Course guides
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: 2021    ECTS Credits: 6.0    Languages: English

LECTURER

Coordinating lecturer: Jordi Olivella Nadal
Others: Jorge Olivella Nadal
        Joan Martinez Sanchez
        Gema Calleja Sanz

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
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

Generical:
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

At course completion, the student should be able to:
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.
Adapt to changes, being able to apply new and advanced technologies and other relevant developments, with initiative and entrepreneurial spirit.
Analyse the economic, social and environmental impact of technical solutions to base strategic decisions on criteria of objectivity, transparency and professional ethics.
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.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
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<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

Innovation tools

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

**Full-or-part-time:** 12h
Theory classes: 12h

Data driven innovation

**Description:**
Data-driven innovation
Methods and software
Data analysis use cases: market segmentation, churn analysis, SNA, process innovation, competitor analysis

**Full-or-part-time:** 11h
Theory classes: 11h
Strategy of innovation

Description:
Innovation cycle
Innovation ecosystem
Technology roadmap
Innovation strategy plan

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:

Complementary: