Course guide
220551 - 220551 - Innovation and Technology Policy

Last modified: 28/04/2023

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 732 - OE - Department of Management.

Degree: MASTER'S DEGREE IN MANAGEMENT ENGINEERING (Syllabus 2012). (Compulsory subject).

Academic year: 2023 **ECTS Credits:** 5.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: ROSA MARIA VIDAL TUSAL

Others: Primer quadrimestre:
MARIA JOSE SAURA AGEL - Grup: 1
ROSA MARIA VIDAL TUSAL - Grup: 1

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
1. Apply theories and inherent principles in the general direction of an organization with the aim of analyzing uncertainty complex situations and make decisions using engineering tools.
2. Plan, organize, implement, lead and manage engineering projects, especially projects of innovation (R + D + I) and process improvement.
3. Manage activities with relevant content of projects and / or operations that technology and organization have to interact effectively and efficiently

Generical:
4. Ability to apply knowledge to solve problems in new environments or unfamiliar environments within broader contexts (or multidisciplinary) related to engineering.
5. Ability to integrate knowledge and formulate judgments with the aim of making decisions based on information that, with incomplete or limited include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgments.
6. Ability to effectively communicate their findings, knowledge and concluding reasons to skilled and unskilled audiences, clearly and unambiguously.
7. Self-learning capacity to independent continuous training.
8. Ability to understand the impact of engineering solutions in a global and social context .

TEACHING METHODOLOGY

The course is divided into three parts:

Theory classes

Practical Working Sessions (Oral or written submissions of related subjects about Scientific, Technical or nowadays news)

Self-study for doing exercises and activities.

In the theory classes, teachers will introduce the theoretical basis of the concepts, methods and results and illustrate them with examples appropriate to facilitate their understanding.

In the practical classes (in the classroom), teachers guide students in applying theoretical concepts to solve problems, always using critical reasoning. We propose that students solve exercises in and outside the classroom.

Students, independently, need to work on the materials provided by teachers and the outcomes of the sessions of exercises/problems, in order to fix and assimilate the concepts.

LEARNING OBJECTIVES OF THE SUBJECT

The course Innovation and Technology Policy introduces students to the concepts, principles and fundamentals of Innovation's management as the most important way to be competitive in today's global market. It's pointed out technological innovation cause student's engineering knowledge and today's especial relevance of technical and scientific advances.

STUDY LOAD

Type	Hours	Percentage
Self study	80,0	64.00
Hours medium group	15,0	12.00
Guided activities	22,0	17.60
Hours large group	8,0	6.40

Total learning time: 125 h

CONTENTS

THEME 1. INTRODUCTION TO THE INNOVATION CONCEPT

Description:
The concept of innovation as well as the sources of innovation and ideas are described in this first theme.
In addition, the different types of innovation and how they affect economic and social development are examined.

Full-or-part-time: 18h
Theory classes: 2h
Practical classes: 3h
Guided activities: 3h
Self study : 10h

THEME 2. SOURCES OF INNOVATION

Description:
Innovation sources, internal and external, and open innovation are discussed in this subject.
A study of innovation culture is also conducted.

Full-or-part-time: 17h
Theory classes: 1h
Practical classes: 2h
Guided activities: 3h
Self study : 11h

THEME 3. TECHNOLOGY WATCH AND COMPETITIVE INTELLIGENCE IN INNOVATION

Description:
This subject explains the importance and how you can:

- Know the technological advances (Technological Watch) taking place.

- Analyze what our competition is doing (intelligence or competitive watch).

- Know the latest market movements (Benchmarking).

- Monitor regulatory or legislative changes.

Full-or-part-time: 17h
Theory classes: 1h
Practical classes: 2h
Guided activities: 3h
Self study : 11h

THEME 4. INNOVATION MANAGEMENT (ISO 56002)

Description:
This topic explains the PDCA cycle, the innovation funnel and the highlights of the ISO 56002 Innovation Management Standard

Full-or-part-time: 19h
Theory classes: 1h
Practical classes: 2h
Guided activities: 4h
Self study : 12h

THEME 5. INNOVATION PROTECTION

Description:
This topic explains the different ways to protect innovations, patents, utility models and trademark registration.

Full-or-part-time: 17h
Theory classes: 1h
Practical classes: 2h
Guided activities: 3h
Self study : 11h

THEME 6. INNOVATION SYSTEMS

Description:
This topic explains how innovation systems work, the relationships in the triple helix model, university, government and business.

Full-or-part-time: 17h
Theory classes: 1h
Practical classes: 2h
Guided activities: 3h
Self study : 11h

THEME 7. FINANCIAL INNOVATION SOURCES

Description:
A company's sources of funding in the process of innovating are described in this topic.

Full-or-part-time: 20h
Theory classes: 1h
Practical classes: 2h
Guided activities: 3h
Self study : 14h

ACTIVITIES

ACTIVITY 1: THEORY/LARGE GROUPS SESSIONS

Description:
Preparation before and after the theory sessions and attendance.

Specific objectives:
Transfer the necessary knowledge for a correct interpretation of the contents in the large group sessions, resolving doubts about the content of the course and generic skills development.

Material:
Notes posted to the Atenea platform.
General literature of the course.

Delivery:
During some sessions, exercises will be conducted in the class, individually or in small groups.

Full-or-part-time: 47h
Theory classes: 5h
Guided activities: 22h
Self study: 20h

ACTIVITY 2: EXERCISES/MEDIUM GROUPS SESSIONS

Description:
Preparation before and after the exercises sessions and attendance to the sessions.

Specific objectives:
Acquire the necessary skills for a correct interpretation of the problems of the course, and their satisfactory resolution.
Preparation for the practical part of exams of the course. Development of generic skills.

Material:
Notes posted to the Atenea platform.
General literature of the course.
Exercises on the Atenea platform.
Collection of Newspapers news related with the course.

Delivery:
During these sessions, exercises will be conducted in class or virtually, individually or in small groups.

Full-or-part-time: 65h
Practical classes: 15h
Self study: 50h

ACTIVITY 3: MID-SEMESTER EXAM

Description:
Individual and writing assessment about the contents .

Specific objectives:
The exam must demonstrate that the student has acquired and assimilated the concepts, principles and fundamentals related to each theme.

Material:
Instructions and terms for the mid-semester exam.

Delivery:
The hand-in will be the result of the exam.
It represents 20% of the final course grade.

Full-or-part-time: 6h
Theory classes: 1h
Self study: 5h

ACTIVITY 4: FINAL EXAM

Description:
Individual and writing assessment about the contents.

Specific objectives:
The exam must demonstrate that the student has acquired and assimilated the concepts, principles and fundamentals related to modules 1, 2 and 3.

Material:
Instructions and terms for the final exam.

Delivery:
The hand-in will be the result of the exam.
It represents 20% of the final course grade.

Full-or-part-time: 7h
Theory classes: 2h
Self study: 5h

GRADING SYSTEM

Exam 1, weight 20%
Exam 2, weight 20%
Presentations, weight 20%
Project, weight 40%
Attendance and participation 5%

All students unable to attend the mid-semester exams, or failing it, will have the option of repeating it with the final exam.

BIBLIOGRAPHY

Basic:
- Ina Goller , John Bessant. Creativity for Innovation Management . Routledge; N.º 1 edición, 2017. ISBN 1138641308.
- Mark Dodgson (Author), David M. Gann (Author), Nelson Phillips (Author). The Oxford Handbook of Innovation Management. Oxford University Press; Reprint edición (30 Junio 2015), ISBN 978-0198746492.
- Kim, W. Chan. La estrategia del océano azul: cómo crear en el mercado espacios no disputados en los que la competencia sea irrelevante. Barcelona: Granica, 2005. ISBN 8475774113.
- Ponti, Franc; Ferràs, Xavier. Pasión por innovar. Barcelona: Granica, 2006. ISBN 9788475778907.
- Nordström, Kjell A. Funky business: el talento mueve al capital. Madrid: Prentice Hall, 2000. ISBN 8420530204.
- Raphael Amit, Christoph Zott. Business Model Innovation Strategy. Transformational Concepts and Tools for Entrepreneurial Leaders. Raphael Amit, Christoph Zott, 2020. ISBN 9781119689676.
- Edward De Bono . Lateral Thinking: A Textbook of Creativity. Penguin Books, 2016. ISBN 978-0241257548.