240EM014 - Technological Innovation

Coordinating unit: 295 - EEBE - Barcelona East School of Engineering
Teaching unit: 732 - OE - Department of Management
Academic year: 2018
Degree: MASTER'S DEGREE IN MATERIALS SCIENCE AND ENGINEERING (Syllabus 2014). (Teaching unit Compulsory)
MASTER'S DEGREE IN MATERIALS SCIENCE AND ENGINEERING (Syllabus 2014). (Teaching unit Compulsory)
ECTS credits: 4,5
Teaching languages: Catalan

Teaching staff
Coordinator: JUAN MARTINEZ SANCHEZ

Degree competences to which the subject contributes

Specific:
CEMCEM-11. (ENG) Gestionar la investigació. Desenvolupament e Innovació Tecnològica, atenent a la tranferència 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.
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
MD.1 Dynamic master lecture
MD.2 Conferences
MD.3 Autonomous learning
MD.5 Team work and case-base learning

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

<table>
<thead>
<tr>
<th>Study load</th>
<th>Total learning time: 112h 30m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours large group:</td>
<td>27h</td>
</tr>
<tr>
<td>Hours medium group:</td>
<td>0h</td>
</tr>
<tr>
<td>Hours small group:</td>
<td>13h 30m</td>
</tr>
<tr>
<td>Guided activities:</td>
<td>0h</td>
</tr>
<tr>
<td>Self study:</td>
<td>72h</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hours large group: 27h 24.00%</td>
</tr>
<tr>
<td></td>
<td>Hours medium group: 0h 0.00%</td>
</tr>
<tr>
<td></td>
<td>Hours small group: 13h 30m 12.00%</td>
</tr>
<tr>
<td></td>
<td>Guided activities: 0h 0.00%</td>
</tr>
<tr>
<td></td>
<td>Self study: 72h 64.00%</td>
</tr>
</tbody>
</table>
## 1. TECHNOLOGY AND STRATEGY

**Description:**

**Related activities:**
1, 2, 3, 4, 5, 6

**Specific objectives:**
1

**Learning 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.

**Related activities:**
1, 2, 3, 4, 5, 6

**Specific objectives:**
1

**Learning 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.

**Related activities:**
1, 2, 3, 4, 5, 6

**Specific objectives:**
1, 2

**Learning 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.

**Related activities:**
1, 2, 3, 4, 5, 6

**Specific objectives:**
1, 2

**Learning time:** 6h
- Theory classes: 2h
- Practical classes: 0h
- Self study: 4h

### 5. PROTECTION OF INNOVATION

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

**Related activities:**
1, 2, 3, 4, 5, 6

**Specific objectives:**
3, 4

**Learning 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.

**Related activities:**
1, 2, 3, 4, 5, 6

**Specific objectives:**
4, 5

**Learning time:** 6h
- Theory classes: 2h
- Practical classes: 2h
- Self study: 2h
Bibliography

Basic:

Complementary:


Others resources: