Universidad Carlos III de Madrid
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COURSE: Advanced Aircraft Design and Certification I		
DEGREE: Master in Aeronautical Engineering	**YEAR: 1st**	**TERM: 2nd**

La asignatura tiene 29 sesiones que se distribuyen a lo largo de 14 semanas. Los laboratorios pueden situarse en cualquiera de ellas. Semanalmente el alumnos tendrá dos sesiones, excepto en un caso que serán tres

WEEKLY PLANNING

WEEK	SESSION	DESCRIPTION	GROUPS (mark X)		SPECIAL ROOM FOR SESSION (Computer class room, audio-visual class room)	Indicate YES/NO If the session needs 2 teachers	WEEKLY PROGRAMMING FOR STUDENT		
			LECTURES	Case Study Exercices Group work			DESCRIPTION	CLASS HOURS	HOMEWORK HOURS (Max. 7h week)
1	1	Introduction to the Course/Introduction to FEA and review of elasticity	X			YES	Reading corresponding notes chapters	1,6	5
1	2	Introduction to finite element modeling. Review of the principle of virtual work.	X			NO	Study and personal work about the lecture	1,6	
2	3	Displacement method and application to discrete systems. Bar (or rod) element.	X	X		NO	Study and personal work about the lecture	1,6	5
2	4	Bar element. Up to potential energy approach. Exercise of matrix assembly	X	X		NO	Study and personal work about the lecture	1,6	
3	5	Computer room 1. For springs and Bars		X	X	NO	Solve the proposed exercises/group work	1,6	7

3	6	Weighted residual approach for bars and determination of K. Application of Galerkin method to diff. equation.	X	X		NO	Study and personal work about the lecture	1,6	
4	7	Beam element	X			NO	Study and personal work about the lecture	1,6	5
4	8	Beam element 2 (load distribution) And some examples	x	X		NO	Study and personal work about the lecture	1,6	
5	9	Computer room 2: beams + HW1			X	NO	Solve the proposed exercises/group work	1,6	5
5	10	Frames and grids	X	X		NO	Study and personal work about the lecture	1,6	
6	11	Computer room 3: frame and grids			x	NO	Solve the proposed exercises/group work	1,6	7
6	12	Plane stiffness. Triangular elements (CST)	X	X		NO	Study and personal work about the lecture	1,6	
7	13	Rectangular elements and isoparametric formulation	X			NO	Study and personal work about the lecture	1,6	7
7	14	Computer room 4: plane elements + HW2			X	NO	Solve the proposed exercises/group work	1,6	
8	15	Practical considerations in FEM	X			NO	Reading corresponding notes chapters Study and personal work about the lecture	1,6	5
8	16	Aircraft certification processes. General Overview	X			NO	Solve the proposed exercises/group work	1,6	
9	17	Airworthiness Authorities and their Regulations: I CAO, Europe, USA, Spain, Militay AA	X			NO	Reading corresponding notes chapters Study and personal work about the lecture	1,6	7
9	18	Airworthiness Authorities and their Regulations: I CAO, Europe, USA, Spain, Militay AA	X			NO	Solve the proposed exercises/group work	1,6	
10	19	EASA Part 21	X			NO	Reading corresponding notes chapters Study and personal work about the lecture	1,6	7
10	20	Certification Specification	X	X		NO	Solve the proposed exercises/group work	1,6	
11	21	Type Certification	X			NO	Reading corresponding notes chapters Study and personal work about the lecture	1,6	5
11	22	Continuous Airworthiness: modifications; Part M and Part 145	X			NO	Solve the proposed exercises/group work	1,6	
12	23	Airframe certification plan (Start group Project)	X			NO	Reading corresponding notes chapters	1,6	7

							Study and personal work about the lecture		
12	24	Airframe certification Test program / Visit to Airbus		X		NO	Solve the proposed exercises/group work	1,6	
13	25	Project review in class		X		NO	Reading corresponding notes chapters Study and personal work about the lecture	1,6	7
13	26	Airframe certification Test program	X	X		YES	Solve the proposed exercises/group work	1,6	
14	27	Certification Documentation.	X			NO	Reading corresponding notes chapters Study and personal work about the lecture	1,6	5
14	28	Certification Documentation.	X	X		YES	Reporting and presentation	1,6	
15	29	Group Project Presentations		X		YES	Personal study	1,6	-
							Subtotal 1	**48,3**	**84**
							Total 1 *(Hours of class plus student homework hours between weeks 1-14)*	132.33	

15		Tutorials, handing in, etc							5
16		Assessment						6	35
17									
18									
							Subtotal 2	**6**	**40**
							Total 2 *(Hours of class plus student homework hours between weeks 15-18)*	46	

TOTAL *(Total 1 + Total 2. Maximum 180 hours)*	**178.33**