In the current environment, innovation has become a competitive priority of the highest order. The company has identified new products, processes and services, and being able to implement them.

- The objective of the course is to provide the tools to develop innovative projects, managing innovation in all areas of the textile company to achieve competitive leadership.
- Develop the ability of students to identify areas of process innovation and textiles, structure them and present them to engineering projects.
- Boosting the knowledge of chemical finishing of fabrics, primarily from the points of view of the finished fabric quality aspects and ecological implications of products and processes. Study of biotechnological processes textiles.
- Develop specific skills associated with academic and transverse.

### Prior skills

The usual graduates in engineering.

### Teaching methodology

Theoretical classes
- Analysis of Case Studies
- Laboratory classes

### Learning objectives of the subject

- In the current environment, innovation has become a competitive priority of the highest order. The company has identified new products, processes and services, and being able to implement them.
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### Study load

<table>
<thead>
<tr>
<th>Total learning time: 125h</th>
<th>Hours large group: 30h</th>
<th>24.00%</th>
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<tbody>
<tr>
<td></td>
<td>Hours medium group: 0h</td>
<td>0.00%</td>
</tr>
<tr>
<td></td>
<td>Hours small group: 15h</td>
<td>12.00%</td>
</tr>
<tr>
<td></td>
<td>Guided activities: 0h</td>
<td>0.00%</td>
</tr>
<tr>
<td></td>
<td>Self study: 80h</td>
<td>64.00%</td>
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**205402 - Functional Innovations in Textile Finishes**

**Coordinating unit:** 205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering

**Teaching unit:** 702 - CMEM - Department of Materials Science and Metallurgy

**Academic year:** 2019

**Degree:** MASTER'S DEGREE IN INDUSTRIAL ENGINEERING (Syllabus 2013). (Teaching unit Optional)

**ECTS credits:** 5

**Teaching languages:** Spanish

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**Teaching staff**

**Coordinator:** Ardanuy Raso, Monica

**Others:** González López, Laura

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**Prior skills**

The usual graduates in engineering.

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**Teaching methodology**

Theoretical classes
- Analysis of Case Studies
- Laboratory classes

---

**Learning objectives of the subject**

- In the current environment, innovation has become a competitive priority of the highest order. The company has identified new products, processes and services, and being able to implement them.
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</table>
# 205402 - Functional Innovations in Textile Finishes

## Content

**Unit 1: Introduction**

- **Description:** General introduction to Innovations in textile finishing

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

**Unit 2: Sol-gel finishing**

- **Description:**
  1. Concept of Sol-gel
  2. Examples of applications of sol-gel finishing to textiles

- **Learning time:** 29h
  - Theory classes: 9h
  - Self study: 20h

**Related activities:**
- Laboratory work I

**Unit 3: Micro-nanoencapsulation finishing**

- **Description:**
  1. Concept of Micro-nanoencapsulation
  2. Examples of applications of Micro-nanoencapsulation finishing to textiles

- **Learning time:** 29h
  - Theory classes: 9h
  - Self study: 20h

**Related activities:**
- Laboratory work II

**Unit 4: Plasma treatments**

- **Description:**
  1. Concept of plasma treatments
  2. Examples of applications of plasma treatment on textiles finishing

- **Learning time:** 29h
  - Theory classes: 9h
  - Self study: 20h

**Related activities:**
- Laboratory work III
# 205402 - Functional Innovations in Textile Finishes

## Unit 5: Multifunctional and smart finishing

<table>
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<tr>
<td>Theory classes: 9h</td>
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<tr>
<td>Self study: 20h</td>
</tr>
</tbody>
</table>

### Description:
- 5.1. Examples of applications of multifunctional finishing of textiles
- 5.2. Examples of applications of smart finishing of textiles

### Related activities:
- Laboratory work IV

## Qualification system

Exam 1: 20%
Exam 2: 20%
Exercises and practical cases: 30%
Laboratory reports: 30%

For those students who meet the requirements and submit to the reevaluation examination, the grade of the reevaluation exam will replace the grades of all the on-site written evaluation acts (tests, midterm and final exams) and the grades obtained during the course for lab practices, works, projects and presentations will be kept. If the final grade after reevaluation is lower than 5.0, it will replace the initial one only if it is higher. If the final grade after reevaluation is greater or equal to 5.0, the final grade of the subject will be 5.0.

## Regulations for carrying out activities

Will promote teamwork and individual tutorials to achieve the objectives

## Bibliography

### Basic:

### Complementary:

### Others resources:

Learning time:
- Theory classes: 9h
- Self study: 20h

Unit 5: Multifunctional and smart finishing