

300208 - TA - Aerospace Technology and Air Transport

Coordinating unit:	300 - EETAC - Castelldefels School of Telecommunications and Aerospace Engineering
Teaching unit:	748 - FIS - Department of Physics
Academic year:	2018
Degree:	BACHELOR'S DEGREE IN AEROSPACE SYSTEMS ENGINEERING (Syllabus 2015). (Teaching unit Compulsory) BACHELOR'S DEGREE IN AEROSPACE SYSTEMS ENGINEERINGS/BACHELOR'S DEGREE IN TELECOMMUNICATIONS SYSTEMS ENGINEERING - NETWORK ENGINEERING (AGRUPACIÓ DE SIMULTANEÏTAT) (Syllabus 2015). (Teaching unit Compulsory) BACHELOR'S DEGREE IN AEROSPACE SYSTEMS ENGINEERING/BACHELOR'S DEGREE IN TELECOMMUNICATIONS SYSTEMS ENGINEERING (Syllabus 2015). (Teaching unit Compulsory) BACHELOR'S DEGREE IN AEROSPACE SYSTEMS ENGINEERING/BACHELOR'S DEGREE IN NETWORK ENGINEERING (Syllabus 2015). (Teaching unit Compulsory)
ECTS credits:	6
Teaching languages:	Catalan, Spanish, English

Teaching staff

Coordinator:	Definit a la infoweb de l'assignatura.
Others:	Definit a la infoweb de l'assignatura.

Opening hours

Timetable:	At the lecturer's discretion.
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Degree competences to which the subject contributes

Specific:

1. CE 12 AERO. Comprender los procesos de fabricación. (CIN/308/2009, BOE 18.2.2009)
2. CE 17 AERO. Conocimiento adecuado y aplicado a la ingeniería de: Los elementos fundamentales de los diversos tipos de aeronaves ; los elementos funcionales del sistema de navegación aérea y las instalaciones eléctricas y electrónicas asociadas; los fundamentos del diseño y construcción de aeropuertos y sus diversos elementos. (CIN/308/2009, BOE 18.2.2009)
3. CE 18 AERO. Conocimiento adecuado y aplicado a la Ingeniería de: Los fundamentos de la mecánica de fluidos; los principios básicos del control y la automatización del vuelo; las principales características y propiedades físicas y mecánicas de los materiales. (CIN/308/2009, BOE 18.2.2009)
4. CE 19 AERO. Conocimiento aplicado de: la ciencia y tecnología de los materiales; mecánica y termodinámica; mecánica de fluidos; aerodinámica y mecánica del vuelo; sistemas de navegación y circulación aérea; tecnología aeroespacial; teoría de estructuras; transporte aéreo; economía y producción; proyectos; impacto ambiental. (CIN/308/2009, BOE 18.2.2009)

Generical:

7. PROJECT MANAGEMENT - Level 1: To know project management tools carrying out the different phases of the project established by the professor
11. EFFICIENT USE OF EQUIPMENT AND INSTRUMENTS - Level 1: Using instruments, equipment and software from the laboratories of general or basic use. Realising experiments and proposed practices and analyzing obtained results.

Transversal:

5. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.
6. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 1. Planning oral communication, answering questions properly and writing straightforward texts that are spelt correctly and are grammatically coherent.

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8. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 1. Analyzing the world's situation critically and systemically, while taking an interdisciplinary approach to sustainability and adhering to the principles of sustainable human development. Recognizing the social and environmental implications of a particular professional activity.

9. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.

10. TEAMWORK - Level 1. Working in a team and making positive contributions once the aims and group and individual responsibilities have been defined. Reaching joint decisions on the strategy to be followed.

12. EFFECTIVE USE OF INFORMATION RESOURCES - Level 1. Identifying information needs. Using collections, premises and services that are available for designing and executing simple searches that are suited to the topic.

Teaching methodology

- 1) Theoretical plenary lessons and problem solving
- 2) Lab sessions
- 3) Group project
- 4) Self-learning

Learning objectives of the subject

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Study load

Total learning time: 150h	Hours large group:	33h	22.00%
	Hours small group:	9h	6.00%
	Guided activities:	24h	16.00%
	Self study:	84h	56.00%

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Content

<p>Introduction to aerospace technology</p>	<p>Learning time: 3h 25m Theory classes: 1h 30m Self study : 1h 55m</p>
<p>Description: Agents of the aerospace sector and classification of aircraft and aerospace vehicles types</p> <p>Related activities: Activity 1: Plenary sessions</p>	
<p>Flight principles</p>	<p>Learning time: 17h 05m Theory classes: 6h Laboratory classes: 1h 30m Self study : 9h 35m</p>
<p>Description: Aircraft parts, flight modelling, flight equilibria</p> <p>Related activities: Activity 1: Plenary sessions Activity 2: Lab sessions Activity 3: Project</p>	
<p>Aircraft stability and control</p>	<p>Learning time: 10h 15m Theory classes: 3h Laboratory classes: 1h 30m Self study : 5h 45m</p>
<p>Description: Flight mechanics equations, flight equilibria, piloting, stability and aircraft modes</p> <p>Related activities: Activity 1: Plenary sessions Activity 2: Lab sessions Activity 3: Project</p>	

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<p>Aircraft performances</p>	<p>Learning time: 13h 40m Theory classes: 6h Self study : 7h 40m</p>
<p>Description: Restriction and optimisation of flight stages</p> <p>Related activities: Activity 1: Plenary sessions Activity 3: Project</p>	
<p>Aircraft recognition</p>	<p>Learning time: 3h 25m Theory classes: 1h 30m Self study : 1h 55m</p>
<p>Description: Aircraft recognition</p> <p>Related activities: Activity 1: Plenary sessions</p>	
<p>Aeronautical materials and structures</p>	<p>Learning time: 3h 25m Theory classes: 1h 30m Self study : 1h 55m</p>
<p>Description: Aeronautical materials and structures</p>	
<p>Propulsion systems</p>	<p>Learning time: 6h 50m Theory classes: 3h Self study : 3h 50m</p>
<p>Description: Propulsion systems</p>	

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Air navigation, altimetry and anemometry	Learning time: 13h 40m Theory classes: 3h Laboratory classes: 3h Self study : 7h 40m
Description: Air navigation systems and instrumentation	
Aircraft systems	Learning time: 13h 40m Theory classes: 3h Laboratory classes: 3h Self study : 7h 40m
Description: Aircraft systems	
Helicopters	Learning time: 3h 25m Theory classes: 1h 30m Self study : 1h 55m
Description: Helicopters Related activities: Activity 1: Plenary sessions	
Space systems	Learning time: 3h 25m Theory classes: 1h 30m Self study : 1h 55m
Description: Space systems	

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Project	Learning time: 51h 10m Theory classes: 1h 30m Guided activities: 21h Self study : 28h 40m
Description: Project	

Buffer	Learning time: 6h 35m Guided activities: 3h Self study : 3h 35m
Description: Buffer	

Planning of activities

Plenary lessons	Hours: 75h Theory classes: 33h Self study: 42h
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La b sessions	Hours: 20h 30m Laboratory classes: 9h Self study: 11h 30m
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Projecte	Hours: 47h 45m Guided activities: 21h Self study: 26h 45m
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Buffer	Hours: 6h 45m Guided activities: 3h Theory classes: 3h 45m
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Qualification system

Evaluation criteria as defined at the course infoweb.

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Bibliography

Basic:

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- Moir, I.; Seabridge, A. G. Aircraft systems : mechanical, electrical, and avionics subsystems integration [on line]. 3rd ed. Reston: American Institute of Aeronautics and Astronautics, 2008 Available on: <<http://site.ebrary.com/lib/cbuc/docDetail.action?docID=10301042>>. ISBN 9780470059968.
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Complementary:

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