

Degree programme	Type	Course
Electronic Engineering for Telecommunication	OB	4

Contact lecturer

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Group languages

You can consult this information at the [end](#) of the document.

Prerequisites

In order to register the subject of TFG, the student must meet the following requirements:

- To have passed all the credits of basic education subjects (Calculus, Algebra, Statistics, Physics, Fundamentals of Computer Science, Fundamentals of Signals and Systems, Theory of Circuits, Organization and Management of Companies and Fundamentals of Engineering), which suppose a total of 63 credits.
- Have approved at least 80% of the credits of compulsory subjects, which suppose a total of 98 credits. To have passed (or to be studying) the subject of Project Management and Legislation.

In total, the student must have passed $63 + 98 = 161$ credits, which correspond to more than two thirds of the total curriculum.

Objectives

The objective of the Final Degree Project (TFG) is to carry out individual work that allows the student to apply and integrate the knowledge and skills acquired throughout the undergraduate studies. The result must be an original work that will be evaluated in public defense in front of a committee of three professors of the School.

Learning outcomes

1. Produce an original individual exercise and present and defend before a university tribunal, a professional project in the field of the specific technologies of Telecommunication Engineering which synthesises and integrates the skills acquired on the course.
2. Evaluate the limitations regarding resources, personnel and location for producing a realistic work plan. Clearly establish the work hypotheses, defending its validity in accordance with the results obtained previously by the actual students or by third parties.
3. Assess one's own knowledge and skills regarding the project subject identifying the shortcomings.
4. Explain the strategy used to search for information, showing consultation of the most important sources in the field of study
5. Identify regulations (laws, standards, etc.) susceptible to be considered in the end of degree project
6. Read English texts with a high degree of understanding
7. Cite sources of information used in accordance with internationally recognised standards
8. Reasonably explain the different options that have been considered when establishing how to deal with the initially proposed problem.
9. Defend the proposed solutions with logical and coherent arguments.

10. Choose the most suitable software and hardware tools and use them correctly.
11. Develop critical thinking and reasoning.
12. Develop the capacity for analysis and synthesis.
13. Develop scientific thinking.
14. Develop systemic thinking.
15. Work autonomously.
16. Develop independent learning strategies.
17. Manage available time and resources. Work in an organised manner.
18. Prevent and solve problems.
19. Make one's own decisions.
20. Adapt to unforeseen situations.
21. Work in complex or uncertain surroundings and with limited resources.
22. Critically evaluate the work done.
23. Communicate efficiently, orally and in writing, knowledge, results and skills, both professionally and to non-expert audiences.
24. Efficiently use ICT for the communication and transmission of ideas and results.
25. Use English as a language of communication and as the reference in professional relations.
26. Develop curiosity and creativity.

Contents

All students who take the subject of TFG must carry out a written report at the end of the work, in accordance with the following recommendations:

Memory structure

1. Standardized cover

According to the established format (available in the TFG space of the Virtual Campus) and which includes: anagram of the UAB, title of the TFG, degree, name of the author, name of the Director (and co-Director (s) if it is the case), name of the Tutor and date.

2. Body of memoir

It is recommended that it contains the following sections: objectives, brief review of the state of the art, methodology, development, results, conclusions and bibliography.

3. Back cover

A summary of the TFG (less than 200 words) in Catalan, English and Spanish will be included in the last page.

It is recommended that the student synthesize the content of the report and focus mainly on describing their contribution to the project carried out.

Delivery of the report

The student must deliver a copy of the report according to the instruction at the news desk of the TFG space of the Virtual Campus, and which will involve the use of the TFE (Treballs de Fi d'Estudis) platform within the UAB.

Alternative technical article format NOT VALID

Opposite from previous years, the student CANNOT choose to use a technical article format.

Learning activities and methodology

Title	Hours	ECTS	Learning outcomes
TFG development	300	12	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26

Offer of TFG proposals

The students can consult the TFG offers available through the link "\"Inscripció al treball de fi d'estudis\"" of the portal <http://sia.uab.cat>

Academic direction and tutoring of the TFG

Each student enrolled into the course of TFG will be assigned a professor who will act as a Tutor and that will ensure that the TFG fulfills its academic objectives. The TFG Tutor must be a professor of the School with teaching assigned to the subject of TFG. Each TFG will also have a Director, who will be who will direct the student during the realization of the work. In the case of TFG proposed by professors of the School with teaching assigned to the subject of TFG, the professor will act as Tutor and Director of the work. On the other hand, in the case of TFG carried out by an external entity at the UAB, the person responsible for this external entity will be the one who will act as Director of the work.

The Tutor's obligations are:

- To ensure, as the highest academic responsible, the quality of the TFG and the fulfillment of the academic and teaching requirements of a TFG in Telecommunication Electronic Engineering.
- Know and apply the teaching guide of the subject of TFG.
- To be part of the TFG evaluating Panel of the enrolled student to which it is tutoring.

The obligations of the Director and Co-Directors are:

- Propose a subject that meets the academic and teaching requirements for a TFG in Telecommunication Electronic Engineering.
- Help the student to define the TFG and set realistic goals, setting a calendar and a good working pace.
- Advise and guide the student during the academic period in which he or she has enrolled in the TFG

course. This monitoring will be carried out periodically through meetings with the student, in order to ensure that the established goals are achieved.

In the event that the TFG is supervised by more than one professor with teaching assigned to the TFG subject, only one of them will act as Director and Tutor while the rest will be considered co-Directors.

UAB professors who do not have teaching assigned to the TFG subject may only act as Directors (or co-Directors if there is more than one) provided that another professor with teaching assigned to the subject TFG is responsible and acts as a Tutor.

The TFG can be carried out in an external entity at the UAB. In this case, it will be necessary to sign an agreement between the company or external institution and the UAB, in accordance with the current regulations of the School and the UAB. An external TFG must mandatorily have a teaching teacher assigned to the TFG subject that is responsible and that acts as a Tutor. The person at the company or external institution responsible for the student will act as Director.

Organization of TFG proposals

- The organization of the TFG subject falls, by default, on the Coordinator of the degree.
- The departments involved in the TFG will be responsible for designating teachers who make the proposals.
- Each teacher who has assigned teaching to the TFG subject will make a proposal (s) through the procedure established by the person in charge of the subject.
- In case a student wishes to propose a TFG, he or she must first seek a Director who will eventually make the TFG proposal. In the event that this Director is a professor of the School with teaching assigned to the subject of TFG, the professor will act as Director and Tutor of the student.

Development of TFG work

The main part of the TFG is the autonomous work that the student must carry out, and therefore, this is an activity that is not eminently non-attended. The student's obligations are:

- To carry out, individually, the work assigned by the Director of the TFG.
- Write a written report, in accordance with the points described in the Contents section of the TFGteaching guide.

The duration of all TFG will be of one semester, with a teaching load equivalent to a subject of 12 ECTS credits and in accordance with the planning indicated in the section of Educational Activities of the teaching guide of the TFG.

Use of Artificial Intelligence (AI)

For this course, the use of AI technologies is permitted exclusively for support tasks, such as bibliographic or information searches, or orthographical and grammar corrections. The final Memoir may not include any structural text or content generated by AI. The student must clearly indicate in the Memoir how this technology was used, including if it was not used at all. Lack of transparency regarding the use of AI in this graded activity will be considered academic dishonesty and may result in a partial or total penalty on the activity's grade, or more severe sanctions in serious cases.

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.

Assessment

Continuous assessment activities

Title	Weight	Hours	ECTS	Learning outcomes

TFG evaluation committee	100%	0	0	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26
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Evaluation procedure

- The evaluation of the TFG must be carried out within the same semester in which the student has enrolled to the course of TFG, either in the February session or in the July session.
- To carry out this evaluation, a committee will be appointed consisting of three members: the Tutor of the TFG and two professors of departments of the School with assigned teaching in the subject of TFG.
- The person in charge of the subject of TFG (who by default will be the Coordinator of the degree) will be in charge of carrying out the composition of the committee and of planning the date of presentation. Both information will be made public, at least one week in advance of the filing date.
- The presentation of the TFG will be carried out by the student in a public oral session. The estimated time of exposure of each TFG is 15 minutes, followed by a discussion with the members of the committee.
- The student will be evaluated by the committee of the following aspects:
 - TFG report (R). The quality of the prepared material will be evaluated, considering both structure and drafting aspects.
 - Presentation and defense of the TFG (P). The quality of the material prepared, the ability to exhibit and the effectiveness of the answers formulated to the committee will be evaluated.
 - Evaluation of the TFG Tutor (Tut). The Tutor will issue his or her assessment considering methodological aspects and results obtained. In the case of TFGs carried out within the framework of an internship agreement outside the UAB, the assessment of the student's external director will be included.
 - Overall evaluation of the committee (Com). Where both methodological aspects and results obtained will be taken into account.
 - The final grade (NF) of the TFG will be obtained from $NF = \min(0.2 \cdot R + 0.2 \cdot P + 0.2 \cdot Tut + 0.4 \cdot Com; R; P)$. Therefore, both the report and the presentation must be graded equal to or greater than 5,0 in order to pass the TFG.
- Exceptionally, the TFG can be developed in small groups of two or three students. In any case, the evaluation of the TFG will always be done at the individual level.

Publication of the TFG memoir in the UAB digital repository

The committee that evaluates the TFG of the student must approve the publication or not of the memoir to the digital repository of the UAB (ddd.uab.cat), based on the quality of the work and the absence of legal impediments that can refrain from publication (eg confidential data, intellectual property rights, etc.). In case the committee authorizes the publication in the DDD repository, it must indicate it in the rubric sheet together with the rest of the evaluation of the work. Once the committee delivers the rubric to the Academic Management of the School, the head of the subject of TFG will contact the students who have received the approval to inform them about the procedure to follow to publish their report.

Bibliography

In each case, the Director of the TFG will propose the appropriate bibliography based on the work to be carried out.

Software

- To be defined in agreement with the directors.

Course groups and languages

The information provided is provisional until November 30. After this date, you will be able to consult the language of each group through this [link](#). To access the information, you will need to enter the course CODE

Type of teaching	Group	Language	Semester	Shift
(TFG) Treball de fi de grau	1	Catalan/Spanish	Undefined	morning-mixed