240PE002 - Smart Moto Challenge

Coordinating unit: 240 - ETSEIB - Barcelona School of Industrial Engineering
Teaching unit: 710 - EEL - Department of Electronic Engineering
Academic year: 2017
Degree: BACHELOR’S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2010). (Teaching unit Optional)
BACHELOR’S DEGREE IN INDUSTRIAL TECHNOLOGY ENGINEERING (Syllabus 2010). (Teaching unit Optional)
BACHELOR’S DEGREE IN MATERIALS ENGINEERING (Syllabus 2010). (Teaching unit Optional)
ECTS credits: 4
Teaching languages: Catalan, Spanish, English

Teaching staff
Coordinator: JUAN MANUEL MORENO EGUILAZ
Others: Primer quadrimestre: JUAN MANUEL MORENO EGUILAZ - 10

Opening hours
Timetable: Arranged by email

Prior skills
Basic knowledge in engineering

Requirements
Be studying in one of the following degrees:
Degree in Industrial Technology
Degree in Materials Engineering
Degree in Chemical Engineering

Degree competences to which the subject contributes

General:
1. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.
2. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.
3. 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.
4. PROJECT MANAGEMENT: Being able to present, execute and direct Industrial Engineering projects, by means of applying scientific and technologic knowledge, attitudes and procedures, once conditions have been identified or valued.
5. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.
6. TEAMWORK. Being able to work as a team player, either as a member or as a leader. Contributing to projects pragmatically and responsibly, by reaching commitments in accordance to the resources that are available.
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7. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.

Teaching methodology

- Periodic meetings
- Practical development
- Team work
- Self study

Learning objectives of the subject

Get the fundamentals of an electric bike
Learn to develop a market product, from conception to its business plan.
## Content

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<th>Learning time</th>
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<td>50h</td>
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<td></td>
<td>Guided activities: 50h</td>
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<td>Packaging</td>
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<tr>
<td>Electronics, motor and battery</td>
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<td>Chassis (steering, suspension and brakes)</td>
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<td>Body</td>
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<td>Guided activities: 30h</td>
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<td>Communications</td>
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<td>Business plan</td>
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<td>Guided activities: 20h</td>
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<table>
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<th>Category</th>
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<th>Guided activities</th>
<th>Self study</th>
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<td><strong>Marketing</strong></td>
<td>20h</td>
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<td><strong>Sponsors</strong></td>
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<td><strong>Documentation and report</strong></td>
<td>100h</td>
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<td>100h</td>
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<tr>
<td><strong>Test and validation</strong></td>
<td>100h</td>
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<td>100h</td>
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</table>
## Planning of activities

| DESIGN | Hours: 100h  
Guided activities: 100h |
| --- | --- |
| **Description:**  
Design of the bike, materials and components |
| **Support materials:**  
Computers |
| **Descriptions of the assignments due and their relation to the assessment:**  
--- |
| **Specific objectives:**  
Learn the design process, from specifications |

| DEVELOPMENT | Hours: 150h  
Guided activities: 150h |
| --- | --- |
| **Description:**  
Manufacturing of components |
| **Support materials:**  
From sponsors, commercial components, custom components |
| **Specific objectives:**  
Learn to get manufactured components |

| ASSEMBLING | Hours: 30h  
Guided activities: 30h |
| --- | --- |
| **Description:**  
Assembling of components |
| **Support materials:**  
From before activity |
| **Specific objectives:**  
Learn to assemble components |

| TEST AND VALIDATION | Hours: 100h  
Guided activities: 100h |
| --- | --- |
| **Description:**  
Test the bike |
| **Support materials:**  
The electric bike |
| **Specific objectives:**  
Learn to validate an engineering product |
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<table>
<thead>
<tr>
<th>DOCUMENTATION</th>
<th>Hours: 150h</th>
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<tr>
<td>Description:</td>
<td>Self study: 150h</td>
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<tr>
<td>Create documentation (reports, business plan and public defenses)</td>
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**Support materials:**
- Technical documents

**Descriptions of the assignments due and their relation to the assessment:**
- Partial report
- Final report
- Business plan
- Slides for final defenses

**Specific objectives:**
- Learn to write technical documentation

**Qualification system**
Continuous, through practical work and homework

**Regulations for carrying out activities**
There is no any test/exam

**Bibliography**

**Basic:**