UNIVERSIDAD DE CASTILLA - LA MANCHA

GUÍA DOCENTE

1. General information

Course: AIR NAVIGATION SYSTEM ARCHITECTING
Code: 56731
Type: CORE COURSE
ECTS credits: 6
Degree: 403 - UNDERGRADUATE DEGREE PROGRAMME IN AEROSPACE ENGINEERING
Academic year: 2023-24
Center: 303 - E.DE INGENIERÍA INDUSTRIAL Y AEROESPOACIAL DE TOLEDO
Group(s): 40
Year: 4
Duration: First semester
Main language: Spanish
Second language:
Use of additional languages:
English Friendly: N
Web site:
Bilingual: N

Lecturer: **DAVID DE LA CRUZ CASTILLA** - Group(s): **40**

Building/Office	Department	Phone number	Email	Office hours
	MECÁNICA ADA. E ING. PROYECTOS		David.delaCruz@uclm.es	

Lecturer: **LUIS SANCHEZ RODRIGUEZ** - Group(s): **40**

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2. Pre-Requisites

Not established

3. Justification in the curriculum, relation to other subjects and to the profession

Not established

4. Degree competences achieved in this course

Course competences

Code	Description
CA01	Ability to carry out bibliographic searches, use databases and other sources of information for its application in tasks related to Technical Aeronautical Engineering.
CA02	Ability to efficiently design experimentation procedures, interpret the data obtained and specify valid conclusions in the field of Aeronautical Technical Engineering.
CA03	Ability to autonomously select and carry out the appropriate experimental procedure, operating the equipment correctly, in the analysis of phenomena within the scope of Engineering.
CA04	Ability to select advanced tools and techniques and their application in the field of Aeronautical Technical Engineering.
CA05	Knowledge of the methods, techniques and tools as well as their limitations in the application for the resolution of problems typical of Aeronautical Technical Engineering.
CA06	Ability to identify and assess the effects of any solution in the field of Aeronautical Technical Engineering within a broad and global context and the ability to interrelate the solution to an engineering problem with other variables beyond the technological field, which must be considered.
CB02	Apply their knowledge to their job or vocation in a professional manner and show that they have the competences to construct and justify arguments and solve problems within their subject area.
CB03	Be able to gather and process relevant information (usually within their subject area) to give opinions, including reflections on relevant social, scientific or ethical issues.
CB04	Transmit information, ideas, problems and solutions for both specialist and non-specialist audiences.
CB05	Have developed the necessary learning abilities to carry on studying autonomously
CE09	Knowledge of the global nature of the air navigation system and the complexity of air traffic.
CE13	Knowledge of the singularity of the infrastructures, buildings and operation of airports.
CE14	Knowledge of the air transport system and coordination with other modes of transport.
CE17	Knowledge applied to engineering of: The fundamental elements of the various types of aircraft; the functional elements of the air navigation system and the associated electrical and electronic installations; the fundamentals of airport design and construction and its various elements.
CE19	Applied knowledge of: materials science and technology; mechanics and thermodynamics; fluid mechanics; aerodynamics and mechanics of flight; air traffic and navigation systems; aerospace technology; structure theory; air Transport; economy and production; Projects; environmental impact.
CG01	Capacity for the design, development and management in the field of aeronautical engineering that have as their object, in accordance with the knowledge acquired as established in section 5 of order CIN/308/2009, aerospace vehicles, propulsion systems aerospace, aerospace materials, airport infrastructures, air navigation infrastructures and any space, traffic and air transport management system.
CG02	Planning, drafting, direction and management of projects, calculation and manufacturing in the field of aeronautical engineering that have as their object, in accordance with the knowledge acquired as established in section 5 of order CIN/308/2009, aerospace vehicles , aerospace propulsion systems, aerospace materials, airport infrastructures, air navigation infrastructures and any space, traffic and air transport management system.
CG03	Installation, operation and maintenance in the field of aeronautical engineering that have as their object, in accordance with the knowledge acquired as established in section 5 of order CIN/308/2009, aerospace vehicles, aerospace propulsion systems, materials

	aerospace, airport infrastructure, air navigation infrastructure and any space, traffic and air transport management system.
CG04	Verification and Certification in the field of aeronautical engineering that have as their object, in accordance with the knowledge acquired as established in section 5 of order CIN/308/2009, aerospace vehicles, aerospace propulsion systems, aerospace materials , airport infrastructures, air navigation infrastructures and any space, traffic and air transport management system.
CG07	Ability to analyze and assess the social and environmental impact of technical solutions.
CG08	Knowledge, understanding and ability to apply the necessary legislation in the exercise of the profession of Aeronautical Technical Engineer.
CT01	Knowledge of technical vocabulary of subjects related to aerospace engineering, in a second foreign language.
CT02	Knowledge and application of Information and Communication Technologies (ICT).
CT03	Correct use of oral and written communication.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

6. Units / Contents

Unit 1:

Unit 2:

Unit 3:

Unit 4:

Unit 5:

Unit 6:

Unit 7:

Unit 8:

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures	CA01 CA02 CA03 CA04 CA05 CA06 CB02 CB03 CB04 CB05 CE09 CE13 CE14 CE17 CE19 CG01 CG02 CG03 CG04 CG07 CG08 CT01 CT02 CT03	1.64	41	N	-	
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	CA01 CA02 CA03 CA04 CA05 CA06 CB02 CB03 CB04 CB05 CE09 CE13 CE14 CE17 CE19 CG01 CG02 CG03 CG04 CG07 CG08 CT01 CT02 CT03	0.6	15	N	-	
Writing of reports or projects [OFF-SITE]	Project/Problem Based Learning (PBL)	CA01 CA02 CA03 CA04 CA05 CA06 CB02 CB03 CB04 CB05 CE09 CE13 CE14 CE17 CE19 CG01 CG02 CG03 CG04 CG07 CG08 CT01 CT02 CT03	0.6	15	Y	Y	
Study and Exam Preparation [OFF-SITE]	Self-study	CA01 CA02 CA03 CA04 CA05 CA06 CB02 CB03 CB04 CB05 CE09 CE13 CE14 CE17 CE19 CG01 CG02 CG03 CG04 CG07 CG08 CT01 CT02 CT03	3	75	N	-	
Final test [ON-SITE]	Assessment tests	CA01 CA02 CA03 CA04 CA05 CA06 CB02 CB03 CB04 CB05 CE09 CE13 CE14 CE17 CE19 CG01 CG02 CG03 CG04 CG07 CG08 CT01 CT02 CT03	0.16	4	Y	Y	
		Total:	**6**	**150**			
		Total credits of in-class work: 2.4					**Total class time hours: 60**
		Total credits of out of class work: 3.6					**Total hours of out of class work: 90**

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

8. Evaluation criteria and Grading System

Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Theoretical papers assessment	20.00%	20.00%	
Oral presentations assessment	10.00%	10.00%	

Final test	70.00%	70.00%	
Total:	**100.00%**	**100.00%**	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject , an ordinary and an extraordinary one (evaluating 100% of the competences).

9. Assignments, course calendar and important dates

Not related to the syllabus/contents

Hours	**hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	41
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	15
Writing of reports or projects [AUTÓNOMA][Project/Problem Based Learning (PBL)]	15
Study and Exam Preparation [AUTÓNOMA][Self-study]	75
Final test [PRESENCIAL][Assessment tests]	4

Global activity

Activities	**hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	41
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	15
Writing of reports or projects [AUTÓNOMA][Project/Problem Based Learning (PBL)]	15
Study and Exam Preparation [AUTÓNOMA][Self-study]	75
Final test [PRESENCIAL][Assessment tests]	4
Total horas:	150

10. Bibliography and Sources

Author(s)	**Title/Link**	**Publishing house**	**Citv**	**ISBN**	**Year**	**Description**
OACI	Anexos OACI					
DIVISIÓN DE INFORMACIÓN AERONÁUTICA	Aeronautical Information Publication (Spain) https://aip.enaire.es/AIP/					
CIAIAC	Informes CIAIAC https://www.mitma.gob.es/organos-colegiados/ciaiac/publicaciones					