Universidad Zaragoza

Academic Year: 2025/26

32213 - Defense Applied Technologies II

Teaching Plan Information

Academic year: 2025/26
Subject: 32213 - Defense Applied Technologies II
Faculty / School: 179 - Centro Universitario de la Defensa - Zaragoza
Degree: 646 - Degree in Defense and Security Studies
Ambit: Interdisciplinary
Tipo de enseñanza: Presencial
ECTS: 6.0
Year: 2
Semester: First semester
Subject type: Compulsory
Module:

1. General information

The main objective of this subject is for students to acquire knowledge and skills related to electrical, electronic, and energy technologies applied to Defense, including concepts of electrical energy generation and storage and risk prevention in electrical installations.

This subject contributes to the training of Officers of the General Corps of the Army and Guardia Civil, providing them with the electrical, electronic, and energy knowledge and skills they need to carry out their mission and thus contribute to the proper performance of their duties.

2. Learning results

At the end of the course students must be able to:

- CON3. Understand the different areas of operations and explain the effects of different actions on audience perception.
  - CON3.1: Have a basic knowledge of electrical and electronic technologies from their physical foundations, through their management to the main aspects of their use under safe conditions.
- HAB2. Solve problems, analyze and synthesize (information) to evaluate and make judgments with agility, initiative and creativity, identifying opportunities for improvement and adapting to complex situations.
  - HAB2.1: Solve systems containing electrical and electronic components using analysis methodologies.
  - HAB2.2: Predict the consequences that the failure of one of the elements may have on a motor system.
- COM2 (CT2). Actively collaborate with a group of people to achieve a common goal by combining different talents.
  - COM2.1: Select solutions to problems in the field of electrical and electronic technology based on multiple criteria, through group practices.
- COM5 (CT5).- Design and execute a new task or project differently, using creativity and curiosity to add value with an entrepreneurial attitude.
  - COM5.1: Apply knowledge of the Army's electrical and electronic technology equipment to an original design of energy management systems.

3. Syllabus

Unit 1: Fundaments of electrical technology
Unit 2: Basic Electronics
Unit 3: Electrical Machines
Unit 4: Electrical Installations
Unit 5: Generation and Storage of Electrical Energy
Unit 6: Introduction to Power Electronics for the Control of Electrical Machines and Functional Blocks

4. Academic activities

- **Classroom-based sessions:**
  - A01 - Problem solving.
  - A07 - Practical work in facilities with specialised equipment.
  - A10 - Demonstrations and simulations.
  - A11 - Interactive lectures.
- **Autonomous study and personal work by students:**
  - A01 - Problem solving.

- A03 - Case studies/analysis.
- A04 - Search and analysis of information and preparation of individual papers or portfolios.
- A05 - Essay and report writing.
- A08 - Individual assignments and activities.
- A09 - Group assignments and activities.
- A10 - Demonstrations and simulations.
- A13 - Other activities derived from innovation projects.

5. Assessment system

FIRST CALL:

Continuous assessment

Students may pass the subject through the continuous assessment procedure. The continuous assessment instruments (CAI) are the following:

1. CAI1. Theoretical and practical knowledge exam. Weight in the final grade: 40%.
2. CAI2. Theoretical and practical knowledge exam. Weight in the final grade: 50%.
3. CAI3 (Lab). Several practical sessions in the laboratory. Weight in the final grade: 10%.

The final continuous assessment grade (100%) will be determined by the weighted contribution of each CAI. To pass the subject by continuous assessment, students must obtain a final grade greater than or equal to 5 out of 10 points and also fulfil the following requirement:

Requirement: The score for each of the CAI's must be greater than or equal to 4 out of 10 points.

Global assessment

Students who do not pass the subject through continuous assessment or who wish to improve their grade will be entitled to sit the global exam scheduled in the academic calendar, with the better of the two grades obtained prevailing in any case.

The global assessment consists of a theoretical-practical exam and it is divided into parts corresponding to the contents of the CAIs referred to above: CAI1 (40%) and CAI2 (50%), and a laboratory performance assessment (CAI 3, 10%). To pass the course on the first sitting, students must obtain a final grade greater than or equal to 5 out of 10 points and the grade for each section must be greater than or equal to 4 points out of 10.

SECOND CALL:

Students who do not pass the subject in the first sitting may sit a global exam scheduled in the academic calendar for the second call. This global exam will have a weight of 100% in the final grade.

The second call consists of an exam that contains theoretical-practical exercises covering the entire subject syllabus (90%) and an evaluation of laboratory performance (10%). To pass the subject on the second sitting, students must obtain a final grade greater than or equal to 5 out of 10 points and the grade for each section must be greater than or equal to 5 points out of 10.

The **assessment criteria** for all assessment instruments correspond to the specific learning outcomes detailed in section 2.

Assessment instrument	Weight	CON3.1	HAB2.1	HAB2.2	COM2.1	COM5.1
CAI1	40%	X	X			
CAI2	50%	X	X	X		X
CAI3 (Lab)	10%	X		X	X	
Global assessment	100%	X	X	X	X	X

6. Sustainable Development Goals

7 - Affordable and Clean Energy
9 - Industry, Innovation and Infrastructure
11 - Sustainable Cities and Communities