



Aviation Maintenance Curriculum

Physics for Aviation Syllabus

Summary: Physics deals with the combination of matter and energy and this course will assist students in reviewing and learning physics concepts including mechanics, states of matter, and sound and light waves. These ideas are important for maintenance technicians to master because they support the design of virtually everything in an aircraft that enables it to maintain flight. Learning will center on classical mechanics rather than quantum and relativistic mechanics or quantum field theory because this is the theory that maintenance technicians will routinely use in their work. Students will also gain an understanding of fluid mechanics and aerodynamics because of their application to the theory of flight, a working knowledge of which technicians need to properly maintain an aircraft.

Course Number: FAA-ACS-AM-IJ-PFA

ACS Reference: Physics (AM.I.J)

Topics Covered:

1. Matter, Energy, and Simple Machines
2. Stress, Pressure, Heat, Motion, and Gas
3. Fluid Mechanics, Sound, and the Atmosphere
4. Theory of Flight

Activities:

- A. Reading pressure altitude
- B. Reading density altitude
- C. Density altitude impact on engine performance
- D. Density altitude impact on aircraft performance
- E. Connecting external power

Revision Number: 00

Revision Date: 02/15/22

Original Issue Date: 02/15/22



Physics for Aviation Outline

Module 1: Matter, Energy, and Simple Machines

- Lesson 1.1 – Matter
- Lesson 1.2 – Energy
- Lesson 1.3 – Force, Work, Power, and Torque
- Lesson 1.4 – Simple Machines

Module 2: Stress, Motion, Heat, Pressure, and Gas • Lesson 2.1 – Ohm’s Law and Power

- Lesson 2.1 – Stress
- Lesson 2.2 – Motion
- Lesson 2.3 – Heat
- Lesson 2.4 – Pressure
- Lesson 2.5 – Gas Laws

Module 3: Fluid Mechanics, Sound, and the Atmosphere

- Lesson 3.1 – Fluid Mechanics
- Lesson 3.2 – Sound
- Lesson 3.3 – Atmosphere in Aircraft and Engine Performance

Module 4: Theory of Flight

- Lesson 4.1 – Part One
- Lesson 4.2 – Part Two
- Lesson 4.3 – Part Three

Each lesson contains the following:

- Video lecture
- Multiple readings with interactive animations
- Assigned readings in the applicable FAA 8083 Chapter
- Activities
- Summary Points and Key Terms

Revision Number: 00

Revision Date: 02/15/22

Original Issue Date: 02/15/22



Each Module contains the following:

- Summary Points and Key Terms
- Module quiz
- Module Critical Thinking Activity

Educate Workforce Simulations included in this course include:

- Reading pressure altitude
- Reading density altitude
- Density altitude impact on engine performance
- Density altitude impact on aircraft performance
- Connecting external power

Revision Number: 00

Revision Date: 02/15/22

Original Issue Date: 02/15/22