

## 1. BASIC INFORMATION

Course	Environmental Management and quality
Degree program	Degree in Engineering of Industrial management
School	Escuela de Ciencias, Ingeniería y Diseño
Year	4º
ECTS	6
Credit type	Mandatory
Language(s)	English
Delivery mode	Campus - based
Semester	Second
Academic year	2023-24
Coordinating professor	María Calero Pastor

## 2. PRESENTATION

Industry has a significant impact on the environment and society. Sustainability involves balancing economic growth, environmental protection, and social welfare. Engineers have a responsibility to design and build sustainable solutions that meet the present needs without compromising the ability of future generations to meet their own needs. Therefore, measures must be implemented to reduce the consumption of natural resources, the use of renewable energy sources, the development of clean technologies and the promotion of responsible business practices.

Environmental management enables engineers to identify, assess and manage the environmental impacts of their activities. Environmental management involves implementing measures to reduce carbon footprint, minimize air and water pollution, and ensure proper waste management. In addition, environmental management helps companies comply with environmental regulations and improve their reputation among consumers.

Finally, quality management is a fundamental aspect of customer satisfaction and business competitiveness. Engineers must ensure that the products and services they design and build meet quality requirements and are safe and reliable. To this end, quality management systems must be implemented, tests and trials must be performed, and continuous evaluation of the performance of products and services must be carried out.

## 3. COMPETENCIES AND LEARNING OUTCOMES

### Cross-curricular competencies:

- CPT01 - Create new ideas and concepts from known ideas and concepts, reaching conclusions or solving problems, challenges and situations in an original way in the academic and professional environment.

- CPT02 - Transmit messages (ideas, concepts, feelings, arguments), both orally and in writing, strategically aligning the interests of the different agents involved in communication in the academic and professional environment.
- CPT05 - Cooperate with others in the achievement of a shared academic or professional objective, participating actively, empathically and exercising active listening and respect for all members.
- CPT06 - Integrate analysis with critical thinking in a process of evaluating different ideas or professional possibilities and their potential for error, based on evidence and objective data leading to effective and valid decision making.
- CPT07 - Adapt to adverse, unexpected, stressful situations, whether personal or professional, overcoming them and even turning them into opportunities for positive change.
- CPT08 - Show ethical behaviours and social commitment in the performance of the activities of a profession, as well as sensitivity to inequality and diversity.

**Specific competencies:**

- HAB13 - Apply knowledge of quality, environmental and prevention management systems in the field of industrial management engineering.

**Learning outcomes:**

- HAB13 - Apply knowledge of quality, environmental and prevention management systems in the field of industrial management engineering.
  - Implement quality systems and continuous improvement plans.
  - Perform environmental and social impact studies of projects and operations.

The following table shows the relationship between the competencies developed during the course and the learning outcomes pursued:

Competencies	Learning outcomes
CPT01, CPT02, CPT03, CPT04, CPT05, CPT06, CPT07, CPT08	HAB13

## 4. CONTENT

- Concept of sustainability.
- Sustainability analysis.
- Life Cycle Analysis.
- Environmental technologies.
- Pollution prevention and treatment.
- Waste management.
- Quality management principles.
- Quality management systems.
- Trends in Smart Industry.

## 5. TEACHING-LEARNING METHODOLOGIES

The types of teaching-learning methodologies used are indicated below:

- Master classes
- Cooperative learning
- Problem-based learning
- Project-based learning
- Learning based on laboratory teachings (laboratory practices)
- Case method
- Gamification
- Field experiences (visits)

## 6. LEARNING ACTIVITIES

Listed below are the types of learning activities and the number of hours the student will spend on each one:

**Campus-based mode:**

Learning activity	Number of hours
Master classes and practical seminars	25,7
Problem resolution	15,7
Case studies and field studies	7,1
Laboratory	24,2
Debate and colloquium	8
Learning contract (definition of interests, needs and objectives)	2
Self-study	58
Tutorials	7,1
<b>TOTAL</b>	<b>150</b>

## 7. ASSESSMENT

Listed below are the assessment systems used and the weight each one carries towards the final course grade:

**Campus-based mode:**

Assessment system	Weight
Face-to-face tests to evaluate theoretical/practical content objectives (objective tests, written presentations, oral presentations, case studies/problem solving, debates, simulation tests).	60%

Non-presential tests to evaluate theoretical/practical content objectives (case studies/problem solving).	30%
Attitude assessment	10%
Self-assessment and co-assessment	10%

When you access the course on the *Campus Virtual*, you'll find a description of the assessment activities you have to complete, as well as the delivery deadline and assessment procedure for each one.

### 7.1. First exam period

To pass the course in the first exam period, you must obtain a final course grade of at least 5 out of 10 (weighted average).

In any case, you will need to obtain a grade of at 5/10 in the final exam in order for it to count towards the final grade along with all the grades corresponding to the other activities.

### 7.2. Second exam period

To pass the course in the second exam period, you must obtain a final grade of at least 5 out of 10 (weighted average).

In any case, you will need to obtain a grade of at 5.0 in the final exam in order for it to count towards the final grade along with all the grades corresponding to the other activities.

The student must deliver the activities not successfully completed in the first exam period after having received the corresponding corrections from the professor, or those that were not delivered in the first place.

## 8. SCHEDULE

This table shows the delivery deadline for each assessable activity in the course:

Assessable activities	Deadline
Mandatory activity 1 on Life Cycle Assessment	Week 3 to 6
Expert talk 1: corporate carbon footprint	Week 5
Mid-term test	Week 7
Expert talk 2: circular economy	Week 10
Laboratory task	Week 11 to 13
Expert talk 3: quality management systems	Week 14
Mandatory activity 2: Challenge Based Learning	Week 13 to 15

This schedule may be subject to changes for logistical reasons relating to the activities. The student will be notified of any change as and when appropriate.

## 9. BIBLIOGRAFÍA

The main reference work for this subject is:

- Calvo A. (2021). Estrategia medioambiental y desarrollo sostenible. Madrid editorial Universitaria Ramón Areces
- Cucarella, V. (2018) Economía para un futuro sostenible. Alzira Algar.
- Sannella, A.; Nocenzi, M. (2020). Perspectives for a New Social Theory of Sustainability. First Springer International Publishing, 2020.

The recommended Bibliography is:

- Doménech, J.L (2009) Huella ecológica y desarrollo sostenible. AENOR Ediciones.
- Garmendia (2005). Evaluación de impacto ambiental. Pearson Prentice Hall.
- Martínez-Prado, M. A. (2015) Ingeniería ambiental: ecología, prevención y control de la contaminación del aire, agua y suelo, tendencias de la ingeniería ambiental. Editorial Académica Española.
- Kiely, G. (1999) Ingeniería ambiental: fundamentos, entornos, tecnologías y sistemas de gestión. Ed. McGraw-Hill.
- Conesa, V. (2006) Guía metodológica para la evaluación del impacto ambiental. Ed. Mundi Prensa.
- Camison, C; Cruz, S.; González, T. (2006). Gestión de calidad, conceptos, enfoque, modelos y sistemas. Pearson.
- Claver, E.; Molina, J.F.; Tarí, J.J. (2011) Gestión de la calidad y gestión medioambiental. Ed. Pirámide.
- Abril Sánchez, C. E.; Enríquez Palomino, A.; Sánchez Rivero, J. M. (2012) Guía para la integración de sistema de gestión: calidad, medio ambiente y salud en el trabajo. Fundación Confemetal.

## 10. EDUCATIONAL GUIDANCE AND DIVERSITY UNIT

From the Educational Guidance and Diversity Unit we offer support to our students throughout their university life to help them reach their academic achievements. Other main actions are the students inclusions with specific educational needs, universal accessibility on the different campuses of the university and equal opportunities.

From this unit we offer to our students:

1. Accompaniment and follow-up by means of counselling and personalized plans for students who need to improve their academic performance.
2. In terms of attention to diversity, non-significant curricular adjustments are made in terms of methodology and assessment for those students with specific educational needs, pursuing an equal opportunities for all students.
3. We offer students different extracurricular resources to develop different competences that will encourage their personal and professional development.
4. Vocational guidance through the provision of tools and counselling to students with vocational doubts or who believe they have made a mistake in their choice of degree.

Students in need of educational support can write to us at:

[unidad.diversidaduev@universidadeuropea.es](mailto:unidad.diversidaduev@universidadeuropea.es)

## 11. ONLINE SURVEYS

Your opinion matters!

The Universidad Europea encourages you to participate in several surveys which help identify the strengths and areas we need to improve regarding professors, degree programs and the teaching-learning process.

The surveys will be made available in the “surveys” section in virtual campus or via e-mail.

Your assessment is necessary for us to improve.

Thank you very much for your participation.