

POWERED FLIGHT ONE/Syllabus #6

Ground Handling, Preflight Inspection, Takeoff and Landing
Estimated time: **0.7** hour.

1. Ground handling.

Demonstrate the proper way to ground handle the airplane. Emphasize surface areas of the airplane that should not be touched during ground handling.

2. Preflight inspection.

- a. Using the appropriate checklist, demonstrate a routine preflight inspection of the airplane (Aerospace Dimensions, Module 1, "Introduction to Flight," Page 25).
- b. Discuss the required documents that must be on board the airplane.
- c. During the airplane preflight inspection, point out specific parts of the airplane and identify its function.

3. Before takeoff:

- a. Using the checklist, show cadets the routine cockpit checks prior to takeoff.
- b. Explain the sequence of events prior to takeoff.

4. Takeoff:

- a. Discuss airplane position during takeoff roll and initial climb and demonstrate rudder controls.
- b. Describe emergency actions to be taken at different altitudes as discussed during accomplishment of the before takeoff checklist.

5. In flight (at least 2,500 feet AGL):

- a. Discuss the use of flight controls in flight.
- b. Point out the attitude of the airplane in relation to the horizon and different airspeeds.

- c. Point out familiar landmarks, prominent ground features, and the position of the airport with respect to airplane's altitude and position.

6. Approach to landing:

- a. Explain the approach to the traffic pattern. Explain the reasons for a standardized entry procedure and perform the before landing check.
- b. Discuss the elements of the traffic pattern.
- c. Discuss the final approach and the importance of maintaining the appropriate airspeed.

7. Landing and rollout:

- a. Explain the landing attitude.
- b. Point out the correct procedure for landing rollout.

8. Post flight: Answer questions pertaining to the flight and stress safety.

POWERED FLIGHT TWO/Syllabus #7

Normal Flight Maneuvers

Estimated time: **1.0** hour.

- 1. Preflight.** Discuss previously completed syllabus flights as appropriate.
- 2. In flight.** The orientation pilot will perform the following maneuvers at a minimum altitude of 2,500 feet AGL:
 - a. After trimming for level flight, point out the stability of the airplane in hands off flight.
 - b. Emphasize attitude flying.
 - c. Demonstrate use of trim controls and straight flying to a checkpoint using visual references.
 - d. Discuss the effects of lift, drag, and gravity on the airplane.
 - e. Discuss the relationship of lift, angle of attack, and relative wind.
 - f. Demonstrate a shallow banked turn and point out how the airplane will maintain the turn with controls neutral.
 - g. Explain load factor during turns.
- 3. Post flight.** Answer questions pertaining to the flight and stress safety.

POWERED FLIGHT THREE/ Syllabus #8

Advanced Powered Flight Maneuvers

Estimated time: **1.0** hour.

- 1. Preflight.** Discuss previously completed syllabus flights as appropriate.
- 2. In flight.** The orientation pilot will perform the following maneuvers at a minimum altitude of 2,500 feet AGL:
 - a. Perform climbing turns emphasizing collision avoidance.
 - b. Demonstrate slow flight (minimum controllable airspeed (MCA)).
 - c. Demonstrate straight ahead and turning stalls as appropriate, emphasizing stall recognition and recovery. All stalls are imminent stalls (first aerodynamic indication of an oncoming stall, which is usually the stall warning alarm). Back seat passengers are not allowed during stall demonstrations.
 - d. Demonstrate medium and steep bank turns as appropriate and discuss proper rudder coordination and control stick requirements to keep the nose up.
 - e. Explain load factor during turns.
 - f. Discuss steep spirals and spins. Emphasize the difference and the dangers of excessive load factors in steep spirals.
 - g. Demonstrate ground reference maneuvers used in search activities (parallel track, S-turns, expanding square).
- 3. Post flight.** Answer questions pertaining to the flight and stress safety.

POWERED FLIGHT FOUR / Syllabus #9

Use of Instruments in Flight

Estimated time: **0.7** hour.

1. Preflight:

- a. Discuss previously completed syllabus flights as appropriate.
- b. Explain the use of basic navigation instruments (clock, altimeter, airspeed indicator and magnetic compass). Explain the inherent errors of the magnetic compass.
- c. Explain the pitot/static system and its relationship to the airspeed indicator, altimeter, and vertical velocity indicator.
- d. Discuss the importance of flight plans and demonstrate filing a flight plan.

2. In flight:

- a. Explain the difference between absolute altitude (AGL), true altitude (MSL), and pressure altitude (PA).
- b. Demonstrate how to read the altimeter.
- c. Demonstrate how to read the airspeed indicator and discuss the difference between indicated airspeed, true airspeed and ground speed.
- d. Point out how attitude and airspeed are related.
- e. Demonstrate how shallow climbs and descents affect the vertical velocity indicator and the airspeed indicator.
- f. Demonstrate turns using the magnetic compass. Discuss compass turning errors: variation, deviation, magnetic dip, and oscillation error.

3. Post flight. Answer questions pertaining to the flight and stress safety.

POWERED FLIGHT FIVE / Syllabus #10

Weather Flight

Estimated time: **0.7** hour.

1. Preflight:

- a. Discuss previously completed syllabus flights as appropriate.
- b. Identify cloud types and explain their affect upon flight.
- c. Discuss how terrain affects air stability.
- d. Demonstrate preflight weather briefing and its importance.

2. In flight:

- a. Demonstrate effects that weather have upon flying.
- b. Demonstrate the crab method (forward slip) to compensate for wind.
- c. Discuss wake turbulence avoidance.
- d. Demonstrate temperature differences at a few altitudes and how altitude affects rate of climb.

3. Post flight. Answer questions pertaining to the flight and stress safety.