

60647 - Renewable Raw Materials

Syllabus Information

Academic year: 2024/25

Subject: 60647 - Renewable Raw Materials

Faculty / School: 100 - Facultad de Ciencias

Degree: 540 - Master's in Industrial Chemistry

ECTS: 3.0

Year: 1

Semester: Second semester

Subject type: Optional

Module:

1. General information

The subject has the following objectives:

- To describe the main processes and chemicals used in biorefineries.
- To recognize the impact of chemical products and processes on the environment and to propose methods to assess and reduce it.
- To correctly use the vocabulary and terminology specific to the chemical valorization of renewable raw materials.
- To assess a raw material yield to obtain useful chemical products..

2. Learning results

To pass this subject, students must demonstrate the following results:

- To identify and list the most significant properties of products from renewable sources.
- To explain the most important organic reactions and processes used in the transformation of renewable raw materials.
- To make critical judgments, with a scientific basis, on the benefits of the use of renewable raw materials and the problems derived.

3. Syllabus

1. Biorefineries: basic concepts.
2. Sources of different renewable raw materials: availability and characteristics.
3. Pretreatment and treatment of the different raw materials.
4. Products of interest from renewable raw materials:
 - Biofuels (biogas, biodiesel, biooil)
 - Terpenes
 - Proteins and other non-carbohydrate biopolymers.
 - Fats and oils: fatty acids and glycerol.
 - Carbohydrates.
 - Lignins.

4. Academic activities

Master classes: 25 hours. The topics of the subject's syllabus will be explained.

Problems and cases: 5 hours. Theoretical-practical problems on the contents of the subject.

Study and personal work: 40 hours.

Assessment tests (5 hours)

5. Assessment system

Continuous evaluation

The student will take four individual written exams throughout the semester. They will be short exams that will include questions of the contents covered. To address these questions, the use of any type of documentation will not be allowed, except for the

one provided in the exam.

In order to pass the subject by continuous evaluation it is necessary to achieve a minimum grade of 5 points out of 10 in the average of the four exams.

Global test

Students who do not opt for or do not pass the continuous evaluation or who wish to improve their grade, will take a global exam on the dates assigned in the official exam calendar.

6. Sustainable Development Goals

4 - Quality Education

9 - Industry, Innovation and Infrastructure

12 - Responsible Production and Consumption