Last update: 29-01-2019

300252 - GMA-MP8 - Airport Maintenance and Management

Coordinating unit: 300 - EETAC - Castelldefels School of Telecommunications and Aerospace Engineering

Teaching unit:

Academic year: 2018

Degree: 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: Spanish

Teaching staff

Coordinator: Definit a la infoweb de l'assignatura.

Others: Definit a la infoweb de l'assignatura.

Opening hours

Timetable: Consultations by appointment. Opening hours: 1 hour before the start of the class.

Prior skills

Basic knowledge about:
- airport engineering (design and construction of airports).
- airport buildings (terminals, parking, tower, hangar...).
- geotechnics
- Planning and processes at the airport
- Managerial economics, micro and macroeconomics.
- International agreements in commercial aviation.
- Material of construction, concrete, cement, pavements, installation of communication, electrical installation at the airport.

It is recommended that you have passed these courses:
- Airport engineering (EA).
- Electrical Installations (FIX).
- Planning and processes at airports (PPA).
- Airport buildings (EA).

Requirements

This courses have passed:
- Installations of communication (FIX).
- Geotechnics (G).

Degree competences to which the subject contributes

Basic:

CB3. (ENG) CB3 - Que los estudiantes tengan la capacidad de reunir e interpretar datos relevantes (normalmente dentro de su área de estudio)

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para emitir juicios que incluyan una reflexión sobre temas relevantes de índole social, científica o ética

Generical:

CG3. (ENG) CG3 - Instalación, explotación y mantenimiento en el ámbito de la ingeniería aeronáutica que tengan por objeto, de acuerdo con los conocimientos adquiridos, los vehículos aeroespaciales, los sistemas de propulsión aeroespacial, los materiales aeroespaciales, las infraestructuras aeroportuarias, las infraestructuras de aeronavegación y cualquier sistema de gestión del espacio, del trafico y del transporte aéreo.

CG2. (ENG) CG2 - Planificación, redacción, dirección y gestión de proyectos, cálculo y fabricación en el ámbito de la ingeniería aeronáutica que tengan por objeto, de acuerdo con los conocimientos adquiridos, los vehículos aeroespaciales, los sistemas de propulsión aeroespacial, los materiales aeroespaciales, las infraestructuras aeroportuarias, las infraestructuras de aeronavegación y cualquier sistema de gestión del espacio, del trafico y del transporte aéreo.

CG7. (ENG) CG7 - Capacidad de analizar y valorar el impacto social y medioambiental de las soluciones técnicas.

CG10. (ENG) CG10 - Gestionar proyectos. Establecer los objetivos de un proyecto, planificar adecuadamente los recursos y las tareas. Realizar un seguimiento del proyecto y una evaluación de los resultados del mismo. Utilizar adecuadamente herramientas de soporte a la gestión de proyectos (competencia propia de la escuela).

Transversal:

02 SCS N1. 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.

02 SCS N2. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 2. Applying sustainability criteria and professional codes of conduct in the design and assessment of technological solutions.

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.

06 URI N3. EFFECTIVE USE OF INFORMATI0N 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.

Teaching methodology

- Master classes.
- Parcipatory classes.
- Project based learning.
- Autonomous work.
- Cooperative work.

Learning objectives of the subject

At the end of this course, the student has to be able to:

- Analize the airport system with transport system approach: supply - demand interaction.
- Analize the airport system with business approach: marketing, operation, economic-finance and organization.
- Design and implement the strategy. Strategic Maps and Balance Score Card.
- Analize the airport with the approach of sustainability: economic, social and environment. Fundamentals of ethics in transport infrastructures management.
- Identify the specific normative for edification, procedures of maintenance i conservation of infrastructures.
- Know and apply the inspection techniques, quality control and fail detection, safety and controlling plans at airports.

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Study load

Total learning time: 150h	Hours large group:	60h	40.00%
	Guided activities:	6h	4.00%
	Self study:	84h	56.00%

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Content

Airport Management

Learning time: 75h

Theory classes: 30h
Guided activities: 3h
Self study : 42h

Description:

Airport management in terms of transport infrastructure oriented to the service and business operation.
U01. Introduction to airport management.
U02. Financial perspective at airports. Investment, balance sheet and income statement in the airport business.
U03. Marketing perspective: the airport as a service, positioning and market development company.
U04. Perspective of operations at the airport. Processes and operational decisions.
U05 Competitiveness in airports. Introduction to regulation, game theory, principal-agent, public-private participation.
U06. Airport pricing.
U07. Perspective of organization. Structure and functions.
U08. Social responsibility of the airport.
U09. Geostrategic perspective. The airport in the global context.
U10. Digitization of the airport. Smart Airport and business intelligence.
U11. Airport, system and network. Multiairport systems.
U12. Management of airport facilities.

Related activities:

The operation of this block of the subject will be based on master classes by the teacher with a lot of student participation.
To do this, a few readings will be provided and a masterly presentation of a topic will be made, to end with a participatory work in the class that integrates the concepts learned.

This block involves the realization of two evaluable activities, based on practical group work (case study version). Each job involves the delivery of a report and a brief presentation in the class.
As a guide:
1. The handling concession.
2. Aena as airport manager.
3. The management model of Canadian airports.
4. Airports in London. Between the BAA and the CAA.

Specific objectives:

- Analyze an airport system from a transport system approach: supply and demand reserve.
- Analyze an airport system from a business approach: marketing, operation, economic-financial and organization.
- Strategy design and implementation. Strategic maps and scorecards.
- Analyze the airport in terms of sustainability: economic, social and environmental. Fundamentals of ethics and engineering.

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Maintenance of the airport	Learning time: 75h Theory classes: 30h Guided activities: 3h Self study : 42h

Description:
This block is focused on studying the maintenance and conservation of airport infrastructure. To do this, three work units are proposed:
U01. Structures at the airport: structural typology and functional design program of the structure. Maintenance and conservation of the structure. Structural pathologies.
U02. Airport signs: types of signs and use. Conservation and maintenance of the firm. Pathologies in the roadways in airports.
U03. Land: conservation during the exploitation of the infrastructure (water table, underground hydrology, settlements, consolidation, etc.). Measurements in the field (both of the mentioned phenomena and of the topography of the terrain -basic concept-).

Related activities:
The operation of this block of the subject will be based on master classes by the teacher, which will assess the active participation of students.
For this, previous material will be provided and a masterful presentation of a topic will be made during the session.

Specific objectives:
- Identify the specific building regulations, maintenance procedures and infrastructure conservation.
- Know and apply inspection techniques, quality control and fault detection, security and control plans at airports

Qualification system

Defined in the course webpage at the EETAC website.

Bibliography

Basic:

de Neufville, Richard; Odoni, Amedeo R. Airport systems : planning design, and management. 2nd ed. New York: McGraw-Hill, cop. 2013. ISBN 9780071770583.

García Cruzado, Marcos. Ingeniería aeroportuaria. 3ª ed. Madrid: Escuela Técnica Superior de Ingenieros Aeronáuticos, DL 2006. ISBN 8486402077.