820529 - OBA1 - Unit Operations I

Coordinating unit: 295 - EEBE - Barcelona East School of Engineering
Teaching unit: 713 - EQ - Department of Chemical Engineering
Academic year: 2018
Degree: BACHELOR’S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
BACHELOR’S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
ECTS credits: 6  Teaching languages: Catalan

Teaching staff

Coordinator: Planas Cuchi, Eulalia
Others: Aureli Calvet Tarragona
         Agueda Costafreda, Alba

Opening hours

Timetable: Ask for your attention time directly to the Professor by email

Prior skills

Knowledge on fluid mechanics and heat transfer

Requirements

Thermodynamics and heat transfer
It is advisable to have completed a Transport Phenomena course

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>Study load</th>
<th>Hours large group:</th>
<th>60h</th>
<th>40.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total learning time: 150h</td>
<td>Hours medium group:</td>
<td>0h</td>
<td>0.00%</td>
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<tr>
<td></td>
<td>Hours small group:</td>
<td>0h</td>
<td>0.00%</td>
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<td></td>
<td>Guided activities:</td>
<td>0h</td>
<td>0.00%</td>
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<tr>
<td></td>
<td>Self study:</td>
<td>90h</td>
<td>60.00%</td>
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### Content

<table>
<thead>
<tr>
<th>Unit Operations I</th>
<th>Learning time: 60h</th>
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<tbody>
<tr>
<td></td>
<td>Theory classes: 60h</td>
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**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.
Qualification system

FINAL RATE:
\[ NF = 0.6 \cdot \text{NEF} + 0.3 \cdot \text{NEP} + 0.1 \cdot \text{NPP} \]

Where,
NEF: Rate of the final exam
NEP: Rate of the partial exam
NPP: Rate of the partial test

The course will have a reevaluation exam according to the calendar and rules of the EEBE, this exam will substitute the three previous scores, so will count 100%.

Regulations for carrying out activities

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

Bibliography

Basic:


Others resources:

Additional documentation (graphs, tables, power-point, etc.) given by professors.