

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)
 Room: VHE 206

Tu *or* Th 11:00-12:20 (Lab)
 Lab Room: SAL 127

Lecture Schedule

Week	Dates	Lecture/Discussion Topic	Reading
1	Aug 24, 26, 28	Introduction/Engineering Fundamentals	Ch. 1 (history) Ch. 2 (basic physics, units)
3	Aug 31 Sept 2 Sept 4 (Q)	Eng. Fundamentals/Standard Atmosphere	Ch. 3 (std. atm.)
2	Sept 7 Sept 9, 11	----- Labor Day Holiday ----- Introduction to Aerodynamics	Ch. 4.1-2 (continuity, compressibility)
4	Sept 14, 16 Sept 18 (Q)	Bernoulli/Air Speed Measurement	Ch. 4.3-4 (Euler and Bernoulli eq.), 10-11.1, 12.2 (pitot tubes)
5	Sept 21, 23 Sept 25 (Q)	Airfoils/Aerodynamic Coefficients I	Ch. 5.1-4 (airfoils, force coefficients, airfoil data)
6	Sept 28, 30 Oct 2 (Q)	Airfoils/Aerodynamic Coefficients II — Begin Glider Project —	
7	Oct 5, 7 Oct 9 (Q)	Finite Wings/Induced Drag	Ch. 5.5-6 (basics) Ch. 5.13-15 (induced drag)
8	Oct 12, 14 Oct 16 (Q)	Real wings/Flaps/Wing Design	Ch. 5.17 (flaps) Ch. 5.20-24 (historical),
9	Oct 19, 21 ***Oct 23***	Viscosity/Boundary Layers **** Mid-Term Examination #1 ****	Ch. 4.15-16 (laminar boundary layers)
10	Oct 26, 28, 30	Drag/Separation/Turbulence	Ch. 4.20 (separation) Ch. 4.17, 19, 21 (turbulence)
11	Nov 2, 4 Nov 6 (Q)	Aircraft Performance I	Ch. 6.1-3 (drag polar, thrust req.)
12	Nov 9, 11 Nov 13	Aircraft Performance II ----- Glider Flight Tests -----	Ch. 6.3-6 (thrust and power)
13	Nov 16, 18 Nov 20	Stability and Control I	Ch. 6.14 (L/D) values Ch. 6.13-14 (range and endurance)
14	Nov 23 Nov 25-27	Stability and Control II ----- Thanksgiving Recess -----	Ch. 7.1-6 (static stability, long.)
15	Nov 30, Dec 2 Dec 4	High-Speed Flight Last class/Review	Ch. 5.6, 8-11 (compressibility)
*****	***Dec 14*** *****	***** Final Examination ***** *** (11:00 a.m. – 1:00 p.m.) ***	

Professor: G.R. Spedding
Office: OHE 430B
Telephone: (213) 740-4132
e-mail: geoff@usc.edu

Grading: HW/GLab/Project 18/12/25%
Mid-Term Exam 10%
Quizzes 10%
Final Exam 25%

Office Hours	Prof Spedding T,Th 9:00-11:00 OHE 430B	Graphics TA: TBA T,Th 9:00 - 11:00 am VHE 202	Glider TA: TBA
---------------------	--	---	----------------

Initial guess. Dates correct. Material approximately correct. v1 Last modified May 26th 2015 GRS

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

** Highly recommended. Read for fun. Cheap.