

Academic Year/course: 2021/22

30180 - Avionics and aircraft general knowledge

Syllabus Information

Academic Year: 2021/22

Subject: 30180 - Avionics and aircraft general knowledge

Faculty / School: 179 - Centro Universitario de la Defensa - Zaragoza

Degree: 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

The course Avionics and general knowledge of aircrafts is framed within the module of Aviation, which encompasses two more courses with whom it keeps relation.

This course prepares the future pilots to know and understand vehicles, instrumentation and environment in which their profession will take place. In particular, specific nomenclature and concepts related to the aeronautics environment are introduced to the student, with special emphasis on their use in helicopters and UAV. This includes, for instance, the study of the flight regimes, the aircraft architecture, or the basics of atmospheric flight.

The course combines a theoretical basis with an applied focus in order for the student to acquire the basic competences and knowledge for the decision making in their future career.

1.2. Context and importance of this course in the degree

Defense profile: This subject contributes to the training of Spanish Army Officers by providing specific knowledge about the fundamental principles of rotary-wing aircrafts and teaching a part of the curriculum required to get the helicopter pilot license. The obtention of these license is a need for Spanish Army Officers of the Aviation Army fundamental specialty in order to perform their duties and contribute to the development of their professional career.

1.3. Recommendations to take this course

This course is part of the module of Aviation, which, in order for a student to be enrolled, he/she must have taken and successfully pass the majority of the degree courses up to the third academic year. Due to its technical character, contents received in previous subjects of the fields of Physics and Mathematics will be heavily used.

2. Learning goals

2.1. Competences

After successfully passing the subject, students will be more competent to:

- Plan, budget, organize, lead, and control tasks, people and resources (C02).
- Solve problems and make decisions with initiative, creativity and critical thinking (C04).
- Communicate knowledge, skills and abilities in Spanish (C06).
- Work in a multidisciplinary team in a multilingual environment (C09).
- Develop long-life learning and continuous assessment skills (C11).
- Know and identify the terminology, technology and specific environment of aeronautics (C69).

2.2. Learning goals

The course combines a theoretical basis with an applied focus in order for the student to acquire the basic competences and knowledge for the decision making in their future career.

2.3. Importance of learning goals

The learning outcomes contain the competences that students should acquire in the module of Aviation as a part of their specialization in the Army. The learning outcomes are key for their later training as well as their future career as pilots.

3. Assessment (1st and 2nd call)

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

The student must demonstrate the achievement of the provided learning goals through the following assessment tasks:

- Final exam: a final proof where the theoretical and practical knowledge provided during the course will be assessed. In order to pass this assessment, the grade of the exam must be equal to or higher than 50%. This proof represents the 50% of the final grade of the course.
- Course works: a collection of practical works (both individual and group) related to the theory sessions. Some of them will include a public presentation. In order to pass this assessment, the grade of the exam must be equal to or higher than 50%. This proof represents the 50% of the final grade of the course.

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

If this teaching could not be done in person for health reasons, it would be done telematically.

The course learning process has been designed based on the following:

- Lecture sessions where the professor will seek the student participation.
- Practice sessions where the aims of the course will be reinforced and assessed.
- Autonomous study and work on the course contents and tasks.
- Elaboration of individual and/or group works.

4.2. Learning tasks

The course includes the following learning tasks:

- Lectures combined with practice sessions where the contents of the course will be presented.
- Individual and group work and their latest presentation in public.

4.3. Syllabus

The course will address the following topics:

1. Classification of aircraft.
2. The atmosphere.
3. Aircraft architecture.
4. Introduction to fluid dynamics.
5. Aerodynamic and control surfaces.
6. Power plant.
7. Aircraft performance and maneuvers.

4.4. Course planning and calendar

The professor will announce during classes and through the Anillo Digital Docente (ADD) from the Universidad de Zaragoza (<http://moodle.unizar.es>) the calendar of classes as well as the deadline for course works.

4.5. Bibliography and recommended resources

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=30180>