300239 - EDA - Airport Buildings

Coordinating unit: 300 - EETAC - Castelldefels School of Telecommunications and Aerospace Engineering
Teaching unit: 751 - DECA - Department of Civil and Environmental Engineering
Academic year: 2018
Degree: BACHELOR'S DEGREE IN AIRPORT ENGINEERING (Syllabus 2010). (Teaching unit Compulsory)
BACHELOR'S DEGREE IN AEROSPACE SYSTEMS ENGINEERING (Syllabus 2015). (Teaching unit Optional)
BACHELOR'S DEGREE IN AEROSPACE SYSTEMS ENGINEERING/BACHELOR'S DEGREE IN TELECOMMUNICATIONS SYSTEMS ENGINEERING (Syllabus 2015). (Teaching unit Optional)
BACHELOR'S DEGREE IN AEROSPACE SYSTEMS ENGINEERING/BACHELOR'S DEGREE IN NETWORK ENGINEERING (Syllabus 2015). (Teaching unit Optional)
ECTS credits: 6

Teaching languages: Catalan, Spanish

Teaching staff
Coordinator: Pelà, Luca
Others: Roca Fabregat, Pedro
         Molins Borrell, Climent
         Villalba Herrero, Vicente

Opening hours
Timetable: To make inquiries to the teachers, the students will be taken care of in leaving the class and, if it is not possible, they will arrange an appointment with the teacher through the email, in a schedule that is suitable for both.

Prior skills
Knowledge of statics, structures and resistance of materials. Materials technology.

Requirements
Continuum and Structural Mechanics.

Degree competences to which the subject contributes

Specific:
1. 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)
2. CE 21 AEROP. Conocimiento adecuado y aplicado a la Ingeniería de: La normativa específica de edificación; los procedimientos de control y ejecución de obras; el funcionamiento y la gestión del aeropuerto y el transporte aéreo. (CIN/308/2009, BOE 18.2.2009)
3. CE 22 AEROP. Conocimiento adecuado y aplicado a la Ingeniería de: Los métodos de cálculo y de desarrollo de las diferentes soluciones de edificación y pavimentación de aeropuertos; el cálculo de los sistemas específicos de los aeropuertos y sus infraestructuras; la evaluación de las actuaciones técnicas y económicas de las aeronaves; el manejo de las técnicas experimentales, equipamiento e instrumentos de medida propios de la disciplina; las técnicas de inspección, de control de calidad y de detección de fallos; los planes de seguridad y control en aeropuertos.
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(CIN/308/2009, BOE 18.2.2009)

4. CE 23 AEROP. Conocimiento aplicado de: edificación; electricidad; electrotecnia; electrónica; mecánica del vuelo; hidráulica; instalaciones aeroportuarias; ciencia y tecnología de los materiales; teoría de estructuras; mantenimiento y explotación de aeropuertos; transporte aéreo, cartografía, topografía, geotecnia y meteorología. (CIN/308/2009, BOE 18.2.2009)

5. CE 7 AERO. Comprender el comportamiento de las estructuras ante las solicitaciones en condiciones de servicio y situaciones límite. (CIN/308/2009, BOE 18.2.2009)

Teaching methodology

The course consists of five hours a week of classes in the classroom. These hours are devoted to (1) the presentation of theoretical issues, where the teacher explains the concepts and materials for the course. This aspect represents 65% of the time devoted to classes. (2) the description and discussion of practical exercises (20% of the time), and (3) exercises and tests assessed (15% of the time). The course includes also a technical visit related to the subject matter of the course. In addition, the student must perform a number of exercises related to various topics of the course, as part of the guided activities to do outside the classroom. These exercises are evaluated. Support material is supplied in the form of detailed syllabus provided by the virtual campus ATENEA: contents, schedule of evaluation activities, guided learning and literature.

Learning objectives of the subject

Knowledge of the design, calculation, construction and maintenance of airport construction works regarding the structure and foundation structures, finishes and facilities.

Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 27h</th>
<th>18.00%</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group: 15h</td>
<td>10.00%</td>
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<tr>
<td></td>
<td>Guided activities: 24h</td>
<td>16.00%</td>
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<tr>
<td></td>
<td>Self study: 84h</td>
<td>56.00%</td>
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</tbody>
</table>
### Content

<table>
<thead>
<tr>
<th>THE BUILDING AND ITS SUBSYSTEMS</th>
<th>Learning time: 24h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 3h</td>
</tr>
<tr>
<td></td>
<td>Practical classes: 2h</td>
</tr>
<tr>
<td></td>
<td>Guided activities: 2h</td>
</tr>
<tr>
<td></td>
<td>Self study: 17h</td>
</tr>
</tbody>
</table>

#### Description:

#### Related activities:
Individual (mandatory) assignment 1

#### Specific objectives:
Knowledge of features, elements and systems that constitute a building of the airport. Analysis of the problems arising from the interaction between the various subsystems (enclosures, installations and structures) and the main arrangements that allow optimize the overlap in the building. Knowledge of basic aspects of the life cycle of the building.
### PHYSICS OF THE BUILDING

**Learning time:** 24h
- Theory classes: 3h
- Practical classes: 2h
- Guided activities: 2h
- Self study: 17h

### Description:

### THE PROTECTIVE SYSTEM

<table>
<thead>
<tr>
<th>Description:</th>
<th>Learning time: 24h</th>
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</table>
Practical classes: 2h  
Guided activities: 2h  
Self study: 17h |

### Specific objectives:
Understanding the problems resulting from the contact between the structural and protective layers. Presentation of the problems of conventional solutions and offer optimal solutions. Presentation of the main types of solutions for façades, roofs and partitions, with their advantages and disadvantages.
## Structural Elements

<table>
<thead>
<tr>
<th>Description:</th>
<th>Learning time: 57h</th>
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<tbody>
<tr>
<td></td>
<td>Practical classes: 8h</td>
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<tr>
<td></td>
<td>Guided activities: 16h</td>
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<td>Self study: 17h</td>
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CONSTRUCTION OF AIRPORT BUILDINGS

Learning time: 21h
- Theory classes: 2h
- Practical classes: 1h
- Guided activities: 2h
- Self study: 16h

Description:
A review of the structural systems in buildings used in airport terminals, technical modules, towers and hangars.
Systems of construction of buildings, technologies in the concrete construction, systems of formwork.
Basic aspects of quality control of the buildings.

Specific objectives:
- Knowledge of structural systems applied to airport buildings.
- Knowledge of procedures used in construction of airport buildings: technology of placement of concrete formwork systems, quality control, etc.

Planning of activities

<table>
<thead>
<tr>
<th>Mid-term Exam</th>
<th>Hours: 1h 30m</th>
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<tr>
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<td>Guided activities: 1h 30m</td>
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Description:
Mid-term exam about the first part of the course

Specific objectives:
Continuous evaluation of Students

<table>
<thead>
<tr>
<th>Final exam</th>
<th>Hours: 1h 30m</th>
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<tr>
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<td>Guided activities: 1h 30m</td>
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</table>

Specific objectives:
Final assessment of students

<table>
<thead>
<tr>
<th>Visita Técnica</th>
<th>Hours: 3h</th>
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<tr>
<td></td>
<td>Guided activities: 3h</td>
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Description:
Technical visit related to objectives and contents of the course

Qualification system

Apply the evaluation criteria defined in Infoweb of the course.
Regulations for carrying out activities

Exams and exercises are to be submitted individually, unless expressly indicated otherwise.

Bibliography

Basic:


