

Guía docente

220065 - 220065 - Introducción a los Planeadores

Última modificación: 29/05/2020

Unidad responsable: Escuela Superior de Ingenierías Industrial, Aeroespacial y Audiovisual de Terrassa
Unidad que imparte: 737 - RMEE - Departamento de Resistencia de Materiales y Estructuras en la Ingeniería.

Titulación: GRADO EN INGENIERÍA EN TECNOLOGÍAS INDUSTRIALES (Plan 2010). (Asignatura optativa).
GRADO EN INGENIERÍA EN TECNOLOGÍAS AEROESPACIALES (Plan 2010). (Asignatura optativa).
GRADO EN INGENIERÍA EN VEHÍCULOS AEROESPACIALES (Plan 2010). (Asignatura optativa).

Curso: 2020 **Créditos ECTS:** 3.0 **Idiomas:** Inglés

PROFESORADO

Profesorado responsable: Rafael Weyler Pérez

Otros: Rafael Weyler Pérez

COMPETENCIAS DE LA TITULACIÓN A LAS QUE CONTRIBUYE LA ASIGNATURA

Específicas:

3. GrETA/GrEVA - Comprender como las fuerzas aerodinámicas determinan la dinámica del vuelo y el papel de las distintas variables involucradas en el fenómeno del vuelo.
1. GrEVA - Conocimiento adecuado y aplicado a la ingeniería de: fenómenos físicos del vuelo, sus cualidades y control, las fuerzas aerodinámicas y propulsivas, las actuaciones y estabilidad.
4. GrETA/GrEVA - Comprender la singularidad de las infraestructuras, edificaciones y funcionamiento de los aeropuertos.
2. GrEVA - Conocimiento aplicado de: aerodinámica; mecánica y termodinámica, mecánica de vuelo, ingeniería de aeronaves (ala fija y alas rotatorias), teoría de estructuras.

METODOLOGÍAS DOCENTES

The course is divided into parts:

Theory classes

Theory classes will prepare the student for a better understanding of the practical activities. In the theory classes, teachers will introduce the theoretical basis of the concepts related to sailplane usage from a practical point of view. The explanations will cover from theoretical flight conditions to some practical situations in which a pilot might become involved.

Practical classes

In the practical classes, the student will experience some of the theoretical concepts. They will come into contact with real sailplanes and will carry out some flights. Some of the practical classes will be made on the aerodrome.

The teachers provide the curriculum and monitoring of activities (by ATENEA).

IMPORTANT: Students must pay an extra payment for the flights (fuel and sailplane rent). As a guide, the price will be around 150 €, but this quantity is subject to change.



OBJETIVOS DE APRENDIZAJE DE LA ASIGNATURA

This course is intended to introduce students into the engineering applications from the user point of view and not as an engineer, who does not necessarily have such training. This course will focus on a highly technical and specialized flight discipline such as gliding, in which almost everything is related to engineering. It is proposed to show the importance of proper communication, as well as how technical concepts must be properly summarized and transmitted in accordance with the purpose of the device designed. It is also of vital importance and at the same time is overlooked, the role of engineers have into the specification of user skills or the training they should receive in order to manage properly the designed devices. On the other hand, the knowledge of user's needs is of vital importance to make a good design. Understanding requirements, limitations and functionality are basic elements needed to design an aircraft.

The course will pay special attention on all these concepts. It will be organized into theoretical lectures and practical classes. The first one will explain basic concepts and how the glider or some of its components works. Practical classes are done in order to understand the importance of these concepts. In this classes the students will interact with the sailplane itself, including the basic flight experience.

HORAS TOTALES DE DEDICACIÓN DEL ESTUDIANTADO

Tipo	Horas	Porcentaje
Horas grupo grande	30,0	40.00
Horas aprendizaje autónomo	45,0	60.00

Dedicación total: 75 h

CONTENIDOS

(CAST) -Module 1: Theoretical aspects

Descripción:

- (CAST) - Introduction to gliding
- Basic knowledge of sailplanes
- Principles of flight
- Meteorology
- Flight techniques
- Special issues

Actividades vinculadas:

- (CAST) - Theoretical sessions
- Activity 1

Dedicación: 45 h

Grupo grande/Teoría: 20h

Aprendizaje autónomo: 25h



(CAST) Module 2: Applied activities

Descripción:

- (CAST) - Procedures
- Handle the sailplanes
 - The flight on sailplanes

Actividades vinculadas:

- (CAST) - Theoretical sessions
- Practical sessions
 - Activity 2

Dedicación: 30 h

Grupo grande/Teoría: 10h

Aprendizaje autónomo: 20h

SISTEMA DE CALIFICACIÓN

BIBLIOGRAFÍA

Complementaria:

- Pajno, Vittorio. Sailplane design: a guide for students and designers: from drafting to flight test. Roma: IBN, 2014. ISBN 9788875650926.
- Reichmann, Helmut. Cross-country soaring: a handbook for performance and competition soaring. Santa Mónica: Thomson, 1978.