accreditation.
Unit 2. Requirements of a management system.
Unit 3. International ISO-standards for environmental and quality. Integrated systems.
Unit 4. Regulation on environmental management and ecodiagnosis techniques.
Unit 5. Implementation and certification process.
Unit 6. Fundamentals of audit (planning and evaluation).
Unit 7. Auditor and person responsible for the environmental management profile.
Unit 8. Collaborating Entities of the administration and certification. National Entity of accreditation.

6. METHODOLOGY AND RESOURCES FOR TEACHING

The course Quality and Environment Management Systems follows the model of teaching C2 with 50% of EB, 35% of EPD and 15% AD.

The course includes 23 hours of face-to-face class time to teach students the basic content of the subject (concepts and associated procedures) by using the method of the lesson (EB). Throughout the course will be carried out practical sessions (EPD and AD) of 1-3 hours that are scheduled in the Faculty of Experimental Sciences webpage:

http://horarios-fcex.info/phpscheduleit/Web/view-schedule.php?sd=2017-9-11&sid=12

Código de campo cambiado

In addition to classroom activities, students shall develop part of the contents of the subject autonomously, by conducting activities proposed by lecturers, using basic literature and attending lecturers' office hours to clarify doubts (it is estimated that the student's individual work corresponds to approximately 90 working hours).

Throughout the course the BB9 tool will be used for communication.

The maximum time devoted to the evaluation of the course will be of 15 hours.

The time devoted to this subject is as follows:
EB: 23 hours.
EPD: 15 hours.
AD: 7 hours

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At-home work activities / Office hours: 90 hours.
Assessments: 15 hours (maximum).

Students will be expected to devote a total of 150 hours in order to pass the course.

7. GRADING

The subject and grading (continuous or exam) are divided in four   parts. The weight of each module on the grading is explained in the following steps:

- **EPD/AD**

1. The training activities to enhance technical skills will be assessed through written documents (manual, procedures or technical instructions), that will be presented in groups of 3 students. 12.5% of the final grade. Students have to submit the written documents.

2. The technical training to analyze and implement management systems will be assessed through the presentation of the implementation records of the developed management model. Records will be work in groups of 3 students. 12.5% of the final grade. Students have to submit the written documents.

3. The technical training to carry out an audit will be assessed through the presentation and defense of the audit report, the analysis and writing of non-conformities or observations included within the project and/or the corrective actions to address the non-conformities identified. Audits will be work in groups of 3 students. 25% of the final grade. Students have to submit the written documents and carry out an oral presentation of 5 minutes.

- **EB**

Each student will have to respond an exam during the official call:

1) Exam A: Case about documentation and implementation. 25% of the final grade.

2) Exam B: a test of 20 items. 25% of the final grade.

Students, who do not acquire the necessary skills to pass the 1st evaluation in February, shall carry out individually the exam of the four parts in June/July.

Getting a 4 in each part (team-work and individual exams) is compulsory for the average grading. It is required to obtain an EB grade >6 points to have outstanding B (Notable) or excellent A (Sobresaliente).

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During classes, slots will be dedicated to the presentation and analysis of results, students can decide voluntarily carry out these presentation. Those students with high or excellent presentations (>7), will have up to 0.5 additional points on the final notes of each module. These additional points will be added whenever the marks arrive 4 in both the individual and team work of the three modules.

Table 1 summarises the grading.

Those students who request a change in the examination or practical sessions date shall give to the lecturer a prior notice according to the rules and it will be admitted only where there are duly justified reasons, such as:

- Representation in the University associations or participation in academic acts or sporting events to represent the University.
- Student recognized as a High-Level or High-Performance Athlete.
- Tests and examinations will be adapted for students with disabilities in accordance with their capability.
- Concurrence with the date of evaluation tests in accordance with current legislation.
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In any case, special situation will comply with the requirements of the university: https://upo.gob.es/opencms/AlfrescoFileTransferServlet?action=download&ref=29c3de26-80d5-43c0-a3b8-682187fe36f8

Código de campo cambiado

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Table 1. Grading.   Continuous Grading.

1st Module	Team-Work Work with Written Procedures 12.5%		Exam A. 1st Call Individual work 1 Case 25% Test with 20 items 25%	Add points		
				Up to 0.5 points	Oral presentation of your homework during Lesson	0.1 each well-done homework (>7 point)
2nd Module	Team-Work Work with Written Records 12.5%			Up to 0.5 points	Oral presentation of your homework during Lesson	0.1 each well-done homework (>7 point)
3rd Module	Team-Work			Up to 0.5 points	Oral presentation of your homework during Lesson	0.1 each well-done homework (>7 point)
	Work with Written Auditreport and/or records (NC)	Oral presentation (individually)				
	20%	5%				

Requirements: A minimum of 4 is compulsory in each part (Individual and team-work). Add points need get 4 in each part. It is required to obtain an EB grade >6 points to have outstanding B (Notable) or excellent A (Sobresaliente).

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Table 1. Grading.   2nd Official Call.

2nd Official Call	Individual Work	
1st module	Written Procedure 12.5%	Exam A. 1 case 25% Test with 20 items 25%
2nd module	Written Records 12.5%	
3rd module	Written Audit reports or Non conformity record 25%	

Requirements: A minimum of 4 is compulsory in each module. It is required to obtain an EB grade >6 points to have outstanding B (Notable) or excellent A (Sobresaliente).

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Rubric: Module 1

Criterion	Incomplete (0-4)	Good (4-8)	Excellent (8-10)	Weighting
Formal aspects	Formal aspects are incorrect: missing paragraphs, page layout, pages, signatures, code of attachments, etc.	Formal aspects are suitable: home, index, pages, etc.	Excellent presentation of the formal aspects: cover, index pages, images, etc.	10%
Content	Badly structured content, do not conform to the required elements (ISO 14001) or are not adapted to the organization. The procedure does not clearly systematize the requirements. Contains NC.	The content complies with the required elements of the ISO 14001 standard. The procedure is suitable for the type and size of organization.	Content worked, very well structured, original, excellent and fits to the required elements of the standard and organization	70%
Annexes	Annexes poorly worked	Attachments submitted correctly	Attachments submitted correctly. High implementation of the system	20%

Rubric: Modulo 2

Criterion	Incomplete (0-4)	Good (4-8)	Excellent (8-10)	Weighting
Formal aspects	Formal aspects are incorrect: missing paragraphs, page layout, pages, signatures, code of attachments, etc.	Formal aspects are suitable: Records	Excellent presentation of the formal aspects: Records.	10%
Content	Badly structured records, do not conform to the required elements (ISO 14001) or are not adapted to the organization. The record does not clearly systematize the requirements for the organization . Contains NC.	The records comply with the required elements of the ISO 14001 standard. The record is suitable for the type and size of organization.	Record worked, very well structured, original, excellent and fits to the required elements of the standard and organization	90%

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Rubric: Module 3

Criterion	Incomplete (0-4)	Good (4-8)	Excellent (8-10)	Weighting
Formal aspects	Formal aspects are incorrect: missing paragraphs, page layout, pages, signatures, code of attachments, etc.	Formal aspects are suitable: Audit	Excellent presentation of the formal aspects: Audit	10%
Content	Badly structured audit, do not conform to the required elements (ISO 14001) or are not adapted to the organization. The audit does not clearly systematize the requirements for the organization. Contains NC.	The audit complies with the required elements of the ISO 14001 standard. The procedure is suitable for the type and size of organization.	Audit worked, very well structured, original, excellent and fits to the required elements of the standard and organization	90%

Rubric: Exam A or Oral presentation

Criterion	Incorrect (0)	Incomplete (1 a 4)	Good (4-8)	Excellent (8-10)
Content	Exam/oral presentation is incomplete, badly-structured does not comply requirements.	Exam/oral presentation is incomplete; badly-structured comply partially requirements. Contains NC	Exam/oral presentation is complete, well-structured comply requirements.	Complete, excellent content responds to the requirements requested. Demonstrates oral / written communication related to environmental and quality management skills.

Exam B. The test questions can have single or multiple answers. All multiple-choice questions are scored the same way: one point for each correct answer, and one-third point subtracted for a wrong answer.

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8.	**GENERAL BIBLIOGRAPHY**

1. ISO 9001: 2008 & 2015. Quality Management System: Requirements.

2. ISO 14001:2004& 2015. Environmental Management System Requirements with guidance for use.

3. ISO 19011:2011. Guidelines for auditing management systems.

4. EMAS. REGULATION 1221/2009. EU European Regulation for eco-management and audit scheme

5. Cómo implantar un sistema de Gestión Ambiental según la norma ISO 14001:2004. Javier Granero y Miguel Ferrando. EC editorial.