

Year : 2018/19

## 29925 - Separation Processes

### Syllabus Information

<b>Academic Year:</b>	2018/19
<b>Subject:</b>	29925 - Separation Processes
<b>Faculty / School:</b>	110 -
<b>Degree:</b>	330 - Complementos de formación Máster/Doctorado 435 - Bachelor's Degree in Chemical Engineering
<b>ECTS:</b>	6.0
<b>Year:</b>	330 - Complementos de formación Máster/Doctorado: XX 435 - Bachelor's Degree in Chemical Engineering: 3
<b>Semester:</b>	Half-yearly
<b>Subject Type:</b>	Compulsory, ENG/Complementos de Formación
<b>Module:</b>	---

### **General information**

#### **Aims of the course**

#### **Context and importance of this course in the degree**

#### **Recommendations to take this course**

#### **Learning goals**

#### **Competences**

#### **Learning goals**

#### **Importance of learning goals**

#### **Assessment (1st and 2nd call)**

#### **Assessment tasks (description of tasks, marking system and assessment criteria)**

#### **Methodology, learning tasks, syllabus and resources**

#### **Methodological overview**

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as lectures, practice sessions, assignments, autonomous work, and tutorials. Most of tasks are based on participation and the active role of the student favors the development of engineering

skills.

## Learning tasks

The program to achieve the expected results includes the following learning tasks:

**Lectures** (40 h). The teacher explains the course contents and solves some representative applied problems. Regular attendance is highly recommended

**Practice sessions** (20 h). Exercises supervised by the professor will be solved by the students. Problems will be related to the theoretical part explained in lectures.

**Assignments** in groups (27 hours). Groups of three components will be formed and along the semester four activities will be proposed. The teacher will supervise and evaluate the deliverables so there is a feedback to the student.

**Autonomous work** (60 hours). Students are expected to spend about 60 hours to study theory and solve problems.

**Final Assessment** (3 h). A global test will be performed where the theoretical and practical knowledge acquired by the student will be evaluated.

## Syllabus

The course will address the following topics:

Topic 1. Introduction to Separation Processes

Topic 2. Contact between phases

Topic 3. Distillation

Topic 4. Absorption

Topic 5. Liquid-liquid extraction

Topic 6. Leaching

Topic 7. Adsorption

Topic 8. Membrane processes

## Course planning and calendar

The following table shows an approximate schedule of topics in terms of hours of lectures and practice sessions. It also indicates approximately when students would be proposed the deliverables and the time that must be dedicated to these activities and their personal work. It indicated when approximately tutored sessions should take place.

Topic	Lectures + practice	Deliverables (Del.) and	Autonomous work
-------	---------------------	-------------------------	-----------------

	sessions	Tutoring (T)	
1. Introduction	2 h + 0 h		2 h
2. Contact between phases	6 h + 4 h	Del. 1 (5 h), T1	10 h
3. Distillation	12 h + 6 h	Del. 2 (12 h), T2	18 h
4. Absorption	5 h + 3 h	Del. 3 (5 h), T3	8 h
5. Liquid-liquid extraction	5 h + 3 h	Del. 4 (5 h), T4	8 h
6. Leaching	4 h + 3 h		7 h
7. Adsorption	3 h + 1 h		4 h
8. Membrane processes	3 h + 0 h		3 h
<b>Total</b>	40 h + 20 h	27 h	60 h

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class or please refer to the EINA website (<http://eina.unizar.es>).

## **Bibliography and recommended resources**