Course guide
820003 - EG - Graphic Expression

Last modified: 22/06/2026

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

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

Academic year: 2026 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish, English

LECTURER

Coordinating lecturer: OSCAR FARRERONS VIDAL

Others: MARIOLLY DAVILA CORDIDO
ISMAIL EL MADAFRI BENNIS
ROBERT EMBODAS NOGUERA
ALBERTO MIGUEL GASENI DE LA TORRE
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SERGIO SANTIAGO SACRISTAN
ISABEL SEVILLA PLANA
MARCEL GARCIA COROMINAS
DAVID LAPARRA VICENTE
JAVIER RODRIGUEZ GALDEANO

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

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

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

Any academic fraud, plagiarism or use or possession of unauthorised means in an assessment activity leads to a mark of zero (0) for the affected test or assignment. Furthermore, in accordance with the University's regulations, if disciplinary proceedings are initiated the subject is recorded as "Pending Assessment" until a decision is reached. These incidents are managed in accordance with the **Action Framework for Academic Integrity in Assessment at the UPC**.

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.
- DAO1: 11%
- Sketch: 11%
- DAO2: 25%
- Normalization Theory Test (TTN): 15%
- DAO3: 12%
- Geometry Theory Test (TTG): 11%
- Final Project: 15%

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

RESOURCES

Other resources:
EG Project video list: https://www.youtube.com/playlist?list=PL9E4ECD53E6C96EB0