240626 - Albert Einstein and Science and the Technique of the 20th Century

Coordinating unit: 240 - ETSEIB - Barcelona School of Industrial Engineering
Teaching unit: 749 - MAT - Department of Mathematics
Academic year: 2017
Degree: BACHELOR'S DEGREE IN INDUSTRIAL TECHNOLOGY ENGINEERING (Syllabus 2010). (Teaching unit Optional)
BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2010). (Teaching unit Optional)
BACHELOR'S DEGREE IN MATERIALS ENGINEERING (Syllabus 2010). (Teaching unit Optional)
ECTS credits: 3
Teaching languages: Catalan, Spanish

Teaching staff
Coordinator: Antoni Roca Rosell
Others: Antoni Roca Rosell

Degree competences to which the subject contributes

Transversal:
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. 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.
4. 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.
5. 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.
6. 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

The course will consist of lectures combined with the presentation by students of monographic topics, selected from a list proposed by either initiative. Also, be three readings of texts on Einstein and Einstein.

Learning objectives of the subject

This is to introduce the history of Albert Einstein, one of the leading scientists in history, from the historiographical sources that are available today. We believe that the ‘greats’ are held in a large and complex scientific community with experience and tradition. Einstein was a person committed his time, led the defense of minorities, peace and social justice.
# Study load

<table>
<thead>
<tr>
<th>Total learning time: 75h</th>
<th>Hours large group: 0h 0.00%</th>
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<tbody>
<tr>
<td></td>
<td>Hours medium group: 30h 40.00%</td>
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<td></td>
<td>Hours small group: 0h 0.00%</td>
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<td>Guided activities: 0h 0.00%</td>
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<td>Self study: 45h 60.00%</td>
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## Content

### Lesson 1. Einstein, great figure. Childhood and youth

**Learning time:** 15h
- Theory classes: 6h
- Self study: 9h

**Description:**
Presentation of the course. The 'greats' in the history of science. Einstein's family. Primary, secondary education. The Polytechnic School in Zurich. Early work.

### Lesson 2. 1905 the marvelous year, the international projection

**Learning time:** 45h
- Theory classes: 18h
- Self study: 27h

**Description:**

### Lesson 3. Einstein in Spain. The 1923 trip

**Learning time:** 15h
- Theory classes: 6h
- Self study: 9h

**Description:**

## Qualification system

Final note: $0.20 \times \text{(average of readings)} + 0.20 \times \text{(half year exercise)} + 0.30 \times \text{class presentation} + 0.30 \times \text{final exercise}$
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Regulations for carrying out activities

The readings should be delivered on schedule. There will be, also, a schedule of class presentations.

Bibliography

**Basic:**


