

29925 - Separation Processes

Syllabus Information

Academic year: 2024/25

Subject: 29925 - Separation Processes

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 330 - Complementos de formación Máster/Doctorado
435 - Bachelor's Degree in Chemical Engineering

ECTS: 6.0

Year: 435 - Bachelor's Degree in Chemical Engineering: 3

330 - Complementos de formación Máster/Doctorado: XX

Semester: Second semester

Subject type: 435 - Compulsory

330 - ENG/Complementos de Formación

Module:

1. General information

The student is expected to understand the fundamental concepts of separation processes and to know the calculation methods for the preliminary design of equipment where separation processes based on mass transfer are performed, which are very frequent in the Chemical Industry. Therefore, it provides you with key knowledge for the development of your future professional activity.

2. Learning results

- 1- Understands the fundamental concepts of separation processes based on mass transfer.
- 2- Performs preliminary design of equipment for both stage-based and differential continuous contact-based separation processes.
- 3- Select for each specific situation the appropriate separation process and choose the type of equipment required.

3. Syllabus

Unit 1. Introduction to separation processes.

Unit 2. Contact between phases.

Unit 3. Distillation.

Unit 4. Absorption.

Unit 5. Liquid-liquid extraction.

Unit 6. Leaching.

Unit 7. Adsorption.

Unit 8. Membranes.

4. Academic activities

Master classes (40 hours). The theory of the topics will be taught and some model problems will be solved.

Problem solving classes and case studies (20 hours). Problems will be solved by the student supervised by the teacher.

Supervised group work (26.5 hours). Groups will be formed, preferably of three people, and will propose three activities that will be tutored and evaluated by the teachers so that there is feedback for the student.

Individual study (60 hours). Continuous individual study throughout the semester.

Final assessment (3.5 hours). Global test where theoretical and practical knowledge will be assessed.

5. Assessment system

Option 1: The assessment is global and includes:

- Delivery of two problems/practical cases proposed by the teacher to be solved preferably in groups of three people. (16% of the grade).
- Delivery of a problem proposed and solved by each group formed, and subsequent correction of the problem delivered

by a different group (19% of the grade).

- Final exam (65% of the grade): Exam that will consist of a theoretical part without didactic material and another practical part with didactic material (notes and books). Each part accounts for 50% of the grade of the exam. A minimum score of 4 out of 10 is required on both parts separately for averaging.
- When a deliverable is not completed, the percentage of the final grade for that deliverable will be added to the percentage of the final test.

The first two activities assess learning results 1 and 2. With the final exam all learning results are assessed.

Option 2: Those students who do not follow the assessment of option 1, can choose to take the exam of (100% of the final grade) of similar characteristics as the final exam of option 1.

6. Sustainable Development Goals

6 - Clean Water and Sanitation

9 - Industry, Innovation and Infrastructure

12 - Responsible Production and Consumption