Universitat de Lleida

DEGREE CURRICULUM

COMMUNICATION AND INFORMATION TECHNOLOGIES

Coordination: TEIXIDÓ CAIROL, MERCÈ

Academic year 2020-21

COMMUNICATION AND INFORMATION TECHNOLOGIES 2020-21

Subject's general information

<table>
<tr><td>Subject name</td><td>COMMUNICATION AND INFORMATION TECHNOLOGIES</td></tr>
<tr><td>Code</td><td>102174</td></tr>
<tr><td>Semester</td><td>1st Q(SEMESTER) CONTINUED EVALUATION</td></tr>
<tr><td>Typology</td><td>
<table>
<tr><th>Degree</th><th>Course</th><th>Character</th><th>Modality</th></tr>
<tr><td>Bachelor's Degree in Design and Creative Tecnologies</td><td>1</td><td>COMMON</td><td>Attendance-based</td></tr>
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<tr><td>Course number of credits (ECTS)</td><td>6</td></tr>
<tr><td>Type of activity, credits, and groups</td><td>
<table>
<tr><th>Activity type</th><th>PRALAB</th><th>TEORIA</th></tr>
<tr><th>Number of credits</th><td>3</td><td>3</td></tr>
<tr><th>Number of groups</th><td>2</td><td>1</td></tr>
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<tr><td>Coordination</td><td>TEIXIDÓ CAIROL, MERCÈ</td></tr>
<tr><td>Department</td><td>COMPUTER SCIENCE AND INDUSTRIAL ENGINEERING</td></tr>
<tr><td>Important information on data processing</td><td>Consult this link for more information.</td></tr>
<tr><td>Language</td><td>The classes will be done in catalan</td></tr>
<tr><td>Distribution of credits</td><td>1 credit is equivalent to 25 hours of work of the student
6 credits are 150 hours</td></tr>
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COMMUNICATION AND INFORMATION TECHNOLOGIES 2020-21

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
TEIXIDÓ CAIROL, MERCÈ	merce.teixido@udl.cat	9	

Learning objectives

The objectives of the course are:

- To get to know basic concepts related to Information and Communication Technologies. (ICT)
- To identify the main characteristics and the basic components of the computers and the main devices.
- To identify the main characteristics of the operating systems and the software applications.
- To know the parameters of configuration more important of the networks of communication.
- To configure and use different basic services of Internet.
- To develop students' autonomy in using Information and Communication Technologies.

Competences

Basic and transversal competences:

- CB1. Show an ability to dominate the concepts in its area of study. It goes from general secondary education, based in advanced books, but also in some aspects, that involves knowledge of the current and new fields of study.
- CT3. Acquire a significant proficiency in the use of the new technologies and in the Information and Communication Technologies. (ICT)

General competences:

- CG1. Skill to create and develop answers to problems of communication for the different digital contents.
- CG4. Apply the concepts and own methods of the digital technologies.
- CG10. Use tools and digital means in its professional development.

Specific competences:

- CE9.Get to know the methodologies, programs, technical, rules and standard. Moreover, be able to use the base of knowledge purchased with specific elements of development web.

Subject contents

Part 1: HARDWARE AND NETWORK ELEMENTS

TOPIC 1: Computers and devices

1. Internal architecture of a computer
2. Components of a computer
    - Functionalities
    - Characteristics
3. Peripheral devices
    - Characteristic

- Devices to begin with (Keyboard, mouse, tablet, sensors)
- Devices of exit (Screen, Sound, Actuators (Servos, motors)
- Devices to begin with and to exit (tactile screens, network interface cards)

TOPIC 2: Architecture of networks

1. Type of networks
   - According to its scope (PAN, LAN, MAN, WAN)
   - According to its technology (Wired, Wireless)
   - According to its topology (Peer tone peer, adhoc, star)
   - According to its function (NOSE, Vlan, Wlan, VPN)
2. Hardware of networks
   - With threads
     1. Wires
     2. Switch
     3. Router
     4. PLCs
   - Without threads
     1. Antenna
     2. Points of access
     3. Repeaters
3. Architecture of networks
   - OSI model and TCP/IP model

Part 2: OPERATING SYSTEMS

TOPIC 3: Introduction to the current operating systems

1. The three big families
   - a. Windows
   - b. Linux
   - c. Mac BONE
2. Operating systems for mobiles
3. Operating systems hybrids
4. Operating systems WEB (EyeOS, Craythur, Desktoptwo…)

Part 3: ICT Information and Communication Technology)

TOPIC 4: Basic Services of Internet:

1. Basic services of internet
   - Names of command
   - Access to digital contents
   - Services web
   - E-mail
   - Tools and services cloud
   - Hosting Web

TOPIC 5: The ICT in the society

1. Link of networks
2. Highway of the information
3. Characteristic of the information
4. Adapted society to the technological innovations

- Positive aspects
- Negative aspects

Methodology

Students are expected to attend classes regularly, to do the exercises and to contribute with their answers, doubts, opinions, etc. to the development of the classes.

All students are expected to attend to 3 hours classes with the whole group and 3 hours with split group. The sessions with split group will be carried out in the laboratory.

Whole group: Theory and Problems Classes (3 credits)

- Theoretical part: supported classes with digital information and/or with notes.
- Practical application part: work of application of concepts more practical.

Split groups: Laboratory Classes (3 credits)

Conducted Classes and personalised monitoring for practical groups.

Development plan

Week	Description	Attendance activity WG (Whole group)
1st	Subject presentation	Presentation subject Introduction components HW
2nd	Computers and peripheral	Peripheral
3rd	Setting And architecture	Process of setting and Toast OSI / TCP
5th	Architecture of networks	Internal architecture and topology of networks
6th	Networks	Devices networks
8th	Security	Security in networks and backups
9th	Mid term examination	Mid Term Partial
11th	Introduction to the operating systems	Current operating systems
12th	WWW	Basic services internet
14th	ICT in the society	Highway of the information
16-17th	Final exam	Final exam
19th	Resitting exam	Resitting exam

Evaluation

Acronym	Activities of Evaluation	Grade%	Minimum note	In group	Compulsory	Recoverable
P1	1st Exam	20%	4	NO	YES	YES
P2	2nd Exam	30%	4	NO	YES	YES
FORUM	Participation in forum discussions	10%		NO	YES	NO
PRA1	Practice1	15%		YES (<=2)	YES	NO
PRA2	Practice 2	25%		YES (<=2)	YES	NO
All students are expected to sit for and have a grade above 4 in the exams in order to be able to pass the course. However, the grade must be >=5.						
Final note = 0,20*P1 + 0,30*P2 + 0,10F+ 0,15*PRA1 + 0,25*PRA2						

Bibliography

- Kurose, J., Redes de Computadoras. Pearson 2017
- Tanenbaum, A.S. , Bos, H., Modern Operating Systems. Pearson 2016
- Montero, R. , Servicios De Red e internet. Editorial Sintesis 2020