220006 - Chemistry

Coordinating unit: 205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 713 - EQ - Department of Chemical Engineering
Academic year: 2018
Degree: BACHELOR'S DEGREE IN AEROSPACE TECHNOLOGY ENGINEERING (Syllabus 2010). (Teaching unit Compulsory)
BACHELOR'S DEGREE IN AEROSPACE VEHICLE ENGINEERING (Syllabus 2010). (Teaching unit Compulsory)
ECTS credits: 6
Teaching languages: Catalan

Teaching staff
Coordinator: CONCEPCÍÓ FLAQUÉ LAJARA

Degree competences to which the subject contributes

Specific:
1. An understanding of the basic principles of general, organic and inorganic chemistry and the ability to apply this knowledge in engineering

Transversal:
2. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 1. Analyzing the world's situation critically and systemically, while taking an interdisciplinary approach to sustainability and adhering to the principles of sustainable human development. Recognizing the social and environmental implications of a particular professional activity.

Teaching methodology

- Large group lessons: Development of theoretical concepts.
- Medium group lessons: Application of the theoretical concepts seen in big group lessons or acquired by the student through self-learning processes.
- Small group lessons: Laboratory practicals.

The Atenea platform will be used as a support tool to the three varieties of lessons described above. It would be used as a way of communication between the students and the teacher.

Learning objectives of the subject

Providing basic chemistry knowledge to other related subjects. Relate and apply theoretical concepts both in solving problems and laboratory practices.

Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 32h</th>
<th>21.33%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group: 14h</td>
<td>9.33%</td>
</tr>
<tr>
<td></td>
<td>Hours small group: 14h</td>
<td>9.33%</td>
</tr>
<tr>
<td></td>
<td>Self study: 90h</td>
<td>60.00%</td>
</tr>
</tbody>
</table>
## Content

<table>
<thead>
<tr>
<th>1. Introduction to chemistry.</th>
<th><strong>Learning time:</strong> 40h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 4h</td>
</tr>
<tr>
<td></td>
<td>Practical classes: 3h</td>
</tr>
<tr>
<td></td>
<td>Laboratory classes: 7h</td>
</tr>
<tr>
<td></td>
<td>Self study: 26h</td>
</tr>
</tbody>
</table>

**Description:**

**Related activities:**

<table>
<thead>
<tr>
<th>2. Atomic structure. Periodic table of elements.</th>
<th><strong>Learning time:</strong> 12h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 3h</td>
</tr>
<tr>
<td></td>
<td>Practical classes: 1h</td>
</tr>
<tr>
<td></td>
<td>Self study: 8h</td>
</tr>
</tbody>
</table>

**Description:**

**Related activities:**

<table>
<thead>
<tr>
<th>3. Molecular structure.</th>
<th><strong>Learning time:</strong> 16h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 6h</td>
</tr>
<tr>
<td></td>
<td>Practical classes: 1h</td>
</tr>
<tr>
<td></td>
<td>Self study: 9h</td>
</tr>
</tbody>
</table>

**Description:**

**Related activities:**
### 4. States of matter.

**Learning time:** 20h  
Theory classes: 6h  
Practical classes: 2h  
Self study: 12h  

**Description:**

**Related activities:**

### 5. Chemical kinetics. Chemical equilibrium.

**Learning time:** 38h  
Theory classes: 6h  
Practical classes: 5h  
Laboratory classes: 7h  
Self study: 20h  

**Description:**

**Related activities:**

### 6. Electrochemistry

**Learning time:** 16h  
Theory classes: 4h  
Practical classes: 2h  
Self study: 10h  

**Description:**

**Related activities:**

### 7. Organic chemistry.

**Learning time:** 8h  
Theory classes: 3h  
Self study: 5h  

**Description:**
## Planning of activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours</th>
<th>Theory classes</th>
<th>Self study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 1: Theory Sessions</td>
<td>68h</td>
<td>25h</td>
<td>43h</td>
</tr>
<tr>
<td>Activity 2: Problem Sessions</td>
<td>33h</td>
<td>14h</td>
<td>19h</td>
</tr>
<tr>
<td>Activity 3: Laboratory</td>
<td>32h</td>
<td>14h</td>
<td>18h</td>
</tr>
<tr>
<td>Activity 4: Midterm Exam</td>
<td>3h</td>
<td>3h</td>
<td></td>
</tr>
<tr>
<td>Activity 5: Final Exam</td>
<td>3h</td>
<td>3h</td>
<td></td>
</tr>
<tr>
<td>Activity 6: Formulation Exam</td>
<td>11h</td>
<td>1h</td>
<td>10h</td>
</tr>
</tbody>
</table>

## Qualification system

Note global = \(0.20 \times N1P + 0.50 \times N2P + 0.20 \times NL + 0.10 \times NAD\)

\(NL\): Laboratory practices. Activity 3 of this guide
\(NAD\): Guided activity 6
\(N1P\): First midterm exam
\(N2P\): Final exam

In case of failure of the midterm exam \(N1P\), there will be the chance to recover it in the following way:

\(=0.70 \times N2P + 0.20 \times NL + 0.10 \times NAD,\) if \(N2P > N1P\)
Bibliography

Basic:


Complementary:

Formulació i nomenclatura segons normativa IUPAC.

Others resources:

Hyperlink

http://www.webelements.com/

http://www.periodicvideos.com/ #