Course guide
820523 - EPQ - Chemical Process Engineering

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: 2022  ECTS Credits: 6.0  Languages: Catalan, Spanish, English

LECTURER

Coordinating lecturer: ANTONIO ESPUÑA CAMARASA

Others: Primer quadrimestre:
ANTONIO ESPUÑA CAMARASA - Grup: M11, Grup: M12

PRIOR SKILLS

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REQUIREMENTS

OPERACIONS BÀSIQUES II - Prerequisit
SIMULACIÓ I OPTIMITZACIÓ DE PROCESSOS QUÍMICS - Prerequisit

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
2. Analyse, design, simulate and optimise processes and products.
CEQUI-22. Design, manage and run simulation, control and instrumentation procedures in chemical processes.
CEQUI-26. Study the feasibility of a proposed project.
CEQUI-27. Understand spatial vision and graphic representation techniques, whether using traditional metric and descriptive geometry methods or computer assisted design applications.
12. 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.

Generical:
CG-04. (ENG) Capacidad de resolver problemas con iniciativa, toma de decisiones, creatividad, razonamiento crítico y de comunicar y transmitir conocimientos, habilidades y destrezas en el campo de la Ingeniería Industrial.
CG-07. (ENG) Capacidad de analizar y valorar el impacto social y medioambiental de las soluciones técnicas.

Transversal:
14. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.
22. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 3. Taking social, economic and environmental factors into account in the application of solutions. Undertaking projects that tie in with human development and sustainability.
25. EFFECTIVE USE OF INFORMATION RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.

TEACHING METHODOLOGY

Please check the Spanish version
LEARNING OBJECTIVES OF THE SUBJECT
Please check the Spanish version

STUDY LOAD

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<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Hours large group</td>
<td>30,0</td>
<td>20.00</td>
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<tr>
<td>Hours small group</td>
<td>30,0</td>
<td>20.00</td>
</tr>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
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**Total learning time:** 150 h

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**Introduction**

**Description:**
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**Specific objectives:**
Please check the Spanish version.

**Related activities:**
Please check the Spanish version.

**Full-or-part-time:** 11h
- Theory classes: 1h
- Laboratory classes: 2h
- Guided activities: 6h
- Self study: 2h

**Computational tools (Simulation and optimization)**

**Description:**
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**Specific objectives:**
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**Related activities:**
Please check the Spanish version.

**Full-or-part-time:** 16h
- Theory classes: 1h
- Laboratory classes: 5h
- Guided activities: 8h
- Self study: 2h
### Process Synthesis

**Description:**
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**Specific objectives:**
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**Related activities:**
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**Full-or-part-time:** 2h 30m  
Theory classes: 0h 30m  
Self study: 2h

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### Process Analysis

**Description:**
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**Specific objectives:**
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**Related activities:**
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**Full-or-part-time:** 2h 30m  
Theory classes: 0h 30m  
Self study: 2h

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### Product Engineering

**Description:**
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**Specific objectives:**

**Related activities:**

**Related competencies:**
CEQUI-20. Analyse, design, simulate and optimise processes and products.

**Full-or-part-time:** 5h  
Theory classes: 1h  
Self study: 4h
<table>
<thead>
<tr>
<th>Field</th>
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<tr>
<td><strong>Separation systems engineering</strong></td>
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<td><strong>Description:</strong></td>
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<td><strong>Specific objectives:</strong></td>
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<td><strong>Full-or-part-time:</strong></td>
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<td>4h</td>
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<td>Guided activities:</td>
<td>8h</td>
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<td>Self study:</td>
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<td><strong>Reaction Systems engineering</strong></td>
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<td><strong>Full-or-part-time:</strong></td>
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<tr>
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<td>Self study:</td>
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<td><strong>Control Systems Engineering</strong></td>
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<td><strong>Full-or-part-time:</strong></td>
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<td>Guided activities:</td>
<td>2h</td>
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<tr>
<td>Self study:</td>
<td>2h</td>
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Process Integration

**Description:**
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**Specific objectives:**
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**Related activities:**
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**Full-or-part-time:** 26h
- Theory classes: 4h
- Laboratory classes: 6h
- Guided activities: 14h
- Self study: 2h

Process Systems Engineering - complete case study

**Description:**
Please check the Spanish version.

**Specific objectives:**
Please check the Spanish version.

**Related activities:**
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**Full-or-part-time:** 51h
- Laboratory classes: 15h
- Guided activities: 30h
- Self study: 6h

GRADING SYSTEM

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EXAMINATION RULES.

Please check the Spanish version

BIBLIOGRAPHY

**Basic:**
Complementary:

RESOURCES

Other resources:
Please check the Spanish version