

1. BASIC INFORMATION

Subject	Aircraft Design
Degree	Degree in Aerospace Engineering of Aircraft
School	Escuela de Arquitectura, Ingeniería y Diseño
Course	4
ECTS	6 ECTS
Type	Optativa
Language	Español/English
Delivery mod	Compulsory
Semester	First
Academic year	2019/2020
Coordinator	

2. COMPETENCIES AND LEARNING OUTCOMES

Core competencies:

- CB1: That students have demonstrated knowledge and understanding in a field of study that part of the basis of general secondary education, and is usually found at a level that, while supported by advanced textbooks, includes some aspects that will knowledge of the forefront of their field of study.

Cross-curricular competencies:

- CT1: Ability to design, development and management in the field of aeronautical engineering aimed, according to the knowledge acquired as provided in paragraph 5 of the Decree CIN/308/2009, aerospace vehicles
- CT2: Planning, definition, direction and project management of design, stress analysis and production in the field of aeronautical engineering aimed, according to the knowledge acquired as provided in paragraph 5 of the Decree CIN/308/2009, vehicles aerospace.
- CT17: Addressing the issues and challenges related to their area of expertise with flexibility, initiative, innovation, and dynamism (entrepreneurial profile).
- CT19: Working in interdisciplinary teams, providing the most efficient on the basis of cooperation, assuming their role within the team, establishing good relationships and exchanging information (Teamwork).

Specific competencies:

- CE24: Adequate knowledge and applied to Engineering of: aircraft systems, and automatic flight control systems of aerospace vehicles
- CE25: Adequate knowledge and applied to Engineering of: Calculation methods Design and Program Management of aircraft; the use of experimental aerodynamics and the most significant parameters in the theoretical application; the management of experimental techniques, equipment and measuring instruments discipline; the simulation, design, analysis and interpretation of experimental and flight operations; the maintenance systems and certifications of aircraft.
- CE26: Applied knowledge of: aerodynamics, mechanics, and thermodynamics, flight mechanics, engineering of aircrafts (fixed and rotatory wings), and theory of structures.

Notes: UNIQUE LEVEL: Competence developed at one level. Level 1 (N1): awareness about the importance of competences and basic application of it to several situations. Level 2(N2): interiorization and skillful handling of competences. Level 3 (N3): Full interiorization and handling of competences at any needed situation.

Learning outcomes:

- LO27: To design diverse parts and elements of aerospace vehicles.
- LO20: To conduct studies by integrating the technologies and engineering procedures which are developed in the competencies of this modules
- LO21: From a series of requirements, and prior information, to conceptualize an engineering problem, proposes an approach to solve it, and obtain the better solution. All this related to the competencies of this module
- LO22: To transfer some parts of an engineering problem to the laboratory, and utilize this resource as support to resolve it

3. CONTENTS

- Calculation of aircraft
- Structural design
- Hydraulic, pneumatic and thermal installations of the airplane
- Helicopters
- Introduction to automatic aircraft

4. TEACHING-LEARNING METHODOLOGIES

The following table shows how the different types of activities are distributed and how many hours are assigned to each type:

Training Activities	hours
Lecture-based class	20
Integrative team work	60
Self-study	50

Mentoring, academic monitoring and assessment	20
TOTAL	150

5. LEARNING ACTIVITIES

Listed below are the assessment systems used and the weight each one carries towards the final course grade:

Type of educational activity	Number of hours
Lecture-based class	20 h
Integration of team work	60 h
Self-study	50 h
Mentoring, academic monitoring and assessment	20 h
TOTAL	150 h

6. ASSESSMENT

Exam, test and other type of assessment.	30%-35%
Reports, articles and informs.	15%-30%
Alternative system of assessment.	15%-30%
Conferences, company-tour visit and experiences in situ	10%-10%
Transversal skills (rubric)	10%-15%

6.1. First exam period

- Exams, tests and other test and alternative techniques of assessment 35%
- Writing of articles, reports and project and Transversal skills 35% of the final grade
- Homework 30% of the final grade

To pass the course in the first exam period, you must obtain a final course grade of at least 5 out of 10 (weighted average). Minimums needed to pass:

- To obtain 5 points over 10 points of the final exam.
- To obtain 5 points over 10 points of the final project.

- To obtain 5 points over 10 points of the homework.
- In order to be evaluated you must have a minimum of 50% attendance (ATTENDANCE IS VALID ONLY REGISTERED IN THE GRP SYSTEM)

The failed assignments, homework or lab reports during academic year can be submitted on extraordinary session. To pass the course, each assignment shall have, at least, five points out of ten and it is mandatory to pass all assignments, activities and exams. If the student fails or does not submit some activities these activities will not be considered for the average of the final grade.

In the case, when the student do not reached the minimum required to pass any evaluable activity. The final grade will be:

- The mean average when the mean value is less than or equal to 4
- 4 if the value of the mean average is greater than 4

The grade will be considered as NP (Not Presented) when the student has not delivered any evaluable activity of which they are part of the weighted average.

6.2. Second exam period

Assessment activities:

- Realization of different tasks, problems and practical exercises, individually 20%
- Realization of laboratory practices and report 10%
- Realization of a project 20%
- Oral presentations presentation of the project 15%.
- Final exam 35%

To pass the course in the second exam period, you must obtain a final grade of at least 5 out of 10 (weighted average).

In the case, when the student do not reached the minimum required to pass any evaluable activity. The final grade will be:

- The mean average when the mean value is less than or equal to 4
- 4 if the value of the mean average is greater than 4

The grade will be considered as NP (Not Presented) when the student has not delivered any evaluable activity of which they are part of the weighted average.

7. BIBLIOGRAPHY

1. Fundamentals of Aerodynamics John Anderson
2. Aerodynamics for engineering Students E.L. Houghton P.W. Carpenter
3. Introduction to Structural Dynamics and Aeroelasticity, Dewey H. Hodges and G. Alvin Pierce

Reference:

- Fluid Mechanics Fundamentals and Applications. Yunus A. Çengel and John M. Cimbala, First edition, editorial Mc Graw Hill, 2006
- Viscous Fluid Flow, Frank m. White. Third edition, editorial Mc Graw Hill, 2006
- Computational Fluid Dynamics, the basics with applications, John Anderson, Jr., First edition, editorial Mc Graw Hill, 1995.
- Fundamentals of turbulence Modellig, Ching Chen, Shenq-Yuh Jaw. First edition, editorial Taylor and Francis Ltd. 1998.

8. DIVERSITY MANAGEMENT UNIT

Students with specific learning support needs:

Curricular adaptations and adjustments for students with specific learning support needs, in order to guarantee equal opportunities, will be overseen by the Diversity Management Unit (UAD: Unidad de Atención a la Diversidad).

It is compulsory for this Unit to issue a curricular adaptation/adjustment report, and therefore students with specific learning support needs should contact the Unit at unidad.diversidad@universidadeuropea.es at the beginning of each semester.