Course guide
205062 - 205062 - Designing Innovative Products and Business

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 758 - EPC - Department of Project and Construction Engineering.

Degree: MASTER'S DEGREE IN INDUSTRIAL ENGINEERING (Syllabus 2013). (Optional subject).
MASTER'S DEGREE IN AERONAUTICAL ENGINEERING (Syllabus 2014). (Optional subject).
MASTER'S DEGREE IN SPACE AND AERONAUTICAL ENGINEERING (Syllabus 2016). (Optional subject).

Academic year: 2022  ECTS Credits: 3.0  Languages: English

LECTURER

Coordinating lecturer: Gonçalves Ageitos, Maria
Others: Cusido Roura, Jordi

TEACHING METHODOLOGY

The teaching methodology will include: Lectures, invited lectures, case based learning and project based learning. The students will participate in groups on an innovation project working to develop a disruptive business proposal that will be implemented in six weeks.

LEARNING OBJECTIVES OF THE SUBJECT

The course "Designing Innovative Products and Business (DIPB)" aims to introduce main methodologies to boost innovation, product development and entrepreneurship.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours large group</td>
<td>16,5</td>
<td>22.00</td>
</tr>
<tr>
<td>Self study</td>
<td>48,0</td>
<td>64.00</td>
</tr>
<tr>
<td>Hours small group</td>
<td>10,5</td>
<td>14.00</td>
</tr>
</tbody>
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Total learning time: 75 h
## CONTENTS

### Module 1: Basic Disruptive Innovation Methodologies.

**Description:**
Definition of disruptive innovation and main innovation methodologies, short review of contents and focus on: open innovation, blue ocean strategy.

**Related activities:**
- Theory sessions.
- In-class exercises.

**Full-or-part-time:** 14h
- Theory classes: 6h
- Self study: 8h

### Module 2: User centered design. Design thinking.

**Description:**
Methodologies for design based on empathy with the user-client. We will work on the process definition, creative methods, drafts and prototypes for empathy and story telling.

**Related activities:**
- Theory sessions.
- In-class exercises.
- Teamwork.

**Full-or-part-time:** 12h 30m
- Theory classes: 2h 30m
- Laboratory classes: 2h
- Self study: 8h

### Module 3: Agile Management.

**Description:**
Introduction to the main methodologies to manage innovation projects, particularly SCRUM, Design Sprint. Focus on the methods and tools that allow activities prioritization and management, we will also introduce the management of innovation teams.

**Related activities:**
- Theory sessions.
- In-class exercises.
- Teamwork.

**Full-or-part-time:** 12h 30m
- Theory classes: 2h
- Laboratory classes: 2h 30m
- Self study: 8h
Module 4: Business model and Value Proposition Design.

Description:
The business model will define how we obtain profit from an innovation, using the Business Model Canvas. The Value Proposition Design is a methodology that will allow us to validate the needs, gains and pains for the client.

Related activities:
Theory sessions.
In-class exercises.
Teamwork.

Full-or-part-time: 12h
Theory classes: 2h
Laboratory classes: 2h
Self study: 8h

Module 5: Lean Start-Up, product and business Validation.

Description:
Introduced by Eric Ries Lean Start-Up is one of the main methodologies to validate our product design and business model that we will complement with the new methodology Testing Business Ideas.

Related activities:
Theory sessions.
In-class exercises.
Teamwork.

Full-or-part-time: 12h
Theory classes: 2h
Laboratory classes: 2h
Self study: 8h

Module 6: Integrated Methodologies.

Description:
We will review the methodologies to depict the full process to boost disruptive innovation. We will learn about the EFQM 2020 norm, which takes innovation as the root for a quality company.

Related activities:
Theory sessions.
In-class exercises.
Teamwork.

Full-or-part-time: 12h
Theory classes: 2h
Laboratory classes: 2h
Self study: 8h

GRADING SYSTEM

The evaluation will be based on:
* Class Participation and exercises (30%)
* Home exercises (30%)
* Project Result and presentation (40%)
BIBLIOGRAPHY

Basic:

Complementary: