OBJECTIVES

CB6 Possess and understand knowledge that provides a basis or opportunity to be original in the development and / or application of ideas, often in a research context

CB7 That students know how to apply the knowledge acquired and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their area of ¿¿study

CB8 That students are able to integrate knowledge and face the complexity of formulating judgments based on information that, being incomplete or limited, includes reflections on social and ethical responsibilities linked to the application of their knowledge and judgments

CB9 That the students know to communicate their conclusions and the knowledge and last reasons that sustain them to specialized and non-specialized publics in a clear and unambiguous way

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

CG1 Capacity for the formulation, critical verification and defense of hypotheses, as well as the design of experimental tests for verification.

CG2 Ability to make value judgments and prioritize in making conflicting decisions using a systemic thinking.

CG4 Ability to work in multidisciplinary teams in a cooperative way to complete work tasks

CG5 Ability to handle the English, technical and colloquial language.

DESCRIPTION OF CONTENTS: PROGRAMME

Syllabus:

1 Introduction to onboard systems
2 Real-Time embedded systems design
3 Software engineering for onboard systems
4 Verification and validation of onboard systems
5 Task Scheduling

LEARNING ACTIVITIES AND METHODOLOGY

Theoretical classes: 1.5 ECTS.

- They aim to achieve the specific cognitive skills of the subject. They will present the knowledge that students must acquire.
- To facilitate their development, students will receive class notes and will have basic reference texts that will allow them to complete and deepen in those topics in which they are most interested.

Practical activities: 1.5 ECTS.
- They develop specific instrumental skills and most of the transversal ones, such as teamwork, ability to apply knowledge to practice, to plan and organize and to analyze and synthesise. They also aim to develop specific attitudinal abilities.

- Consists in solving exercises and case studies in a participatory manner in the classroom and in the design and development of a real-time application using cyclical planning and based on priorities.

- They are developed in work groups and using computer tools with the presence of a teacher.

ASSESSMENT SYSTEM

The evaluation is focused on knowing the degree of fulfillment on the learning goals.
Because of that, it is valued all the student's works through the continue evaluation of all activities by exercises and exams, practical works, and other tutored academic activities with the following weights:

* Final exam: 50%
* Practical works: 40% (the practical work is mandatory)
* Directed academic activities: 10%

Continuous evaluation is fulfilled if practical works are delivered and also those academic activities marked as mandatory.

Alternatively, for those students who decide not to join the previous system of continuous evaluation the final calification will be the 60% of the value of the final exam.

For the extrodinary evaluation the options are:
* With continuous evaluation: Final exam 50%, continuous evaluation 50%
* Without continuous evaluation: Final exam 100%
The second option will be chosen whenever it is better than the first option.

This course follows the University policy regarding the evaluation process.

If the copy between/among practices is detected, all the involved students (both copied and copiers) will lose the calification obtained by the continuous evaluation (the practical part is considered undelivered).
Even more, depending on the severity of the case, they shall open an administrative procedure.

% end-of-term-examination:	50
% of continuous assessment (assigments, laboratory, practicals…):	50

BASIC BIBLIOGRAPHY

 - Alan Burns and Andy Wellings. Real-Time Systems and Programming Languages: Ada, Real-Time Java and C/Real-Time POSIX (4th Edition) , Pearson Education . , 2009

ADDITIONAL BIBLIOGRAPHY

 - Phillipe A. Laplante and Seppo J. Ovaska Real-Time Systems Design and Analysis: Tools for the Practitioner 4th Edition, Wiley-IEEE Press, 2011