

Course guide

480801 - TFM-SOST - Master's Thesis

Last modified: 24/07/2026

Unit in charge: Barcelona School of Civil Engineering
Teaching unit: 748 - FIS - Department of Physics.

Degree: MASTER'S DEGREE IN SUSTAINABILITY SCIENCE AND TECHNOLOGY (Syllabus 2013). (Project subject).

Academic year: 2026 **ECTS Credits:** 30.0 **Languages:** Catalan, Spanish, English

LECTURER

Coordinating lecturer: OLGA ALCARAZ SENDRA

Others:

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

CE06. The capacity to apply the methods and tools used in the identification, information management, planning, management, execution and evaluation of programmes and projects in the fields of sustainability and environmental management to specific problems in a collaborative manner.

CE08. The ability to coordinate, plan, develop and assess sustainable development programmes and sustainability strategies by identifying and fostering the capacities of participants, and considering the local, national, European and international organisations, strategies and policies involved.

CE09. Integrate the skills acquired in the field of science and sustainability technologies in the realization and public defense of the work done during the Master's Final Project.

Transversal:

CT1a. ENTREPRENEURSHIP AND INNOVATION: Being aware of and understanding how companies are organised and the principles that govern their activity, and being able to understand employment regulations and the relationships between planning, industrial and commercial strategies, quality and profit.

CT2. 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.

CT4. EFFECTIVE USE OF INFORMATION RESOURCES: Managing the acquisition, structuring, analysis and display of data and information in the chosen area of specialisation and critically assessing the results obtained.

CT5. 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.

Basic:

CB8. Students should be able to integrate knowledge and handle complexity, and formulate judgments based on information that was incomplete or limited, include reflecting on social and ethical responsibilities linked to the application of its conocimientos and judgments.

CB9. That students can communicate their conclusions-and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously.

CB10. That students have the learning skills to allow them to continue studying in a way that will have to be largely autodirigido or autonomous.

TEACHING METHODOLOGY

MD6. Broad scope project or work (PA): learning based on the design, planning and realization of a project or work of wide complexity or extension, applying and expanding knowledge and writing a report where the approach of the same are expressed and the results and conclusions.

MD7. Evaluation activities (EV).

LEARNING OBJECTIVES OF THE SUBJECT

- Acquire knowledge, development capacity and preliminary practice to carry out research work or projects on sustainability.
- Be aware of the importance of studying in depth the problem posed, of considering all the plausible alternatives for it, of analyzing and deciding which is the optimal one and of developing it completely.
- Know in greater depth the specific field of knowledge of their work in the context of the general and specific subjects of the master.
- Approach, propose and develop in an adequate and efficient way a new topic including all its stages (antecedents, analysis, synthesis, discussion, writing and defense).
- Consolidate basic methodological knowledge to develop research work and projects in the field of environmental engineering
- Carrying out an original study, project or research work in which the skills acquired in the field of science and technologies for sustainability are synthesized and integrated

STUDY LOAD

Type	Hours	Percentage
Self study	660,0	88.00
Guided activities	90,0	12.00

Total learning time: 750 h

CONTENTS

Master's Thesis Structure and Content

Description:

The Master's Thesis (TFM) is designed as the outcome of a process that integrates and synthesizes the various areas of knowledge covered in the program. Its objective is for students to apply and demonstrate the acquisition of the master's specific competencies, as well as core transversal skills, such as personal synthesis capacity and effective work habits.

The key aspects defining its contents are the following:

- Workload: The TFM is worth 30 ECTS credits, representing an estimated dedication of 750 hours by the student.
- Report Structure: Although provided as a guideline, the report must include essential sections such as:
 - a) Abstracts (in Catalan, Spanish, and English) and a list of acronyms.
 - b) Introduction, including background analysis and the state of the art.
 - c) Definition of objectives and applied methodology.
 - d) Development of the work, discussion of results, and conclusions.
 - e) Sustainability and Ethics Analysis: It is mandatory to include a specific appendix dedicated to the analysis of sustainability and the ethical implications of the project. This section must detail the points required by university regulations that have not been implicitly addressed in the main body of the work.

Finally, the topic of the TFM may arise from proposals made by the student, the master's faculty, or through agreements with external companies and institutions, always subject to the supervision and approval of a director affiliated with the academic program.

Full-or-part-time: 750h

Guided activities: 30h

Self study : 720h

ACTIVITIES

AF5. Project tutorials (TD)

Description:

Attend the tutoring meetings arranged by the TFM tutor and, in accordance with his/her advice, attend to his / her suggestions and revisions throughout the TFM process.

Full-or-part-time: 30h

Guided activities: 30h

AF7. Completion of a wide scope project or work (PA)

Description:

Design, plan and carry out a project or work of wide complexity or extension, applying and expanding knowledge and writing a report where the approach is explained and the results and conclusions.

Full-or-part-time: 660h

Self study: 660h

AF8. Autonomous study (EA)

Description:

Study or expand the content of the subject individually or in a group, understanding, assimilating, analyzing and synthesizing knowledge.

Full-or-part-time: 60h

Self study: 60h

GRADING SYSTEM

EV6. Presentation and evaluation of the Master's Thesis

The TFM qualification will be based on an assessment of the written document and the oral presentation of the objectives, results and conclusions of the TFM in front of a tribunal. The tribunal will be made up of 3 professors, who after the public presentation of the TFM will award the qualification according to the following criteria:

- Content of the work
 - o Originality and innovation (30%).
 - o Understanding, integration and interdisciplinarity. (30%).
- Written document.
 - o Quality of the writing of the TFM (20%).
- Public defense.
 - o Clarity of oral presentation (10%)
 - o Adequacy of the answers to the questions of the court (10%)

For more detailed information, consult the Master TFM regulations:
<https://cts.masters.upc.edu/ca/Documents/normativa-tfm-mcts-2015-16.pdf>



RESOURCES

Other resources:

Guide for Incorporating Sustainability and Ethical Implications Analysis in Final Projects:

https://govern.upc.edu/ca/consell-de-govern/consell-de-govern/sessio-07-2023-del-consell-de-govern/comissio-docencia-i-politica-academica-pendent-celebracio/informacio-de-la-guia-per-incorporar-lanalisi-de-sostenibilitat-i-implicacions-etiques-en-els-tfe/informacio-de-la-guia-per-incorporar-lanalisi-de-sostenibilitat-i-implicacions-etiques-en-els-tfe/@@display-file/visiblefile/Guia%20Informe%20Sostenibilitat%20TFG_TFM_versió%20UPC.pdf />