Course guides
820529 - OBA1 - Unit Operations I

Unit in charge: Barcelona East School of Engineering
Teaching unit: 713 - EQ - Department of Chemical Engineering.
Degree: BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Compulsory subject).
Academic year: 2021 ECTS Credits: 6.0 Languages: Catalan

LECTURER
Coordinating lecturer: EULALIA PLANAS CUCHI
Others:
Primer quadrimestre:
AURELIO CALVET TARRAGONA - M10
EULALIA PLANAS CUCHI - M10

Segon quadrimestre:
AURELIO CALVET TARRAGONA - T10
EULALIA PLANAS CUCHI - T10

PRIOR SKILLS
Knowledge on fluid mechanics and heat transfer

REQUIREMENTS
MECÀNICA DE FLUIDS - Corequisit
TERMODINÀMICA - Prerequisite

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES
Specific:
CEQUI-19. Understand mass and energy balances, biotechnology, mass transfer, separation operations, chemical reaction engineering, the design of reactors, and the recovery and processing of raw materials and energy resources.
CEQUI-27. Understand spatial vision and graphic representation techniques, whether using traditional metric and descriptive geometry methods or computer assisted design applications.

TEACHING METHODOLOGY
- Lectures on theory and problems by the professors.
- Problems solving by the students.
- Autonomous learning.
LEARNING OBJECTIVES OF THE SUBJECT

The subject intends to introduce the students into the concept of unit operation, at the same time that they are introduced to the foundations for the calculation of some of the operations that are based mainly on the transfer of heat and momentum. At the end of the course students must be able to:

- Know the principles and methodologies of the studied unit operations.
- Design/calculate the equipments corresponding to the studied unit operations.
- Solve certain projects in the field of chemical engineering.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours large group</td>
<td>60,0</td>
<td>40.00</td>
</tr>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
</tr>
</tbody>
</table>

Total learning time: 150 h

CONTENTS

Unit Operations I

Description:
Block 1 (15 h)

Block 2 (21 h)

Block 3 (8 h)

Block 4 (16 h)

Specific objectives:

Passing the course, the student should be able to:
- Knowing the principles and procedures of the studied unit operations.
- Designing/calculating the equipments associated to the studied unit operations.
- Solving certain projects in the field of chemical engineering.

Full-or-part-time: 60h
Theory classes: 60h
**GRADING SYSTEM**

**FINAL RATE:**

\[ NF = 0,45 \cdot NEF + 0,25 \cdot NEP + 0,1 \cdot NPP + 0,2 \cdot NAC \]

Where,
- \( NEF \): Rate of the final exam
- \( NEP \): Rate of the partial exam
- \( NPP \): Rate of the partial test
- \( NAC \) = Rate of continuous evaluation obtained as mean value of the scores obtained in the tasks

The course will have a reevaluation exam according to the calendar and rules of the EEBE, this exam will substitute the three scores of individual test, so will count 90%. The students will be able to access the re-assessment test that meets the requirements set by the EEBE in its Assessment and Permanence Regulations (https://eebe.upc.edu/ca/estudis/normatives-academiques/documents/eebe-normativa-avaluacio-i-permanencia-18-19-aprovat-je-2018-06-13.pdf)

**EXAMINATION RULES.**

Some examinations will take place with documentation available to the students, some without it (the students will be previously informed on this).

**BIBLIOGRAPHY**

**Basic:**

**RESOURCES**

**Other resources:**
Additional documentation (graphs, tables, power-point, etc.) given by professors.