

Degree programme	Type	Course
Biological and Environmental Engineering	OP	1

Contact lecturer

Name : Antonio Javier Moral Vico

Email : antoniojavier.moral@uab.cat

Teaching staff

Esther Molina Peñate

David Juan Fernandez Verdejo

Francisca Blaquez Cano

Montserrat Sarra Adroguer

Zainab Ul Kausar

Antonio Javier Moral Vico

Raquel Barrena Gomez

Group languages

You can consult this information at the [end](#) of the document.

Prerequisites

No requirements in particular

Objectives

The objective of this module is that the student understands the most innovative technologies for environmental remediation and streams valorization. These technologies that are currently under development at the laboratory or pilot scale will surely be the basis of future environmental engineering and their knowledge will allow simultaneous understanding of the main deficits of current technologies.

Learning outcomes

- CA03 (Propose strategies for energy recovery and/or solid waste.) Propose strategies for energy recovery and/or solid waste.
- CA16 (Plan and assess the different options and feasibility of emerging technologies for the environmental remediation of contaminated sites.) Plan and assess the different options and feasibility

- of emerging technologies for the environmental remediation of contaminated sites.
- KA13 (Differentiate the latest technologies for environmental remediation, comparing them against current technologies.) Differentiate the latest technologies for environmental remediation, comparing them against current technologies.
- KA14 (Describe emerging processes in the sustainable treatment of sewage.) Describe emerging processes in the sustainable treatment of sewage.
- KA15 (Identify the concepts of mycoremediation.) Identify the concepts of mycoremediation.
- SA17 (Design and optimise pollution remediation processes in natural environments using the knowledge of chemical engineering.) Design and optimise pollution remediation processes in natural environments using the knowledge of chemical engineering.
- SA18 (Analyse and organise projects related to the recovery of sewage for the production of biofuels and the material recovery of solid waste.) Analyse and organise projects related to the recovery of sewage for the production of biofuels and the material recovery of solid waste.
- SA19 (Analyse and apply biofilm simulation principles and instruments in environmental remediation processes.) Analyse and apply biofilm simulation principles and instruments in environmental remediation processes.

Contents

- Environmental nanotechnology. Applications of nanomaterials in environmental remediation. Toxicity of nanomaterials.
- Bioelectroremediation.
- Bioelectrochemical systems for the production of electricity or hydrogen from wastewater.
- Biorefineries.
- Bioremediation by fungi. Types of fungi. Intracellular and extracellular enzymes. Application in the degradation of pollutants.
- Solid state fermentation.
- Treatments with algae.

Learning activities and methodology

Title	Hours	ECTS	Learning outcomes
Master classes	36	1.44	
Self-taught and collective learning	30	1.2	
Study and internalization of concepts	77	3.08	

Classes will be structured as master classes by different expert teachers in each of the subjects.

Annotation: within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continuous assessment activities

Title	Weight	Hours	ECTS	Learning outcomes
Written exam	66%	3	0.12	CA16, KA13, KA14, KA15, SA17, SA18, SA19
Works and presentations	33%	4	0.16	CA03, CA16, SA17

Scheduled evaluation process and activities

The subject is evaluated through the following activities:

- A written exam. 66% of the grade of the subject
- The realization of two different short works based on scientific literature and that will include team work and oral presentations. 33% of the grade of the subject.

Single assessment: There is no single assessment in this subject.

The scheduling of the evaluation activities will be given on the first day of the subject and will be made public through the Virtual Campus.

Recovery process

The recovery of the subject will be done through a written exam of the syllabus not passed in the previous tests or exam.

The student can apply for recovery whenever he has submitted to a set of activities that represent at least two thirds of the total grade of the subject.

Procedure for review of qualifications

For each evaluation activity, a place, date and time of revision in which the student can review the activity with the teacher will be indicated. In this context, claims may be made on the activity grade, which will be evaluated by the faculty responsible for the subject. If the student does not appear in this review, this activity will not be reviewed later.

Ratings

Honor plates. Granting a grade of honor registration is the decision of the faculty responsible for the subject. The regulations of the UAB indicate that MH can only be granted to students who have obtained a final grade equal to or greater than 9.00. You can grant up to 5% of MH of the total number of students enrolled.

A student will be considered not evaluable (NA) if he has not been presented in a set of activities the weight of which equals a minimum of two thirds of the total grade of the subject.

Irregularities by the student, copy and plagiarism

Without prejudice to other disciplinary measures deemed appropriate, the irregularities committed by the student that may lead to a variation of the grade of an evaluation act will be scored with a zero. Therefore, copying, plagiarism, cheating, letting copy, etc. in any of the evaluation activities will involve suspending with a

zero. The evaluation activities qualified in this way and by this procedure will not be recoverable. If it is necessary to pass any of these evaluation activities to pass the subject, this subject will be suspended directly, without the opportunity to recover it in the same course.

Bibliography

The bibliography of this module is mainly based on scientific articles recently published at the time of doing the course.

In order to provide the most novel and cutting-edge references, the bibliography will be specified at the beginning of the module and each teacher will provide the references corresponding to their specialty on the virtual campus.

Innovative Wastewater Treatment & Resource Recovery Technologies: Impacts on Energy, Economy and Environment

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Software

MS Office

Course groups and languages

The information provided is provisional until November 30. After this date, you will be able to consult the language of each group through this [link](#). To access the information, you will need to enter the course CODE

Type of teaching	Group	Language	Semester	Shift
(TEm) Theory (master)	1	Catalan/Spanish	second semester	afternoon