Universitat de Lleida

DEGREE CURRICULUM
INDUSTRIAL COMPUTING

Coordination: PARDO CASANOVAS, VALENTÍ

Academic year 2021-22

Subject's general information

Subject name	INDUSTRIAL COMPUTING			
Code	102129			
Semester	2nd Q(SEMESTER) CONTINUED EVALUATION			
Typology	Degree	Course	Character	Modality
	Bachelor's Degree in Automation and Industrial Electronic Engineering	3	COMPULSORY	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 SCIENCE AND INDUSTRIAL ENGINEERING
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 content 30% classroom activities 50% laboratory

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

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. 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.
- Individual: Some exercises, proposed by the professor, have to be developed.
- Laboratory practices: Some practical work will be done using the computers present in the laboratory.

Development plan

	Development
Week 1 • 2h Lecture class + 2h Lecture class • 6h Autonomous work	Presentation and contents summary. Introduction to the Operative Systems.
	LINUX operative System - Introduction to the file system
Week 2 • 2h Lecture class + 2h Lecture class • 6h Autonomous work	LINUX operative System - Introduction/File system
	LINUX operative System - File system
Week 3 • 2h Lecture class + 2h Lecture class • 6h Autonomous work	LINUX operative System - Permissions
Week 4 • 2h Lecture class + 2h Lecture class • 6h Autonomous work	LINUX operative System - Process status
Week 5 • 2h Lecture class + 2h Lecture class • 6h Autonomous work	Computational solving problems (1)
Week 6 • 2h Lecture class + 2h Lecture class • 6h Autonomous work	Computational solving problems (and 2)
Week 7 • 2h Lecture class + 2h Lecture class • 6h Autonomous work	C Programming Introduction (1).
Week 8 • 2h Lecture class + 2h virtual class • 6h Autonomous work	C Programming Introduction (2): Style Guide and Flow Control-Conditionals.
Week 9	M I D T E R M E X A M

Week 10 • 2h Lecture class + 2h Lecture class • 6h Autonomous work	C Programming Introduction (3): Type conversion, debugging and error handling and Flow Control-loops.
Week 11 (4h Lecture class / 6h Autonomous work)	C Programming Introduction (and 4): Type conversion, debugging and error handling and Flow Control-loops.
Week 12 • 2h Lecture class + 2h Lecture class • 6h Autonomous work	Composite data types: Tables, character strings, tables N-dimensions, records, enumerations.
Week 13 • 2h Lecture class + 2h Lecture class • 6h Autonomous work	Functions - Libraries. Random numbers.
Week 14 • 2h Lecture class + 2h Lecture class • 6h Autonomous work	Pointers.
Week 15 • 2h Lecture class + 2h Lecture class • 6h Autonomous work	Dynamic memory management.

Evaluation

The grade has two parts: Exams and Practice

The mark of the exam is 30% of the total mark of the subject. There will be two exams one for each part, which will have the same weight and have no minimum mark.

The note of practice is 70% of the total mark of the subject.

The practices of the course are:

- PRA1. Linux · Filesystem.
- PRA2. Linux · Permits.
- PRA3. Linux · Processes.
- PRA4. C · Flow control
- PRA5. C · Composite data types.
- PRA6. C · Structured programming: functions and libraries. Random numbers.
- PRA7. C · Pointers.
- PRA8. C · Dynamic memory management.

Requirements / Features practices:

Practices are compulsory and non-recoverable.
In order to be evaluated, the practices must pass a validation test that will not take any mark.
They have no minimum mark.
Practices can be made in pairs.

Bibliography

Bibliografia recomanada

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

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

H.M. Deitel and P.J. Deitel. ComoProgramar en C/C++. Prentice-Hall, segunda edición, 2002.

B.W. Kernighan and D.M. Ritchie. Ellenguaje de programación C. Prentice-Hall, segundaedición, 1991.

F.Xhafa; P. Vázquez, J. Marco, X. Molinero and A. Martín. Programación en C++ paraingenieros. Paraninfo, 2006.