AME 105: Introduction to Aerospace Engineering

Textbook (req.): ***Introduction to Flight***, 8th ed., J. D. Anderson (2015) McGraw –Hill*
(rec.): ***The Simple Science Of Flight***, 2nd ed., H. Tennekes (2009) MIT Press**

Time: MWF 9:00-9:50 (Lecture) Tu ***or*** Th 11:00-12:20 (Lab)
Room: VHE 206 Lab Room: SAL 127

Lecture Schedule

Week	Dates	Lecture/Discussion Topic	Reading
1	Aug 22, 24, 26	Introduction/Engineering Fundamentals	Ch. 1 (history) Ch. 2 (basic physics, units)
3	Aug 29, 31 Sept 2	Eng. Fundamentals/Standard Atmosphere	Ch. 3 (std. atm.)
2	Sept 5 Sept 7, 9	**------- Labor Day Holiday -------** Introduction to Aerodynamics	Ch. 4.1-2 (continuity, compressibility)
4	Sept 12, 14 **Sept 16 (Q)**	Bernoulli/Air Speed Measurement	Ch. 4.3-4 (Euler and Bernouilli eq.), 10-11.1, 12.2 (pitot tubes)
5	Sept 19, 21 **Sept 23 (Q)**	Airfoils/Aerodynamic Coefficients I	Ch. 5.1-4 (airfoils, force coefficients, airfoil data)
6	Sept 26, 28 **Sept 30 (Q)**	Airfoils/Aerodynamic Coefficients II **— Begin Glider Project —-**	
7	Oct 3, 5 **Oct 7 (Q)**	Finite Wings/Induced Drag	Ch. 5.5-6 (basics) Ch. 5.13-15 (induced drag)
8	Oct 10, 12 **Oct 14 (Q)**	Real wings/Flaps/Wing Design	Ch. 5.17 (flaps) Ch. 5.20-24 (historical),
9	Oct 17, 19 *****Oct 21*****	Viscosity/Boundary Layers ****** Mid-Term Examination #1 ******	Ch. 4.15-16 (laminar boundary layers)
10	Oct 24, 26, 28	Drag/Separation/Turbulence	Ch. 4.20 (separation) Ch. 4.17, 19, 21 (turbulence)
11	Oct 31, Nov 2 **Nov 4 (Q)**	Aircraft Performance I	Ch. 6.1-3 (drag polar, thrust req.)
12	Nov 7, 9 **Nov 11**	Aircraft Performance II **---------- Glider Flight Tests ----------**	Ch. 6.3-6 (thrust and power)
13	Nov 14, 16 **Nov 18**	Stability and Control I	Ch. 6.14 (L/D) values Ch. 6.13-14 (range and endurance)
14	Nov 21 **Nov 23-25**	No lecture (APS Meeting) **——— Thanksgiving Recess ---------**	Ch. 7.1-6 (static stability, long.)
15	Nov 28, 30 Dec 2	High-Speed Flight Last class/Review	Ch. 5.6, 8-11 (compressibility)
***** *****	*****Dec 12***** *****(Monday)*****	******** Final Examination ******** ***** (11:00 a.m. – 1:00 p.m.) *****	

Professor:	G.R. Spedding	Grading:	HW/GLab/Project ….... 18/12/25%
Office:	OHE 430B		Mid-Term Exam …….. 10%
Telephone:	(213) 740-4132		Quizzes ……..…….. 10%
e-mail:	geoff@usc.edu		Final Exam …….. 25%

Office Hours	Prof Spedding T,Th 9:00-11:00 OHE 430B	Graphics TA: Luiz Toledo M,W 10 — noon VHE 202	Glider TA: Luiz Toledo

Initial guess. Dates correct. Material approximately correct. v1 Last modified Aug 5th 2016 GRS

* Required textbook can be any convenient edition from #4 onwards. Electronic ok. Also used in AME 261.

** Highly recommended. Read for fun. Cheap.