480042 - TCTS - Research-Action Workshop on Sustainability Science and Technologies

**Coordinating unit:** 250 - ETSECCPB - Barcelona School of Civil Engineering

**Teaching unit:**
- 729 - MF - Department of Fluid Mechanics
- 724 - MMT - Department of Heat Engines
- 751 - DECA - Department of Civil and Environmental Engineering

**Academic year:** 2018

**Degree:** MASTER’S DEGREE IN SUSTAINABILITY SCIENCE AND TECHNOLOGY (Syllabus 2013). (Teaching unit Compulsory)

**ECTS credits:** 5  
**Teaching languages:** English

### Teaching staff

**Coordinator:** JORDI SEGALAS CORAL

### Degree competences to which the subject contributes

**Basic:**
- CB6. Knowledge and understanding to provide a basis or opportunity for originality in developing and app ideas, often within a research context.
- CB7. That students can apply their knowledge and ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field d’study.

**Specific:**
1. The ability to critically analyse and assess theories, strategies and policies on development and sustainability; perspectives on the sustainability paradigm, discussions within the field and its environmental, social, cultural and economic implications; the particularities of and differences between environmental and ecological economics; and the problems of valuing goods, services, resources and externalities economically.
2. CE11. The ability to develop advanced approaches to analysing and assessing the sustainability of the built environment, including buildings, infrastructure and transport, which minimise their impact, and to choose the most appropriate options in agreement with one or more of the economic, social and environmental principles of sustainability.

**Generical:**
- CG03. The ability to analyze, evaluate and synthesize, critically, new and complex ideas and promote, within academic and professional, scientific, technological, social or cultural knowledge society contexts.
- CG04. Describe, resolve, prevent and / or alleviate the problems and dysfunctions associated with the processes of development of environmental socio-economic systems with their own approaches to science and technologies of sustainability.

**Transversal:**
1. 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.
2. FOREIGN LANGUAGE: Achieving a level of spoken and written proficiency in a foreign language, preferably English, that meets the needs of the profession and the labour market.
Learning objectives of the subject

At the end of this module, the student will:
Be aware of, and critically analyse, the organisations, strategies, local, national, European and International policies on sustainability and sustainable social development.

Understanding of sustainable development in the long-term and the role of technology systemically.

Capacity to apply foresight, forecasting and backcasting to scenario analysis.
Study load

<table>
<thead>
<tr>
<th>Total learning time: 125h</th>
<th>Hours large group: 30h</th>
<th>24.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours medium group:</td>
<td>0h</td>
<td>0.00%</td>
</tr>
<tr>
<td>Hours small group:</td>
<td>0h</td>
<td>0.00%</td>
</tr>
<tr>
<td>Guided activities:</td>
<td>15h</td>
<td>12.00%</td>
</tr>
<tr>
<td>Self study:</td>
<td>80h</td>
<td>64.00%</td>
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</tbody>
</table>

Content

**Topic 1- Research concepts and tools - action in socio-economic and ecological systems.**

Degree competences to which the content contributes:

**Topic 2- Statement, analysis, discussion and proposed solutions of one or more current environmental issues from an integrated socio-economic vision.**

Degree competences to which the content contributes:

**Topic 3- Socio-historical-cultural contextualisation of the process of sustainable development among stakeholders, organisations, companies, rural societies, urban societies, public and private institutions...**

Degree competences to which the content contributes:

**Topic 4- Statement of issues, questions and interdisciplinary methodologies that can be suitable to be developed into a final masters thesis.**

Degree competences to which the content contributes:
Planning of activities

## A1. CARRYING OUT A TRANSDISCIPLINARY PROJECT IN THE FIELD OF SOCIO-TECHNICAL SUSTAINABILITY SCIENCE.

### Descriptions of the assignments due and their relation to the assessment:

Project and defense.

### Specific objectives:

The ability to critically analyse and assess theories, strategies and policies on development and sustainability; perspectives on the sustainability paradigm, discussions within the field and its environmental, social, cultural and economic implications; the particularities of and differences between environmental and ecological economics; and the problems of valuing goods, services, resources and externalities economically.

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**Bibliography**

### Basic:


