220353 - Architecture and Aircraft Systems

Coordinating unit: 205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 220 - ETSEIAT - Terrassa School of Industrial and Aeronautical Engineering
Academic year: 2017
Degree: MASTER'S DEGREE IN AERONAUTICAL ENGINEERING (Syllabus 2014). (Teaching unit Optional)
MASTER'S DEGREE IN SPACE AND AERONAUTICAL ENGINEERING (Syllabus 2016). (Teaching unit Optional)
ECTS credits: 5
Teaching languages: English

Teaching staff
Coordinator: Carlos Esbri

Degree competences to which the subject contributes

Specific:
CEEVEHI1. MUEA/MAS: Sufficient applied knowledge of advanced, experimental and computational aerodynamics (specific competency for the specialisation in Aerospace Vehicles).
CEEVEHI2. MUEA/MAS: Sufficient applied knowledge of the aeroelasticity and structural dynamics of aircraft (specific competency for the specialisation in Aerospace Vehicles).
CEEVEHI3. MUEA/MASE: Applied knowledge of composite materials technology and a capacity for designing the basic elements of these materials (specific competency for the specialisation in Aerospace Vehicles).

Teaching methodology

The course is divided into parts:
Theory classes
Practical classes
Self-study for doing exercises and activities.
In the theory classes, teachers will introduce the theoretical basis of the concepts, methods and results and illustrate them with examples appropriate to facilitate their understanding.
In the practical classes (in the classroom), teachers guide students in applying theoretical concepts to solve problems, always using critical reasoning. We propose that students solve exercises in and outside the classroom, to promote contact and use the basic tools needed to solve problems.
Students, independently, need to work on the materials provided by teachers and the outcomes of the sessions of exercises/problems, in order to fix and assimilate the concepts.
The teachers provide the syllabus and monitoring of activities (by ATENEA).

Learning objectives of the subject

To know the different systems that integrate an aeroplane, his architecture and operation.
To understand the structural design of an aeroplane.
# 220353 - Architecture and Aircraft Systems

## Study Load

<table>
<thead>
<tr>
<th>Total learning time: 125h</th>
<th>Hours large group: 30h</th>
<th>24.00%</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Hours small group: 15h</td>
<td>12.00%</td>
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<tr>
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<td>Self study: 80h</td>
<td>64.00%</td>
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## Content

### Module 1: Power Systems

**Description:**
- Hydraulic
- Pneumatic
- Electrical

**Related activities:**
- Activity 1: Classes of theory
- Activity 2: Partial examination

**Learning time:** 37h
- Theory classes: 12h
- Self study: 25h

### Module 2: Representative Systems

**Description:**
- Flight control
- Air conditioning
- Fuel

**Related activities:**
- Activity 1: Classes of theory
- Activity 3: final examination

**Learning time:** 38h
- Theory classes: 13h
- Self study: 25h
### Module 3: Structure

**Learning time:** 20h  
- Theory classes: 5h  
- Self study: 15h

**Description:**  
- Introduction to aircraft structure:  
- Fuselage  
- Wings  
- Pylons  
- Doors

**Related activities:**  
- Activity 1: Classes of theory  
- Activity 3: Final examination

### Module 4: Development work

**Learning time:** 30h  
- Practical classes: 15h  
- Self study: 15h

**Description:**  
- Work to develop a system to be exposed

**Related activities:**  
- Activity 4: Oral exposition

### Qualification system

NF = 0,40 EP + 0,40 EF + 0,20 TD  
NF: Final score  
EP: Partial examination  
EF: Final examination  
TD: Development work

### Bibliography