Universitat de Lleida

DEGREE CURRICULUM

DESIGN AND AUTOMATION OF THE LEATHER INDUSTRY

Coordination: BAQUERO ARMANS, GRAU

Academic year 2019-20

Subject's general information

Subject name	DESIGN AND AUTOMATION OF THE LEATHER INDUSTRY
Code	103114
Semester	1st Q(SEMESTER) CONTINUED EVALUATION

Typology	Degree	Course	Character	Modality
	Master's Degree in Leather Engineering	1	COMPULSORY	Attendance-based

Course number of credits (ECTS)	3

Type of activity, credits, and groups	Activity type	TEORIA
	Number of credits	3
	Number of groups	1

Coordination	BAQUERO ARMANS, GRAU
Department	COMPUTER SCIENCE AND INDUSTRIAL ENGINEERING
Teaching load distribution between lectures and independent student work	Lectures: 40% Independent work: 60%
Important information on data processing	Consult this link for more information.
Language	Spanish / English
Distribution of credits	Theoretical credits: 3 ECTS

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
BACARDIT DALMASES, ANNA	anna.bacardit@udl.cat	1	
BAQUERO ARMANS, GRAU	grau.baquero@udl.cat	1	
CONDE MATEOS, MIREIA	mireia.conde@udl.cat	1	

Subject's extra information

The recommended book of basic bibliography can be used to track the content of the subject and complementary didactic materials can be found on the Virtual Campus: http://cv.udl.cat

The use of the Virtual Campus is fundamental to access resources of the subject, exercises deadline notifications, practices delivery and evaluation tests.

Learning objectives

- Identifying and describing the operation of the machinery used in the tanning industry.
- Designing, planning and projecting layouts of industrial tanning plants.

Competences

Basic

B06 To possess and understand knowledge that provides a basis or opportunity to be original in the development and / or application of ideas, often in a research context.

B07 That students know how to apply the acquired knowledge and have the ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their area of study.

B10 That students have the learning skills that allow them to continue studying in a way that will be largely self-directed or autonomous.

General competences

CG1. To apply properly mathematical, analytical, scientific, instrumental, technological and management aspects.

CG2. To technically and economically manage projects, facilities, plants, companies and technology centers.

Specific competences

CE9. To project, calculate and design products, processes, facilities and layouts, related to the field of leather engineering.

Subject contents

Industrial machinery involved in beamhouse, tanning, post-tanning and finishing processes.

MODULE 1. Automation machines and systems in beamhouse and tanning

- Topic 1. Cold rooms for the leather preservation
- Topic 2. Drums, paddles, mixers and pits
- Topic 3. Hair filters
- Topic 4. Fleshing machine
- Topic 5. Splitting machine
- Topic 6. De-wooling machine
- Topic 7. Sammying machine
- Topic 8. Shaving machine

MODULE 2. Machines and automation systems in the post-harvest stages

- Topic 9. Sammy / setting machine
- Topic 10. Sole leather rolling machine
- Topic 11. Leather drying machines
- Topic 12. Staking machine
- Topic 13. Milling machine
- Topic 14. Buffing machine
- Topic 15. De-dusting machine
- Topic 16. Fur machinery
- Topic 17. Dyeing machine by immersion

MODULE 3. Machines and automation systems in finishes

- Topic 18. Finishing machines
- Topic 19. Ironing machines
- Topic 20. Cylinder machine
- Topic 21. Glazing machine
- Topic 22. Polishing machine
- Topic 23. Stacking machine
- Topic 24. Measuring machine

Methodology

The work plan proposed in this subject will allow students to follow it in such a way that by the end of the semester they will have carried out the activities and work and dedicated the necessary hours to achieve the proposed academic objectives

The content is divided into three modules. Each module contains exercises to guide the student through the subject contents.

In addition, a project will be proposed based on the subject topics, which will allow the student to deepen into some of the issues raised in the topics of study.

The methodology for each module will consist of:

- Master classes, with the explanation of the concepts, materials and work plan.
- Completion of individual exercises, information search, individual work and study.

Tutoring and evaluation.

Development plan

Week	Methodology	Content	Class hours	Independent work hours
1	-			
2	-			
3	Master class Exercises	Subject Presentation Topics 1, 2 and 3	2	4
4	Master class Exercises	Temes 4, 5, 6, 7 i 8	2,5	4
5	Evaluation	Temes 9, 10, 11, 12 i 13	2,5	4
6	Master lab week			
7	Master class Exercises	Temes 14, 15, 16 i 17	2,5	4
8	Master class Exercises	Temes 18, 19 i 20	2,5	6
9	Evaluation	Exam module 1	2	4
10	Master lab week			4
11	Master class Exercises	Topics 21, 22, 23 and 24	2,5	4
12	Master class Exercises	Exam module 2	2	4
13	Master class Exercises	Automation systems	2,5	4
14	Master class Exercises	Automation systems	2,5	6
15	Master class Exercises	Automation systems	2,5	4
16-17	Oral presentations Evaluation	Oral presentation Exam module 3	2,5	4
18	Tutoring	Tutoring		
19	Evaluation	Retake	2	

Evaluation

The final grade of the subject will be the sum of the following percentages:

- Exams
    - Exam module 1 20%
    - Exam module 2 20%
    - Exam module 3 20%
- Projects
    - Written job 15%
    - Oral defense 10%
- Exercises: 15%

The Retake activity allows to re-evaluate by exam the percentage corresponding to Exams (*Examinations module*

1, *Examinations module 2* and *Examinations module 3*, 60%).

Bibliography

Basic:

• Bacardit, A. i Ollé, Ll. (2001). Maquinaria de curtidos. Igualada: EUETII-ESAI

Complementary:

• Adzet, J.M.; et al. (1985). Química Técnica de Tenería. Igualada: s.n.

• Adzet, J.M.(coord.); et al. (1995). Tecnología del Cuero. Barcelona: Cícero.

• Caniglia, V. Macchine e impianti per conceria. Librería Editrice Universitaria. Levrotto & Bella. 1999.

• Matignone, G. (1997). Manuale di practica conciaria. Rescaldina: Editma.

• Morera, J.M. (2000). Química Técnica de Curtición. Igualada: EUETII-ESAI.

• Soler, J.(2000). Procesos de curtidos. Igualada: EUETII-ESAI.