



DEGREE CURRICULUM **INNOVATION IN ICT**

Coordination: MATEO FORNÉS, JORDI

Academic year 2020-21

Subject's general information

Subject name	INNOVATION IN ICT			
Code	102385			
Semester	2nd Q(SEMESTER) CONTINUED EVALUATION			
Typology	Degree	Course	Character	Modality
	Bachelor's degree in Digital Interaction and Computing Techniques	2	COMPULSORY	Attendance-based
Course number of credits (ECTS)	6			
Type of activity, credits, and groups	Activity type	PRALAB	TEORIA	
	Number of credits	3	3	
	Number of groups	1	1	
Coordination	MATEO FORNÉS, JORDI			
Department	COMPUTER SCIENCE AND INDUSTRIAL ENGINEERING			
Teaching load distribution between lectures and independent student work	<p>Globally, the subject has 150 hours of work spread over 60 hours (30 hours face-to-face and 30 hours virtual) and 90 hours of individual student work.</p> <p>6 ECTS = 25 * 6 = 150 hours of work</p> <p>20% -> 30 face-to-face hours</p> <p>20% -> 30 virtual hours</p> <p>60% -> 90 hours of autonomous student work</p>			
Important information on data processing	Consult this link for more information.			
Language	Catalan (in Spanish if any student shows difficulties with Catalan). The material of the subject in English.			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
MATEO FORNÉS, JORDI	jordi.mateo@udl.cat	6	

Learning objectives

- Analyze the context and be able to make innovative proposals.
- Foment the entrepreneurship.
- Integrate the innovation in business strategies.
- To manage innovative projects.
- Acquire knowledge about financing R&D projects.
- Acquire knowledge about users and build empathic models and client archetypes.
- Apply methodologies to generate creative and sustainable innovation.
- Analyze innovative projects and their economic viability.

Competences

Basic:

- CB2: That students know how to apply their knowledge to their work or vocation in a professional manner and possess the skills that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study.
- CB3: That students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical issues
- CB4: That students can transmit information, ideas, problems and solutions to a specialized and non-specialized public

Transversal:

- CT2: Acquire a significant command of a foreign language, especially English.
- CT3: Acquire training in the use of new technologies and information and communication technologies.
- CT4: Acquire basic knowledge of entrepreneurs and professional environments.

General:

- CG5: Know the basic subject areas and technologies needed to learn and develop new methods and technologies, and those that help to adapt to new situations.
- CG6: Know and apply basic economical and human resources concepts, and organization and planning of informatics projects.

Specific:

- CE6: Capacity to design, develop, select and evaluate applications and computer systems, ensuring its reliability, security and quality.
- CE22: Capacity to apply the acquired knowledge to propose innovative technological solutions in the area of digital interactive applications.

Subject contents

Topic 1: Introduction to innovation

- Concept of innovation
- Cycle of innovation
- Grades of innovation
- Examples of innovation

Topic 2: Design Thinking

- Concept
- Methodologies to make-up ideas
- Application in business sectors
- Examples

Topic 3: Lean Startup

- Concept
- Methodologies

- Examples

Topic 4: Digital transformation

- Concept
- Innovation and digital transformation
- Steps
- Barriers

Topic 5: Risk Management

- Introduction to risk management
- Types of risk
- Tools to measure and manage risk
- Examples

Topic 6: Open Innovation

- The context
- Scenarios and main elements
- Examples

Topic 7: Legal aspects related to innovation

- Trademarks and designs
- Creation and management of patents
- Intellectual property

Topic 8 : Financing innovative projects

- Ecosystems and innovative platforms
- Channels
- Selection of opportunities
- Examples and case studies

Methodology

An active methodology is used where the student is the **protagonist** of their learning (*learning to learn*) and is **responsible** for deciding what final product they want to develop and what knowledge they need to achieve the objectives of each delivery. A **cooperative** methodology is proposed, working in teams of 3 to 4 members to promote interdisciplinarity. Students will **incrementally** develop an innovative idea and complete all the steps to **transform** their **idea** into a **technological startup**. It is always based on the previous knowledge introduced in the theoretical sessions and/or learned in other courses of this degree. The different work rhythms of each group are respected.

A hybrid methodology is used to encourage healthy and sustainable competition between teams with **CoWorking** sessions. In these sessions, the groups will receive advice from the other groups to improve their projects. This way, competition is focused on winning the final contest (Startapp contest), but they also collaborate to reach the goals in the best possible conditions. This model aims to encourage skills and competencies related to *teamwork, research skills, leadership, critical capacity, etc.* at the same time, the knowledge of the subject is assimilated. The deliveries are **functional**, with constant *feedback* and *suggestions* from the teaching staff and the rest of the teams, allowing **pivoting** actions and **corrections**.

Finally, students will learn how to promote and incorporate **digital transformation** in current business models. Classes will be used to present the theoretical foundations and practice the contents of the subject, group work sessions, presentation sessions, evaluation of the work done, and other activities related to the project's development.

Common project:

All activities and deliveries are carried out under the umbrella of a common project to develop innovative applications. This joint project is developed in:

1. Interactive System Specification and Analysis
2. User experience
3. Innovation in ICT
4. Applications for Mobile Devices.

In the project, there are three courses (1,2 and 4) focused on essential aspects of application development (requirements analysis, user-centered development, agile methodologies, or design patterns) and a course (3) where you learn to launch innovative projects to the market. The project is focused on encouraging students to face a real scenario, which aims to consolidate an innovative startup based on an application for mobile devices and develop skills related to organization, communication, and human relations to coordinate the team and learn to sell the ideas.

INNOVATION IN ICT 2020-21

Delivery schedule and cargo distribution (Project):

Week	Applications for Mobile Devices	Innovation in ICT	Interactive System Specification and Analysis	User experience
1				
2		M1	P1	
3				P1(a)
4	M1		P2	
5				
6		M2		P1(b)
7				
8	M2	M3	P3+P4	P2
9	1st Exam			
10		M4		
11			P5	
12		M5		
13			P6	
14				
15	M3	M6	P7	P3
16	2nd Exam			
17				
18				
19	Recovery Exam			

Development plan

Week	Theory (Virtual)	Lab (Face-to-face)	Homework	Milestones
1	Topic 1: Introduction	<i>Presentation:</i> Common Project Elevator Pitch	I1: Innovative Value Proposal	M1: Idea and Innovation Values
2	Topic 2: Design Thinking	<i>Oral defense:</i> Pitch (*)	I2: Mission and Vision	
3	Topic 3: Lean Startup	Empathy Map Client archetype	I3: Client archetype	M2: Clients
4	<i>Interviews</i>	<i>Interviews</i> (*)	I4: Validació amb clients	
5	Project Management Tools	HOLIDAYS	I3: Client archetype	
6	Topic 4: Digital Transformation	Competitors analysis	I4: Validation with customers	
7	HOLIDAYS	Market analysis	I5: Competitors analysis	M3: Opportunity analysis
8	Tema 5: Risk management	I7: MVP (*)	I6: Opportunity size	
9	1st Exam			
10	Topic 6: Open Innovation	Marketing Plan	I7: MVP	M4: MVP
11	Viability Plan	Viability Plan	HOLIDAYS	M5: Viability Plan
12	Topic 7: Legal Aspects of Innovation	<i>Project</i> (*)	I8: Viability Plan	
13	Topic 8: Financing of innovative projects	Topic 8: Financing of innovative projects	I9: Lean Canvas I10: Business Model	M6: Plà de Negoci
14	<i>Project</i>	Topic 8: Financing of innovative projects	I9: Lean Canvas I10: Business Model	
15	<i>Project</i>	Simulation	StartApp Contest	
16	2ⁿ Exam			
17				
18				
19	Recovery			

NOTE: Sessions marked (*) will be partially worked with **CoWorking** mode.

Evaluation

The evaluation of the course contemplates the acquisition of the specific competencies of the course with a weight of **80%** (*tests + milestones*). This **80%** represents the realization of the activities and deliveries related to the project and the content validation tests.

The remaining **20%** (common project) represents the mark of teamwork and the completion of the project. This **20%** is a common mark in the four courses that make up the project. This grade is calculated by teachers and student evaluations, personal contributions to the project, consistency, and organization in the development of the weekly tasks. It is based on two blocks:

- **Final presentation** (StartApp Contest). Public defense in front of a jury in a format similar to a real investment round. Design, usability, and MVP must also be justified in this presentation. It weighs **10%** of the final grade.
- **Monitoring and Management.** At this point, the teaching staff will follow up intensively in control meetings. The use of the Github and the update of the WordPress of each team will also be evaluated. Finally, management and organization skills will be considered by using project management methods and tools that will be presented in the courses. It weighs **10%** of the final grade.

Evaluation	Weight	Minimum Mark	Group	Mandatory	Recoverable
Tests (T)	10%	NO	NO	NO	NO
Milestone 1 (M1) (I1 + I2)	10%	NO	YES	YES	YES
Milestone 2 (M2) (I3 + I4)	10%	NO	YES	YES	YES
Milestone 3 (M3) (I5 + I6)	10%	NO	YES	YES	YES
Milestone 4 (M4) (I7)	10 %	YES, >=5	YES	YES	YES
Milestone 5 (M5) (I8)	10 %	NO	YES	YES	YES
Milestone 6 (M6) (I9 + I10)	20 %	YES, >=5	YES	YES	YES
Common Project (PC)	20%	NO	YES	YES	YES
Final mark: 10% T + 20% PC + 10% M1 + 10% M2 + 10% M3 + 10% M4 + 10% M5 + 20% M6					
***To pass the course, the final mark must be greater than or equal to 5.					
Considerations:					
<ul style="list-style-type: none"> There are NO exams for the subject. The day of the exam is reserved for the final presentation of the joint project (second part) and to present a pitch in video format (first part). At the end of each theoretical topic there will be a test-type activity to validate the theoretical concepts. (Tests T); An additional 0.5 points will be awarded to the MVP of the project chosen by the faculty. An additional 0.25 points will be awarded to each member of the winning group by the jury. <i>If the MVP is a member of the winning team he will only have max (0.5, 0.25) extra points.</i> The project can be completed without the need to enroll all four courses at the same time. Students who do not enroll in the four courses will have the same evaluation, with the difference that they will be forced to lead the parts of the project and the final presentation of the enrolled courses; this encourages the increasingly common figure of the freelance. At the end of the course, all the teams will receive a summary report of their achievements, with the evaluations of the teaching staff, the members of the jury, and their colleagues. Descriptive data are included to observe the evolution and compare it with the other teams. 					
Recoveries:					
<ul style="list-style-type: none"> Milestones: Milestones can be retrieved / raised their grade by presenting an improved version (using teacher feedback) with a maximum grade of 9. Each 1 of the 6 milestones can be retrieved separately. They cannot be recovered jointly. Tests. They are not recoverable, it is an activity of validation of theoretical contents. Common project: It can be recovered by making an oral presentation. 					

Bibliography

- Tim Brown (2008), Design Thinking, Harvard Business Review.
- Lawson, Brian (2006), How Designers Think: The Design Process Demystified.
- Scott Berkun (2010), The Myths of Innovation.
- Jeff Dyer, Jeffrey M. Dyer, Hal B. Gregersen (2011), The Innovator's DNA: Mastering the Five Skills of Disruptive Innovators.
- Design thinkg bootleg. <https://dschool.stanford.edu/resources/design-thinking-bootleg>