



COURSE: Advanced Aerodynamics		
DEGREE: Aerospace Engineering	YEAR: 4th	TERM: 1st

*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	SEMINARS			DESCRIPTION	CLASS HOURS	HOMEWORK HOURS (Max. 7h week)
1	1	Introduction/Scope of the course Experimental aerodynamics (1/2) - Physical similarity principle - Wind tunnel design	X					1,6	6.66
1	2	Experimental Aerodynamics (2/2) - Measurement and visualization techniques - Laboratory session (7.0.H05)		X				1,6	
2	3	Wings of finite span in incompressible flow 1/6 - Problem Statement - Basic solutions for 3D potential flow	X					1,6	7

2	4	Exercises (Point singularities)		X	computer			1,6	
3	5	Wings of finite span in incompressible flow 2/6 - Surface distribution of the basic 3D solutions - Green's formula	X					1,6	7
3	6	Exercises (Distributed singularities)		X	computer			1,6	
4	7	Wings of finite span in incompressible flow 3/6 - Numerical panel methods	X					1,6	7
4	8	Exercises: vring.m, hshoe.m and quadsorce.m		X	computer			1,6	
5	9	Wings of finite span in incompressible flow 4/6 - Lifting surface theory - The lift problem	X					1,6	7
5	10	Exercises (lift problem with the numerical lifting surface)		X	computer			1,6	
6	11	Wings of finite span in incompressible flow 5/6 - Slender wings - Non-potential effects on Delta wings	X					1,6	7
6	12	Exercises (slender wings)		X				1,6	
7	13	Wings of finite span in incompressible flow 6/6 - The thickness problem - Trefft plane	X					1,6	7
7	14	Exercises (trefft plane)		X				1,6	
8	15	Wings of finite span in subsonic flow - Linearization of the problem for compressible flows - Prandtl-Glauert Analogy - Review: Critical Mach number	X					1,6	7
8	16	Exercises (Prantld-Glauert)		X	computer			1,6	
9	17	Wings of finite span in supersonic flows 1/3 -Mach cone, Mach lines - Supersonic LE/TE - Fundamental Solutions: supersonic sources	X					1,6	7
9	18	Exercises (Numerical implementation of the thickness problem)		X	computer			1,6	
10	19	Wings of finite span in supersonic flows 2/3 - Evvard formula	X					1,6	7
10	20	Exercises		X				1,6	
11	21	Wings of finite span in supersonic flows 3/3 - Evvard-Krasilshchikova formula	X					1,6	7

11	22	Exercises		X				1,6	
12	23	Slender body theory	X					1,6	7
12	24	Exercises		X				1,6	
13	25	Introduction to hypersonic Aerodynamics (1/2)	X					1,6	7
13	26	Introduction to hypersonic Aerodynamics (2/2)		X				1,6	
14	27	Presentation of the projects (1/2)	X					1,6	7
14	28	Presentation of the projects (1/2)		X				1,6	
2	29	Laboratory session	X					1,6	0
Subtotal 1								48,33	97.66
Total 1 (Hours of class plus student homework hours between weeks 1-14)								146	

15		Tutorials, handing in, etc						14	
16		Assessment						3	14
17									
18									
Subtotal 2								3	
Total 2 (Hours of class plus student homework hours between weeks 15-18)								34	

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