

Course guide

220114 - CTMA - Environmental Science and Technology

Last modified: 14/07/2023

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 758 - EPC - Department of Project and Construction Engineering.

Degree: BACHELOR'S DEGREE IN INDUSTRIAL TECHNOLOGY ENGINEERING (Syllabus 2010). (Compulsory subject).

Academic year: 2023 **ECTS Credits:** 6.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: Gangolells Solanellas, Marta
Lopez Grimau, Victor

Others: Gangolells Solanellas, Marta
Lopez Grimau, Victor
Sedo Beneyto, Elena

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

CE16-INDUS. Basic knowledge and application of environmental technologies and sustainability. (Common module in the industrial branch)

Transversal:

2. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 3. Taking social, economic and environmental factors into account in the application of solutions. Undertaking projects that tie in with human development and sustainability.

TEACHING METHODOLOGY

The course is organized as follows:

- Presencial sessions of contents exhibition (theory)
- Presencial sessions of practical work (practices)
- Autonomous work of study

LEARNING OBJECTIVES OF THE SUBJECT

Provide students with necessary theoretical and practical knowledge:

- To be able of detecting, proposing, analysing, modelling, taking decisions and solving problems in social areas, economic and environmental.
- To know and use tools and technologies to act in the direction of the sustainability.
- To know and use tools and more sustainable technologies.
- To be able of developing a respectful technology with the environment.
- To know different environmental technologies and their applications in the engineering.

STUDY LOAD

Type	Hours	Percentage
Hours small group	28,0	18.67
Self study	90,0	60.00
Hours large group	32,0	21.33



Total learning time: 150 h

CONTENTS

Module 1: Introduction to environmental problems associate with the industry

Full-or-part-time: 13h 30m

Theory classes: 4h

Laboratory classes: 2h

Self study : 7h 30m

Module 2: Sustainability concept and indicators

Full-or-part-time: 11h 30m

Theory classes: 2h

Laboratory classes: 2h

Self study : 7h 30m

Module 3: Lifecycle analysis

Full-or-part-time: 11h 30m

Theory classes: 2h

Laboratory classes: 2h

Self study : 7h 30m

Module 4: Environmental management systems in industry

Full-or-part-time: 11h 30m

Theory classes: 2h

Laboratory classes: 2h

Self study : 7h 30m

Module 5: Prevention and control of industrial activities

Full-or-part-time: 11h 30m

Theory classes: 2h

Laboratory classes: 2h

Self study : 7h 30m

Module 6: Atmospheric pollution: climatic change

Full-or-part-time: 15h 30m

Theory classes: 4h

Laboratory classes: 4h

Self study : 7h 30m



Module 7: Atmospheric pollution: air quality

Full-or-part-time: 13h 30m

Theory classes: 4h

Laboratory classes: 2h

Self study : 7h 30m

Module 8: Energy and environment

Description:

8.1

Full-or-part-time: 11h 30m

Theory classes: 2h

Laboratory classes: 2h

Self study : 7h 30m

Module 9: Industrial residues management

Full-or-part-time: 11h 30m

Theory classes: 2h

Laboratory classes: 2h

Self study : 7h 30m

Module 10: Water management

Full-or-part-time: 11h 30m

Theory classes: 2h

Laboratory classes: 2h

Self study : 7h 30m

Module 11: Acoustic pollution

Full-or-part-time: 11h 30m

Theory classes: 2h

Laboratory classes: 2h

Self study : 7h 30m

Module 12: Environmental impact evaluation

Full-or-part-time: 15h 30m

Theory classes: 4h

Laboratory classes: 4h

Self study : 7h 30m



GRADING SYSTEM

Evaluation system consists of 4 evaluable tests:

- Theory 1st part of course: 35%
- Practices 1st part of course: 15%
- Theory 2nd part of course: 35%
- Practices 2nd part of course: 15%

Non-satisfactory results in the exam of the first part or in the exam of the second part will be able to be redirected by means of a written test that will take place the day of the final exam. This reset exam will cover, in any case, concepts related to theory and practices of the first and the second parts of the subject. All the students can take this exam. Marks in the reset exam can range from 0 to 10. Only the best mark between the reset exam and the first attempt (exam for the first part + exam for the second part) will be taken into account.

BIBLIOGRAPHY

Basic:

- Coley. Energy and climate change. Creating a sustainable future.. John Wiley and Sons, Eds. . West Sussex, England, 2008.
- Metcalf & Eddy. Wastewater Engineering. Treatment and resource recovery.e. 5ena. Chicago, US: McGraw Hill , 2013.
- International Standard Organization . Environmental management systems – Requirements with guidance for use (ISO 14001:2015).. 2015.
- International Standard Organization. Nou llibreEnvironmental management – Life cycle assessment – Requirements and guidelines (ISO 14040:2006).. 2006.

RESOURCES

Other resources:

Slides available on Atenea.