



IDENTIFYING DATA

Air transport and airborne systems

Subject	Air transport and airborne systems			
Code	O07G410V01404			
Study programme	Grado en Ingeniería Aeroespacial			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	2nd	2nd
Teaching language	#EnglishFriendly Spanish			
Department				
Coordinator	Orgeira Crespo, Pedro			
Lecturers	Orgeira Crespo, Pedro Ulloa Sande, Carlos			
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General description	The subject is divided in two main areas. First, civil aerial transport fundamentals are introduced, as well as the regulatory laws, the elements that constitute it, and its interactions. Second, airborne systems are described. English Friendly subject: International students may request from the teachers: a) materials and bibliographic references in English, b) tutoring sessions in English, c) exams and assessments in English.			

Competencies

Code	
B1	Capability for design, development and management in the field of aeronautical engineering (in according with what is established in section 5 of order CIN / 308/2009), aerospace vehicles, aerospace propulsion systems, aerospace materials, airport infrastructures, air navigation infrastructures and space management, air traffic and transport management systems.
B7	Capability to analyze and assess the social and environmental impact of technical solutions.
C14	Understand the air transport system and the coordination with other transport modes.
C19	Applied knowledge of: science and technology of materials; mechanics and thermodynamics; fluid mechanics; aerodynamics and flight mechanics; navigation and air traffic systems; aerospace technology; theory of structures; airborne transportation; economy and production; projects; environmental impact.
C21	Appropriate knowledge applied to engineering: foundations of sustainability, maintenance and operation of aerospace vehicles.
D1	Capability of analysis, organization and planification.
D2	Leadership, initiative and entrepreneurship
D3	Capability of oral and written communication in native language
D4	Capability of autonomous learning and information management
D5	Capability to solve problems and draw decisions
D6	Capability for interpersonal communication
D8	Capability for critical and self-critical reasoning
D13	Sustainability and environmental commitment. Equitable, responsible and efficient use of resources

Learning outcomes

Expected results from this subject	Training and Learning Results	
Knowledge of the structure and the elements that conform the current system of world-wide transport.	C14	D1 D5 D8

Knowledge the economic and social profits of the aerial transport	B7	C14 C21	D1 D4 D5 D6 D8 D13
Understanding of the legal characteristics of the aerial transport and knowledge of this transport mode law	B1 B7	C14 C21	D1 D2 D3 D4 D8 D13
Knowledge of the different elements that integrate the system of transports: aerial companies, manufacturing, airports, aerial navigation suppliers	B1 B7	C14 C19	D1 D2 D4 D6 D8 D13
Comprise the most important aspects of the situation of the aerial transport in the actuality, so much in Spain how in the rest of the world	B1 B7	C14 C19 C21	D1 D2 D3 D4 D6 D8 D13
Knowledge of the different systems and subsystems onboarded in aerospace vehicles	B1 B7	C14 C19 C21	D1 D3 D4 D8 D13

Contents

Topic	
Aerial transport	Structure and elements that constitute current world-wide transport system. Insertion of the aerial mode in the transport system and the different ways of cooperation and intermodal competition. Economic and social benefits of the aerial transport. Legal frame of the aerial transport and international law system. Elements that constitute the system of transportation: aerial companies, manufacturing, airports, aerial navigation suppliers. Situation of the aerial transport nowadays, in Spain and in the rest of the world.
Onboard systems	Flight reference systems. Flight forces and performance. Stability. Control systems. Navigation systems. Inertial navigation. Positioning navigation. GPS. ILS.

Planning

	Class hours	Hours outside the classroom	Total hours
Lecturing	38	70	108
Laboratory practical	12	16	28
Objective questions exam	2	0	2
Report of practices, practicum and external practices	0	12	12

*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies

	Description
Lecturing	The teacher will expose the theoretical bases of the subject. The students will have basic reference texts

Laboratory practical	IT and laboratory solutions will be used to solve problems and exercises and apply the knowledge achieved.
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Personalized assistance

Methodologies	Description
Lecturing	The teacher will attend personally the doubts and queries of the students, in person, or by telematic support.
Laboratory practical	The teacher will attend personally the doubts and queries of the students, in person, or by telematic support.

Assessment

	Description	Qualification	Training and Learning Results		
Objective questions exam	Final written exam.	80	B1 B7	C14 C19 C21	D1 D2 D3 D4 D5 D6 D8 D13
Report of practices, practicum and external practices	Report covering all requirements given	20	B1 B7	C14 C19 C21	D1 D2 D3 D4 D5 D6 D8 D13

Other comments on the Evaluation

The calendar of evaluation tests officially approved by the Xunta de Centro of the EEAE is published on the website of the School (normally, at <http://aero.uvigo.es/gl/docencia/exames>)

First edition (continuous evaluation):

- For the evaluation of the continuous evaluation exam to be carried out in the "first edition of the report", the student must have attended all the practices and made all the required deliveries of laboratory practices and supervised work (in the case it exists), on the dates indicated; In addition, it will be necessary that the average grade of the deliveries exceeds 4 out of 10.

- The minimum mark to be reached in the final continuous assessment exam will be 4 out of 10 to be able to weigh the exam, supervised work (in case of taking the latter), and practicals. In the case of not reaching said qualification, the final grade will be the result of the minimum of the average grade of EC and 4.0.

- To pass the subject in continuous assessment in the first edition of the report, you must pass a weighted grade (exam, work, practice) of 5 out of 10. The exam may consist of test questions and / or short questions and / or questions developmental.

Second edition:

- Students who have not passed the subject in the first edition of the minutes will take an extraordinary exam that will have the same format and the same requirements as the ordinary exam of the first edition of the minutes. In order to pass the subject, the weighted minimum mark between exam and practice reports will be 5 out of 10, and it is also necessary that this test exceed 4 out of 10.

As a student at the University of Vigo, the University Student Statute, approved by Royal Decree 1791/2010 of December 30, establishes in its article 12, point 2d, that the university student has the duty to "refrain from the use or cooperation in fraudulent procedures in assessment tests, in the work carried out or in official university documents". Therefore, the student is expected to have adequate ethical behavior. If unethical behavior is detected during the course (copying, plagiarism, use of unauthorized electronic devices or others), the student will be penalized with a grade of 0.0 on the written or deliverable test where such fraud is detected.

Sources of information

Basic Bibliography

L. Tapia, **Derecho aeronáutico**, Bosch,

A. Benito, **Descubrir las líneas aéreas**, AENA,

J. Anderson, **An Introduction to flight**, McGraw&Hill,

Complementary Bibliography

Recommendations

Subjects that it is recommended to have taken before

Aerospace technology/O07G410V01205

Contingency plan

Description

The evaluation will be carried out, under normal conditions, under the indications reflected in this guide.

In the event of exceptional circumstances that impede the normal development of teaching, an online teaching will be chosen (whenever possible) via streaming (live), through the tools provided by the University of Vigo. The evaluation tests would be carried out, in this case, remotely with the tools of the University; the evaluation criteria will be maintained in non-classroom teaching, except for extraordinary reasons that totally prevent said option.

In the event that teaching is carried out in a mixed way, the evaluation criteria will be maintained as well, except for extraordinary reasons that make this option totally impossible. The evaluation tests would be carried out, in this case, remotely with the tools of the University.

In both cases, tutoring meetings will take place remotely via the tools provided by the University, in a moment subject to agreement between the teacher and the student.

Students who, in any of the three cases ("normal" teaching, 100% on-line, blended), do not attend the theory teaching sessions, do not attend 100% of the practical sessions, or do not deliver all of the the memories of practices / work in term surpassing in all a 4 over 10, will carry out a different examination both in the first edition in the second, with sections that complement the test of the students of continuous evaluation.
