

A&AE 490A/AT490B Flight Testing

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2. Textbook: *Introduction to Performance and Flying Qualities Flight Testing*,
Second Edition, by Sean C. Roberts, et al., National Test Pilot School,
1995.
3. Alternate Text: *Introduction to Aircraft Flight Test Engineering*, by Hubert C. Smith,
reprinted as JS312647C by Jeppesen Sanderson, Inc., 1988, available
by special order at amazon.com or the bookstore. (This text is more
understandable but less comprehensive than the other.)
4. Seating: Starting next class, keep the same seat throughout the semester.
5. Grading 7/9 of grade is based on homework and 7 flight experiments
2/9 of grade is based on team project.
6. I reserve the right to raise or lower your grade by as much as one letter grade based on
my judgment of your knowledge of the material in this course.
7. Course pre- or co-requisite for engineering students: A&AE 421 Flt. Dyn. and Control.
8. Class attendance is strongly recommended. You are responsible for obtaining notes
and assignments on days you miss.
9. We will cover all chapters 3-15, 18, and 19 of the text.

A&AE 490A/AT490 Bibliography

Advisory Group for Aeronautical Research and Development of NATO (AGARD), *Flight Test Manual*, Volumes I, II, III, ~1954, General Editor, Cortland D. Perkins.

AGARD, *Introduction to Flight Test Engineering*, AGARDograph No. 300, Volume 14 of AGARD Flight Test Techniques Series, 1995 (all the volumes in this series are useful).

AGARD, *Pressure and Flow Measurement*, AGARDograph No. 160, Volume 11 of AGARD Flight Test Instrumentation Series, 1980 (all 17 volumes in this series are useful).

Aiken, William S., Jr., *Standard Nomenclature for Airspeeds with Tables and Charts for Use in Calculation of Airspeed*, NACA Technical Note No. 1120, September 1946, also NACA Technical Report 837, 1946.

Asselin, Mario, *An Introduction to Aircraft Performance*, American Institute of Aeronautics and Astronautics (AIAA) Education Series, 1997.

Biezd, Daniel J., *Integrated Navigation and Guidance Systems*, AIAA Education Series, 1999.

Hodgkinson, John, *Aircraft Handling Qualities*, AIAA Education Series. 1999.

Huston, Wilber B., *Accuracy of Airspeed Measurements and Flight Calibration Procedures*, NACA Report No. 919, 1948.

Kayton, Myron and Fried, Walter R., *Avionics Navigation Systems*, Second Edition, Wiley-Interscience, 1997.

Lan, Chan-Tau and Roskam, Jan, *Airplane Aerodynamics and Performance*, Roskam Aviation and Engineering Corporation, 1980.

Layton, Donald, *Aircraft Performance*, Matrix Publishers, Inc., 1988.

Miele, Angelo, *Flight Mechanics Volume 1 Theory of Flight Paths*, Addison-Wesley Publishing Company, Inc., 1962.

Ojha, S. K., *Flight Performance of Aircraft*, AIAA Education Series, 1995.

Pamadi, Bandu N., *Performance, Stability, Dynamics, and Control of Airplanes*, AIAA Education Series, 1998.

Perkins, Courtland D. and Hage, Robert E., *Airplane Performance Stability and Control*, John Wiley and Sons, Inc., 1949.

Roskam, Jan, *Airplane Flight Dynamics and Automatic Flight Controls, Part I*, Roskam Aviation and Engineering Corporation, 1979.

Stinton, Darrol, *Flying Qualities and Flight Testing of the Airplane*, AIAA, 1996.

USAF Test Pilot School, *Flight Test Handbook. Performance: Theory and Flight Techniques*, AFFTC-TIH-79-1, 1979 (I don't yet have this).

USAF Test Pilot School, *Flight Test Handbook. Flying Qualities: Theory (Vol. 1) and Flight Test Techniques (Vol. 2)*, AFFTC-TIH-79-2, 1979 (I don't yet have this).

USAF Test Pilot School, *Stability and Control, Volume I of II, Stability and Control Flight Test Techniques*, AFFTC-TIH-74-2, July 1974.

Homework Policy

1. Homework is collected, graded, and returned.
2. NO LATE HOMEWORK IS ACCEPTED (unless your excuse makes me laugh or cry).
3. Cooperation on homework can be helpful in learning. Copying someone's homework will not be tolerated.
4. In reading assignments you are responsible for all material whether it is covered in class or not.
5. Homework Format:
 - a. Staple multiple pages together.
 - b. Every answer must contain physical units. (e.g. feet, seconds, slugs, etc.)
 - c. All answers and physical units must be enclosed in a box.
 - d. Answers should generally contain three significant digits (i.e. 2.15, 3.24×10^{-4}).
 - e. Do not hand in a paper pulled from a spiral binder.
 - f. Sketches defining coordinate directions, axis system, etc. are almost always required.

NOTES ON NOTE TAKING

1. Date all notes. This indicates the start and end of a lecture for comparison with other notes.
2. Copy everything written on board.
3. Learn to take notes verbally without waiting for the notes to be written by the professor.
4. Take notes on material not written on the board as well. At least jot down key ideas. Fill in the explanation at home.
5. Review, correct and *copy over* all notes shortly after class. Use the text to help. Any questions which result should be resolved. After this process the copied over notes should contain no errors and you should understand them thoroughly. Notes should be as thorough as a book.

Remarks

Step 5 is important if the class is being taught without a textbook.

My Responsibilities in this Course

1. Facilitate your learning the material of this course.
2. Help you develop into mature, confident, competent, ethical engineers and citizens. This involves material not found in the book or course description.
3. Evaluate your level of skill (assign a grade to your work).

Your responsibilities

1. Learn the material in this course.
2. Conduct yourself in an ethical manner regarding homework and tests and your relationships with colleagues and Purdue University.
3. Achieve the level of skill you are capable of.
4. Learn to speak and write effectively.
5. Survive till tomorrow.

Necessary Student Skills

1. Note taking from lectures.
2. Note taking from book.
3. Time management skills including regular reading, regular homework, and regular review of notes.
4. Learn to perform well in time restricted situations, e.g., quizzes and tests.

Useful Web Sites Relating to Flight Testing

US Navy

<http://flighttest.navair.navy.mil/>

USAF Edwards Air Force Base

<http://www.edwards.af.mil/>

<http://afftc.edwards.af.mil/>

[NASA](#)

<http://www.dfrc.nasa.gov>

<http://www.dfrc.nasa.gov/trc/ftintro/index.html>

Society of Flight Test Engineers

<http://www.sfte.org/>

Society of Experimental Test Pilots

<http://www.netport.com/setp/>

Calspan

<http://www.calspan.com/flight.html>

National Test Pilot School

<http://www.ntps.com/>

International Test and Evaluation
Association (ITEA)

<http://www.itea.org/>

Experimental Aircraft Association

<http://www.eaa.org/>

FEDERAL AVIATION
ADMINISTRATION

<http://www.faa.gov/>

<http://www.lockheedmartin.com/>

<http://www.boeing.com/>

Federal Aviation Regulations

http://www.faa.gov/avr/AFS/FARS/far_idx.htm

Private Pilot Training

[http://lights.chtm.unm.edu/~sারণan/aviation/training/training.html](http://lights.chtm.unm.edu/~sarangan/aviation/training/training.html)

Jeppesen

<http://www.jeppesen>

