

Guía docente / Course Syllabus

2018-19

1. Descripción de la Asignatura / Course Description

Asignatura Course	SISTEMAS DE GESTIÓN AMBIENTAL Y DE CALIDAD (docencia en inglés)
Códigos Code	203102
Facultad Faculty	Facultad de Ciencias Experimentales
Grados donde se imparte Degrees it is part of	Grado en Ciencias Ambientales
Módulo al que pertenece Module it belongs to	Gestión, calidad, conservación y planificación ambiental
Materia a la que pertenece Subject it belongs to	Sistemas de gestión ambiental
Departamento responsable Department	Sistemas Físicos, Químicos y Naturales
Curso <i>Year</i>	4°
Semestre Tern	1°
Créditos totales total credits	6
Carácter Type of course	Obligatoria
Idioma de impartición Course language	Inglés
Modelo de docencia Teaching model	C2

Clases presenciales del modelo de docencia C2 para cada estudiante: 23 horas de enseñanzas básicas (EB), 15 horas de enseñanzas prácticas y de desarrollo (EPD) y 7 horas de actividades dirigidas (AD). Hasta un 10% de la enseñanza presencial puede sustituirse por docencia a distancia (también presencial, pero posiblemente asíncrona), de acuerdo con la programación de la Asignatura publicada antes del comienzo del curso.

Number of classroom teaching hours of C2 teaching model for each student: 23 hours of general teaching (background), 15 hours of theory-into-practice (practical group tutoring and skill development) and 7 hours of guided academic activities. Up to 10% of face-to-face sessions can be substituted by online teaching, in accordance with the course schedule published before it begins.

2. Responsable de la Asignatura / Course Coordinator

Nombre <i>Name</i>	María del Rocío Ortiz Calderón
Departamento Departament	Sistemas Físicos, Químicos y Naturales
Área de conocimiento Field of knowledge	Cristalografía y Mineralogía
Categoría <i>Category</i>	Profesora Ayudante Doctora
Número de despacho Office number	
Teléfono <i>Phone</i>	
Página web <i>Webpage</i>	
Correo electrónico <i>E-mail</i>	rortcal@upo.es

3. Ubicación en el plan formativo / Academic Context

Breve descripción de la asignatura Course description	This subject 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.
Objetivos (en términos de resultados del aprendizaje) Learning 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.
Prerrequisitos Prerequisites	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.
Recomendaciones Recommendations	
Aportaciones al plan formativo Contributions to the educational 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.

4. Competencias / Skills

Competencias básicas de la Titulación que se desarrollan en la Asignatura Basic skills of the Degree that are developed in this Course	CB2 - Que los estudiantes sepan aplicar sus conocimientos a su trabajo o vocación de una forma profesional y posean las competencias que suelen demostrarse por medio de la elaboración y defensa de argumentos y la resolución de problemas dentro de su área de estudio CB4 - Que los estudiantes puedan transmitir información, ideas, problemas y soluciones a un público tanto especializado como no especializado CB5 - Que los estudiantes hayan desarrollado aquellas habilidades de aprendizaje necesarias para emprender estudios posteriores con un alto grado de autonomía
Competencias generales de la Titulación que se desarrollan en la Asignatura General skills of the Degree that are developed in this Course	CG2 - Capacidad de análisis y síntesis. Elaboración y defensa de argumentos CG3 - Comunicación oral y escrita CG4 - Resolución de problemas y toma de decisiones CG5 - Trabajo en equipo CG7 - Razonamiento crítico CG8 - Compromiso ético CG9 - Aprendizaje autónomo CG11 - Capacidad de reunir e interpretar datos relevantes para emitir juicios que incluyan una reflexión sobre temas clave de índole social, científica o ética CG12 - Motivación por la calidad CG13 - Sensibilidad hacia los temas medioambientales CG14 - Capacidad para aplicar conocimientos teóricos a casos prácticos
Competencias transversales de la Titulación que se desarrollan en la Asignatura Transversal skills of the Degree that are developed in this Course	
Competencias específicas de la Titulación que se desarrollan en la Asignatura Specific competences of the Degree that are developed in the Course	CE55 - Ser capaz de desrrollar e implantar sistemas de gestión medioambiental CE56 - Ser capaz de desarrollar e implantar sistemas de gestión de calidad CE57 - Ser capaz de diseñar, elaborar y ejecutar procedimientos de auditoría ambiental
Competencias particulares de la asignatura, no incluidas en la memoria del título Specific skills of the Course, not included in the Degree's skills	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.

5. Contenidos de la Asignatura: temario / Course Content: Topics

PARTE I	
	AND CONCEPTS. CERTIFICATION AND ACCREDITATION.
PARTE II	REQUIREMENTS OF A MANAGEMENT SYSTEM.
PARTE III	INTERNATIONAL ISO-STANDARDS FOR ENVIRONMENTAL AND
	QUALITY. INTEGRATED SYSTEMS.
PARTE IV	REGULATION ON ENVIRONMENTAL MANAGEMENT AND
	ECODIAGNOSIS TECHNIQUES.
PARTE V	IMPLEMENTATION AND CERTIFICATION PROCESS.
PARTE VI	FUNDAMENTALS OF AUDIT (PLANNING AND EVALUATION).
PARTE VII	AUDITOR AND PERSON RESPONSIBLE FOR THE ENVIRONMENTAL
	MANAGEMENT PROFILE.
PARTE VIII	COLLABORATING ENTITIES OF THE ADMINISTRATION AND
	CERTIFICATION. NATIONAL ENTITY OF ACCREDITATION.

6. Metodología y recursos / Methodology and Resources

6. Metodolo	gia y recursos / Methodology and Resources
Metodología general Methodology	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 in laboratory or computer room, that are scheduled in the Faculty of Experimental Sciences webpage: https://www.upo.es/fcex/contenido? pag=/portal/fcex/alumnos/horarios/Horarios_2018_2019/Horarios_y_aulas_por_cursos&vE= 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 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.
Enseñanzas básicas (EB) General teaching	EB: 23 hours. Face-to-face class time
Enseñanzas prácticas y de desarrollo (EPD) Theory-into- practice	EPD: 15 hours. Practical sessions (EPD) of 1-3 hours in laboratory or computer room, that are scheduled in the Faculty of Experimental Sciences webpage https://www.upo.es/fcex/contenido? pag=/portal/fcex/alumnos/horarios/Horarios_2018_2019/Horarios_y_aulas_por_cursos&vE=
Actividades académicas	AD: 7 hours Practical sessions (AD) of 1.5 hours in laboratory or computer room, that are scheduled in

dirigidas
(AD)

Guided
academic
activities

the Faculty of Experimental Sciences webpage
https://www.upo.es/fcex/contenido?
pag=/portal/fcex/alumnos/horarios_2018_2019/Horarios_y_aulas_por_cursos&vE=

7. Criterios generales de evaluación / Assessment

Primera convocatoria ordinaria (convocatoria de curso) First session	El 50% de la calificación procede de la evaluación continua. El 50% de la calificación procede del examen o prueba final. The subject and grading 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 analyse in laboratory 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: Cases about documentation and implementation. 25% of the final grade. 2) Exam B: a test of 20 items. 25% of the final grade.
Segunda convocatoria ordinaria	The grading are divided in four parts.
(convocatoria de recuperación) Second session (to re-sit the exam)	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. Each student will have to respond an exam during the official call: • EPD/AD 1. The training activities to enhance technical skills will be assessed
	through a exam (manual, procedures or technical instructions). 12.5% of the final grade. 2. The technical training to analyzeanalyse in laboratory and implement management systems will be assessed through a exam of records. 12.5% of the final grade. 3. The technical training to carry out an audit will be assessed a exam of audit skills (analysis and writing of non-conformities, observations, corrective actions. 25% of the final grade. • EB 1) Exam A: Cases about documentation and implementation. 25% of
	the final grade. 2) Exam B: a test of 20 items. 25% of the final grade.
Convocatoria extraordinaria de noviembre Extraordinary November session	Se activa a petición del alumno siempre y cuando éste esté matriculado en todas las asignaturas que le resten para finalizar sus estudios de grado, tal y como establece la Normativa de Progreso y Permanencia de la Universidad.

Se evaluará del total de los conocimientos y competencias que figuren en la guía docente del curso anterior, mediante el sistema de prueba única.

Each student will have to respond an exam during the official call. The grading are divided in four parts.

- EPD/AD
- 1. The training activities to enhance technical skills will be assessed through a exam (manual, procedures or technical instructions). 12.5% of the final grade.
- 2. The technical training to analyze analyse in laboratory and implement management systems will be assessed through a exam of records. 12.5% of the final grade.
- 3. The technical training to carry out an audit will be assessed a exam of audit skills (analysis and writing of non-conformities, observations, corrective actions. 25% of the final grade.
- EB
- 1) Exam A: Cases about documentation and implementation. 25% of the final grade.
- 2) Exam B: a test of 20 items. 25% of the final grade.

Criterios de evaluación de las enseñanzas básicas (EB) General teaching assessment criteria

Durante la evaluación continua: Add Points:

Oral presentation of your homework during Lesson

+0.1 each well-done homework (>7 point)

Up to 0.5 points/module for EB/EPD/AD

Durante el examen o prueba final (1ª convocatoria): Exam. 1st Call Individual work

Cases

25%

Test with 20 items

25%

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-fourth point subtracted for a wrong answer.

Durante el examen o prueba final (2ª convocatoria): Exam. 2nd Call Individual work

1 Cases

25%

Test with 20 items

25%

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-fourth point subtracted for a wrong answer.

Rubric for cases:

Incorrect (0)

Cases are incomplete, badly-structured does not comply requirements.

Incomplete (1 a 4)

Cases are incomplete; badly-structured comply partially requirements.

Contains NC

Good (4-8)

Cases are complete, well-structured comply requirements.

Excellent (8-10)

Complete, excellent content responds to the requirements requested. Demonstrates written communication related to environmental and quality management skills.

Criterios de evaluación de las enseñanzas prácticas y de desarrollo (EPD)

Durante la evaluación continua: 1st Call

Module 1 - Team-Work.

Work with Written Procedures. 12.5%

Theory-into-practice assessment criteria

Module 2- Team-Work.

Work with Written Records. 12.5%

Module 3- Team-Work and oral presentation.

Work with Written Auditreport and/or records (NC). 20%.

Oral presentation (individually). 5%

Add Points:

Oral presentation of your homework during Lesson

+0.1 each well-done homework (>7 point)

Up to 0.5 points/module for EB/EPD/AD

Durante el examen o prueba final (1ª convocatoria): -----

Durante el examen o prueba final (2ª convocatoria): 2nd Call

Individual Work.

Written Procedure

12.5%

Written Records

12.5%

Written Audit reports or Non conformity record 25%

Rubric: Module 1

Formal aspects (10%):

Incomplete (0-4) - Formal aspects are incorrect: missing paragraphs, page layout, pages, signatures, code of attachments, etc. Good (4-8) - Formal aspects are suitable: home, index, pages, etc. Excellent (8-10) - Excellent presentation of the formal aspects: cover, index pages, images, etc.

Content (70%)

Incomplete (0-4) -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.

Good (4-8) - The content complies with the required elements of the ISO 14001 standard.

The procedure is suitable for the type and size of organization. Excellent (8-10) - Content worked, very well structured, original, excellent and fits to the required elements of the standard and organization

Annexes (20%)

Incomplete (0-4) -Annexes poorly worked Good (4-8) - Attachments submitted correctly Excellent (8-10) - Attachments submitted correctly. High implementation of the system

Rubric: Module 2

Formal aspects (10%):

Incomplete (0-4) - Formal aspects are incorrect: missing paragraphs, page layout, pages, signatures, code of attachments, etc. Good (4-8) -Formal aspects are suitable: Records

Excellent (8-10) - Excellent presentation of the formal aspects:

Records.

Content (90%)

Incomplete (0-4) -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.

Good (4-8) - The records comply with the required elements of the ISO 14001 standard.

The record is suitable for the type and size of organization. Excellent (8-10) - Record worked, very well structured, original, excellent and fits to the required elements of the standard and organization

Rubric: Module 3

Formal aspects (10%):

Incomplete (0-4) - Formal aspects are incorrect: missing paragraphs, page layout, pages, signatures, code of attachments, etc.

Good (4-8) -Formal aspects are suitable: Audit

Excellent (8-10) - Excellent presentation of the formal aspects: Audit

Content (90%)

Incomplete (0-4) -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.

Good (4-8) - The audit complies with the required elements of the ISO 14001 standard.

The audit is suitable for the type and size of organization. Excellent (8-10) - Audit worked, very well structured, original, excellent and fits to the required elements of the standard and organization.

Criterios de evaluación de las actividades académicas dirigidas (AD)

Criteria of assessment of guided academic activities

Durante la evaluación continua: 1st Call

Team-Work. Work with Written Procedures. 12.5%

Team-Work. Work with Written Records. 12.5%

Team-Work . Work with Written Auditreport and/or records (NC). 20%.

Oral presentation (individually). 5%

Add Points:

Oral presentation of your homework during Lesson

+0.1 each well-done homework (>7 point)

Up to 0.5 points/module for EB/EPD/AD

Durante el examen o prueba final (1ª convocatoria): -----

Durante el examen o prueba final (2ª convocatoria): 2nd Call

Individual Work.

Written Procedure

12.5%

Written Records

12.5%

Written Audit reports or Non conformity record

25%

Rubric: Module 1

Formal aspects (10%):

Incomplete (0-4) - Formal aspects are incorrect: missing paragraphs, page layout, pages, signatures, code of attachments, etc. Good (4-8) - Formal aspects are suitable: home, index, pages, etc. Excellent (8-10) - Excellent presentation of the formal aspects: cover, index pages, images, etc.

Content (70%)

Incomplete (0-4) -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.

Good (4-8) - The content complies with the required elements of the ISO 14001 standard.

The procedure is suitable for the type and size of organization. Excellent (8-10) - Content worked, very well structured, original, excellent and fits to the required elements of the standard and organization

Annexes (20%)

Incomplete (0-4) -Annexes poorly worked Good (4-8) - Attachments submitted correctly Excellent (8-10) - Attachments submitted correctly. High implementation of the system

Rubric: Module 2

Formal aspects (10%):

Incomplete (0-4) - Formal aspects are incorrect: missing paragraphs, page layout, pages, signatures, code of attachments, etc. Good (4-8) -Formal aspects are suitable: Records Excellent (8-10) - Excellent presentation of the formal aspects: Records.

Content (90%)

Incomplete (0-4) -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. Good (4-8) - The records comply with the required elements of the ISO 14001 standard.

The record is suitable for the type and size of organization. Excellent (8-10) - Record worked, very well structured, original, excellent and fits to the required elements of the standard and organization

Rubric: Module 3

Formal aspects (10%):

Incomplete (0-4) - Formal aspects are incorrect: missing paragraphs, page layout, pages, signatures, code of attachments, etc. Good (4-8) -Formal aspects are suitable: Audit Excellent (8-10) - Excellent presentation of the formal aspects: Audit

	Content (90%)
	Incomplete (0-4) -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. Good (4-8) - The audit complies with the required elements of the ISO 14001 standard. The audit is suitable for the type and size of organization. Excellent (8-10) - Audit worked, very well structured, original, excellent and fits to the required elements of the standard and organization
Puntuaciones mínimas necesarias para aprobar la Asignatura Minimum passing grade	1ª convocatoria: 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). 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. 2ª convocatoria: 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).
Material permitido Materials allowed	The following documents are allowed without students notes: 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
Identificación en los exámenes Identification during exams	En cualquier momento de la realización de una prueba de evaluación los profesores podrán requerir la acreditación de la identidad de cualquier estudiante, mediante la exhibición de su carnet de estudiante, documento nacional de identidad, pasaporte u otro documento válido a juicio del examinador. Si no lo hiciese, el estudiante podrá continuar la prueba, que será calificada solo si la documentación es presentada en el plazo que el examinador establezca.
Observaciones adicionales Additional remarks	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. 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

Los estudiantes inmersos en un programa de movilidad o en un programa de deportistas de alto nivel, así como los afectados por razones laborales, de salud graves o por causas de fuerza mayor debidamente acreditadas, tendrán derecho a que en la convocatoria de curso se les evalúe mediante un sistema de evaluación de prueba única. Para ello, deberán comunicar la circunstancia al profesor responsable de la asignatura antes del fin del periodo docencia presencial.

Students enrolled in a mobility program or a program for high-level athletes, as well as students affected by work or serious health problems or reasons of force majeure duly accredited, will have the right to be evaluated during the first session through a single test evaluation system. To do this, they must report changes in their circumstances to the program coordinator before the end of the teaching period.

8. Bibliografía / Bibliography

GENERAL BIBLIOGRAPHY

- ISO (2018) "ISO 9001: 2008 & 2015. Quality Management System: Requirements."
- ISO (2018) "ISO 14001:2004& 2015. Environmental Management System Requirements with guidance for use."
- ISO (2011) "ISO 19011:2011. Guidelines for auditing management systems."
- EU (2009) "EMAS. REGULATION 1221/2009. EU European Regulation for eco-management and audit scheme"
- . Javier Granero y Miguel Ferrando. EC editorial. (2004) "Cómo implantar un sistema de Gestión Ambiental según la norma ISO 14001:2004."