Objectives: Crosswind takeoff and landing

Upon completion of this lesson the student will:

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

Note: This lesson is intended to cover multiple sessions. Crosswind takeoffs and landings on days when the winds are favorable for those operations. The student should have some experience with normal takeoffs and landings prior to attempting crosswind operations.

Equipment:

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

Elements:

1. Ground - Pre-flight briefing
   - Explain rotation speed and VY 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. Flight - Departure Procedures
   - Perform pre-flight and pre-takeoff procedures using appropriate checklists.
   - Proper use of flight controls, as necessary, while taxiing and during takeoff roll. (climb in, dive away)
   - Ensure student checks engine gauges after smoothly applying power (oil pressure and temperature, RPM and Airspeed).
   - Holding the centerline during takeoff roll and to rotate at the appropriate airspeed.
   - Use post departure checklist for the aircraft (gear up, flaps up, fuel pump, prop setting, etc.).
   - Climbing at the appropriate airspeed (VY) and holding runway heading or complying with applicable noise abatement procedures.
3. Flight - Pattern Procedures
   - Use proper course to fly in the pattern and proper altitude.
   - Use of pre-landing (GUMPS) check.
   - 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.
   - Use of flaps during the approach.
   - Use of slip or crab on final, and transition from crab to slip just before touchdown.
4. Flight - Round-out, Flare and Roll-out
   - Use proper flare technique and visual references during the flare and touchdown just above stall speed.
   - Proper use of flight controls after landing and post-landing checklist.
5. Post-flight 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.

Completion Standards:

This lesson is complete when the student is able to perform safe takeoffs and landings, normal or crosswind.

References:

POH For airplane used.
FTH; Chapters 7, 8, 9, 10
Jeppesen PP Manuevers: 3-2 to 3-22
PP-ASEL PTS Areas of Operation II, III, IV Tasks A, B / Comm-ASEL PTS Areas of Operation II, III, IV Tasks A, B

Possible Review Questions:

1. The normal rotation speed for the airplane (being used) is _____.
2. The normal approach speed for the airplane (being used) is _____.
3. The demonstrate crosswind component for the airplane (being used) is _____.
4. If the wind is 15 Knots from 300 (magnetic), and were using runway 27, what is the crosswind component? What is the headwind component?
5. When landing in a crosswind, the airplanes longitudinal axis and direction of motion must be aligned with _____.
6. When taking off in a crosswind the takeoff roll is initiated with the ailerons set how?
7. When taxiing in strong wind conditions what are the proper procedures for setting the elevator and ailerons?