

330505 - EG1 - Graphic Expression 1

Coordinating unit: 330 - EPSEM - Manresa School of Engineering
Teaching unit: 717 - EGE - Department of Engineering Presentation
Academic year: 2019
Degree: BACHELOR'S DEGREE IN AUTOMOTIVE ENGINEERING (Syllabus 2017). (Teaching unit Compulsory)
ECTS credits: 4,5 Teaching languages: Catalan, Spanish

Teaching staff

Coordinator: Lopez Martinez, Joan Antoni

Degree competences to which the subject contributes

Basic:

CB1. The students have demonstrated to possess and to understand knowledge in an area of study that starts from the base of the general secondary education, and is usually found to a level that, although it relies on advanced textbooks, also includes some aspects that involve knowledge from the vanguard of their field of study.

CB2. Students can apply their knowledge to their work or vocation in a professional way and possess the skills that are usually demonstrated through the elaboration and defense of arguments and problem solving within their area of study.

Specific:

CE5. Spatial vision capacity and knowledge of graphic representation techniques, both by traditional methods of metric geometry and descriptive geometry, and by computer aided design applications.

Generical:

CG3. Knowledge in basic and technological subjects that will enable them to learn new methods and theories and give them the versatility to adapt to new situations.

Transversal:

1. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 1. Planning oral communication, answering questions properly and writing straightforward texts that are spelt correctly and are grammatically coherent.
2. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.
3. TEAMWORK - Level 1. Working in a team and making positive contributions once the aims and group and individual responsibilities have been defined. Reaching joint decisions on the strategy to be followed.

Teaching methodology

MD1 Master class or lecture (EXP)
MD2 Problem solving and case study (RP)
MD4 Directed theoretical and practical work (TD)
MD5 Small-scale project, activity or assignment (PR)
MD7 Assessment activities (EV)

Learning objectives of the subject

OAG1. Facilitate and improve the capacity for abstraction.
OAG2. Develop and exercise spatial imagination.
OAG3. Introduce concepts, techniques and methodologies in the area of graphic expression in industrial engineering.
OAG4. Use and understand the graphics language typical of industry.



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Study load

Total learning time: 112h 30m	Hours large group:	0h	0.00%
	Hours medium group:	0h	0.00%
	Hours small group:	45h	40.00%
	Guided activities:	0h	0.00%
	Self study:	67h 30m	60.00%

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Content

<p>Industrial standardisation</p>	<p>Learning time: 18h Practical classes: 6h Self study : 12h</p>
<p>Description: Introduction. Industry standards. Freehand technical drawing. Obtaining standardised views. Treatments: cutaways and sections. Guidelines for industrial dimensioning. Screw threads and other standardised items. Graphic representation of industrial assemblies.</p> <p>Related activities: CRO1, CRO2, PRA</p> <p>Specific objectives: OAG1, OAG3, OAG4</p>	
<p>Geometry and wireframe</p>	<p>Learning time: 9h Practical classes: 3h Self study : 6h</p>
<p>Description: Geometric locus. Projections and representation systems: basic operational techniques. Points, lines and planes. Relative positions. Conditions of perpendicularity, parallelism and #convergence#. Distances. Angles</p> <p>Related activities: PRA</p> <p>Specific objectives: OAG1, OAG2</p>	



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Surfaces	Learning time: 7h 30m Practical classes: 2h 30m Self study : 5h
<p>Description: Generatrices and directive planes Surface types and samples Standard sheet metal elements Developed views</p> <p>Related activities: PRA,PRO</p> <p>Specific objectives: OAG2, OAG4</p>	

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Planning of activities

Classroom sketching (CRO1)	Hours: 3h 30m Theory classes: 3h 30m
<p>Description: Understanding axonometric views . First angle projection representation. Using drawing and representation tools. Result evaluation.</p> <p>Support materials: Basic drawing/sketching tools</p> <p>Descriptions of the assignments due and their relation to the assessment: Paper.</p> <p>Specific objectives: OAG1, OAG2, OAG3 y OAG4</p>	
Sketching and independent study (CRO2)	Hours: 15h Self study: 15h
<p>Description: Understanding axonometric views. First angle projection representation. Using drawing and representation tools. Result evaluation.</p> <p>Support materials: Basic drawing/sketching tools.</p> <p>Descriptions of the assignments due and their relation to the assessment: Paper.</p> <p>Specific objectives: OAG1, OAG2, OAG3 i OAG4</p>	
CAD activities (PRA)	Hours: 38h 30m Practical classes: 18h Self study: 20h 30m
<p>Description: Representing objects, parts, assemblies and subassemblies with CAD tools. Obtaining drafts with all the necessary indications and symbols for a perfect understanding of parts and assemblies.</p> <p>Support materials: PC, basic drawing and measuring tools.</p>	

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Descriptions of the assignments due and their relation to the assessment:
Atenea.

Specific objectives:
OAG2, OAG3 i OAG4

CAD design projects (PRO)

Hours: 21h
Self study: 9h
Practical classes: 12h

Description:

Idea and approach.
Planning.
Sketching and calculation.
Parts and drafting.
Integration and assembly draft.
Oral presentation.

Support materials:

PC, basic drawing and measuring tools.

Descriptions of the assignments due and their relation to the assessment:
Atenea.

Specific objectives:
OAG2, OAG3 i OAG4

Qualification system

The mark is obtained by continuous assessment of the students' work.

- Individual theory activities: 9%
- Self-learning activities: 9%
- Individual CAD activities: 16%
- CAD assembly: 10%
- CAD project: 14%
- Individual standardisation test: 24%
- Individual special geometry and surfaces test: 18%

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Regulations for carrying out activities

The practical exercises carried out on the computer will be sent using the platform Atenea in the state in which they are at the end of the class. They must be delivered the following week on paper or in the form indicated by the professor.

Handwritten practical exercises will be done on a sheet with a specific format. Some exercises will require the use of traditional tools, such as set squares, triangles, compasses and protractors.

Other previous generic skills and/or qualities applicable to any academic activity at the university are also required, including a spirit of sacrifice, neatness, capacity for synthesis, teamwork, respect for companions and the professor, and constancy.

Bibliography

Basic:

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Complementary:

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Auria Apilluelo, José M; Ibáñez Carabantes, Pedro; Ubieta Artur, Pedro. Dibujo industrial: conjuntos y despieces. 2ª ed. Madrid: Paraninfo, 2005. ISBN 8497323904.

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