
DEGREE CURRICULUM

# INDUSTRIAL INFORMATICS

Coordination: Fernando Guirado

Academic year 2015-16

# INDUSTRIAL COMPUTING 2015-16

## Subject's general information

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

# INDUSTRIAL COMPUTING 2015-16

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 pseucode
- 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 manegement
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 estructures

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