

Flight Theory - AVM 203



CHAPTER 0

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Course Objectives and Syllabus

by

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Instructor



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Lecture webpage:

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Course Information



Class Hour:

IN CLASS: Wednesday – 13:30-16:05 (A11)

3-0 Credit

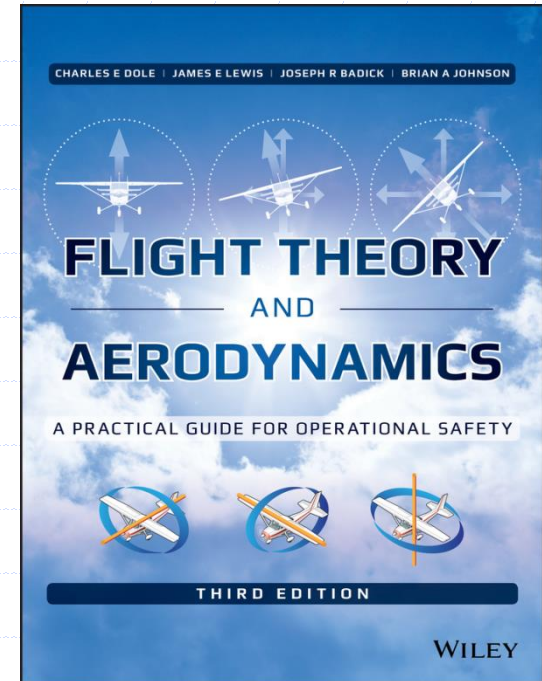
Compulsory Text



Flight Theory and Aerodynamics

3rd Edition

by Dole et al.



Recommended Texts



- “Aerodynamics for Naval Aviators” by Hurt Jr.
- “Introduction to Flight” by John D. Anderson, Jr.
- “Theory of Flight” by Richard von Mises
- “Theory of Wing Sections: Including a Summary of Airfoil Data” by Ira H. Abbott and Albert E. von Doenhoff

Course Objectives



- This course aims to define basic principles related to the theory of flight through an examination of the structural and aerodynamic features of aircraft.
- At the end of the course, students will be able to define the physical features of air.
- They will also be able to explain international standard atmosphere and the theory of flight, especially the basic principles (aerostatic, aerodynamic).
- They will be able to classify aircraft and define subsonic, transonic, and supersonic flights and other factors relating to aircraft, to know rotary wing aircraft mechanism.

Expected Learning Outcomes



Upon successful completion of the course, students will be able to;

- Know the basic principles, rules and laws of aviation and aircraft, apply and realize them,
- Explain the basic principles (aerostatic, aerodynamic).
- Classify aircraft elements.
- Know and apply the basic concepts of the aircraft's electronics.
- Know the working principles of aircraft components.

Assessment (LOOK OUT !)



- Examinations
- Research Activities
- Final Grades

Assessment (LOOK OUT !)



- Examinations:

Two term tests are scheduled. A final comprehensive examination will be given according to the school schedules based on the same format as the term tests.

They will consist of a section on concepts, essays, definitions, and short exercises. **Both will be closed-book, closed-notes.**

Make-up exams may be given for legitimate excuses if you contact the instructor as soon as you return to the school. It will be given for excused absences only and must be scheduled immediately upon returning to class. Excused absences require a medical excuse or notice of official school business by the V.P. of Academic Affairs.

Assessment (LOOK OUT !)



- Research Activities:

There will be two research activities regarding to flight theory based problems. Research reports will be evaluated.

Assessment (LOOK OUT !)



- Final Grades:

Midterms	2×20	%
Research activities/Reports	2×10	%
Final Comprehensive Exam	40	%
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Total	100	%

Letter grades will be given relative to the average of the class !



Tentative* Schedule

Chapter 0: Course Information (Week 1)

Chapter 1: Introduction (Week 1)

Chapter 2: Atmosphere, Altitude, and Airspeed Measurement (Week 2)

Chapter 3: Structures, Airfoils, & Aerodynamic Forces (Week 2)

Chapter 4: Lift (Week 3)

Chapter 5: Drag (Week 4)

Midterm 1 (Week 5) from Ch1 to Ch5
27.10.2021 Wednesday 14.00 at A11 classroom

Chapter 6: Jet Aircraft Basic Performance (Week 6)

Chapter 7: Jet Aircraft Applied Performance (Week 7)

Chapter 8: Propeller Aircraft: Basic Performance (Week 7-8)

Chapter 9: Propeller Aircraft: Applied Performance (Week 8)

Chapter 10: Takeoff Performance (Week 8)

Chapter 11: Landing Performance (Week 9)

Midterm 2 (Week 10) from Ch6 to Ch11
02.12.2021 Thursday 15.00 at A11 classroom

Chapter 12: Slow-Speed Flight (Week 11)

At the end of lecture in Week-11: First Research Activity
(To be submitted until the end of Week 12)

Chapter 16: High-Speed Flight (Weeks 12-13)

At the end of lecture in Week-13: Second Research Activity
(To be submitted until the end of Week 14)

Chapter 17: Rotary-Wing Flight Theory (Week 13-14)



Next Lecture → Chapter 1

Introduction



NEXT CHAPTER'S OUTLINE

- The Flight Environment
- Basic Quantities
- Forces
- Mass
- Scalar and Vector Quantities
- Moments
- Equilibrium Conditions
- Newton's Laws of Motion
- Linear Motion
- Rotational Motion
- Work
- Energy
- Power
- Friction