

28842 - Industrial Projects: Standardization and Legislation

Información del Plan Docente

Academic Year	2016/17
Academic center	175 - Escuela Universitaria Politécnica de La Almunia
Degree	424 - Bachelor's Degree in Mechatronic Engineering
ECTS	4.0
Course	4
Period	Second semester
Subject Type	Optional
Module	---

1. Basic info

1.1. Recommendations to take this course

1.2. Activities and key dates for the course

2. Initiation

2.1. Learning outcomes that define the subject

2.2. Introduction

3. Context and competences

3.1. Goals

3.2. Context and meaning of the subject in the degree

3.3. Competences

3.4. Importance of learning outcomes

4. Evaluation

5. Activities and resources

5.1. General methodological presentation

The learning process that is designed for this subject is based on the following:

A strong interaction teacher/student. This interaction becomes a reality by a division of labor and responsibilities between students and teachers. However, to some extent, the students will be allowed to set up their own pace of learning according to their needs and availability, following the guidelines set by the teacher.

The teaching organization is based on the number of ECTS credits, which represents, in this case 150 hours of student

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work on the subject during the semester (15 weeks tuition). 40% of this work (60h) will be held in the classroom and the classroom or lab and the rest will be autonomous.

The organization of the actual teaching will be based on the following guidelines:

- **Theory/Practice Lectures:** Theoretical activities carried out mainly through exposition by the teacher, where the theoretical supports of the subject are displayed, highlighting the fundamental, structuring them in topics and or sections, interrelating them.
- **Classroom practice work :** Theoretical discussion activities or practice work preferably performed in the classroom and requiring high student participation and a performance directed by the teacher.
- **Autonomous works:** Activity to be undertaken by the student personally. Usually done outside the classroom. Consultations in other media, application in OT-lab with the relevant software, laboratory or at home . Professor , at the request of the student , tracks the students work.
- **In tutorials:**

- **Group tutorials:** Scheduled tracking learning activities in which the teacher meets with a group of students to guide their autonomous learning work and consultancy of targeted work or tasks that require a very high degree of advice from the teacher.

- **Individual tutorials:** These are made on a one-to-one basis, at the department. They aim to help solving problems that are the students might have, particularly those which for several reasons cannot attend group tutorials or need a more personalized attention. These tutorials may be face-to-face or virtual (Moodle or email).

5.2.Learning activities

The programme offered to the student to help them achieve their target results is made up of the following activities...

Involves the active participation of the student, in a way that the results achieved in the learning process are developed, not taking away from those already set out, the activities are the following:

- **Face-to-face generic activities:**

- Theoretical Classes: The theoretical concepts of the subject are explained and practical examples are developed as support to the theory when necessary.

- Practical Classes: Problems and practical cases are carried out, complementary to the theoretical concepts studied.

- Individual practice work: The student works individually. This work is tutored by a teacher upon request.

- **Generic non-class activities:**

- Study and understanding of the theory taught in the lectures.

- Understanding and assimilation of the problems and practical cases solved in the practical classes.

- Preparation of seminars, solutions to proposed tasks, etc.

- Preparation of laboratory workshops, preparation of summaries and reports.

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- Preparation of the written tests for continuous assessment and final exams.

- **Monitored autonomous activities:** Although they will rather have a mixed nature between face-to-face and non-class tuition they have been considered separately and will be focused mainly to seminars and tutorials under the supervision of the teacher.
- **Reinforcement activities:** With a remarkable non-class nature, through a virtual learning portal (Moodle, e-mail) several activities that reinforce the basic contents of the subject will be carried out. These activities can be customized or not, and will be monitored through the portal.

A summary of a weekly timetable guide can be seen in the following table

Theoretical Classes	2 hours
Supervised Practical Classes	2 hours
Autonomous activities (non-class)	6 hours

For students to have access to continuous assessment he must attend at least 80% of classroom activities.

5.3.Program

- **THEORETICAL CONTENTS**

UNIT 1. Drawings and plans in projects

Chapter 1- Project DrawingStandardization

Standardization in Sketching, Dimension drawing, Threads and Sections and Representation of pieces.

Chapter 2- Standardization in metrology

Roughness and surface finish. Tolerances.

Chapter 3- Standardization in design elements

Joint Components. Bearings

Chapter 4 . Set and detail view. (Content and distribution in the drawings)

Standardized elements in a set. Conventions used in a set. How to present a Set and detail view plan. Exploded View plans. Representation and distribution.

UNIT 2- Laboratory standardization.

Chapter 5- Metrology, calibration and testing.

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Introduction. Standards and Metrology Organization. Evaluation of uncertainties. Calibration Certificates.

UNIT 3- DOCUMENT ORGANIZATION IN A PROJECT.

Chapter 6-General criteria for the production of documents which make up a technical project.

Basic documents (Plans, Specifications, Budget...). UNE 157001.

Chapter 7-Licence Processing

UNIT 4- Standardization and regulation of projects

Chapter 8- Standardization and regulation

Organizations for Standardization. Standardized and legislative documents. Useful Standards and regulations for industrial projects.

Chapter 9- Introduction to CE Marking

New Approach Directives. Essential requirements. Technical documentation.

- **PRACTICAL CONTENTS**

Practice Block 1.

1.1 Sketching. Views and sections. Metrology in laboratory

1.2 Fittings (Tolerances). Selecting and calculating fittings.

1.3 Sets and Detail View . Based on a cross-sectional view: Making plans according to current standards and a report describing the system.

Practice Block 2.

2.1 Application in laboratory of a standard test method.

Standardization. Standard Testing Procedure. Instrument Calibration Plan. Records. Testing Setup

2.2 Production of a Specifications Document.

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Based on the documentation of a project.

Practice Block 3.

3. Working Regulations and legislation applicable to a project.

Technical report about the regulations and legislation to be applied in a project.

5.4.Planning and scheduling

The three laboratory test blocks will be developed along the semester.

The deadline dates for the students to present the reports are:

Práctica 1.1: week 4

Práctica 1.2: week 5

Práctica 1.3: week 7

Práctica 2.1: week 10

Práctica 2.2: week 13

Práctica 3 : week 15

These dates are could be modified based on the scholar activity. The definitive dates will be announced in the Moodle <http://moodle.unizar.es>.

The dates of the final exams will be those that are officially published at

<http://www.eupla.unizar.es/index.php/secretaria-2/informacion-academica/distribucion-de-examenes>

Resources

Materials

Materials	Support
<ul style="list-style-type: none"> • Study Projects • Official Standards • User Manuals • Calibration Certificates • simultaneously to the realization of the work 	Paper/Repository
<ul style="list-style-type: none"> • Subject presentation • Objective and Scope practical works • Topic presentations • Catalogues 	Digital/Moodle e-mail

5.5.Bibliography and recommended resources

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- BC** Larburu Arrizabalaga, Nicolás. Maquinas prontuario : técnicas, máquinas, herramientas / Nicolás Larburu Arrizabalaga Madrid : Paraninfo, 1989
- BC** Martínez de Pisón, Francisco J.. La oficina técnica y los proyectos industriales / Francisco Javier Martínez de Pisón. - 1ª edc. Logroño : Universidad de La Rioja : AEIPRO, D.L. 2002
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