



Course guide

205561 - 205561 - Management of R&D

Last modified: 17/07/2025

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 702 - CEM - Department of Materials Science and Engineering.

Degree: MASTER'S DEGREE IN TEXTILE DESIGN AND TECHNOLOGY (Syllabus 2020). (Optional subject).

Academic year: 2025 **ECTS Credits:** 3.0 **Languages:** English

LECTURER

Coordinating lecturer: Martí Gelabert, Meritxell

Others: Mijas Vélez, Gabriela Dayana

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

General:

CG3. Lead, plan and supervise multidisciplinary teams.
MUDITT-CG5. Carry out strategic planning and apply it to production, quality and environmental management systems in the field of textile design and technology.
MUDITT-CG1. Apply mathematical, analytical, scientific, instrumental, technological and management knowledge related to the field of textile design and technology.
MUDITT-CG2. Project, calculate and design products and processes related to the field of textile design and technology.
MUDITT-CG4. Carry out research, development and innovation in the field of textile design and technology.

Transversal:

CT3. 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.

Basic:

CB06. Manage original concepts in research projects.
CB07. Student capacity to use their knowledge in new and multidisciplinary situations.
CB08. Generate decision from incomplete information assuming its social and ethical responsibilities.
CB09. Improve technical communication of results.
CB10. Improve self-learning capacity

TEACHING METHODOLOGY

The teaching methodology is divided into three parts:

â□□ Face-to-face sessions of exposition - participation of the contents and performance of exercises.

â□□ Face-to-face sessions of presentation of the work carried out.

â□□ Autonomous work of study and completion of exercises and activities.

In the sessions of exposition - participation of the contents, the teaching staff will introduce the theoretical bases of the subject, concepts, methods and results, illustrating them with suitable examples and requesting, if appropriate, the performance of exercises to facilitate their understanding.

In the laboratory work sessions, the teaching staff will guide the students in the application of the theoretical concepts for the resolution of experimental set-ups, basing critical reasoning at all times. Activities will be proposed for the students to solve in the classroom and outside the classroom, in order to favour contact and use of the basic tools necessary for the creation of an instrumentation system.

The students, in an autonomous way, have to work on the material provided by the teaching staff and the result of the work-problem sessions in order to assimilate and fix the concepts. The teaching staff will provide a study and activity monitoring plan (ATENEA).



LEARNING OBJECTIVES OF THE SUBJECT

Upon completing the course, the student must be able to:

- Manage textile research and development projects.

STUDY LOAD

Type	Hours	Percentage
Hours small group	27,0	36.00
Self study	48,0	64.00

Total learning time: 75 h

CONTENTS

Mòdul 1: Cerca i gestió documental. Estratègies.

Description:

1.1. Techniques for searching for information. Planning and execution of bibliographic research. Main sources of scientific information and documentation.

Related activities:

- AF1. Theoretical work sessions in the classroom (face-to-face).
- AF2. Resolution of exercises, problems and cases, possibly with computer support, with the participation of the student in the classroom (classroom-based).
- AF3. Preparation and performance of individual or group evaluable activities (non face-to-face).
- AF4. Autonomous study work and completion of exercises (non face-to-face).
- AF5. Tutoring and formative assessment of the learning process (non classroom-based).

Full-or-part-time: 8h

Laboratory classes: 6h

Self study : 2h

Mòdul 2: Objectius i planificació de la recerca

Description:

2.1. The choice of topic. Statement of objectives. Definition of the hypotheses.

Related activities:

- AF1. Theoretical work sessions in the classroom (face-to-face).
- AF2. Resolution of exercises, problems and cases, possibly with computer support, with the participation of the student in the classroom (classroom-based).
- AF3. Preparation and performance of individual or group evaluable activities (non face-to-face).
- AF4. Autonomous study work and completion of exercises (non face-to-face).
- AF5. Tutoring and formative assessment of the learning process (non classroom-based).

Full-or-part-time: 12h

Laboratory classes: 4h

Self study : 8h



Module 3: Design and planning of experiments

Description:

- 3.1. Introduction to experiment design
- 3.2. Experiments with a single factor
- 3.3. Diagnostic designs 2^k
- 3.4. Robust design
- 4.5. General factorial design
- 4.6. Response surface methodology
- 4.7. Experiments with mixtures

Related activities:

- AF1. Theoretical work sessions in the classroom (face-to-face).
- AF2. Resolution of exercises, problems and cases, possibly with computer support, with the participation of the student in the classroom (classroom-based).
- AF3. Preparation and performance of individual or group evaluable activities (non face-to-face).
- AF4. Autonomous study work and completion of exercises (non face-to-face).
- AF5. Tutoring and formative assessment of the learning process (non classroom-based).

Full-or-part-time: 29h

Laboratory classes: 13h

Self study : 16h

Module 4: Research Management

Description:

- 4.1. Financing fund: calls for projects.
- 4.2. Project management

Related activities:

- AF1. Theoretical work sessions in the classroom (face-to-face).
- AF2. Resolution of exercises, problems and cases, possibly with computer support, with the participation of the student in the classroom (classroom-based).
- AF3. Preparation and performance of individual or group evaluable activities (non face-to-face).
- AF4. Autonomous study work and completion of exercises (non face-to-face).
- AF5. Tutoring and formative assessment of the learning process (non classroom-based).

Full-or-part-time: 16h

Laboratory classes: 2h

Self study : 14h

Module 5: Communication of research results

Description:

- 5.1. Communication of research results

Related activities:

- AF1. Theoretical work sessions in the classroom (face-to-face).
- AF2. Resolution of exercises, problems and cases, possibly with computer support, with the participation of the student in the classroom (classroom-based).
- AF3. Preparation and performance of individual or group evaluable activities (non face-to-face).
- AF4. Autonomous study work and completion of exercises (non face-to-face).
- AF5. Tutoring and formative assessment of the learning process (non classroom-based).

Full-or-part-time: 10h

Laboratory classes: 2h

Self study : 8h



GRADING SYSTEM

Written exercises: 45% (corresponding to Deliverables D1 (5%), D2 (20%), D5 (20%))

Oral presentations: 25% (corresponding to Deliverables D3 (10%), D4 (10%), D6 (5%))

Final project: 30% (20% written report and 10% oral presentation)

There will be no reconductio exam.

For students who do not reach the minimum final grade of 5 and take the re-evaluation exam, the grade obtained in the re-evaluation exam will replace the grades of all evaluation activities (written exercises and oral presentations), while the grade of the final project obtained during the course will be retained.

If the final grade after re-evaluation is below 5.0, it will only replace the initial grade if it is higher. If the final grade after re-evaluation is equal to or greater than 5.0, the final grade for the course will be a pass with 5.0.

BIBLIOGRAPHY

Basic:

- Montgomery, Douglas C.; Runger, George C. Probabilidad y estadística aplicadas a la ingeniería. 2a ed. México: Limusa Wiley, 2002. ISBN 9789681859152.

RESOURCES

Hyperlink:

- EU Funding & Tenders Portal. <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/programmes/horizon> - Gestors de referències Zotero. <https://guies.bibliotecnica.upc.edu/Zotero>