Course guides
820003 - EG - Graphic Expression

Unit in charge: Barcelona East School of Engineering
Teaching unit: 717 - DEGD - Department of Engineering Graphics and Design.

Degree:
- BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Compulsory subject).
- BACHELOR'S DEGREE IN MATERIALS ENGINEERING (Syllabus 2010). (Compulsory subject).
- BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Compulsory subject).
- BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Compulsory subject).
- BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Compulsory subject).
- BACHELOR'S DEGREE IN BIOMEDICAL ENGINEERING (Syllabus 2009). (Compulsory subject).
- BACHELOR'S DEGREE IN ENERGY ENGINEERING (Syllabus 2009). (Compulsory subject).

Academic year: 2020  ECTS Credits: 6.0  Languages: Catalan, Spanish

LECTURER

Coordinating lecturer: MIGUEL ANGEL BRIGOS HERMIDA

Others:
- Primer quadrimestre:
  - FRANCISCO ALPISTE PENALBA - M11, M12
  - MIGUEL ANGEL BRIGOS HERMIDA - M11, M12, M42, M61
  - ENRIC JOAN CODINA RIERA - M12
  - OSCAR FARRERONS VIDAL - M32
  - PEDRO VICTOR GABRIEL CERNA - M51, T31
  - ALBERTO MIGUEL GASENI DE LA TORRE - T12, T82
  - SERGIO GÓMEZ GONZÁLEZ - M62
  - OSCAR HERNANDO RUPEREZ - T21, T91
  - JORDI IVERN CACHO - M11
  - ALBERT LÓPEZ PUIGBÒ - M82
  - CARLOS MARTINEZ TOMAS - T11
  - JOSE MONTERO LOPEZ - M21, M81
  - NOELIA OLMEDO TORRE - T22, T92
  - ANNA PUJOL FERRAN - T22, T92
  - JAVIER RODRIGUEZ ESPANTOSO - T81
  - PEDRO VICTOR GABRIEL CERNA - M11, M21
  - ALBERTO MIGUEL GASENI DE LA TORRE - T11
  - OSCAR HERNANDO RUPEREZ - T21
  - NOELIA OLMEDO TORRE - M22
  - ANNA PUJOL FERRAN - T31
  - JOSE LUIS RODRIGUEZ ESPANTOSO - M12

Segon quadrimestre:
- PEDRO VICTOR GABRIEL CERNA - M11, M21
- ALBERTO MIGUEL GASENI DE LA TORRE - T11
- OSCAR HERNANDO RUPEREZ - T21
- NOELIA OLMEDO TORRE - M22
- ANNA PUJOL FERRAN - M31
- JOSE LUIS RODRIGUEZ ESPANTOSO - M12

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
1. Understand spatial vision and graphic representation techniques, whether using traditional metric and descriptive geometry methods or computer assisted design applications.
Transversal:
4. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.

TEACHING METHODOLOGY
The course uses the methodology exhibition by 20%, individual work by 40%, work in groups by 20% and project-based learning by 20%.

LEARNING OBJECTIVES OF THE SUBJECT
Enhance the spatial conception. Extend knowledge of the forms. To introduce and practice the rules of graphing techniques most commonly used in engineering.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guided activities</td>
<td>15,0</td>
<td>10.00</td>
</tr>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
</tr>
<tr>
<td>Hours small group</td>
<td>45,0</td>
<td>30.00</td>
</tr>
</tbody>
</table>

Total learning time: 150 h

CONTENTS

Theory, basic technical drawing Regulations for industrial engineering.

Description:
Representation systems.
Formats, Views and Lines.
Dimensioning of engineering drawings.
Cuts and sections.
Threaded elements.
Taper, surface finish.
Dimensional and Geometric Tolerances.
Standard elements

Related competencies:
07 AAT N1. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.

Full-or-part-time: 31h 30m
Practical classes: 10h 30m
Self study: 21h
Theory, Geometry in space, Analysis and Synthesis.

Description:
Points, lines and planes.
Metrics and Synthesis.

Related competencies:
CEB-05. Understand spatial vision and graphic representation techniques, whether using traditional metric and descriptive geometry methods or computer assisted design applications.
07 AAT N1. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.

Full-or-part-time: 9h
Practical classes: 3h
Self study: 6h

Theory, Surfaces.

Description:
And generating guidelines.
Classification of areas and examples.
Intersections of surfaces.

Related competencies:
CEB-05. Understand spatial vision and graphic representation techniques, whether using traditional metric and descriptive geometry methods or computer assisted design applications.
07 AAT N1. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.

Full-or-part-time: 4h 30m
Practical classes: 1h 30m
Self study: 3h

Sketch practices freehand.

Description:
Interpretation of isometric projection
Representation in dihedral projection
Application of standards of technical drawing
Evaluation of the work

Related competencies:
CEB-05. Understand spatial vision and graphic representation techniques, whether using traditional metric and descriptive geometry methods or computer assisted design applications.
07 AAT N1. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.

Full-or-part-time: 12h
Practical classes: 4h 30m
Self study: 7h 30m
**CAD practices, step by step tutorials drawing tool.**

**Description:**
Experimenting with modeling techniques in 3D of parts and assemblies
Experimenting with techniques of representation in 2D of parts and assemblies

**Related competencies:**
07 AAT N1. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.

**Full-or-part-time:** 7h 30m
Self study : 7h 30m

**CAD practices, approach and resolution of tutored exercises.**

**Description:**
3D representation of parts bounded dihedral.
3D representation of parts in axonometric limited.
Making plans dimensional axonometric drawings drawing.
Creating volumetric parts of designing with surfaces.
Apply the concepts of cut and bound in a piece drawn by CAD.
Get the plane making a piece cut views for correct representation required by CAD.
Making overall plans, exploded views and animations.

**Related competencies:**
CEB-05. Understand spatial vision and graphic representation techniques, whether using traditional metric and descriptive geometry methods or computer assisted design applications.

**Full-or-part-time:** 40h 30m
Practical classes: 25h 30m
Self study : 15h

**Making a group project.**

**Description:**
Idea and approach.
Planning
Sketch and calculations
Making parts and plans
Integration and assembly drawings
Animation and presentation.

**Related competencies:**
CEB-05. Understand spatial vision and graphic representation techniques, whether using traditional metric and descriptive geometry methods or computer assisted design applications.
07 AAT N1. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.

**Full-or-part-time:** 45h
Guided activities: 15h
Self study : 30h
GRADING SYSTEM

Continuous evaluation of student work.
It evaluates the study and independent work of student, both classroom-training and self-training, applied to all training activities.
- Individual evaluation for each session of autonomous learning of theoretical concepts. 25%
- Individual evaluation of skills acquired in practical cases. 60%.
- Evaluation Project Group. 15%
The weight in the final of generic skills is 5%.
This subject has no re-evaluation

EXAMINATION RULES.

It is mandatory to carry out the project of a mechanism or structure, with memory, assembly drawing and parts.

BIBLIOGRAPHY

Basic:

Complementary: