Degree competences to which the subject contributes

**Specific:**
1. DES: Ability to design and project in different situations, effectively and efficiently with different agents involved in the process of design and industrial development.
2. DES: Ability to take decisions related to the graphic representation of concepts.
3. DES: Ability to apply specific methods, techniques and instruments for each form of technical drawing.
4. DES: Knowledge of the types of design and products, and their presentation.
5. DES: Knowledge of basic animation and 3D simulation.

**Transversal:**
6. SELF-DIRECTED LEARNING - Level 2: Completing set tasks based on the guidelines set by lecturers. Devoting the time needed to complete each task, including personal contributions and expanding on the recommended information sources.
7. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.

Teaching methodology

- Theoretical classes
- Practical classes (individual or in group)
- Project development (individual or in group)

Learning objectives of the subject

Optimal presentation of projects in three-dimensional environments.
Assimilation of the basic principles of animation in terms of simulation chambers.
The application of the principles of visual language.
Generation of three-dimensional animations.
Generation of audiovisual elements that mix real and virtual elements.
### Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 15h 10.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group: 0h 0.00%</td>
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<tr>
<td></td>
<td>Hours small group: 45h 30.00%</td>
</tr>
<tr>
<td></td>
<td>Guided activities: 6h 4.00%</td>
</tr>
<tr>
<td></td>
<td>Self study: 84h 56.00%</td>
</tr>
</tbody>
</table>
## TOPIC 1: Principles of animation

**Description:**
1.1. Fotorealistic environments  
1.2. Virtual cameras  
1.3. Rendering

**Related activities:**
Reading and analysis of sample material.

**Learning time:** 10h  
Laboratory classes: 4h  
Self study: 6h

## TOPIC 2: Global lighting models

**Description:**
2.1. Lighting photon map based  
2.2. Lighting image based (IBL)

**Related activities:**
Reading and analysis of sample material  
Solving on concret exercises  
Layout of own proposals models.

**Specific objectives:**
Rendering using photon map systems  
Rendering using IBL systems

**Learning time:** 10h  
Laboratory classes: 4h  
Self study: 6h
TOPIC 3: Textures

Learning time: 20h
Laboratory classes: 8h
Self study: 12h

Description:
- 3.1. Basic materials
- 3.2. Textures
- 3.2. Sample material collections
- 3.3. Unwrapping methods

Related activities:
- Reading and analysis of sample material
- Solving on concrete exercises
- Layout of own proposals models

Specific objectives:
- Applying textures
- Using rendering engines

TOPIC 4: Indoor and outdoor scenes

Learning time: 20h
Laboratory classes: 8h
Self study: 12h

Description:
- 4.1. Outdoor lighting
- 4.2. Indoor lighting
- 4.3. Exposure compensation
- 4.4. Lighting day / night

Related activities:
- Reading and analysis of sample material
- Solving on concrete exercises
- Layout of own proposals models

Specific objectives:
- Applying audiovisual standards on lights and cameras to producte presentation images of products.
### (ENG) TEMA 5: Introduction at 3D Animation

<table>
<thead>
<tr>
<th>Description:</th>
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</thead>
<tbody>
<tr>
<td>5.1. Animation by keyframe.</td>
</tr>
<tr>
<td>5.2. Dummies use</td>
</tr>
<tr>
<td>5.3. Animation curves edition</td>
</tr>
<tr>
<td>5.4. Parametric animation.</td>
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<tr>
<td>5.5. Camera animation.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Related activities:</th>
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</thead>
<tbody>
<tr>
<td>Reading and analysis of sample material</td>
</tr>
<tr>
<td>Solving on concret exercises</td>
</tr>
<tr>
<td>Layout of own proposals models.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Specific objectives:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setup of animation environments</td>
</tr>
<tr>
<td>Do 3d animations of products to be presented</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning time:</th>
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</thead>
<tbody>
<tr>
<td>20h</td>
</tr>
<tr>
<td>Laboratory classes: 8h</td>
</tr>
<tr>
<td>Self study : 12h</td>
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</table>

### TEMA 6: Advances animation

<table>
<thead>
<tr>
<th>Description:</th>
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<tbody>
<tr>
<td>6.1. Particles animation</td>
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<tr>
<td>6.2. Fisics</td>
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<table>
<thead>
<tr>
<th>Related activities:</th>
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</thead>
<tbody>
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<tr>
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<tr>
<td>Layout of own proposals models.</td>
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</table>

<table>
<thead>
<tr>
<th>Specific objectives:</th>
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<tbody>
<tr>
<td>Add realism at product presentations using particle animation and fisics.</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Learning time:</th>
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</thead>
<tbody>
<tr>
<td>20h</td>
</tr>
<tr>
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<tr>
<td>Self study : 12h</td>
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</tbody>
</table>
### TEMA 7: Integración

**Description:**
- Camera matching
- Integration
- Rendre elements
- Editing and composition

**Related activities:**
- Reading and analysis of sample material
- Solving on concrete exercises
- Layout of own proposals models.

**Specific objectives:**
- Mixing real and virtual models on product presentations

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**Learning time:** 20h
- Laboratory classes: 8h
- Self study: 12h

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### Qualification system

The course is graded on the following areas:
- Presentation of individual works
- Presentation of projects
- Theory
- 40% Exams
  - 20% Exam 1
  - 20% Exam 2

Practices and deliverables along course: 60%

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 pass 5.0.

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### Regulations for carrying out activities

Assistance at practices is compulsory.

The evaluation methodology will be:
- Questionnaires
- Evaluation of all the deliveries
- Correction process and participation by students
Bibliography

Basic:

