Información del Plan Docente

Academic Year: 2018/19
Subject: 30150 - Ballistics
Faculty / School: 179 - Centro Universitario de la Defensa - Zaragoza
Degree: 457 - Bachelor's Degree in Industrial Organisational Engineering
563 - Bachelor's Degree in Industrial Organisational Engineering
ECTS: 6.0
Year: 4
Semester: First semester
Subject Type: Optional
Module: ---

1. General information

1.1. Aims of the course

1.2. Context and importance of this course in the degree

1.3. Recommendations to take this course

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 learning process designed for course is based on the following items:

- Lectures
- Theoretical essays and practical assessments, complemented by real experiments
- Computer lab sessions where students should show their knowledge of the theoretical bases of the course
- Active learning: solving problems and studying topics posed by the teacher

4.2. Learning tasks
The learning activities are detailed in the section 3.

### 4.3. Syllabus

**Interior Ballistic**
1. Interior ballistic elements.
2. Fuzes, bombs and multipliers.
3. Interior ballistic in ordnance.

**Exterior Ballistic**
1. Vacuum ballistic.
2. Projectile equation in atmosphere.
3. Aerodynamic drag.
4. Point mass model and point mass modified model.
6. Rigid body model.
7. Dispersion Measures.
8. Initial velocities.

**Terminal Ballistic**
1. Introduction
2. HE projectile effects.
3. AP projectile effects.
4. Special projectile effects.
5. Nato Indirect Fire Appreciation Kernel.

### 4.4. Course planning and calendar

The schedule of lectures and assessment tasks and essays submission deadlines will be announced by the professor in class and on the moodle platform.

There are two kind of activities in the course. The class activities are:

- Lectures
- Problem solving classes
- Computer lab sessions
- Essay presentations

**Homework:**

- Group activities and essays
- Practical assessments
- Self-study

Key dates (exams and deadlines) will be announced by the teacher in class and in the moodle platform.

### 4.5. Bibliography and recommended resources