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390102 - DE - Drawing for Engineering

Coordinating unit: 390 - ESAB - Barcelona School of Agricultural Engineering

Teaching unit: 745 - EAB - Department of Agri-Food Engineering and Biotechnology

Academic year: 2019

Degree: BACHELOR'S DEGREE IN BIOSYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
BACHELOR'S DEGREE IN AGRICULTURAL, ENVIRONMENTAL AND LANDSCAPE ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
BACHELOR'S DEGREE IN FOOD ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
BACHELOR'S DEGREE IN AGRICULTURAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
BACHELOR'S DEGREE IN FOOD ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
BACHELOR ' S DEGREE IN AGRONOMIC SCIENCE ENGINEERING (Syllabus 2018). (Teaching unit Compulsory)

ECTS credits: 6 Teaching languages: Catalan, Spanish

Teaching staff

Coordinator: LUIS MALDONADO RIUS

Others: Luis Maldonado Rius
Josep Claramunt Blanes
Manel Colominas Golobardes
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.

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Study load

Total learning time: 150h	Hours large group:	40h	26.67%
	Hours medium group:	0h	0.00%
	Hours small group:	20h	13.33%
	Guided activities:	0h	0.00%
	Self study:	90h	60.00%

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Content

REPRESENTATION SYSTEMS

Learning time: 54h

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

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

CAD

Learning time: 16h

Laboratory classes: 6h
Self study : 10h

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

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DRAWING OF LAND	Learning time: 46h Theory classes: 4h Laboratory classes: 12h Self study : 30h

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

DIBUIX ARQUITECTÒNIC	Learning time: 34h Guided activities: 14h Self study : 20h

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

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Planning of activities

(ENG) ACTIVITY 1: THOERY LESSONS	Hours: 20h Theory classes: 20h
(ENG) ACTIVITY 2: INDIVIDUAL TEST. REPRESENTATION SYSTEMS	Hours: 2h Theory classes: 2h
(ENG) ACTIVITY 3: DRAWING OF LAND PRACTICAL	Hours: 10h Self study: 10h
(ENG) ACTIVITY 4: ARCHITECTONIC DRAWING PRACTICAL	Hours: 20h Theory classes: 20h
(ENG) ACTIVITY 5: INDIVIDUAL TEST. DRAWING OF LAND	Hours: 2h Laboratory classes: 2h
(ENG) ACTIVITY 6: INDIVIDUAL TEST. ARCHITECTONIC DRAWING	Hours: 2h Laboratory classes: 2h

Qualification 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

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Bibliography

Basic:

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

Ching, Frank; Rojals, Marta. Manual de dibujo arquitectónico. 4a ed. rev. y ampl. Barcelona: Gustavo Gili, 2013. ISBN 9788425225659.

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

Others resources:

Hyperlink

Aulaclic: curso de Autocad 2008 i 2009.

http://www.aulaclic.es/autocad2008/index.htm

Watson, D. CADTutor

http://www.cadtutor.net