Universitat de Lleida

DEGREE CURRICULUM
ENTERPRISE 4.0

Coordination: BAQUERO ARMANS, GRAU

Academic year 2019-20

Subject's general information

Subject name	ENTERPRISE 4.0
Code	102491
Semester	1st Q(SEMESTER) CONTINUED EVALUATION

Typology	Degree	Course	Character	Modality
	Bachelor's degree in Industrial Organization and Logistics Engineering	4	OPTIONAL	Attendance-based

Course number of credits (ECTS)	6

Type of activity, credits, and groups	Activity type	PRAULA	TEORIA
	Number of credits	3	3
	Number of groups	1	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	Catalan and English Some resources in Spanish and English
Distribution of credits	Theoretical credits: 3 ECTS Room practices credits: 3 ECTS

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
BAQUERO ARMANS, GRAU	grau.baquero@udl.cat	2	
PARE BUSTO, MARC	marc.pare@udl.cat	2,5	
VIVES COLOM, DAVID	david.vives@udl.cat	1,5	

Subject's extra information

This subject is mostly practical, based on the resolution of recommended and compulsory exercises. The personal work is fundamental to obtain the established competences and acquire the necessary skills to manage the software used during the course.

You can find educational materials 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

- Recognizing the concepts of embedded systems, the Internet of things and Industry 4.0.
- Knowing how cyberphysical systems develop and integrate.
- Identifying intelligent manufacturing applications and the digital transformation of the company.
- Deepening in automation solutions oriented to industry 4.0.

Competences

Basic competences

B02 That students know how to apply their knowledge to their work or vocation in a professional manner and possess the skills that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study.

B05 That students have developed those learning skills necessary to undertake further studies with a high degree of autonomy.

General competences

CG3. To synthesize basic and technological subjects, which enable them to learn new methods and theories, and provide them with versatility to adapt to new situations.

CG10. To work in a multilingual and multidisciplinary environment.

Specific competences

CE18. To acquire capacity for planning and developing new projects, products and processes.

CE22. To acquire capacity to design enterprise information systems.

CE28. To acquire capacity to design and optimize industrial plants and productive processes.

Transversal competences

CT3. To ilmplement new technologies and technologies of information and communication.

Subject contents

- Topic 1. Introduction to the industry 4.0
- Topic 2. Applied IIoT and automation in industry 4.0
- Topic 3. Digital manufacturing
- Topic 4. Project

Methodology

This subject combines theoretical introductions with practical application through specific software and hardware, case studies and practical exercises.

Most practical activities will be developed in reduced work teams, and in some sessions group dynamics and presentations will be made. If possible, external visits and / or seminars will also be made.

The methodology used in the topics envisaged is:

Topic 1. Introduction to the industry 4.0

- Master classes where the basic concepts of the contents will be explained.
- Exercises for deepening these contents.

Topic 3. Applied IIoT and automation in industry 4.0

- Master classes where the basic concepts of the contents will be explained.
- Practical classes aimed at industrial automation and IoT applications.

Topic 2. Digital manufacturing

- Master classes where the basic concepts of the contents will be explained.
- Practical classes aimed at 3D printing, focused on the development of a model, its processing and printing.

Topic 4. Project

- Practical work in the IoT context.
- Practical work of 3D design.
- Oral presentation in English of the developed work.

Development plan

Week	Methodology	Content	Class hours	Independent work hours
1	Master class	Topic 1	2	3
2	Master class Exercises	Topic 2	4	6

3	Master class Exercises	Topic 2	4	6
4	Master class Exercises	Topic 2	4	6
5	Master class Exercises	Topic 2	4	6
6	Master class Exercises	Topic 2	4	6
7	Master class Exercises	Topic 3 Topic 2	4	6
8	Master class Exercises	Topic 3 Topic 2	4	6
9	Evaluation	Test 1	2	3
10	Master class Exercises	Topic 3 Topic 4	4	6
11	Master class Exercises	Topic 3 Topic 4	4	6
12	Exercises	Topic 4	4	6
13	Exercises	Topic 4	4	6
14	Evaluation Exercises	Test 2 Topic 4	4	6
15	Exercises Master class	Topic 4 Topic 2	4	6
16-17	Evaluation	Oral presentations	2	6
18	Tutoring	Tutoring		
19	Evaluation	Retake	2	

Evaluation

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

- Exam (Evaluation activity 1): 30%
- Exam (Evaluation activity 1): 30%
- Exercises: 20%
- Project: 25%
- Oral presentation in English: 15%

Retake activity allows to re-evaluate by means of theoretical-practical exam the percentage corresponding to *Exams* (40%).

Note: If the student does not develop the *Projects* activity, the grade of the subject will be Not Attended.

Bibliography

Check the Virtual Campus to access the information resources and the bibliography of the subject.

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