Last update: 15-06-2018

820003 - EG - Graphic Expression

Coordinating unit: 295 - EEBE - Barcelona East School of Engineering

Teaching unit: 717 - EGE - Department of Engineering Presentation

Academic year: 2018

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

ECTS credits: 6 Teaching languages: Catalan, Spanish

Teaching staff

Coordinator: MIGUEL ANGEL BRIGOS HERMIDA

Others: MIGUEL BRIGOS HERMIDA - OSCAR FARRERONS VIDAL - FRANCESC ALPISTE PEÑALBA - JORDI TORNER RIBE - NOELIA OLMEDO TORRE - SERGIO GÓMEZ GONZÁLEZ - PEDRO V. GABRIEL CERNA - JOSÉ LUIS RODRÍGUEZ ESPANTOSO - JORDI IVERN I CACHO - FRANCESC TENSA CASTELLÀ - ALBERTO MIGUEL GASENI - CARLOS MARTÍNEZ TOMAS - ENRIC CODINA - XAVIER RODRIGUEZ GALDEANO - JOEL FRAX - JOSÉ PARDINA - OSCAR HERNANDO - XAVIER 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.

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Study load

Total learning time: 150h	Hours large group:	0h	0.00%
	Hours medium group:	0h	0.00%
	Hours small group:	45h	30.00%
	Guided activities:	15h	10.00%
	Self study:	90h	60.00%

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Content

Theory, basic technical drawing Regulations for industrial engineering.

Learning time: 31h 30m
Practical classes: 10h 30m
Self study : 21h

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

Theory, Geometry in space, Analysis and Synthesis.

Learning time: 9h
Practical classes: 3h
Self study : 6h

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

Theory, Surfaces.

Learning time: 4h 30m
Practical classes: 1h 30m
Self study : 3h

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

Sketch practices freehand.

Learning time: 12h
Practical classes: 4h 30m
Self study : 7h 30m

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

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CAD practices, step by step tutorials drawing tool.	Learning time: 7h 30m Self study : 7h 30m

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

CAD practices, approach and resolution of tutored exercises.	Learning time: 40h 30m Practical classes: 25h 30m Self study : 15h

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.

Making a group project.	Learning time: 45h Guided activities: 15h Self study : 30h

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

Qualification 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

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Regulations for carrying out activities

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

Bibliography

Basic:

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. Madrid [etc.]: Paraninfo, 2005. ISBN 8497323904.

Gómez González, Sergio. El Gran libro de SolidWorks. 2a. Barcelona: Marcombo, 2015. ISBN 9788426721730.