



Universitat de Lleida

DEGREE CURRICULUM  
**INDUSTRIAL INFORMATICS**

Coordination: Fernando Guirado

Academic year 2015-16

## Subject's general information

<b>Subject name</b>	Industrial Informatics
<b>Code</b>	102129
<b>Semester</b>	2n Q Avaluació Continuada
<b>Typology</b>	Obligatòria
<b>ECTS credits</b>	6
<b>Theoretical credits</b>	3
<b>Practical credits</b>	3
<b>Coordination</b>	Fernando Guirado
<b>Office and hour of attention</b>	Email to the professor
<b>Department</b>	Informàtica i Enginyeria Industrial
<b>Teaching load distribution between lectures and independent student work</b>	40% lecture 60% independent student work
<b>Modality</b>	Presencial
<b>Important information on data processing</b>	Consult <a href="#">this link</a> for more information.
<b>Language</b>	Idioma Percentatge d'ús Castellà 0.0 Català 90.0 Anglès 10.0
<b>Degree</b>	Degree in Automation and Industrial Electronic Engineering
<b>Distribution of credits</b>	20% theoretical content 30% classroom activities 50% laboratory
<b>Office and hour of attention</b>	Email to the professor
<b>E-mail addresses</b>	f.guirado@diei.udl.cat valenti.pardo@udl.cat

Fernando Guirado Fernández  
Valentí Pardo Casanovas

## 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

- Domain of Information Technology and Communication.

### Specific skills of the program

- Applied knowledge of industrial computing and communications.

### Transversal competences of the degree

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

## Subject contents

1. Operative System LINUX
  1. The file system structure
  2. The file system Permission
  3. Process management
2. Language C Programming
  1. The GNU compiler
  2. Compiler directives
  3. Data types
  4. Variable declaration
  5. Operators
  6. Basic programming structures
  7. Functions
  8. Data structures

## Methodology

The course is composed by a part of a theory that explains the basics of the course content.

These concepts will come-supported by a large part of practices that are required, compulsory attendance and finally they must be validated by a test done in the laboratory.

## Development plan

Week	Development
1	Presentation and contents summary Introduction to the Operative Systems. LINUX operative System - Introduction to the file system
2	LINUX operative System - Introduction/File system LINUX operative System - File system
3	LINUX operative System - File system LINUX operative System - Permissions
4	LINUX operative System - Permissions LINUX operative System - Process status
5	LINUX operative System - Process status C Programming Introduction - Structured programming
6	The gcc compiler, error control and deputation The gcc compiler, error control and deputation
7	<b>FREE DAY: Easter Monday</b> Compilation directives - Data types and operators
8	Algorithms - Flow diagrams <i>Partial exam doubts session</i>
9	<b>Partial Exams</b>
10	Functions - Libraries Functions - Libraries
11	Pointers, memory, multiple parameters passing Pointers, memory, multiple parameters passing
12	Arrays - Vectors Arrays - Vectors
13	Data structures Data structures
14	<b>FREE DAY: "Pasqua Granada"</b> <i>Doubts session</i>
15	Final activity Final activity

## Evaluation

The evaluation has two parts: Written and Practice

The mark of the exam is 30% of the total grade for the course. There will be two written examination proves, each one will have the same weight and have no minimum note.

The practice note is 70% of the total grade for the course

In order to the practice part being evaluated it is necessary to pass a validation test that has not any note.

## Bibliography

### **Recommended bibliography**

Sistemas de tiempo real y lenguajes de programación

A. Burns, A. Wellings, Addison Wesley, 2003.

Real-Time Systems: Design Principles for Distributed Embedded Applications

Hermann Kopetz, Springer; 2nd Edition, 2011

Autómatas Programables.

Joseph Balcells, J. L. Romeral, Ed. Marcombo – Serie Mundo Electrónico