240EQ034 - Advanced Design in Chemical Processes

Coordinating unit: 295 - EEBE - Barcelona East School of Engineering
Teaching unit: 713 - EQ - Department of Chemical Engineering
Academic year: 2018
Degree: MASTER'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2012). (Teaching unit Compulsory)
MASTER'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2012). (Teaching unit Compulsory)
ECTS credits: 4,5
Teaching languages: Catalan, Spanish, English

Teaching staff

Coordinator: ANTONIO ESPUÑA CAMARASA
Others: Antonio Espuña Camarasa

Opening hours

Timetable: Please check the Spanish version

Prior skills

Please check the Spanish version

Requirements

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Degree competences to which the subject contributes

Specific:
1. Conceptualize engineering models; apply innovative methods in problem solving and applications suitable for the design, simulation, optimization and control of processes and systems.
3. Designing products, processes, systems and services for the chemical industry as well as the optimization of other already developed technology based on various areas of chemical engineering, understanding of processes and transport phenomena, separation operations and engineering chemical reactions, nuclear, electrochemical and biochemical.
4. The student will be able to analyze the economic feasibility of a chemical engineering project.

General:
5. Possess independent learning skills to maintain and enhance the competencies of chemical engineering to enable the continued development of their profession.
2. Know how to establish and develop mathematical models using appropriate informatics, scientific and technological basis for the design of new products, processes, systems and services, and for other already developed optimization.

Teaching methodology

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Learning objectives of the subject

Please check the Spanish version
### Study load

<table>
<thead>
<tr>
<th><strong>Total learning time:</strong> 112h 30m</th>
<th>Hours large group:</th>
<th>27h</th>
<th>24.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total learning time</td>
<td>Hours medium group:</td>
<td>0h</td>
<td>0.00%</td>
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<tr>
<td>Total learning time</td>
<td>Hours small group:</td>
<td>13h 30m</td>
<td>12.00%</td>
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<tr>
<td>Total learning time</td>
<td>Guided activities:</td>
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<td>0.00%</td>
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<tr>
<td>Total learning time</td>
<td>Self study:</td>
<td>72h</td>
<td>64.00%</td>
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### Content

<table>
<thead>
<tr>
<th>Section</th>
<th>Learning time</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td><strong>Introduction - Calculation tools - Simulation and optimization</strong></td>
<td>14h</td>
<td>Theory classes: 2h&lt;br&gt;Practical classes: 2h&lt;br&gt;Self study: 10h</td>
</tr>
<tr>
<td><strong>Analysis of processes</strong></td>
<td>14h</td>
<td>Theory classes: 4h&lt;br&gt;Practical classes: 2h&lt;br&gt;Self study: 8h</td>
</tr>
<tr>
<td><strong>Synthesis and optimization of reaction systems</strong></td>
<td>54h</td>
<td>Theory classes: 8h&lt;br&gt;Practical classes: 24h&lt;br&gt;Self study: 22h</td>
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<tr>
<td><strong>Global vision: integration of processes</strong></td>
<td>15h</td>
<td>Theory classes: 6h&lt;br&gt;Practical classes: 2h&lt;br&gt;Self study: 7h</td>
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<tr>
<td><strong>Process Intensification</strong></td>
<td>8h</td>
<td>Theory classes: 2h&lt;br&gt;Self study: 6h</td>
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</tbody>
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Description:
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**Managing uncertainty**

<table>
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<tr>
<th>Learning time: 8h</th>
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<tbody>
<tr>
<td>Theory classes: 2h</td>
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<tr>
<td>Laboratory classes: 6h</td>
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**Description:**
Please, check the Spanish version

**Qualification system**
Please check the Spanish version

**Regulations for carrying out activities**
Please check the Spanish version

**Bibliography**

**Basic:**


**Others resources:**
Please check the Spanish version