

# Private Pilot Flight Instruction Lesson Plan

## Normal and Crosswind Takeoffs and Landings

Student: \_\_\_\_\_ Date: \_\_\_\_\_

### Objectives:

Upon completion of this lesson the student will:

- Be able to safely perform normal and crosswind takeoffs and climbs.
- Be able to perform normal and crosswind approaches and landings.

Note: This lesson is intended to cover multiple sessions. Normal takeoffs and landings should be performed on a day when the wind is favorable for those operations, and crosswind takeoffs and landings on days when the winds are favorable for those operations.

Note: The student should have some experience with normal takeoffs and landings prior to attempting crosswind operations.

### Elements:

- Takeoffs and landings with and without a significant crosswind component.
- Proper use of flight controls on the ground and in the air for the existing wind conditions.
- Crab and slip techniques for final approach in crosswind conditions.

### Schedule:

• Pre-lesson briefing	00:10
• Preflight	00:10
• Practice Takeoffs, Landings, Go-Around, Aborted Takeoffs	00:50
• Post-flight procedures	00:10
• Post-lesson debriefing	00:10
Total:	01:30

### Equipment:

- POH and/or appropriate checklists for aircraft to be flown.
- Crosswind/Headwind component graph.
- Chalkboard or model for demonstration of techniques.

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### Instructor Actions:

1. Pre-lesson briefing
  - Present objective for the lesson.
  - Describe what will take place during the lesson.
  - Explain rotation speed and  $V_Y$  climb speed.
  - For crosswind operations, explain proper use of flight controls while taxiing, during takeoff roll and landing roll-out.
  - Explain maximum demonstrated crosswind component for the airplane to be used, and in general.
  - Explain how to compute the crosswind and headwind components using the crosswind/headwind component graph and how to estimate it without the graph.
  - Explain airspeeds to be used on downwind, base and final.
  - Explain gust factor.
  - Explain slipping and crabbing approaches (chalkboard or model).
2. Preflight
3. Departure Procedures
  - Coach student on proper use of flight controls, as necessary, while taxiing and during takeoff roll.
  - Ensure student checks engine gauges after smoothly applying power (oil pressure and temperature, RPM and Airspeed).
  - Coach student on holding the centerline during takeoff roll and to rotate at the appropriate airspeed.
  - Coach student through the post departure checklist for the aircraft (gear up, flaps up, fuel pump, prop setting, etc.).
  - Coach student on climbing at the appropriate airspeed ( $V_Y$ ) and holding runway heading or complying with applicable noise abatement procedures.
4. Pattern Procedures
  - Coach student on proper course to fly in the pattern and proper altitude.
  - Coach student through pre-landing (GUMPS) check.
  - Coach student on how to determine that the aircraft is flying at an appropriate distance from the runway on downwind and how to determine the appropriate points at which to make the base and final turns.
  - Coach student on the use of flaps during the approach.
  - Coach student on use of slip or crab on final, and transition from crab to slip just before touchdown.
5. Round-out, Flare and Roll-out
  - Coach student on proper flare technique and visual references during the flare.
  - Coach student on proper use of flight controls after landing.
6. Post-flight Procedures
7. Post-lesson debriefing
  - Review what was learned and critique students performance of maneuvers with constructive suggestions to improve technique.
  - Ask student questions to evaluate what was learned.
  - Answer student questions
  - Explain what will be covered in the next lesson and assign reading material.

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## Normal and Crosswind Takeoffs and Landings

Student: \_\_\_\_\_ Date: \_\_\_\_\_

### Student Actions:

1. Pre-lesson briefing
  - Ask questions concerning previous lessons and/or this one.
2. Preflight
  - Perform pre-flight and pre-takeoff procedures using appropriate checklists.
3. Departure Procedures
  - Use flight controls appropriately for wind conditions. Climb into the wind; Dive away from the wind.
  - Smoothly apply power; check oil pressure, temperature, RPM and Airspeed.
  - Hold the centerline during takeoff roll and to rotate at the appropriate airspeed.
  - Perform the post departure checklist for the aircraft (gear up, flaps up, fuel pump, prop setting, etc.).
  - Climb at the appropriate airspeed ( $V_Y$ ) and hold runway heading or comply with applicable noise abatement procedures.
4. Pattern Procedures
  - Fly proper pattern course at the proper altitude.
  - Perform GUMPS check on downwind leg
  - Use flaps during the approach as appropriate for the prevailing conditions.
  - In crosswind conditions, use slip or crab on final, and transition from crab to slip just before touchdown.
5. Round-out, Flare and Roll-out
  - Flare at the proper altitude and touchdown just above stall speed.
  - Use of flight controls after landing as appropriate for the existing wind conditions.
  - Perform post-landing checklist.
6. Post-flight procedures
  - Perform post-flight procedures using appropriate checklists.
7. Post-flight debriefing.
  - Ask questions about the lesson.

### Completion Standards:

This lesson will be completed when the student is able to:

- Perform safe takeoffs and landings under normal or crosswind conditions.

### References:

- POH/AFM for airplane used.
- Airplane Flying Handbook (FAA-H-8083-3A); Chapter 5, Chapter 8
- PRIVATE PILOT – ASEL PTS Areas of Operation II, III, IV – Tasks A, B
- COMMERCIAL PILOT – ASEL PTS Areas of Operation II, III, IV – Tasks A, B

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**Possible Review Questions:**

The normal rotation speed for the airplane (being used) is \_\_\_\_\_.

The normal approach speed for the airplane (being used) is \_\_\_\_\_.

The demonstrate crosswind component for the airplane (being used) is \_\_\_\_\_.

If the wind is 15 Knots from 300<sup>0</sup> (magnetic), and we're using runway 27, what is the crosswind component?  
What is the headwind component?

When landing in a crosswind, the airplane's longitudinal axis and direction of motion must be aligned with  
\_\_\_\_\_.

When taking off in a crosswind the takeoff roll is initiated with the ailerons set how?

When taxiing in strong wind conditions what are the proper procedures for setting the elevator and ailerons?