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: 2023 ECTS Credits: 6.0 Languages: Catalan, Spanish, English

LECTURER
Coordinating lecturer: ANTONIO ESPUÑA CAMARASA
Others:
Primer quadrimestre:
ANTONIO ESPUÑA CAMARASA - Grup: M11, Grup: M12
ANNA PALLARÉS LÓPEZ - Grup: M11, Grup: M12

Segon quadrimestre:
ANTONIO ESPUÑA CAMARASA - Grup: T11

PRIOR SKILLS
Please check the Spanish version

REQUIREMENTS
OPERACIONS BÀSIQUES II - Prerequisite
SIMULACIÓ I OPTIMITZACIÓ DE PROCESSOS QUÍMICS - Prerequisite

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.

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

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<td>Specific objectives:</td>
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<td>Related activities:</td>
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<tr>
<td>Full-or-part-time: 11h</td>
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<tr>
<td>Theory classes: 1h</td>
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<td>Laboratory classes: 2h</td>
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<td>Guided activities: 6h</td>
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<td>Self study: 2h</td>
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### Computational tools (Simulation and optimization)

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

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

**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:**
Please check the Spanish version.

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

**Full-or-part-time:** 2h 30m  
- Theory classes: 0h 30m  
- Self study : 2h

### Process Analysis

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

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

**Full-or-part-time:** 2h 30m  
- Theory classes: 0h 30m  
- Self study : 2h
**Product Engineering**

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

**Specific objectives:**

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

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

**Full-or-part-time:** 5h  
Theory classes: 1h  
Self study: 4h

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**Separation systems engineering**

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

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

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

**Full-or-part-time:** 18h  
Theory classes: 4h  
Laboratory classes: 4h  
Guided activities: 8h  
Self study: 2h

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**Reaction Systems engineering**

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

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

**Full-or-part-time:** 14h  
Theory classes: 4h  
Laboratory classes: 2h  
Guided activities: 6h  
Self study: 2h
## Control Systems Engineering

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

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

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

**Full-or-part-time:** 4h
Guided activities: 2h
Self study: 2h

## Process Integration

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

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

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

**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:**
Please check the Spanish version.

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

## GRADING SYSTEM

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## EXAMINATION RULES.

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BIBLIOGRAPHY

Basic:

Complementary:

RESOURCES

Other resources:
Please check the Spanish version