

Course guide 390102 - DE - Drawing for Engineering

Last modified: 10/06/2024

Unit in charge:	Barcelona School of Agri-Food and Biosystems Engineering
Teaching unit:	745 - DEAB - Department of Agri-Food Engineering and Biotechnology.
Degree:	BACHELOR'S DEGREE IN BIOSYSTEMS ENGINEERING (Syllabus 2009). (Compulsory subject). BACHELOR'S DEGREE IN FOOD ENGINEERING (Syllabus 2009). (Compulsory subject). BACHELOR'S DEGREE IN AGRONOMIC SCIENCE ENGINEERING (Syllabus 2018). (Compulsory subject).
Academic year: 2024	ECTS Credits: 6.0 Languages: Catalan, Spanish

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Coordinating lecturer:	FRANCISCO IRANZO IRANZO
Others:	Luis Maldonado Rius
	Josep Claramunt Blanes
	Francisco Iranzo Iranzo

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

2. Spatial visualization ability and knowledge of graphical representation techniques, ability to apply traditional metric and descriptive geometry methods as well as computer-aided design methods.

TEACHING METHODOLOGY

The hours of learning will be divided into:

- Lectures in large groups, where teacher will explain the concepts of matter.

- Practical exercises in small groups, where students will solve exercises applying concepts learned in the lectures. Used both the manual drawing and computer aided design.

- Carrying out a project where students will apply the concepts to a real case.

The independent learning hours must be devoted to: practical work evaluated, study the matter, practical exercises, tutorials, library and Internet consultations and exam preparation.

LEARNING OBJECTIVES OF THE SUBJECT

The course introduces the student to be able to:

- Develop your three dimensional vision.
- Use basic tools for graphic expression, both manually and by computer using the computer aided design software used in class
- Perform and interpret plans.

STUDY LOAD

Туре	Hours	Percentage	
Hours small group	20,0	13.33	
Self study	90,0	60.00	
Hours large group	40,0	26.67	

Total learning time: 150 h



CONTENTS

REPRESENTATION SYSTEMS

Description:

1.1 Introduction to representation systems

- 1.2 Dihedral system
- 1.3 Representation of objects in Dihedral
- 1.4 Intersections
- 1.5 Dihedral operations: depression, change of plan and double change of plan
- 1.6 Axonometric system
- 1.7 Representation of objects in axonometric

Related activities:

Activity 1: Class of theoretical explanation. Activity 2: Individual final assessment test

Full-or-part-time: 54h

Theory classes: 8h Laboratory classes: 16h Self study : 30h

CAD

Description:

2.1 Introduction to the computer aided design program

- 2.2 Basic commands for drawing
- 2.3 Working in layers
- 2.4 Printing, scale and thickness of lines

Related activities:

Activity 1: Class of theoretical explanation. Activity 4: Practice of architectural drawing Activity 5: Individual testing of drawing of the land Activity 6: Individual testing of architectural drawing

Full-or-part-time: 16h

Laboratory classes: 6h Self study : 10h

DRAWING OF LAND

Description:

- 3.1 Introduction to the representation of the terrain. Delimited system.
- 3.2 Contour lines. Forms of terrain. Method for tracing contour lines.
- 3.3 Longitudinal and transverse profiles
- 3.4 Modifications of the land due to road and Explanation

Related activities:

Activity 1: Class of theoretical explanation Activity 3: Practice of drawing the land Activity 5: Individual testing of drawing of the land

Full-or-part-time: 46h

Theory classes: 4h Laboratory classes: 12h Self study : 30h



DIBUIX ARQUITECTÒNIC

Description:

4.1 Introduction to the Theory of Construction.4.2 Sketch. Concept of scale.4.3 Plant, elevations and sections. Details.

4.4 Value in CAD drawing and printing.

Related activities:

Activity 1: Class of theoretical explanation. Activity 4: Practice of architectural drawing. Activity 6: Individual testing of architectural drawing

Full-or-part-time: 34h Guided activities: 14h Self study : 20h

ACTIVITIES

(ENG) ACTIVITY 1: THOERY LESSONS

Full-or-part-time: 20h Theory classes: 20h

(ENG) ACTIVITY 2: INDIVIDUAL TEST. REPRESENTATION SYSTEMS

Full-or-part-time: 2h Theory classes: 2h

(ENG) ACTIVITY 3: DRAWING OF LAND PRACTICAL

Full-or-part-time: 10h Self study: 10h

(ENG) ACTIVITY 4: ARCHITECTONIC DRAWING PRACTICAL

Full-or-part-time: 20h Theory classes: 20h

(ENG) ACTIVITY 5: INDIVIDUAL TEST. DRAWING OF LAND

Full-or-part-time: 2h Laboratory classes: 2h

(ENG) ACTIVITY 6: INDIVIDUAL TEST. ARCHITECTONIC DRAWING

Full-or-part-time: 2h Laboratory classes: 2h



GRADING SYSTEM

Two written tests N1 and N3 and 10 guided Autocad (N3) sessions are performed. The written tests N1 (representation systems) and N3 (field drawing) will be made in mid (N1) and late (N3) semester. In case of failing the course written tests N1 and N3 can be re-evaluated if the overall mark for the course is greater than NP, and the Autocad work has been delivered.

N1: Activity 1 mark, the test of representation systems represents a 40% of the final mark N2: Activity 2 mark, the practice of architectural drawing in acad represents a 30% of the final mark N3: activity 3 mark, the field drawing test represents a 30% of the final mark

N final = 0.40 N1 + 0.30 N2 + 0.30 N3

BIBLIOGRAPHY

Basic:

- Rioja, Vicente. Aplicaciones del sistema acotado:. València: Editorial UPV, 2005.

- Ching, Frank; Rojals, Marta. Manual de dibujo arquitectónico [on line]. 4a ed. rev. y ampl. Barcelona: Gustavo Gili, 2013 [Consultation: 27/10/2022]. Available on: <u>https://elibro.net/es/lc/upcatalunya/titulos/45603</u>. ISBN 9788425225659.

- Bertran i Guasp, Josep. Geometria descriptiva. San Sebastian: Donostiarra, 1995-. ISBN 847063187X.

RESOURCES

Hyperlink:

- Aulaclic: curso de Autocad 2008 i 2009.. <u>http://www.aulaclic.es/autocad2008/index.htm</u>- Watson, D. CADTutor. <u>http://www.cadtutor.net</u>

Other resources:

AUTOCAD: https://serveistic.upc.edu/ca/distsoft/banners/acords-de-programar