250463 - ENGSOSDESE - Sustainability and Development Engineering

Coordinating unit: 250 - ETSECCPB - Barcelona School of Civil Engineering
Teaching unit: 751 - DECA - Department of Civil and Environmental Engineering
Academic year: 2019
Degree: MASTER'S DEGREE IN CIVIL ENGINEERING (PROFESSIONAL TRACK) (Syllabus 2012). (Teaching unit Optional)
MASTER'S DEGREE IN CIVIL ENGINEERING (PROFESSIONAL TRACK) (Syllabus 2012). (Teaching unit Optional)
ECTS credits: 5  
Teaching languages: Catalan, Spanish, English

Teaching staff
Coordinator: AGUSTÍ PÉREZ FOGUET
Others: AGUSTÍ PÉREZ FOGUET

Opening hours
Timetable: Wednesday 14 to 16h. C2 310.

Degree competences to which the subject contributes

Specific:
8208. The ability to analyse and interpret the regulation and impact of infrastructure and their repercussions for sustainable development, taking into account economic, environmental, social and cultural factors.

Transversal:
8559. ENTREPRENEURSHIP AND INNOVATION: Being aware of and understanding the mechanisms on which scientific research is based, as well as the mechanisms and instruments for transferring results among socio-economic agents involved in research, development and innovation processes.
8560. SUSTAINABILITY AND SOCIAL COMMITMENT: Being aware of and understanding the complexity of the economic and social phenomena typical of a welfare society, and being able to relate social welfare to globalisation and sustainability and to use technique, technology, economics and sustainability in a balanced and compatible manner.
8561. TEAMWORK: Being able to work in an interdisciplinary team, whether as a member or as a leader, with the aim of contributing to projects pragmatically and responsibly and making commitments in view of the resources that are available.

Teaching methodology

The course consists of 3 hours per week of classroom activity.

Support material in the form of a detailed teaching plan is provided using the virtual campus ATENEA: content, program of learning and assessment activities conducted and literature.

Learning objectives of the subject

Specialization subject in which knowledge on specific competences is intensified.

Knowledge and skills at specialization level that permit the development and application of techniques and methodologies at advanced level.
Contents of specialization at master level related to research or innovation in the field of engineering.

Specialization course in Environmental Engineering and Sustainability in which knowledge in specific competences of the Master in Civil Engineering is intensified. It has knowledge at the level of specialization in Environmental Engineering and Sustainability that must allow the development and application of advanced level techniques and methodologies. Knows master's degree content in the area of sustainable development and relates them to innovation in the field of engineering. Acquires capabilities to integrate requirements of sustainability in the practice of engineering and in the process of technological and social innovation. Know the roles that engineering, science and technology play in local, regional and international development processes, with special emphasis on approaches to sustainability and human development.

### Study load

<table>
<thead>
<tr>
<th></th>
<th>Total learning time: 125h</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Theory classes:</strong></td>
<td>19h 30m</td>
</tr>
<tr>
<td><strong>Practical classes:</strong></td>
<td>9h 45m</td>
</tr>
<tr>
<td><strong>Laboratory classes:</strong></td>
<td>9h 45m</td>
</tr>
<tr>
<td><strong>Guided activities:</strong></td>
<td>6h</td>
</tr>
<tr>
<td><strong>Self study:</strong></td>
<td>80h</td>
</tr>
</tbody>
</table>

- **Total learning time:** 125h
- **Theory classes:** 19h 30m (15.60%)
- **Practical classes:** 9h 45m (7.80%)
- **Laboratory classes:** 9h 45m (7.80%)
- **Guided activities:** 6h (4.80%)
- **Self study:** 80h (64.00%)
<table>
<thead>
<tr>
<th>Content</th>
<th>Learning time: 14h 23m</th>
</tr>
</thead>
</table>
| **Introduction to development** | Theory classes: 5h  
Laboratory classes: 1h  
Self study : 8h 23m |

**Description:**  
Approach to the state of the world, governance and organizations.  
Development, human rights, and international cooperation.  
A1

<table>
<thead>
<tr>
<th><strong>Sustainability</strong></th>
<th>Learning time: 14h 23m</th>
</tr>
</thead>
</table>
|                     | Theory classes: 5h  
Laboratory classes: 1h  
Self study : 8h 23m |

**Description:**  
A2  
Concepts, principles and dimensions.  
Systems Ecosystems Ecological economy Global commons

<table>
<thead>
<tr>
<th><strong>Science, Technology and Engineering.</strong></th>
<th>Learning time: 28h 47m</th>
</tr>
</thead>
</table>
|                                        | Theory classes: 9h  
Laboratory classes: 3h  
Self study : 16h 47m |

**Description:**  
Engineering for development  
Environmental and ecological engineering  
A1

<table>
<thead>
<tr>
<th><strong>Sustainable human development</strong></th>
<th>Learning time: 14h 23m</th>
</tr>
</thead>
</table>
|                                   | Theory classes: 6h  
Self study : 8h 23m |

**Description:**  
Poverty and basic needs approach.  
Capabilities approach. Other approaches
### Information, Indicators, decisions.

**Description:**
Systems engineering methodologies. Multi-criteria decision making.

**Learning time:**
- Theory classes: 3h
- Self study: 4h 11m

### Overview

**Learning time:**
- Laboratory classes: 6h
- Self study: 8h 23m

### Qualification system

The mark of the course is obtained 60% from of continuous assessments and 40% from the final exam.

### Regulations for carrying out activities

Failure to perform continuous assessment activity in the scheduled period will result in a mark of zero in that activity.
Bibliography

Basic:


Complementary:


