AME 105: Introduction to Aerospace Engineering

Textbook (req.): ***Introduction to Flight***, 6th ed., J. D. Anderson (2008) McGraw –Hill
(rec.): ***The Simple Science Of Flight***, 2nd ed., H. Tennekes (2009) MIT Press

Meeting Time: MWF 10:00-10:50 (Lecture) Tu ***or*** Th 11:00-12:20 (Lab)
Lecture Room: GFS 101 Lab Room: SAL 127

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

Grading:
HW/GLab/Project …..... 15/15/25%
Mid-Term Exam …….. 10%
Quizzes ……..…….. 10%
Final Exam …….. 25%

Lecture Schedule

Week	Dates	Lecture/Discussion Topic	Reading
1	Aug 23, 25, 27	Introduction/Engineering Fundamentals	Ch. 1 (history) Ch. 2 (basic physics, units)
2	Aug 30, Sept 1, 3	Eng. Fundamentals/Standard Atmosphere	Ch. 3 (std. atm.)
3	**Sept 6** Sept 8 **Sept 10 (Q)**	**------- Labor Day Holiday -------** Introduction to Aerodynamics	Ch. 4.1-2 (continuity, compressibility)
4	Sept 13, 15 **Sept 17 (Q)**	Bernoulli/Air Speed Measurement	Ch. 4.3-4 (Euler and Bernouilli eq.), 10-11.1, 12.2 (pitot tubes)
5	Sept 20, 22 **Sept 24 (Q)**	Airfoils/Aerodynamic Coefficients I	Ch. 5.1-4 (airfoils, force coefficients, airfoil data)
6	Sept 27, 29 **Oct 1 (Q)**	Airfoils/Aerodynamic Coefficients II	
7	Oct 4, 6 **Oct 8 (Q)**	Finite Wings/Induced Drag	Ch. 5.5-6 (basics) Ch. 5.13-15 (induced drag)
8	Oct 11, 13 **Oct.15 (Q)**	Real wings/Flaps/Wing Design	Ch. 5.17 (flaps) Ch. 5.20-24 (historical),
9	Oct 18, 20 ***Oct 22***	Viscosity/Boundary Layers **** Mid-Term Examination #1 ****	Ch. 4.15-16 (laminar boundary layers)
10	Oct 25, 27, 30	Drag/Separation/Turbulence	Ch. 4.20 (separation) Ch. 4.17, 19, 21 (turbulence)
11	Nov 1, 3 **Nov 5**	Aircraft Performance I **---------- Glider Flight Tests ----------**	Ch. 6.1-3 (drag polar, thrust req.)
12	Nov 8, 10 **Nov 12 (Q)**	Aircraft Performance II	Ch. 6.3-6 (thrust and power)
13	Nov 15, 17, 19	Aircraft Performance III	Ch. 6.14 (L/D) values Ch. 6.13-14 (range and endurance)
14	Nov 22 **--- Nov 24-26 ---**	**---------- Thanksgiving Recess ----------**	[Hand in Glider Report on 24th]
15	Nov 29, Dec 1 Dec 3	Stability and Control/High-Speed Flight Last class/Review	Ch. 7.1-6 (static stability, long.) Ch. 5.6, 8-11 (compressibility)
***** *****	***Dec 13*** ***(Monday)***	****** Final Examination ****** *** (11:00 a.m. – 1:00 p.m.) ***	

Office Hours	Prof Spedding T,Th 9:00-11:00	Graphics TA: Trevor Orr trevoror@usc.edu	Glider TA: Trevor Orr + TBA