

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 21, 23, 25	Introduction/Engineering Fundamentals	Ch. 1 (history) Ch. 2 (basic physics, units)
3	Aug 28, 30 Sept 1 (Q)	Eng. Fundamentals/Standard Atmosphere	Ch. 3 (std. atm.)
2	Sept 4 Sept 6, 8	----- Labor Day Holiday ----- Introduction to Aerodynamics	Ch. 4.1-2 (continuity, compressibility)
4	Sept 11, 13 Sept 15 (Q)	Bernoulli/Air Speed Measurement	Ch. 4.3-4 (Euler and Bernoulli eq.), 10-11.1, 12.2 (pitot tubes)
5	Sept 18, 20 Sept 22 (Q)	Airfoils/Aerodynamic Coefficients I	Ch. 5.1-4 (airfoils, force coefficients, airfoil data)
6	Sept 25, 27 Sept 29 (Q)	Airfoils/Aerodynamic Coefficients II — Begin Glider Project —	
7	Oct 2, 4 Oct 6 (Q)	Finite Wings/Induced Drag	Ch. 5.5-6 (basics) Ch. 5.13-15 (induced drag)
8	Oct 9, 11 Oct 13 (Q)	Real wings/Flaps/Wing Design	Ch. 5.17 (flaps) Ch. 5.20-24 (historical),
9	Oct 16, 18 ***Oct 20***	Viscosity/Boundary Layers **** Mid-Term Examination #1 ****	Ch. 4.15-16 (laminar boundary layers)
10	Oct 23, 25, 27	Drag/Separation/Turbulence	Ch. 4.20 (separation) Ch. 4.17, 19, 21 (turbulence)
11	Oct 30, Nov 1 Nov 3 (Q)	Aircraft Performance I	Ch. 6.1-3 (drag polar, thrust req.)
12	Nov 6, 8 Nov 10	Aircraft Performance II ----- Glider Flight Tests -----	Ch. 6.3-6 (thrust and power)
13	Nov 13, 15 Nov 17	Stability and Control I	Ch. 6.14 (L/D) values Ch. 6.13-14 (range and endurance)
14	Nov 20 Nov 22-24	No lecture (APS Meeting) ———— Thanksgiving Recess ————	Ch. 7.1-6 (static stability, long.)
15	Nov 27, 29 Dec 1	High-Speed Flight Last class/Review	Ch. 5.6, 8-11 (compressibility)
*****	***Dec 11***	***** Final Exam *****	
*****	*** (Monday) ***	*** (11:00 a.m. – 1:00 p.m.) ***	

Professor: G.R. Spedding
Office: RRB 211
Telephone: (213) 740-0481
e-mail: geoff@usc.edu

Grading: HW/Glider Project 20/25%
(approx.) Mid-Term 15%
Quizzes 10%
Final 30%

Office Hours	Prof Spedding	Graphics TA: Yohanna Hanna	Glider TA: TBD
	M,W 1:00-pm — 3:00 pm RRB 211	Wed 4:30pm — 5:30pm Thu 3 - 4 pm VHE 202	

Initial guess. Dates correct. Material approximately correct. v1 Last modified Aug 15th 2017 GRS

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

** Highly recommended. Read for fun. Cheap.