

**COURSE DATA****Data Subject**

<b>Code</b>	43816
<b>Name</b>	Management of wastewater treatment plants
<b>Cycle</b>	Master's degree
<b>ECTS Credits</b>	3.0
<b>Academic year</b>	2022 - 2023

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. year</b>	<b>Period</b>
2227 - M.U. en Ingeniería Ambiental	School of Engineering	2	First term
2250 - M.D. in Environmental Engineering	School of Engineering	2	First term

**Subject-matter**

<b>Degree</b>	<b>Subject-matter</b>	<b>Character</b>
2227 - M.U. en Ingeniería Ambiental	5 - Optatividad para Especialización	Optional
2250 - M.D. in Environmental Engineering	21 - Gestión de estaciones depuradoras de aguas residuales	Optional

**Coordination**

<b>Name</b>	<b>Department</b>
SECO TORRECILLAS, AURORA	245 - Chemical Engineering

**SUMMARY**

This subject is taught by technicians of the Public Entity of Wastewater Sanitation of the Valencian Community-EPSAR, Ibredrola S.A., Confederación Hidrográfica del Júcar and Water Treatment of the Mediterranean-DAM.

The subject "Management of wastewater treatment plants" is an optional subject of 3 credits that is taught in the first semester of the second year of the Master. This subject belongs to the intensification of Specialist in Management of EDARs and it is intended that the student acquires the knowledge and skills necessary to carry out the exploitation and execution of a WWTP. The subject has a practical nature since it studies the basic aspects related to the operation of a WWTP.



The subject of "Management of sewage treatment plants" complements and extends the knowledge acquired in the subjects related to wastewater treatment.

## PREVIOUS KNOWLEDGE

### Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

### Other requirements

Relationship with other subjects of the same degree:

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements:

There are no specified enrollment restrictions with other subjects of the curriculum.

## OUTCOMES

### 2227 - M.U. en Ingeniería Ambiental

- Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.
- Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.
- Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.
- Students should demonstrate self-directed learning skills for continued academic growth.
- Students should possess and understand foundational knowledge that enables original thinking and research in the field.
- Assume with responsibility and ethics the Environmental Engineer role in a professional context.
- Promote and apply the principles of sustainability.
- Adapt to changes, being able to apply the principles of Environmental Engineering to unknown cases and use new and advanced technologies and other relevant developments, with initiative and entrepreneurial spirit.
- Understand and apply environmental national and international legislation, adapting environmental solutions to these regulations.
- Design and manage wastewater treatment systems.



### **2250 - M.D. in Environmental Engineering**

- Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.
- Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.
- Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.
- Students should demonstrate self-directed learning skills for continued academic growth.
- Students should possess and understand foundational knowledge that enables original thinking and research in the field.
- Recognise the ethical and professional responsibilities of environmental engineering and make informed judgements considering the impact of engineering solutions in global, economic, environmental and social contexts.
- Work in a team effectively and with leadership, in a collaborative and inclusive environment, setting goals, planning tasks and meeting objectives.
- Learn and apply new knowledge, using appropriate learning strategies.
- Manage and operate treatment and/or purification systems in the field of environmental engineering
- Interpret and apply national and international environmental legislation and adapt environmental solutions to these regulations.
- Develop environmental solutions under the principles of circular economy and the sustainable development goals.

### **LEARNING OUTCOMES**

- 1 To apply systems of treatment and control of discomfort (noises and smells) in a WWTP.
- 2 To know the energy aspects of a WWTP.
- 3 To know the aspects related to the control of submarine emissaries.
- 4 To act appropriately in emergency situations in a WWTP.
- 5 To know the operating costs and financing models of the WWTP.
- 6 To know the quality systems in an WWTP operating company.
- 7 To know how to prepare corrective and preventive maintenance plans in a WWTP.
- 8 To know how to evaluate interferences caused by civil works in the operations of a WWTP.
- 9 To identify and prevent occupational hazards in a WWTP.
- 10 To know the legal framework related to the execution and operation of the WWTP.



## **DESCRIPTION OF CONTENTS**

**1. Treatment and control of discomfort. Noises Smells. Correction of environmental impact.**

**2. Energetic aspects. Rates and market. Cogeneration.**

**3. Control of submarine emissaries.**

**4. Control of the operation of a WWTP, fundamental aspects. Action in emergency situations and plant stops.**

**5. Administrative aspects. Operating costs. Financing and contracting. Warehouse and stock management. Basic accounting. Quality, ISO 9000.**

**6. Preparation of preventive-corrective maintenance plans. Application to basic equipment of a WWTP, pumps, band filters, centrifuges.**

**7. Civil works. General aspects related to construction management. Interferences**

**8. Security and health. Prevention of occupational hazards. Protection equipment.**

**9. Relations with the administrations involved in the execution and operation of WWTPs.**

**WORKLOAD**

ACTIVITY	Hours	% To be attended
Theory classes	20,00	100
Seminars	5,00	100
Classroom practices	5,00	100
Development of group work	15,00	0
Study and independent work	10,00	0
Readings supplementary material	10,00	0
Preparation of evaluation activities	5,00	0
Preparing lectures	5,00	0
<b>TOTAL</b>	<b>75,00</b>	

**TEACHING METHODOLOGY**

The training activities will be developed according to the following distribution:

- Theoretical activities.

Description: In the theoretical classes the topics will be developed providing a global and integrating vision, analyzing in greater detail the key aspects and of greater complexity, promoting, at all times, the participation of the student.

- Practical activities.

Description: They complement the theoretical activities in order to apply the basic concepts and expand them with the knowledge and experience that they acquire during the realization of the proposed works. They include the following types of face-to-face activities:

- Classes of problems and questions in the classroom
- Discussion sessions and problem solving and exercises previously worked by the students

- Student's personal work.

Description: Realization (outside the classroom) of monographic works and issues or problems, as well as the preparation of classes. This task will be carried out individually and tries to promote autonomous work.

- Work in small groups.

Description: Realization, by small groups of students (2-4) of work, issues or problems outside the classroom. This task complements the individual work and fosters the capacity for integration in work groups.





The e-learning platform (Virtual Classroom of the Universitat de València and / or PoliformaT of the Polytechnic University of Valencia) will be used as a communication support with the students. Through it you will have access to the didactic material used in class, as well as the problems and exercises to solve.

## EVALUATION

The evaluation of the subject will be done through a practical work in which they have to apply the knowledge acquired to a WWTP. To pass the subject it will be necessary to obtain a 50 out of 100.

It will be mandatory a minimum attendance of 80% to pass the subject in first call.

In any case, the evaluation system will be governed by the provisions of the Regulation of Appraisal and Qualification of the University of Valencia for Bachelors and Master's Degrees.  
(<http://links.uv.es/7S40pjF>).