

## Course guides

### 820003 - EG - Graphic Expression

Last modified: 19/06/2020

**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

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**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 - M22, M71  
JOSE LUIS RODRIGUEZ ESPANTOSO - T81  
JAVIER RODRIGUEZ GALDEANO - M52, M72  
FRANCESC TENSA CASTELLÀ - M31, M41

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

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**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**

| Type              | Hours | Percentage |
|-------------------|-------|------------|
| Guided activities | 15,0  | 10.00      |
| Self study        | 90,0  | 60.00      |
| Hours small group | 45,0  | 30.00      |

**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

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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.

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

## BIBLIOGRAPHY

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### Basic:

- AENOR. Normas UNE sobre dibujo técnico. 4ª. Madrid: AENOR, 1997. ISBN 8481430528.
- Preciado, Cándido ; Moral, Francisco Jesús. Normalización del dibujo técnico. San Sebastián: Donostiarra, 2004. ISBN 8470633090.

### Complementary:

- Gómez González, Sergio. El Gran libro de SolidWorks. 3a ed. Barcelona: Marcombo, 2019. ISBN 9788426726575.
- Auria Apilluelo, José M. ; Ibáñez Carabantes, Pedro ; Ubieta Artur, Pedro. Dibujo industrial : conjuntos y despieces. 2ª ed. Madrid [etc.]: Paraninfo, 2005. ISBN 8497323904.