

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

WEEKLY PLANNING								
WEEK	SESSION	DESCRIPTION	TEACHING (mark X)		SPECIAL ROOM FOR SESSION (Computer class room, audio-visual class room)	WEEKLY PROGRAMMING FOR STUDENT		
			L E C T U R E S	S E M I N A R S		DESCRIPTION	CLASS HOURS (1,66=50+50 min)	HOMEWORK HOURS (Max. Estim. 6,5h)
1	1	Introduction/Scope of the course Experimental aerodynamics (1/2) - Physical similarity principle - Wind tunnel design	X				1,66	6,5
	2	Experimental Aerodynamics (2/2) - Measurement and visualization techniques - Laboratory session (7.0.H05)		X	7.0.H05		1,66	
2	3	Wings of finite span in incompressible flow 1/6 - Problem Statement - Basic solutions for 3D potential flow	X				1,66	6,5
	4	Exercises: point singularities		X	computer		1,66	
3	5	Wings of finite span in incompressible flow 2/6 - Surface distribution of the basic 3D solutions - Green's formula	X				1,66	6,5
	6	Exercises: distributed singularities, quadsource.m and vring.m		X	computer		1,66	
4	7	Wings of finite span in incompressible flow 3/6 - Numerical panel methods	X				1,66	6,5
	8	Exercises: panel methods in XFLR5		X	computer		1,66	

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5	9	Wings of finite span in incompressible flow 4/6 - Lifting surface theory - The lift problem	X				1,66	6,5
	10	Exercises: the numerical lifting surface method		X	computer		1,66	
6	11	Wings of finite span in incompressible flow 5/6 - Slender wings - Non-potential effects on Delta wings	X				1,66	6,5
	12	Exercises: slender wings		X			1,66	
7	13	Wings of finite span in incompressible flow 6/6 - The thickness problem - Trefftz plane	X				1,66	6,5
	14	Exercises: Trefftz plane		X			1,66	
8	15	Wings of finite span in subsonic flow - Linearization of the problem for compressible flows - Prandtl-Glauert Analogy - Review: Critical Mach number	X				1,66	6,5
	16	Exercises: numerical thickness problem		X	computer		1,66	
9	17	Wings of finite span in supersonic flows 1/3 -Mach cone, Mach lines - Supersonic LE/TE - Fundamental Solutions: supersonic sources	X				1,66	6,5
	18	Exercises: Prandtl-Glauert analogy		X			1,66	
10	19	Wings of finite span in supersonic flows 2/3 - Evvard formula	X				1,66	6,5
	20	Exercises: numerical methods for supersonic wings		X	computer		1,66	
11	21	Wings of finite span in supersonic flows 3/3 - Evvard-Krasilshchikova formula	X				1,66	6,5
	22	Exercises: finite wings in supersonic regime		X			1,66	

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12	23	Slender body theory 1/2 -Problem formulation - Incompressible flow past a body of revolution	X				1,66	6,5
	24	Exercises: longitudinal forces in slender bodies		X			1,66	
13	25	Slender body theory 2/2 - Incompressible flow transversal to a body of revolution - Application of Prandtl-Glauert analogy to slender bodies	X				1,66	6,5
	26	Exercises: transversal forces in slender bodies		X			1,66	
14	27	Presentation of the projects (1/2)	X				1,66	6,5
	28	Presentation of the projects (2/2)	X				1,66	
	29	Laboratory session in the wind tunnel			7.0.H05		1,66	3,25
Subtotal 1							48	94
Total 1 (Hours of class plus student homework)							142	
15		Tutorials, handing in, etc					3,6	-
16	17 18	Assessment					4	10
Subtotal 2							8	10
Total 2 (Hours of class plus student homework)							18	
TOTAL (Maximun 160 horas)							160	