UAB
Universitat Autònoma de Barcelona

Advanced Engineering Project

Code: 102701
ECTS Credits: 12

2024/2025

Degree	Type	Year
2500898 Telecommunication Systems Engineering	OT	4

Contact

Name: Antoni Morell Perez

Email: antoni.morell@uab.cat

Teaching groups languages

You can view this information at the end of this document.

Prerequisites

To enroll in the Advanced Engineering Project (PAE) course, the student must meet the following requirements (in general):

- Have all the credits of basic education subjects (Calculation, Algebra, Statistics, Physics, Fundamentals of Computing, Foundations of Signals and Systems, Circuit Theory, Organization and Management of Companies and Foundations of Engineering), that suppose a total of 63 ECTS credits.
- Have at least 70% of the credits of compulsory subjects in the first three years, which represent a total of 73 ECTS credits.
- In total, the student must have passed 63 + 73 = 136 ECTS credits.

Enrolment

The subject of the PAE is a special subject not included in the application of automation, and as such, its registration must be done manually once started the semester, within the period of modification of registration established in the administrative calendar of the School (September / October for the 1st semester, and February / March for the 2nd semester). Before enrollment, the student must request authorization by filling in the form available at TFG module at the Campus Virtual. Only when the authorization has been granted, the student can go to the Academic Management of the School to formalize the enrollment.

Objectives and Contextualisation

The objective of this subject is to develop an advanced engineering project where students can apply and integrate the knowledge and skills acquired throughout their Degree in Telecommunication Systems Engineering. The project will be carried out in collaboration with a professor / researcher attached to a research group, institute or research center that is part of the UAB sphere.

Competences

- Communication
- Develop ethics and professionalism.
- Develop personal attitude.

- Develop personal work habits.
- Develop thinking habits.
- Draft, develop and sign projects in the field of telecommunications engineering that, depending on the speciality, are aimed at the conception, development or exploitation of telecommunication and electronic networks, services and applications.
- Learn new methods and technologies, building on basic technological knowledge, to be able to adapt to new situations.
- Resolve problems with initiative and creativity. Make decisions. Communicate and transmit knowledge, skills and abilities, in awareness of the ethical and professional responsibilities involved in a telecommunications engineer's work.
- Work in a team.

Learning Outcomes

1. Adapt to unforeseen situations.
2. Apply the ideal methodology to develop the problem, combining theoretical developments and simulations as required.
3. Assume and respect the role of the different members of a team, as well as the different levels of dependency in the team.
4. Assume social, ethical, professional and legal responsibility, if applicable, derived from professional exercise.
5. Communicate efficiently, orally and in writing, knowledge, results and skills, both professionally and to non-expert audiences.
6. Critically evaluate the work done.
7. Develop critical thinking and reasoning.
8. Develop curiosity and creativity.
9. Develop independent learning strategies.
10. Develop systemic thinking.
11. Develop the capacity for analysis and synthesis.
12. Efficiently use ICT for the communication and transmission of ideas and results.
13. Evaluate discrepancies between the objectives and planning of the project, identify the causes of these discrepancies and adopt the necessary corrective measures.
14. Evaluate the results of the project comparing them with similar results from external sources and identifying the new contributions made by the project to current knowledge about the subject.
15. Generate innovative and competitive proposals in professional activity.
16. Identify the specific aims of the project.
17. Maintain a proactive and dynamic attitude with regard to one's own professional career, personal growth and continuing education. Have the will to overcome difficulties.
18. Make one's own decisions.
19. Manage available time and resources.
20. Plan a project using a Gantt chart.
21. Prevent and solve problems.
22. Seek, pose and expose different alternatives highlighting the importance and risk in relation to the execution of the project.
23. Synthesise the information obtained and one's own knowledge in a structured overview of the state of the art of the project's subject.
24. Work autonomously.
25. Work cooperatively.
26. Work in complex or uncertain surroundings and with limited resources.

Content

They will depend on each case, of the specific project that is carried out.

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Supervised			
Follow-up meetings	50	2	2, 5, 6, 13, 14, 15, 16, 20, 22, 23
Type: Autonomous			
Development of the Advanced Project	240	9.6	1, 2, 4, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26
Drafting of the Report	10	0.4	4, 5, 6, 12, 13, 14, 15, 16, 17, 20, 22, 23

Academic direction and tutoring of the PAE

Any student who attends the PAE subject will be assigned a Tutor that will ensure that the project meets their academic objectives, and a Director who will be the one who will direct the student during the realization of the project. The student's tutor will be responsible for the subject of PAE (which by default will be the Coordinator of the degree), while the Director will be the person in charge of directing the work of the student to the research group, institute or the corresponding research center.

The Tutor's obligations are:

- To ensure, as the highest academic leader, the quality of work and the fulfillment of the academic and teaching requirements of an advanced project in Telecommunication Systems Engineering.
- Apply the teaching guide of the subject of PAE.
- Participate in the assessment of the tutored student.

The obligations of the Director and Co-Directors are:

- Propose a job that meets the academic and teaching requirements for an advanced project in Telecommunication Systems Engineering.
- Help the student to delimit the work to carry out the term and establish realistic goals, setting a calendar and a good working pace.
- Advise and guide the student during the school year in which he has enrolled in the subject of PAE. This monitoring will be carried out periodically through tutorial sessions, in order to ensure that the established goals are achieved.

In case the PAE is directed by more than one professor / researcher, only one of them will act as Director while the rest will be considered co-Directors.

Compatibilities

The subject of PAE will be able to be enrolled by the student with the aim of extending the dedication to the TFG. In this case:

- The director of the TFG must give the approval, depending on whether he considers that the proposed TFG has sufficient entityto be carried out in an expanded manner.
- The TFG to be developed must have a specific work plan that includes an equivalent total commitment for the student of 24 ECTS credits. At the level of the academic record of the student, these 24 ECTS credits will be recorded according to the syllabus, such as 12 ECTS credits of TFG plus 12 ECTS credits of PAE.
- In the event that the Director is a professor of the School with assigned teaching assignments to the TFG, the Director will also act as a Tutor of the student.

Incompatibilities

The subject of PAE is incompatible with the subject of "Pràctiques Externes", and therefore, the student will only be able to enroll one of these two subjects.

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

Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Director's report	50%	0	0	13, 14, 16
Student's report	40%	0	0	1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26
Tutor assessment	10%	0	0	3, 13, 14, 25

- The PAE assessment will follow the same criteria as the evaluation of the TFG.
- The TFG committee will assess the work done by the student in a global way, taking into account a reference dedication of 24 ECTS credits.
- The committee shall issue a single grade that shall be recorded equally to the acts of the subject of PAE and TFG.
- If the Director of the PAE is a teacher of the School with teaching assigned to the subject of TFG, the Director will also act as a Tutor of the PAE.

Bibliography

In each case, the student's Project Director will propose the timely bibliography according to the work to be carried out.

Software

Project depandant.

Language list

Information on the teaching languages can be checked on the CONTENTS section of the guide.