



Universitat de Lleida

DEGREE CURRICULUM
GRAPHIC EXPRESSION I

Academic year 2014-15

Subject's general information

Subject name	Graphic Expression I
Code	102106
Semester	1st semester.
Typology	Troncal
ECTS credits	9
Theoretical credits	0
Practical credits	0
Office and hour of attention	Appointments can be asked via e-mail.
Department	Informàtica i Enginyeria Industrial
Modality	Presencial
Important information on data processing	Consult this link for more information.
Language	Catalan
Degree	Degree in Automation and Industrial Electronic Engineering Degree in Mechanical Engineering
Office and hour of attention	Appointments can be asked via e-mail.
E-mail addresses	alba@diei.udl.cat ssol@diei.udl.cat

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Subject's extra information

This subject is given during the first semester in the first course.

Learning objectives

See competences

Competences

University of Lleida strategic competences

- Master Information and Communication Technologies.

Goals:

- Acquire skills in using program computer-aided design.

Degree-specific competences

- Have spatial awareness and knowledge of the techniques of graphic representation, the traditional methods of metric and descriptive geometry, and the application of computer assisted design.

Goals:

- Apply the descriptive geometry techniques.
- Apply the parallel orthographic projection representation techniques.
- Be able to visualize and interpret 3-dimensional physical elements.
- Be able to interpret and obtain parallel orthographic projection views of both simple and complex objects.
- Be able to interpret and represent mechanical object drawings and mechanical assemblies using UNE normative.
- Develop skill in handling conventional drawing instruments.
- Acquire skills in freehand sketching.

Subject contents

The table of contents is structured as follows:

THEMATIC BLOCK I: Descriptive geometry

THEMATIC BLOCK II: Standardization. Industrial drawing

THEMATIC BLOCK III: Computer aided design (CAD)

THEMATIC BLOCK I: Descriptive geometry

[1.] Representation systems fundamentals

[2.] Multiview orthographic projections

[2.1.] Fundamentals

[2.2.] Point representation

[2.3.] Line representation

[2.4.] Plane representation

[2.5.] Intersections

[2.6.] Parallelism

[2.7.] Perpendicularity

[2.8.] Distances

[2.9.] Folding down planes

[2.10.] Plane changes

[2.11.] Rotations

THEMATIC BLOCK II: Standardization. Industrial drawing

[3.] Introduction to the technical drawing

[3.1.] Technical drawing fundamentals

[3.2.] Standardization fundamentals. Types of drawings

[4.] Orthographic views

[4.1.] Projection systems

[4.2.] View selection

[5.] Dimensioning

[6.] Particular, auxiliary, local and partial views

[7.] Sectional views

[7.1.] Fundamentals

[7.2.] Sectional types

[8.] Screw and thread standard representation

THEMATIC BLOCK III: Computer aided design (CAD)

- [9.] CAD fundamentals
- [10.] Starting AutoCAD
- [11.] Object construction
- [12.] Editing and organization
- [13.] Text and hatching
- [14.] Dimensioning
- [15.] Isometric drawings

Methodology

The theoretical and practical classes are alternated so that the student can put into practice the theoretical aspects and be able to solve real problems.

Development plan

Contents course's schedule:

Week 1:

Block I: Descriptive geometry

Week 2, 4, 5, 6, 7 i 8:

Block I: Descriptive geometry

Bloc III: Computer aided design (CAD)

Week 9: Exam-1

Week 10, 11, 12, 13, 14 i 15:

Block II: Standardization. Industrial drawing

Block III: Computer aided design (CAD)

Week 16 and 17: Exam-2

Week 19: Recovery Exam (RE)

Evaluation

The evaluation method consists of:

- **Exam-1:** The exam will evaluate contents of Block I, and it will be held during 9th week. This exam has a

percentage over the final mark of 35%.

- **Exam-2:** The exam will evaluate contents of Block II, and it will be held during 16th and 17th week. This exam has a percentage over the final mark of 45%.
- **CAD-1 and CAD-2:** To evaluate the block III, there will be two practical tests, CAD-1 and CAD-2, in the laboratory of CAD. These tests have a percentage over the final mark of 10% respectively.

The subject's final mark will be obtained as the sum of all percentages explained above, following the next mathematical expression:

$$\text{Final Mark} = 35\% \text{ Exam-1} + 45\% \text{ Exam-2} + 10\% \text{ CAD-1} + 10\% \text{ CAD-2}$$

The course will be overcome by obtaining a final mark equal or greater than 50%.

In the event that the final mark does not exceed 50%, the student may make a recovery exam, **RE**, corresponding to the contents of the block I and II, with a percentage over the final mark of 80%. This exam will take place during 19th week.

Bibliography

Basic bibliography

Félez, J., Martínez, M., Cabanellas, J., y Carretero, A. (1996). Fundamentos de Ingeniería Gráfica. Síntesis, Madrid.

Pérez, J. y Palacios, S. (1998). Expresión Gráfica en la Ingeniería. Introducción al Dibujo Industrial. Prentice Hall, Madrid.

Ramos, B. y García, E. (1999). Dibujo Técnico. AENOR, Madrid.

Rodríguez de Abajo, F. (1992). Geometría Descriptiva. Tomo I Sistema Diédrico. Donostiarra, San Sebastián.

Recommended bibliography

AENOR (1999). Dibujo Técnico. Normas básicas. AENOR, Madrid.

Félez, J. y Martínez, M. (1998). Dibujo Industrial. Síntesis, Madrid.

Gonzalo, J. (2001). Dibujo Geométrico. Arquitectura-Ingeniería. Donostiarra, San Sebastián.

Leiceaga, X. (1994). Normas Básicas de Dibujo Técnico. AENOR, Madrid.

Rodríguez de Abajo, F. y Galarraga, R. (1993). Normalización del Dibujo Industrial. Donostiarra, San Sebastián.