

**Master's Dissertation**

Code: 44661  
ECTS Credits: 12

Degree	Type	Year	Semester
4313797 Telecommunication Engineering	OB	2	1

**Contact**

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**Use of Languages**

Principal working language: english (eng)

**Prerequisites**

Must have obtained all the credits of the study plan of the first year.

**Objectives and Contextualisation**

As indicated in declaration CIN / 355/2009, of February 9 (BOE of February 20), once obtained all credits in the first-year study plan, the final master's thesis (TFM) comprises of the realization, presentation and defense before a university panel of original work carried out individually, consisting of a comprehensive Telecommunication Engineering project of a professional nature in which the competencies acquired in the teachings are synthesized.

**Competences**

- Capacity for critical reasoning and thought as means for originality in the generation, development and/or application of ideas in a research or professional context.
- Demonstrate an entrepreneurial, creative and innovative spirit
- Maintain proactive and dynamic activity for continual improvement
- Production, presentation and defence of an original, individual exercise before a university panel, once all the credits in the syllabus have been obtained. This should consist of a professional style integrated telecommunications engineering project in which the competencies acquired on the course are synthesised.
- Respect and promote human rights, democratic principles, principles of sex equality, solidarity, universal accessibility and design for all, prevention of labour risks, environmental protection and promotion of a culture of peace
- Students should be capable of integrating knowledge and facing the complexity of making judgements using information that may be incomplete or limited, including reflections on the social and ethical responsibilities linked to that knowledge and those judgements
- Students should know how to apply the knowledge they have acquired and their capacity for problem solving in new or little known fields within wider (or multidisciplinary) contexts related to the area of study
- Students should know how to communicate their conclusions, knowledge and final reasoning that they hold in front of specialist and non-specialist audiences clearly and unambiguously

**Learning Outcomes**

1. Capacity for critical reasoning and thought as means for originality in the generation, development and/or application of ideas in a research or professional context.
2. Demonstrate an entrepreneurial, creative and innovative spirit
3. Direct innovation and research projects and work teams in the area of telecommunications engineering.
4. Maintain proactive and dynamic activity for continual improvement
5. Plan and carry out innovation and research projects with content specific to the subject areas to be covered by students
6. Respect and promote human rights, democratic principles, principles of sex equality, solidarity, universal accessibility and design for all, prevention of labour risks, environmental protection and promotion of a culture of peace
7. Students should be capable of integrating knowledge and facing the complexity of making judgements using information that may be incomplete or limited, including reflections on the social and ethical responsibilities linked to that knowledge and those judgements
8. Students should know how to apply the knowledge they have acquired and their capacity for problem solving in new or little known fields within wider (or multidisciplinary) contexts related to the area of study
9. Students should know how to communicate their conclusions, knowledge and final reasoning that they hold in front of specialist and non-specialist audiences clearly and unambiguously

## **Content**

The TFM is an autonomous academic work, which consists of 3 well differentiated parts, which are: the realization of the project, the writing of the technical report, and the presentation and defense of the project in public, which will take place at the end of the first semester of the second year. Each student will be assigned a tutor among the UAB professors participating in the Master who will guide the student in a personalized way in the completion of the TFM. The teacher selects and guides the objectives of the TFM, supervises and solves doubts. A series of activities (deliveries and meetings) will be carried out to control the monitoring of the work carried out by the student. Students should contact their tutor to agree on the meetings they will hold throughout the course.

To carry out the professional internships, the student may choose to carry them out in any of the research centers or entities linked to the UAB, such as the Computer Vision Center (CVC), the National Microelectronics Center (CNM), the Institute for Spatial Studies of Catalonia (IEEC), the Artificial Intelligence Research Institute (IIIA) or the Alba Synchrotron, or in external companies / entities. In the latter case, the student may benefit from the agreements that the UAB School of Engineering already has signed with a large number of strategic companies. These are both companies directly related to the ICT hypersector, such as telecommunications operators (Telefónica, Orange), communications equipment manufacturers (Mier Comunicaciones, Indra Espacio, Gige Networks), component manufacturers (Fractus, Ficosa, Siemens) , electronic equipment manufacturers (Agilent Technologies, Hewlett-Packard, Hitachi, Simon, Sony), consulting and certification companies (Applus, Altran, Everis, Accenture), systems engineering companies (Atos Origin, Elecnor-Deimos, GMV, Indra Sistemas) or companies not directly related to the ICT hypersector, but where the presence of ICT specialists is necessary to carry out certain essential functions for the company. This is the case of agreements signed with pharmaceutical companies such as Bayer, B-Braun, Novartis, or with automobile companies such as Seat.

## **Methodology**

Each student will be assigned a tutor among the UAB professors participating in the Master who will guide the student in a personalized way in the completion of the TFM. The teacher selects and guides the objectives of the TFM, supervises and solves doubts. A series of activities (deliveries and meetings) will be carried out to control the monitoring of the work carried out by the student. Students should contact their tutor to agree on the meetings they will hold throughout the course.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

## Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Project thesis (40%)	0	0	1, 2, 3, 4, 5, 7, 8, 9, 6
Type: Supervised			
Tutor Supervision (30%)	0	0	2, 3, 4, 5, 7, 6
Type: Autonomous			
Presentation and defence of the student work (30%)	0	0	1, 2, 3, 4, 5, 7, 8, 9, 6

## Assessment

An evaluation panel of experts that, with autonomy, will judge the quality of the work carried out, according to the current regulations developed by the Center and the University. The tribunal will be made up of three doctor professors belonging to the areas of knowledge that teach in the master's degree. In any case, the final grade assigned to the work will be based, at least, on the following criteria:

- 1.- Achievement of the objectives set at the beginning of the project.
- 2.- Ability to develop autonomous work.
- 3.- Ability to use the knowledge acquired in solving the problem posed.
- 4.- Degree of difficulty of the problem solved or the work carried out.
- 5.- Technical quality of work.
- 6.- Ability to write the final report document. This report must include at least the summary (two sheets) written in English.
- 7.- Ability to publicly present in a summarized and clear way the results achieved. The presentation of the master's thesis must include at least the introduction and conclusions in English.

The TFM report will be delivered to the Virtual Campus of the TFM subject and a paper copy will be delivered upon request to each of the professors who request it and who are part of the evaluation panel. The members of the tribunal should receive the pdf copy at least one week before the reading of the project. The report will have an extension of approximately 60 to 80 pages in Times New Roman 12 format, footnotes in Times New Roman 10 and 1.5 line spacing. The report must include the following sections:

- Summary: of a maximum of 200 words written in Spanish, Catalan and English.
- Index: it must contain the sections and subsections that appear in the text of the work and the page number (it is important that the sections that appear in the index are the same as those that appear later in the text).
- Introduction: it must contain the reasons for developing this work and how it will be developed.
- Conclusions: they must be related to the object of the work and provide some relevant information to it.
- Bibliography: it is appropriate to systematize the bibliography by type of documents, subjects or others that allow the reader to identify the texts and other materials analyzed during the work.
- Annexes: if deemed appropriate (for example, to facilitate understanding of the work) they will be added at the end of the text.

## Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
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Presentation and defense of work	30%	90	3.6	1, 2, 3, 4, 5, 7, 8, 9, 6
Project thesis	40%	120	4.8	1, 2, 3, 5, 7, 8, 9, 6
Tutor evaluation	30%	90	3.6	1, 2, 3, 4, 5, 7, 8, 9, 6

## **Bibliography**

Any relevant bibliography can be indicated by the collaborating entity.

## **Software**

Any relevant software can be indicated by the collaborating entity.