295556 - 295EQ032 - Nanotechnology

Coordinating unit: 295 - EEBE - Barcelona East School of Engineering
Teaching unit: 713 - EQ - Department of Chemical Engineering
Academic year: 2018
Degree:
ECTS credits: 6
Teaching languages: Catalan, Spanish, English

Teaching staff
Coordinator: Carles Alemán
Others: Joan Torras and Francesc Estrany

Opening hours
Timetable: The first day of class will be defined.

Prior skills
Nanotechnology

Requirements
Basic knowledge of materials acquired during undergraduate studies. Having studied the subject "Biotechnological Processes and Polymer Industry"

Teaching methodology
Classes and presentation of works.

Learning objectives of the subject
Learn basic knowledge related to the use of polymers and biopolymers in nanotechnology. Learn the concepts that relate the structure and properties of nanostructured materials for their technological application and biotechnology

Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 42h</th>
<th>28.00%</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group: 0h</td>
<td>0.00%</td>
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<tr>
<td></td>
<td>Hours small group: 12h</td>
<td>8.00%</td>
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<td></td>
<td>Guided activities: 0h</td>
<td>0.00%</td>
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<tr>
<td></td>
<td>Self study: 96h</td>
<td>64.00%</td>
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## Introduction

**Learning time:** 9h  
Theory classes: 9h

**Description:**  

**Related activities:**  
Development and presentation of specific works on topics selected by the teaching staff.

**Specific objectives:**  
Acquire basic knowledge and theoretical foundations about nanotechnology.

## Nanocomposites based on nanotubes, nanofibres, nanoparticles and nanosheets

**Learning time:** 11h  
Theory classes: 11h

**Description:**  

**Related activities:**  
Development and presentation of specific works on topics selected by the teaching staff.

**Specific objectives:**  
Acquire basic knowledge and theoretical foundations about nanocomposites based on nanotubes, nanofibres, nanoparticles and nanosheets.

## Polymeric nanomembranes

**Learning time:** 11h  
Theory classes: 11h

**Description:**  
The materials for the manufacture of ultra-fine membranes. Preparation of ultra-fine membranes. Giant nanomembranes The functionalization of ultra-fine membranes. Applications of ultra-fine membranes in Electronics and Biomedicine.

**Related activities:**  
Development and presentation of specific works on topics selected by the teaching staff.

**Specific objectives:**  
Acquire basic knowledge and theoretical foundations about polymeric nanomembranes.
Polymeric nanofibers

Learning time: 11h
Theory classes: 11h

**Description:**

**Related activities:**
Development and presentation of specific works on topics selected by the teaching staff.

**Specific objectives:**
Acquire basic knowledge and theoretical foundations about polymeric nanofibers.

**Qualification system**

\[ NC = \frac{NP1+N_P2+N_P3+N_P4+2E}{6} \]

where NC is the course mark, NP1-NP4 are the notes of the for parts in which the subject is divided and E is the mark of the exam.

**Regulations for carrying out activities**

Works and presentations drawn up by teams of two-three students depending on the number of students enrolled. The written exam will be held individually at the end of the semester. It has a minimum of 70% attendance at the classes, in order to be able to reflect the preparation of the different Works assigned to teams.

**Bibliography**

**Others resources:**

Supplied by the teaching staff.