300434 - ATGE-OA - Airlines: Transport, Management and Ethics

Coordinating unit: 300 - EETAC - Castelldefels School of Telecommunications and Aerospace Engineering
Teaching unit: 748 - FIS - Department of Physics
Academic year: 2019
Degree: BACHELOR'S DEGREE IN AEROSPACE SYSTEMS ENGINEERING (Syllabus 2015). (Teaching unit Optional)
ECTS credits: 3
Teaching languages: Catalan, Spanish, English

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Degree competences to which the subject contributes

Basic:
CB1. (ENG) CB1 - Que los estudiantes hayan demostrado poseer y comprender conocimientos en un área de estudio que parte de la base de la educación secundaria general, y se suele encontrar a un nivel que, si bien se apoya en libros de texto avanzados, incluye también algunos aspectos que implican conocimientos procedentes de la vanguardia de su campo de estudio
CB2. (ENG) CB2 - Que los estudiantes sean aprovisionados de conocimientos que a su trabajo o vocación de una forma profesional y posean las competencias que suelen demostrarse por medio de la elaboración y defensa de argumentos y la resolución de problemas dentro de su área de estudio
CB3. (ENG) CB3 - Que los estudiantes tengan la capacidad de reunir e interpretar datos relevantes (normalmente dentro de su área de estudio)
para emitir juicios que incluyan una reflexión sobre temas relevantes de índole social, científica o ética
CB4. (ENG) CB4 - Que los estudiantes puedan transmitir información, ideas, problemas y soluciones a un público tanto especializado como no especializado
CB5. (ENG) CB5 - Que los estudiantes hayan desarrollado aquellas habilidades de aprendizaje necesarias para emprender estudios posteriores con un alto grado de autonomía

Specific:

General:
CG1. (ENG) CG1 - Capacidad para el diseño, desarrollo y gestión en el ámbito de la ingeniería aeronáutica que tengan

Prior skills

English (and professional/technical english).
Mathematics and statistics.
Knowledge related to business course (business models, microeconomics, macroeconomics, international agreements and organizations in civil aviation, air transport industry).
Knowledge related to aircraft, airport and air space acquired in other courses of this degree.
Basic and required courses related to calculus and statistics.
Business/company, aerospace technology, air transport infrastructure, models for Air Traffic Management.

Opening hours

Wed. 17:00h (required agenda by mail).
Transversal:


02 SCS N3. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 3. Taking social, economic and environmental factors into account in the application of solutions. Undertaking projects that tie in with human development and sustainability.

04 COE N3. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 3. Communicating clearly and efficiently in oral and written presentations. Adapting to audiences and communication aims by using suitable strategies and means.

05 TEQ N3. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.

06 URI N3. EFFECTIVE USE OF INFORMATION RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.

07 AAT N3. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.

03 TLG. 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.
Learning objectives of the subject

At the end of the course “Airline Management, Transport Analysis and Ethics on Transportation”, the student has to be able to:
1. To do analytical models to determine causal dynamics in transportation systems, very useful for decision making in the field of strategic thinking (p.e. demand models, trajectory charts, N-t, etc.).
2. To develop analytical and numerical models with computer for the analysis and decision making in the airline industry (p.e. fleet assignment, aircraft routing, etc.).
3. To know the functional areas of the airline and to develop analysis of them.
4. To understand the airline’s business model and to develop integrated analysis.
5. To develop critical thinking for the evaluation of airline’s strategy and making decisions, integrating fundamentals of applied ethics.
6. To understand the professional activity with ethical perspective.

Study load

<table>
<thead>
<tr>
<th>Total learning time: 75h</th>
<th>Hours large group: 24h</th>
<th>32.00%</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Guided activities: 9h</td>
<td>12.00%</td>
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<tr>
<td></td>
<td>Self study: 42h</td>
<td>56.00%</td>
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Content

<table>
<thead>
<tr>
<th>Block 1. Transport.</th>
<th>Learning time: 25h 30m</th>
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<tbody>
<tr>
<td></td>
<td>Theory classes: 10h</td>
</tr>
<tr>
<td></td>
<td>Guided activities: 1h 30m</td>
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<tr>
<td></td>
<td>Self study: 14h</td>
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</tbody>
</table>

Description:
Block 1. Analysis of transportation systems (1ECTS). Modelling and analysis tools:
- Analytical models of transportation systems, which allow to develop causal models with only few variables. P.e.: trajectory charts, network models, N-t charts...
- Numerical models for decision making. P.e.: models of assignment.
- Demand models.
- Network and routing models. Location theory.
- Models for decision making. P.e.: decision trees, game theory, utility-risk.

Related activities:
Activity 1. Theory of analysis of transportation systems.
Activity 2. Exercises of analysis of transportation systems.

Specific objectives:
To acquire knowledge for the analysis of transportation systems.

<table>
<thead>
<tr>
<th>Block 2. Airline Management</th>
<th>Learning time: 25h 30m</th>
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<tbody>
<tr>
<td></td>
<td>Theory classes: 10h</td>
</tr>
<tr>
<td></td>
<td>Guided activities: 1h 30m</td>
</tr>
<tr>
<td></td>
<td>Self study: 14h</td>
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Description:
Block 3. Airline Management (1ECTS). The main objective is to know how the airline works from the perspective of three functional areas:
- Analysis of market and demand.
- Analysis of the operational model.
- Analysis of economic and financial performance.

Related activities:
Activity 3. Theory and practice of airline management as company of air transport industry, with master classes, participatory classes, autonomous and team work.

Specific objectives:
To understand the airline and its different functional areas.
**Block 3. Ethics on transportation.**

**Learning time:** 24h  
- Theory classes: 10h  
- Self study: 14h

**Description:**  
Block 3. Ethics on transportation (1ECTS). The purpose is to foster critical thinking and provide tools to position oneself in front of ethical dilemmas and to be able to develop a work in which the ethical dimension is integrated into the decision making and the definition of strategic plans.

**Related activities:**  
Activity 4. Dialogs about ethics in the management of transportation systems and the professional exercise, based on readings, master classes, participatory classes with the methodology of dialogs.

**Specific objectives:**  
To learn about ethics and to integrate it in professional activity.

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**Qualification system**

Defined in the course webpage at the EETAC website.
Bibliography

Basic:


Complementary:


