

# DEGREE CURRICULUM INDUSTRIAL COMPUTING

Coordination: PARDO CASANOVAS, VALENTÍ

Academic year 2023-24

# Subject's general information

Subject name	INDUSTRIAL COMPUTING									
Code	102129									
Semester	2nd Q(SEMESTER) CONTINUED EVALUATION									
Туроlоду	Degree			Course	Character		Modality			
	Bachelor's Degree in Automation and Industrial Electronic Engineering			3	COMPUL	SORY	Attendance- based			
Course number of credits (ECTS)	6									
Type of activity, credits, and groups	Activity type	PRALAB		PRAULA		TEORIA				
	Number of credits	0.4		2.6		3				
	Number of groups	1		1		1				
Coordination	PARDO CASANOVAS, VALENTÍ									
Department	COMPUTER ENGINEERING AND DIGITAL DESIGN									
Teaching load distribution between lectures and independent student work	30% lecture 70% autonomous work									
Important information on data processing	Consult this link for more information.									
Language	Idioma Percentatge d'ús Castellà 0.0 Català 90.0 Anglès 10.0									
Distribution of credits	20% theoretical con 30% classroom acti 50% laboratory	tent vities								

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
PARDO CASANOVAS, VALENTÍ	valenti.pardo@udl.cat	6	Asking for an appointment with a private message from the Virtual Campus.

## Subject's extra information

- Course taught in the second semester of the third year.
- Is within the specific training modules.
- It is recommended to have a user-level knowledge of operating systems and programming.

## Learning objectives

- User-level knowledge of Linux operating system.
- Know how to use the commands associated with the file system in LINUX.
- Understand the concept of process and how to use the associated tools in Linux.
- Representation of computational problems by pseudocode.
- To know the programming language C.
- Developing small applications in C language.

## Competences

#### Strategic competencies of the University of Lleida

UDL3 - Domain of Information Technology and Communication.

#### Specific skills of the program

GEEIA28 - Applied knowledge of industrial computing and communications.

#### Transversal competences of the degree

EPS1 - Ability to solve problems and develop and defend arguments in their area of study.

## Subject contents

Module I – LINUX Operating System:

- 1. The file system structure.
- 2. The file system Permission.
- 3. Process management.

Module II - Problem-solving with computers:

- 1. Process of solving problems with computers.
- 2. Computational thinking.
- 3. Algorithms.

Module III – Programming in C:

- 1. The GNU compiler.
- 2. Compiler directives.
- 3. Data types.
- 4. Variable declaration.
- 5. Operators.
- 6. Basic programming structures.
- 7. Functions.
- 8. Random numbers.

- 9. Composite data types.
- 10. Pointers.
- 11. Dynamic memory management.

## Methodology

The course is composed by:

- Lecture classes: The main theory for the course will be presented.
- Realization of problems.
- Practices in the computer room: Practical exercises carried out in front of the computer.

## Development plan

Most recent version of the Course Development Plan - 2023-24.

## Evaluation

In general, the evaluation system for the Industrial Computing subject is continuous evaluation.

The evaluation activities are organized into three blocks:

- 1. Assessment tests. PA1 and PA2, to be done in partial 1 and 2, both with the same weighting and a weight of **30%** of the final grade. They do not have a minimum grade.
- 2. Practices of the Linux operating system in the computer room. Three practices, all of them with the same weighting, and a weight of 23% of the final mark.
- 3. **Programming practices C language** in the computer room. Six practices, all of them with the same weighting, and a weight of **47%** of the final grade.

Practice	Release (week)	Deadline
PRA1. Linux · Filesystem	Week 1	Mo, 19/FEB/2024
PRA2. Linux · File permissions	3	Mo, 26/FEB/2024
PRA3. Linux · Processes	4	Mo,04/MAR/2024
PRA4. C · Flow control	10	Mo, 22/ABR/2024
PRA5. C · Composite data types (1)	11	Mo, 29/ABR/2024
PRA6. C · Composite data types (2)		Mo, 06/MAI/2024
PRA7. C · Structured programming: functions and libraries. Random numbers		Mo, 13/MAI/2024
PRA8. C · Pointers	14	Mo, 20/MAI/2024
PRA9. C · Dynamic memory management	15	Mo, 27/MAI/2024

The practices of the subject are:

Requirements / Features practices:

- Practices are compulsory, face-to-face in the computer room and non-recoverable.
- In order to be evaluated, the practices must pass a validation test that will not take any mark (the mark will be passed/not passed). If this test fails, resit must be performed.
- They have no minimum mark.
- Practices can be made in pairs.

## Bibliography

#### **Recommended bibliography**

Blanco, Jaime. Linux/Ubuntu: curso de iniciación. Inforbook's, DL 2006.

Dalheimer, Matthias Kalle. Guía de referencia y aprendizaje Linux. Anaya Multimedia, cop., Edición 2ª ed. 2006.

Harvey M. Deitel and Paul J. Deitel. Como Programar en C/C++. Prentice-Hall, segunda edición, 2002.

Brian W. Kernighan and Dennis M. Ritchie. El lenguaje de programación C. Prentice-Hall, segunda edición, 1991.

Fatos Xhafa; Pere Pau Vázquez, Jordi Marco, Xavier Molinero and Ángela Martín. Programación en C++ para ingenieros. Paraninfo, 2006.