Course guide
205062 - 205062 - Designing Innovative Products and Business

Last modified: 11/04/2025

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).
MASTER'S DEGREE IN INDUSTRIAL ENGINEERING (Syllabus 2025). (Optional subject).

Academic year: 2025 **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 a 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

Type	Hours	Percentage
Hours large group	16,5	22.00
Self study	48,0	64.00
Hours small group	10,5	14.00

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 priorization 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:

- Ambrose, Gavin; Harris, Paul. Design thinking. London: AVA Publishing, 2010. ISBN 9782940411177.
- Ries, Eric. El método Lean StartUp: cómo crear empresas de éxito utilizando la innovación continua. Barcelona: Deusto, 2012. ISBN 9788423409495.
- Osterwalder, Alexander; Papadakos, Trish. Value proposition design [on line]. Hoboken: John Wiley & Sons, 2014 [Consultation: 22/11/2022]. Available on: https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=1887760. ISBN 9781118968055.
- Bland, David J. Testing business ideas. Hoboken: Wiley, 2020. ISBN 9781119551447.
- Osterwalder, Alex [et al.]. The invincible company [on line]. Hoboken: Wiley, 2020 [Consultation: 13/02/2023]. Available on: https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=6166910. ISBN 9781119523963.

Complementary:

- Liedtka, Jeane; Ogilvie, Tim. The designing for growth field book: a step-by-step project guide [on line]. New York: Columbia University Press, 2019 [Consultation: 13/02/2023]. Available on: https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=5613965. ISBN 9780231547543.
- Brown, Tim. Change by design: howw design thinking transforms organizations and inspires innovation. New York: HarperBusiness, 2019. ISBN 9780062856623.
- Christensen, Clayton M. The innovator's dilemma: the revolutionary book that will change the way you do business. Boston, Massachusetts: Harvard Business Review Press, 2016. ISBN 9781633691780.
- Narayanan, Veekay K. Managing technology and innovation for competitive advantage. New Jersey: Upper Saddle River, 2001. ISBN 0130305065.