Course guide
295107 - 295II015 - Technology Innovation

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

Degree:
MASTER’S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2019). (Compulsory subject).
MASTER’S DEGREE IN INTERDISCIPLINARY AND INNOVATIVE ENGINEERING (Syllabus 2019). (Compulsory subject).

Academic year: 2022  ECTS Credits: 6.0  Languages: English

LECTURER
Coordinating lecturer: Jordi Olivella Nadal
Others: Jorge Olivella Nadal
Gema Calleja Sanz
Marta Aguilar Perez

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CEMUEQ-09. Manage Research, Development and Technological Innovation, taking into account the transfer of technology and property and patent rights
CEMUEII-05. Apply predictive analytics to identify risks and opportunities for innovation in different areas of the company, planning and managing a project to create a new technological product and its business model.
CEMUEQ-10. To adapt to the structural changes of society motivated by factors or phenomena of an economic, energetic or natural character and to contribute with technological solutions with a high commitment of sustainability
CEMUEII-07. Identify and evaluate internal and external technologies, both consolidated and emerging, and propose management actions in accordance with the company’s strategy. Plan and manage RDI projects and recognize the procedures to obtain public-private financing for the mentioned projects.

General:
CGMUEQ-04. To carry out the appropriate research, undertake the design and manage the development of engineering solutions, in new or little known environments, relating creativity, originality, innovation and technology transfer
CGMUEQ-09. Communicate and discuss proposals and conclusions in multilingual, specialized and non-specialized forums, in a clear and unambiguous way
CGMUEQ-10. Adapt to changes, being able to apply new and advanced technologies and other relevant developments, with initiative and entrepreneurial spirit
CGMUEII-03. Analyze the economic, social and environmental impact of technical solutions to base strategic decisions on criteria of objectivity, transparency and professional ethics.
CGMUEII-04. Transfer technological solutions in the form of products, services, processes or facilities in an efficient and sustainable manner, with an attitude of leadership and entrepreneurial spirit.

Transversal:
01 EIN. ENTREPRENEURSHIP AND INNOVATION: Knowing about and understanding how businesses are run and the sciences that govern their activity. Having the ability to understand labor laws and how planning, industrial and marketing strategies, quality and profits relate to each other.
02 SCS. SUSTAINABILITY AND SOCIAL COMMITMENT. Being aware of and understanding the complexity of social and economic phenomena that characterize the welfare society. Having the ability to relate welfare to globalization and sustainability. Being able to make a balanced use of techniques, technology, the economy and sustainability.
TEACHING METHODOLOGY

The teaching of the course is based on different methodologies (Master classes, seminars, workshops, projects) prioritizing active learning and “learning by doing” through exercises and team projects.

LEARNING OBJECTIVES OF THE SUBJECT

This course aims to provide students with an experience-based introduction into the technology-based innovation. A real life simulation of the process that innovators go through when considering a technological business opportunity will be performed. To do so, the different steps of the innovation process will be considered. In particular, the phases considered will be: (1) analysis of a technology opportunity, (2) definition of a proposal, and (3) presentation of a proposal.

At the end of the course, the student will be able to use the tools analysis of analysis that are used in the innovation world to assess a technological business opportunity and to present the results appropriately.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Hours large group</td>
<td>34,0</td>
<td>22.67</td>
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<tr>
<td>Self study</td>
<td>96,0</td>
<td>64.00</td>
</tr>
<tr>
<td>Hours small group</td>
<td>20,0</td>
<td>13.33</td>
</tr>
</tbody>
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Total learning time: 150 h

CONTENTS

Analysis of a technological opportunity

Description:
- Obtaining of information
- Level of development
- Comparison of alternatives
- Technology forecasting

Full-or-part-time: 11h
- Theory classes: 11h

Innovation tools

Description:
- CX/Design thinking
- Business Model Innovation
- Blue Ocean
- Tech trends

Full-or-part-time: 12h
- Theory classes: 12h
Presentation of a proposal

Description:
Featuring technical and business communication. Aspects of tone and style (register). Impersonalization in technical documents. Writing memos and technical innovation proposal or progress reports on entrepreneurship projects. Short oral presentations: informative format (Product and process description)

Full-or-part-time: 11h
Theory classes: 11h

GRADING SYSTEM

Class assignments of blocks 1, 2 and 3: 20% each
Course project: 40%

BIBLIOGRAPHY

Basic: