

28834 - Integrated Project

Syllabus Information

Academic Year: 2019/20

Subject: 28834 - Integrated Project

Faculty / School: 175 - Escuela Universitaria Politécnica de La Almunia

Degree: 424 - Bachelor's Degree in Mechatronic Engineering

ECTS: 6.0

Year: 4

Semester: First semester

Subject Type: Compulsory

Module: ---

1.General information

1.1.Aims of the course

The objective of the subject is to train the student in the realization of mechatronic projects by applying the multidisciplinary knowledge for the realization of analysis, design, development and manufacturing of prototypes and documentation. Not only the foundations will be studied, but also is intended to get capacity for analysis and to design. The student must be able to build in the laboratory and start up, a functional prototype from the proposed mechatronic solution over the subject.

1.2.Context and importance of this course in the degree

The Integrated Project subject, focused on the practical content and based on the resolution of problems and projects and applying interdisciplinary techniques for the realization of mechatronic systems, offers a global view that allows to study, develop, innovate and implement complex integral solutions.

1.3.Recommendations to take this course

The Integrated Project subject does not have mandatory prerequisites, but it is advisable for the students of the Degree to have at least completed, the subjects: Fluid Engineering, Basic Physics I and II, Computer Science, Electrical and Mechanical Engineering, Electronic Technology I and II, Materials Engineering, Automatic Regulation and Control, Machines: Calculus and Design, Manufacturing Processes I and II, Programmable electronic systems and Electronic Instrumentation.

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as:

1. Theory Classes: The theoretical concepts of the subject are explained and illustrative examples are developed as a support to the theory when necessary, focus on calculation, design, and development of a mechatronic system
2. Laboratory Workshop. These classes are highly recommended for a better understanding of the concepts because those items whose calculation is done in theory classes are shown in working mode.
3. Tutorials related to any concept of the subject. This activity is developed in on-site mode with a defined schedule or

through the messaging and forum of the virtual classroom Moodle.

4.2.Learning tasks

The course includes the following learning tasks:

- Lectures. It will take 2 hours per week till the 30 hours, necessary to accomplish the objectives of the subject study, will be reached
- Laboratory Workshop. It will take 15 sessions of 2 hours duration. The group is divided up into various groups, according to the laboratory capacity.
- Study and personal work. This off-sitel part is valued in about 90 hours, necessary for the study of theory, problem solving and revision of documents
- Individual tutorials. Each teacher will publish a schedule of attention to the students throughout the four-month period

4.3.Syllabus

The course will address the following topics:

- Topic 1. State of the art and technical specification of a mechatronic project
- Topic 2. Identification by modules. Block diagrams and information flows.
- Topic 3. Modeling and simulation of mechatronic systems
- Topic 4. Design of mechatronic systems
- Topic 5. Manufacture of prototypes
- Topic 6. Programming, verification and functional tests
- Topic 7. Cost Analysis and Documentation
- Topic 8. Final project on the practical application

4.4.Course planning and calendar

The theory classes and problems are given in the timetable established by the center, as well as the hours assigned to the practices. <http://www.eupla.unizar.es/>

The final schedule will be published on virtual class <https://moodle2.unizar.es/add/>

The presentation of the works will be done on the last day of class on the subject.

The final test with the non-continuous evaluation will contain questions of all the topics covered during the course.

4.5.Bibliography and recommended resources

http://biblos.unizar.es/br/br_citas.php?codigo=28834&year=2019