

Course guide

240EM014 - 240EM014 - Technological Innovation

Last modified: 02/06/2022

Unit in charge: Barcelona East School of Engineering
Teaching unit: 732 - OE - Department of Management.

Degree: MASTER'S DEGREE IN MATERIALS SCIENCE AND ENGINEERING (Syllabus 2014). (Compulsory subject).

Academic year: 2022 **ECTS Credits:** 4.5 **Languages:** Catalan

LECTURER

Coordinating lecturer: JUAN MARTINEZ SANCHEZ

Others:

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

CEMCEM-11. (ENG) Gestionar la investigació. Desenvolupament e Innovació Tecnològica, atenent a la transferència de tecnologia i els drets de propietat i de patents

Transversal:

01 EIN N1. ENTREPRENEURSHIP AND INNOVATION - Level 1. Showing enterprise, acquiring basic knowledge about organizations and becoming familiar with the tools and techniques for generating ideas and managing organizations that make it possible to solve known problems and create opportunities.

02 SCS N1. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 1. Analyzing the world's situation critically and systemically, while taking an interdisciplinary approach to sustainability and adhering to the principles of sustainable human development. Recognizing the social and environmental implications of a particular professional activity.

01 EIN N2. ENTREPRENEURSHIP AND INNOVATION - Level 2. Taking initiatives that give rise to opportunities and to new products and solutions, doing so with a vision of process implementation and market understanding, and involving others in projects that have to be carried out.

01 EIN N3. ENTREPRENEURSHIP AND INNOVATION - Level 3. Using knowledge and strategic skills to set up and manage projects. Applying systemic solutions to complex problems. Devising and managing innovation in organizations.

04 COE N1. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 1. Planning oral communication, answering questions properly and writing straightforward texts that are spelt correctly and are grammatically coherent.

05 TEQ N1. TEAMWORK - Level 1. Working in a team and making positive contributions once the aims and group and individual responsibilities have been defined. Reaching joint decisions on the strategy to be followed.

TEACHING METHODOLOGY

Subject in process of extinction. There is no teaching, the students that enroll it do so only with the right to an exam.



LEARNING OBJECTIVES OF THE SUBJECT

Lessons are built on a practical knowledge outlining how technology innovation is managed in real companies. The subject covers specifically Innovation Management through acquisition of new technologies and innovations. Additionally, this subject aims to provide the student with the necessary knowledge to deal with management, acquisition and protection of new research-based knowledge and innovations, as the base for ensuring a sustainable competitive advantage for companies in their market.

Specific objectives:

1. Identify the dynamics of the innovation processes in its different typologies and components.
2. Relate the innovation strategy to the general strategy of the company.
3. Understand Innovation Management tools and how to proceed to launch new products and services
4. Know how to protect innovation through different mechanisms
5. Know the public policy of innovation and the creation of innovation networks

STUDY LOAD

| Type | Hours | Percentage |
|-------------------|-------|------------|
| Hours large group | 27,0 | 24.00 |
| Self study | 72,0 | 64.00 |
| Hours small group | 13,5 | 12.00 |

Total learning time: 112.5 h

CONTENTS

1. TECHNOLOGY AND STRATEGY

Description:

Concept and types of technology. New technology trends and their impact in the organizations. Technology life cycle. Technology and strategy in a company.

Specific objectives:

1

Related activities:

1, 2, 3, 4, 5, 6

Full-or-part-time: 6h

Theory classes: 2h

Self study : 4h

2. INNOVATION

Description:

Innovation and technology change. The technology innovation process: models.

Invention and innovation. Creativity and innovation. Diffusion of the innovation. Design within a company.

Specific objectives:

1

Related activities:

1, 2, 3, 4, 5, 6

Full-or-part-time: 12h

Theory classes: 4h

Practical classes: 2h

Self study : 6h



3. INNOVATION AND ORGANIZATIONS

Description:

Main elements and drivers influencing innovation in a company. Innovation in SMEs (Small-Medium Enterprises). R & D department: basic characteristics and organization. Relations of the R & D department.

Specific objectives:

1, 2

Related activities:

1, 2, 3, 4, 5, 6

Full-or-part-time: 12h

Theory classes: 4h

Practical classes: 2h

Self study : 6h

4. TECHNOLOGY TRANSFER

Description:

Purchase and sell of technology. Different methods of technology transfer. Technology alliances. The problem of technology adoption.

Specific objectives:

1, 2

Related activities:

1, 2, 3, 4, 5, 6

Full-or-part-time: 6h

Theory classes: 2h

Self study : 4h

5. PROTECTION OF INNOVATION

Description:

Patent and commercial secret. Legal regime to protect inventions and innovations. Protection of distinctive signs. Licensing.

Specific objectives:

3, 4

Related activities:

1, 2, 3, 4, 5, 6

Full-or-part-time: 6h

Theory classes: 2h

Self study : 4h



6. SCIENCE AND TECHNOLOGY WITHIN A TERRITORY

Description:

R&D public programmes and policies. The Catalan framework (ACCIÓ) and the Spanish framework (CDTI). European R&D policies (FEDER, Horitzó 2020, Interreg). Clusters as a tool for competitiveness enhancement.

Specific objectives:

4, 5

Related activities:

1, 2, 3, 4, 5, 6

Full-or-part-time: 6h

Theory classes: 2h

Practical classes: 2h

Self study : 2h

GRADING SYSTEM

Subject in process of extinction. There is only one final test that corresponds to 100% of the final grade of the subject.

BIBLIOGRAPHY

Basic:

- Bayó, Enric. Com esdevenir una empresa innovadora [on line]. 2a. Barcelona: Acció, 2015 [Consultation: 22/04/2020]. Available on :

https://www.accio.gencat.cat/ca/serveis/banc-coneixement/cercador/BancConeixement/com_esdevenir_una_empresa_innovadora#bl ocMaterials_a0520d92-d9d6-11e7-90d6-005056924a59. ISBN 9788460659372.

Complementary:

- Honrado, Angel; Molero, Eva; Díaz, Carlos. Guia de gestió de projectes. Horizon 2020 [on line]. Barcelona: Acció, 2014 [Consultation: 22/04/2020]. Available on :

https://www.accio.gencat.cat/ca/serveis/banc-coneixement/cercador/BancConeixement/guia_de_gestio_de_projectes_horizon_2020.

- Centre d'Innovació i Desenvolupament Empresarial. Gestió de la innovació : diagnosi [on line]. Barcelona: Acció, 2002 [Consultation: 18/09/2017]. Available on :

http://coneixement.accio.gencat.cat/web/portal/eines/-/custom_publisher/6UgO/27049182/Gestio-de-la-innovacio-diagnosi.

- Trott, Paul. Innovation management and new product development. 5th. Harlow: Prentice Hall, 2012. ISBN 9780273736561.