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Purpose

This guide outlines the procedures for standardized Cessna 172S aircraft operations. It is designed to provide the altitudes, airspeeds, power settings, and configurations for each operation using the specified aircraft in order to standardize flight instruction.

Listed power settings are approximate and may vary slightly depending on atmospheric conditions, aircraft weight, and other variables. Make every effort to adhere to the listed power settings. If needed, power settings may be adjusted slightly in order to adhere to these standardized procedures.

All Tailwind Flight Center Flight Instructors engaged in Part 141 training shall adhere to this guide. While engaged in Part 141 training, this guide is to be used as a supplement to the approved syllabus.

If a conflict arises between this guide and any official AFM, placard, or operation limitation, the AFM, placard, or operating limitation will be controlling.

Instructor demonstration of these flight operations is the norm and shall precede the student performing any operation for the first time. The completion standards listed in this document shall serve as a reference only. The completion standards for each lesson are provided in the appropriate syllabus and shall be used for student grading and to determine advancement to the next lesson.

Current PTS standards appropriate for the certificate or rating sought shall be referenced to determine student readiness for the practical test.

The following items may not be specified for each operation in this document, but shall be emphasized during all flight operations:

- Proper scanning and collision avoidance
- Runway incursion avoidance
- Situational awareness
- Single pilot competence (if appropriate)
- Aeronautical decision making
- Clearing turns (90 deg. Method)
- Use of checklists
- Integrated flight instruction
- Positive exchange of flight controls
- Proper use of trim
- Radio communications- general guidance is included in some operations, but does not qualify as an instructional guide on radio operations

Sources

Normal and Crosswind Takeoff and Climb

Objective: Familiarize the student with proper procedures for takeoff and departure from runway with no obstacles, using proper crosswind correction as necessary.

Procedure:

1. Complete Pre-Takeoff Checklist, announce “Pre-takeoff Checklist Complete.”
2. Announce takeoff or obtain takeoff clearance as appropriate.
3. Taxi onto runway, align aircraft with centerline, and stop with the power at idle. Complete the Takeoff Checklist.
4. Note the windsock and apply full aileron correction for the crosswind as appropriate.
5. Release brakes; ensure heels on floor.
6. Smoothly apply full power.
7. Assure gain in airspeed, announce “Airspeed Alive.”
8. Decrease aileron input as controls become effective.
9. Rotate at 55 KIAS.
10. Pitch for Vy (74 KIAS).
11. When free of ground effect:
   a. Crab into wind (if crosswind is present).
   b. Maintain runway centerline.
   c. Maintain coordination.
12. At 500’ AGL (may be adjusted depending on local procedures and ATC requests):
   a. Turn crosswind.
13. At 1000’ AGL:
   a. Transition to cruise climb (85 KIAS) if departing area.

Completion Standards:

✓ Proper use of checklists.
✓ Demonstrates proper takeoff and climb procedures
✓ Establishes Vx/Vy +10/-5 KIAS or better
Normal and Crosswind Landing

Objective: Familiarize the student with proper procedure for approach to land and proper techniques for normal and crosswind landings.

Procedure:

1. Perform Descent Checklist, announce “Descent Checklist Complete.”
2. Descend at 85 KIAS to arrive at traffic pattern altitude 2-3 NM from airport (may be adjusted to meet local requirements).
3. Radio communications as appropriate.
4. Join the traffic pattern at traffic pattern altitude.
   a. If at a non-towered airport, join 45° to downwind.
   b. If at a towered airport, join the traffic pattern as directed by the tower.
5. Enter the pattern at 85 KIAS, 2200 RPM.
6. Complete the Pre-Landing Checklist, announce “Pre-Landing Checklist Complete.”
7. On downwind abeam touchdown area:
   a. 1700 RPM
   b. 10° Flaps
   c. 80 KIAS
   d. Trim
8. On Base (no more than 30° bank during turn):
   a. Power adjusted as needed
   b. 20° Flaps
   c. 75 KIAS
   d. Trim
9. On Final (no more than 30° bank during turn):
   a. Complete Landing Checklist
   b. Power adjusted as needed
   c. 30° Flaps
   d. 70 KIAS
   e. Trim
10. Transition to proper sideslip if crosswind is present.
11. Use power to stabilize descent.
12. On short final:
   a. Power as needed
   b. 65 KIAS
13. When landing is assured, reduce the power to idle.
14. Roundout while reducing airspeed, and touchdown on centerline at stall speed, approx. 40 KIAS.
15. If crosswind is present, touchdown on the upwind main landing gear and use rudder to maintain directional control.
16. Roll full ailerons into the crosswind.
17. Smoothly lower nose wheel upon landing.
18. Continue rollout on centerline with crosswind correction applied.
19. When clear of runway, perform After Landing Checklist, announce "After Landing Checklist Complete."

**Note:** If significant crosswinds or gusty conditions are present the above airspeeds or flap settings may be adjusted to ensure directional control and a responsive aircraft.

Completion Standards:

- Proper use of checklists.
- Stabilized approach.
- Airspeed +10/-5 KIAS.
- Smooth touchdown at or within 400’ beyond a specified point.
- Proper crosswind correction.
Soft Field Takeoff and Climb

Objective: Familiarize the student with procedures for takeoff and departure from an unimproved surface such as grass or turf.

Procedure:

1. Set 10° flaps.
2. Complete Pre-Takeoff Checklist, announce “Pre-Takeoff Checklist Complete.”
3. Announce takeoff or obtain takeoff clearance as appropriate.
4. Before entering the soft surface, apply full backpressure and maintain movement with power.
5. Enter runway and align aircraft with centerline without stopping. Complete the Takeoff Checklist.
6. Note windsock and apply full aileron correction for crosswind as appropriate.
7. Verify toes off brakes and heels on floor.
8. Smoothly apply full power.
10. Decrease aileron input as controls become effective.
11. As nose wheel lifts, modify elevator input to keep nose wheel clear of the surface without pitch becoming excessive.
12. Emphasize the need for additional rudder due to lack of nose wheel steering.
13. When main wheels leave the surface (aircraft shall become airborne at slowest possible airspeed consistent with safety)"
   a. Adjust pitch attitude to stay in ground effect
   b. Crab into wind (if crosswind is present)
   c. Maintain coordination
   d. Accelerate to Vy (74 KIAS), or Vx (62 KIAS) if obstacles are present
      i. If obstacles are present, maintain Vx (62 KIAS) until clear, then accelerate to Vy (74 KIAS)
   e. Set 0° flaps when all obstacles are cleared (no slower than 70 KIAS)
14. At 500' AGL (may be adjusted depending on local procedures and ATC requests):
   a. Turn crosswind
15. At 1000' AGL:
   a. Transition to cruise climb (85 KIAS) if departing area

Note: If significant crosswinds or gusty conditions are present the above airspeeds or flap settings may be adjusted to ensure directional control and a responsive aircraft.

Completion Standards:

- Proper use of checklists.
- Airspeed +10/-5 KIAS.
Soft Field Landing

Objective: Familiarize the student with proper procedure using control techniques for unimproved surfaces such as grass and turf.

Procedure:

1. Perform Descent Checklist, announce “Descent Checklist Complete.”
2. Initiate the descent to arrive at traffic pattern altitude 2-3 NM from airport (may be adjusted to meet local requirements).
3. Radio communications as appropriate.
4. Join the traffic pattern at traffic pattern altitude.
   a. If at a non-towered airport, join 45º to downwind.
   b. If at a towered airport, join the traffic pattern as directed by the tower.
5. Enter the pattern at 85 KIAS, 2200 RPM.
6. Complete the Pre-Landing Checklist, announce “Pre-Landing Checklist Complete.”
7. Abeam the numbers on downwind:
   a. 1600 RPM
   b. 10º Flaps
   c. 80 KIAS
   d. Trim
8. On base (no more than 30º bank during turn):
   a. 20º Flaps
   b. 70 KIAS
   c. Trim
9. On final (no more than 30º bank during turn):
   a. Complete Landing Checklist
   b. Power adjusted as needed
   c. 30º Flaps
   d. 70 KIAS
   e. Trim
10. Transition to proper sideslip if crosswind is present.
11. When clear of all obstacles:
    a. Power as needed to gently lower airplane toward runway
    b. 61 KIAS
12. Flare and touchdown on centerline at stall speed, approx. 40 KIAS.
13. In a crosswind, touchdown on the upwind main landing gear and use rudder to maintain directional control.
14. Smoothly roll full ailerons into the crosswind.
15. Maintain full aft elevator input to keep the nose wheel free of the surface.
16. Use power as necessary to ensure that the airplane does not come to a stop on the soft surface.
17. When clear of runway, perform After Landing Checklist, announce “After Landing Checklist Complete.”
Note: If significant crosswinds or gusty conditions are present the above airspeeds or flap settings may be adjusted to ensure directional control and a responsive aircraft.

Completion Standards:

✓ Proper use of checklists.
✓ Stabilized approach.
✓ Airspeed +10/-5 KIAS.
✓ Smooth touchdown at or within 400’ beyond a specified point.
✓ Proper control input to minimize the effects of the soft surface on the airplane.
✓ Proper crosswind correction.
Short Field Takeoff and Climb

Objective: Familiarize the student with procedures to takeoff and depart from a short runway or a runway with an obstacle.

Procedure:

1. Set 10º Flaps.
2. Complete Pre-Takeoff Checklist, announce “Pre-Takeoff Checklist Complete.”
3. Announce takeoff or obtain takeoff clearance as appropriate.
4. Taxi onto runway, align aircraft with centerline, and stop with the power at idle. Complete the Takeoff Checklist.
5. Note windsock and apply full aileron correction for crosswind as appropriate.
6. Hold the brakes and smoothly apply full power.
7. Check engine gauges and release the brakes.
8. Assure gain in airspeed, announce “Airspeed Alive.”
9. Decrease aileron input as controls become effective.
10. Smoothly rotate at 55 KIAS.
11. Upon liftoff, pitch for Vx (62 KIAS).
12. Free of ground effect:
   a. Crab into wind (if crosswind is present).
   b. Maintain runway centerline.
   c. Maintain coordination.
13. When all obstacles have been cleared (no lower than 70 KIAS):
   a. Set 0º Flaps.
   b. Adjust pitch attitude for Vy (74 KIAS).
14. At 500’ AGL (may be adjusted depending on local procedures and ATC requests):
   a. Turn crosswind.
15. At 1000’ AGL:
   a. Transition to cruise climb (85 KIAS) if departing area.

Note: If significant crosswinds or gusty conditions are present the above airspeeds or flap settings may be adjusted to ensure directional control and a responsive aircraft.

Completion Standards:

✓ Proper use of checklists.
✓ Airspeed +10/-5 KIAS.
Short Field Landing

Purpose: Familiarize the student with the proper procedure for approach to a short runway or a runway with an obstacle that limits the landing area.

Procedure:

1. Perform Descent Checklist, announce "Descent Checklist Complete."
2. Initiate descent to arrive at traffic pattern altitude 2-3 NM from airport (may be adjusted to meet local requirements).
3. Radio communications as appropriate.
4. Join the traffic pattern at traffic pattern altitude.
   a. If at a non-towered airport, join 45° to downwind.
   b. If at a towered airport, join the traffic pattern as directed by the tower.
5. Enter the pattern at 85 KIAS, 2200 RPM.
6. Complete the Pre-Landing Checklist, announce "Pre-Landing Checklist Complete."
7. On downwind abeam touchdown area:
   a. 1700 RPM
   b. 10° Flaps
   c. 80 KIAS
   d. Trim
8. On Base (no more than 30° bank during turn):
   a. Power adjusted as needed
   b. 20° Flaps
   c. 75 KIAS
   d. Trim
9. On Final (no more than 30° bank during turn):
   a. Complete Landing Checklist
   b. Power adjusted as needed
   c. 30° Flaps
   d. 70 KIAS
   e. Trim
10. Transition to proper sideslip if crosswind is present.
11. Use power to stabilize descent.
12. On short final:
   a. Power as needed
   b. 61 KIAS
13. Roundout while reducing airspeed, and touchdown on centerline at stall speed, approx. 40 KIAS.
14. If crosswind is present, touchdown on the upwind main landing gear and use rudder to maintain directional control.
15. Roll full ailerons into the crosswind.
16. Full aft elevator input for aerodynamic braking.
17. Apply firm brakes (ensure directional control).
18. Set 0° Flaps
19. Bring the airplane to a stop on the runway.
20. When clear of runway, perform After Landing Checklist, announce “After Landing Checklist Complete.”

**Notes:** If significant crosswinds or gusty conditions are present the above airspeeds or flap settings may be adjusted to ensure directional control and a responsive aircraft.

If practicing the procedure on a longer runway, simulate the end of the short runway.

If the airplane will not be brought to a stop in the runway distance available, a Go-Around shall be initiated.

Practice this procedure with and without an obstacle.

Completion Standards:

- Proper use of checklists.
- Stabilized approach.
- Airspeed +10/-5 KIAS.
- Smooth touchdown at or within 200’ beyond a specified point.
- Proper crosswind correction.
180° Accuracy Landing

Objective: Familiarize the student with the proper procedure for anticipating aircraft performance and the effect of wind to touch down at a predetermined point on the runway.

Procedure:

1. Perform Descent Checklist, announce “Descent Checklist Complete.”
2. Initiate descent to arrive at traffic pattern altitude 2-3 NM from airport (may be adjusted to meet local requirements).
3. Radio communications as appropriate.
4. Join the traffic pattern at traffic pattern altitude.
   a. If at a non-towered airport, join 45° to downwind.
   b. If at a towered airport, join the traffic pattern as directed by the tower.
5. Enter the pattern at 85 KIAS, 2200 RPM.
6. Complete the Pre-Landing Checklist, announce “Pre-Landing Checklist Complete.”
7. On downwind abeam touchdown area (student shall announce the selected touchdown point:
   a. Power idle
   b. Flaps as needed
   c. 68 KIAS
   d. Trim
8. On Base:
   a. Flaps as needed
   b. 68 KIAS
   c. Trim
9. On Final:
   a. Complete Landing Checklist
   b. Flaps as needed
   c. 68 KIAS
   d. Trim
10. On Short Final:
    a. Transition to proper sideslip if crosswind is present
    b. 61-68 KIAS
11. Roundout while reducing airspeed, and touchdown on centerline at stall speed, approx. 40 KIAS.
12. If crosswind is present, touchdown on the upwind main landing gear and use rudder to maintain directional control.
13. Roll full ailerons into the crosswind.
14. Smoothly lower nose wheel upon landing.
15. Full aft elevator input for aerodynamic braking.
16. Apply brakes as needed.
17. When clear of runway, perform After Landing Checklist, announce “After Landing Checklist Complete.”
**Notes:** If significant crosswinds or gusty conditions are present the above airspeeds or flap settings may be adjusted to ensure directional control and a responsive aircraft.

If the airplane will not touchdown within 200’ beyond the selected point a Go-Around shall be initiated.

Completion Standards:

- ✓ Proper use of checklists.
- ✓ Stabilized approach.
- ✓ Airspeed +10/-5 KIAS.
- ✓ Smooth touchdown at or within 200’ beyond the selected point
- ✓ Proper crosswind correction.
Go-Around

Objective: Familiarize the student with the procedure for discontinuing approach or landing due to unsafe conditions. Develop good decision-making skills.

Procedure:

1. Initiate Go-Around procedure:
   a. Apply full power and maintain coordination.
   b. Establish a cruise climb attitude.
   c. Set 20° flaps (if Go-Around initiated with full flaps).
2. Retract flaps in 10° increments while establishing Vy (74 KIAS).
3. Announce Go-Around to Tower/CTAF.

Note: The decision to Go-Around can be made at any time. Emphasize the importance of a timely decision to abort the landing.

Completion Standards:

✓ Proper use of checklists.
✓ Timely decision to initiate Go-Around.
✓ Proper procedure for Go-Around.
✓ Positive climb using proper airspeed and configuration.
Slips to Land (Forward Slips)

Objective: Familiarize the student with the proper procedure for a forward slip to land and proper techniques for entering and recovering from the slip into a normal landing configuration. Develop skill to completion standards or better.

Procedure:

1. Complete the Pre-Landing Checklist, announce “Pre-Landing Checklist Complete.” (note: practicing with simulated flap failure (0º or partial flaps) may be appropriate. (Slips with full flaps is allowable in the Cessna 172S))
2. On Final:
   a. Power to idle.
   b. Apply full rudder and sufficient opposite aileron input to maintain runway centerline.
   c. Pitch for 75 KIAS.
3. Recover from slip at or above 150’ AGL.
4. Transition to appropriate landing.

Completion Standards:

✓ Proper use of checklists.
✓ Stabilized approach.
✓ Airspeeds +10/-5 KIAS.
✓ Smooth touchdown at or within 400’ beyond a specified point.
✓ Proper crosswind correction.
Straight and Level Flight

Objective: Familiarize the student with flight at a constant heading and altitude, developing ability to make corrections using integrated flight instruction.

Procedure:

1. Approach practice area at 3000-3500' MSL (at least 2000' AGL) and cruise power, 2300-2400 RPM.
2. Fly straight and level, keeping wings level with horizon, checking for proper sight picture between nose and horizon, using proper amount of trim.
3. Crosscheck outside references with instruments.

Completion Standards:

- Proper use of checklists.
- Ability to fly straight and level while incorporating inside and outside references.
- Altitude +/-100'
- Heading +/-10°
Level Turns

Objective: Familiarize the student with turns using coordinated control pressures to change to a desired heading while maintaining altitude.

Procedure:

1. Approach practice area at 3000-3500’ MSL (at least 2000' AGL) and cruise power, 2300-2400 RPM.
2. Note beginning heading and visual reference point.
3. Smoothly roll into a 30º bank to the left while coordinating with rudder and applying backpressure to maintain altitude.
4. Trim as required.
5. Check for proper sight picture and crosscheck outside references with instruments.
6. 10º prior to target heading, roll to wings level and add forward pressure to maintain altitude.
7. Retrim for straight and level flight.
8. Repeat turn to the right to not the different sight picture.

Note: Practice 180º and 360º heading changes, as well as turns to instructor-assigned heading.

Completion Standards:

- Proper use of checklists.
- Coordinated turns at constant altitude and bank while using inside and outside references.
- Altitude +/-100'
- Heading +/-10º
Climbs

Objective: Familiarize the student with straight and turning climbs through use of power, pitch, and coordinated controls.

Procedure:

1. Approach practice area at 3000-3500’ MSL (at least 2000’ AGL) and cruise power, 2300-2400 RPM.
2. Perform clearing turns.
3. Perform Pre-Maneuver Checklist, announce “Pre-Maneuver Checklist Complete.”
4. Initiate climb:
   a. Apply full power
   b. Pitch for 74-85 KIAS (as specified by instructor)
   c. Trim
5. Check for wings level with horizon, proper sight picture off nose, and proper trim.
6. Crosscheck outside references with instruments.
7. Climb to desired altitude (specified by instructor).
8. Reduce pitch occasionally to clear for traffic, then reestablish climb attitude.
9. 75-100’ from desired altitude:
   a. Apply forward pressure to establish level attitude
   b. Accelerate to cruise speed
   c. Set power 2300-2400 RPM
   d. Trim
10. Complete Cruise Checklist, announce “Cruise Checklist Complete.”

Note: Practice climbs at both Vy (74 KIAS) and Cruise Climb speed (85 KIAS).

Completion Standards:

✓ Proper use of checklists.
✓ Climbs and climbing turns with coordinated controls.
✓ Proper instrument scans.
✓ Proper technique to level off.
✓ Altitude +/-100’ at level off.
✓ Airspeed +10/-5 KIAS
✓ Heading +/-10º
✓ Rate +/-100 FPM
Descents

Objective: Familiarize the student with establishing and maintaining descent at various airspeeds and rates of descents while maintaining coordination, both straight and turning.

Procedure:

1. Approach practice area at 3000-3500’ MSL (at least 2000’ AGL) and cruise power, 2300-2400 RPM.
2. Perform Pre-Maneuver Checklist, announce “Pre-Maneuver Checklist Complete.”
3. Reduce power to 1600-2000 RPM, pitch for 85-129 KIAS.
4. Trim as necessary.
5. Descent to desired altitude (specified by instructor).
6. 75-100’ from desired altitude:
   a. Apply cruise power 2300-2400 RPM
   b. Apply backpressure to establish level attitude
   c. Trim
7. Complete Climb/Cruise Checklist, announce “Climb/Cruise Checklist Complete.”

Note: Practice both descent at reduced airspeeds and cruise descents.

Completion Standards:

- Proper use of checklists.
- Descents at various power settings, airspeeds, and rates while maintaining coordination, both straight and while turning.
- Proper technique for establishing and leveling off from descents.
- Altitude +/− 100’ at level off.
- Airspeed +10/−5 KIAS
- Heading +/−10°
- Rate +/−100 FPM
Steep Turns

Objective: Familiarize the student with flying level turns of 45 to 60° bank, developing ability to maintain coordinated flight while experiencing increased load factors and over banking tendencies.

Procedure:

1. Approach practice area at 3000-3500’ MSL (at least 2000’ AGL) and cruise power, 2300-2400 RPM.
2. Perform Pre-Maneuver Checklist, announce “Pre-Maneuver Checklist Complete.”
3. Maintain 95 KIAS (2200-2300 RPM); emphasize the need to remain below Va.
4. Select cardinal heading, note visual reference point.
5. Entry:
   a. Smoothly roll into a coordinated 45° bank.
   b. Apply backpressure to maintain altitude.
   c. Apply an additional 100 RPM to maintain airspeed.
   d. Trim if desired.
6. Recovery (20° from entry heading/landmark):
   a. Smoothly roll to wings level (ensure coordination).
   b. Apply forward pressure to maintain altitude.
   c. Reduce power 100 RPM to maintain airspeed.
   d. Retrim for straight and level flight.
7. Perform turn in the opposite direction.
8. Set power to 2300-2400 RPM.

Completion Standards:

✓ Proper use of checklists.
✓ Airspeed +/-5 KIAS
✓ Bank +/-5°
✓ Rollout to entry heading +/-10°
✓ Altitude +/-100'
Slow Flight

Objective: Familiarize the student with maneuvering at minimum controllable airspeed to develop skills in operating at maximum performance. Develop familiarity with landing while simulating conditions at a proper practice altitude.

Procedure:

1. Approach practice area at 3000-3500’ MSL (at least 2000’ AGL) and cruise power, 2300-2400 RPM.
2. Perform Pre-Maneuver Checklist, announce “Pre-Maneuver Checklist Complete.”
3. Note altitude and heading.
4. Entry:
   a. Set 2000 RPM
   b. Maintain altitude
   c. Decelerate to 85 KIAS
   d. Lower 30º flaps in 10º increments
   e. Trim as airspeed decreases
   f. Maintain pitch that provides minimum controllable airspeed
5. Maintain altitude with power while gradually reducing airspeed by increasing pitch.
7. Maneuvering:
   a. Coordinated turns using no more than 20º bank
   b. Full power to climb
   c. 1500-1800 RPM to descend
8. Recovery:
   a. Apply full power
   b. Reduce pitch attitude to maintain altitude
   c. Set 20º flaps
   d. Retract remaining flaps in 10º increments prior to exceeding 85 KIAS
   e. Set cruise power (2300-2400 RPM)
   f. Trim

Note: Ensure that slow flight is practiced during climbs, descents, and turns.

Completion Standards:

✓ Proper use of checklists.
✓ Establishes proper altitude and configuration.
✓ Altitude +/-100’
✓ Heading +/-10º
✓ Airspeed +10/-5 KIAS
Power Off Stall

Objective: Familiarize the student with the principles of stalls, recognizing the signs of an imminent stall as it relates to approach-to-land situations.

Procedure:

1. Approach practice area at 3000-3500’ MSL (at least 2000’ AGL) and cruise power, 2300-2400 RPM.
2. Complete Pre-Maneuver Checklist, announce “Pre-Maneuver Checklist Complete.”
3. Note heading and altitude.
4. Entry:
   a. Set 2000 RPM
   b. Decelerate to 85 KIAS
   c. Set flaps to 30° in 10° increments, controlling pitch with the elevator
   d. Maintain altitude
   e. Reduce power to idle (or instructor specified power setting)
   f. Enter a momentary approach-to-land attitude
   g. Increase angle of attack to induce stall
5. Recovery:
   a. Establish approach-to-land attitude
   b. Set full power
   c. Rudder to maintain coordination
   d. Set 20° flaps and simultaneously pitch for cruise climb attitude
   e. Retract remaining flaps in 10° increments, accelerate to Vy (74 KIAS) and climb to entry altitude.
   f. Set cruise power (2300-2400 RPM)
   g. Trim

Notes: Ensure that stalls are experiences using a wide range of power, flaps, and attitude combinations, including turns.

Instructor shall demonstrate elevator trim, accelerate, secondary, and cross control stalls.

Completion Standards:

✓ Proper use of checklists.
✓ Coordinated flight controls.
✓ Promptly recognized stall and recovers with minimum altitude loss.
✓ Heading +/-10°
✓ If turning bank may not exceed 30° (+/-10°)
✓ Returns to entry altitude.
Power On Stall

Objective: Familiarize the student with the signs of an oncoming stall while in takeoff configuration and proper recovery procedure.

Procedure:

1. Approach the practice area and level off at 3000-3500’ MSL (at least 2000’ AGL) and cruise power, 2300-2400 RPM.
2. Perform Pre-Maneuver Checklist, announce “Pre-Maneuver Checklist Complete.”
3. Note heading and altitude.
4. Entry:
   a. Set 2000 RPM
   b. Decelerate to 85 KIAS
   c. Maintain altitude
   d. Apply full power and initiate climb
   e. Increase angle of attack to induce the stall
5. Recovery:
   a. Establish cruise climb pitch attitude
   b. Rudder to maintain coordination
   c. Set cruise power (2300-2400 RPM)
   d. Maintain altitude
   e. Trim

Notes: Ensure that stalls are experienced using a wide range of power, flap, and attitude combinations, including turns.

Turning stalls shall not exceed 30º bank.

Instructor shall demonstrate elevator trim, accelerated, secondary, and crossed control stalls.

Completion Standards:

✓ Proper use of checklists.
✓ Coordinated flight controls.
✓ Promptly recognized stall and recovers with minimum altitude loss.
✓ Heading +/-10º
✓ If turning bank may not exceed 30º (+/-10º)
✓ Returns to entry altitude.
Chandelle

Objective: Familiarize the student with maximum performance climbing turns, while emphasizing proper coordination and smooth control inputs.

Procedure:

1. Approach the practice area at 3000-3500' MSL (at least 2000' AGL) and cruise power, 2300-2400 RPM.
2. Perform Pre-Maneuver Checklist, announce “Pre-Maneuver Checklist Complete.”
4. Select cardinal entry heading.
5. Entry:
   a. Set full power
   b. Establish a 30° bank and maintain for first 90° of heading change
   c. Smoothly increase pitch to arrive at maximum pitch (10-15°) after 90° of heading change
   d. Maintain maximum pitch during second 90° of heading change
   e. Begin smooth rollout after first 90° of heading change (maintain pitch)
   f. Complete rollout at 180° point, 5-10 KIAS from stalling speed (stall warning should sound)
   g. Resume straight and level flight with minimum altitude loss

Completion Standards

✓ Proper use of checklists.
✓ Bank +/-5°
✓ Heading +/-10°
✓ Airspeed 5-10 KIAS above stall at completion of maneuver.
Lazy Eights

Objective: Familiarize the student with climbing and descending turns with constant changing pitch, bank, and airspeed, while coping with constantly changing control pressures.

Procedure:

1. Approach the practice area at 3000-3500' MSL (at least 2000' AGL) and cruise power, 2300-2400 RPM.
2. Perform Pre-Maneuver Checklist, announce “Pre-Maneuver Checklist Complete.”
4. Select cardinal entry heading.
5. Entry:
   a. Smoothly initiate a climb immediately followed by a turn toward the 45º reference point
   b. Reach maximum pitch (10-15º) and approx. 15º bank at the 45º reference point
   c. Smoothly reduce pitch and increase bank to arrive at level pitch and 30º bank at the 90º reference point
   d. Airspeed 5-10 KIAS above stall (Note altitude at the 90º reference point)
   e. Smoothly allow pitch to drop below the horizon and smoothly decrease bank to arrive at 15º bank at the 135º reference point (maximum negative pitch attitude should be reached at the 135º reference point)
   f. Arrive at entry airspeed (105 KIAS), entry altitude, and wings level at the 180º reference point
   g. Continue maneuver in opposite direction, duplicating the same airspeed and altitude gain at the 90º reference point

Note: This maneuver requires constant changing pitch, bank, and airspeed.

The maneuver should be executed slowly and smoothly as supposed to a dramatic “wing over” procedure.

Completion Standards:

✔ Proper use of checklists.
✔ Bank +/-10º
✔ Rolls out to entry heading +/-10º
✔ Airspeed +/-10 KIAS
✔ Altitude +/-100’ from entry.
Steep Spiral

Objective: Familiarize the student with establishing and recovering from a steep spiral, developing ability to maintain coordinated flight with proper wind drift correction while descending through at least three 360° turns at maximum descent rate.

Procedure:

1. Approach the practice area at least 5,500’ MSL (at least 4500’ AGL) and cruise power, 2300-2400 RPM.
2. Perform Pre-Maneuver Checklist, announce “Pre-Maneuver Checklist Complete.”
4. Select ground reference point (a runway threshold or road intersection).
5. Entry:
   a. Set power to idle
   b. Trim for 75 KIAS while establishing a left turn around the reference point
   c. Maintain a constant radius turn, using bank to maintain constant ground track around the reference point, with bank not to exceed 60° at the steepest point
   d. Complete three turns around the reference point
6. Recovery (no lower than 1500’ AGL unless a simulated engine failure procedure is to be demonstrated following the steep spiral):
   a. Smoothly roll to wings level (ensure coordination)
   b. Apply full power to maintain recovery altitude
   c. Initiate climb out at Vy (74 KIAS)
7. Complete the Climb/Cruise Checklist, announce “Climb/Cruise Checklist Complete.”

Completion Standards:

✓ Proper use of checklists.
✓ Bank +/-5°
✓ Rolls out to entry heading +/-10°
✓ Airspeed +/-10 KIAS
✓ Complete maneuver no lower than 1500’ AGL (unless demonstrating a simulated forced landing).
Turns Around a Point

Objective: Develop ability to maintain coordinated constant altitude turns using uniform radius around a ground reference point while using proper technique for wind drift correction.

Procedure:

1. Complete Pre-Maneuver Checklist, announce “Pre-Maneuver Checklist Complete.”
2. Select road/section line intersection as reference point.
3. Maneuver airplane downwind from reference point.
4. Maintain 1700' MSL (or 800-1000' AGL as appropriate).
5. Maintain 100 KIAS (2200-2300 RPM).
6. Approach reference point with a tail wind.
7. Maintain ½ mile radius turns during the procedure.
8. Complete at least two complete turns around the point.
9. Exit procedure on entry heading.
10. Repeat in turn on opposite direction.
11. When procedure is complete, climb to cruise altitude.

Note: Bank angles shall not exceed 45°.

Completion Standards:

✓ Proper use of checklists.
✓ Proper wind drift control to fly coordinated turns with uniform radius.
✓ Completes two 360° turns.
✓ Altitude +/- 100'
✓ Airspeed +/- 10 KIAS
**S-Turns**

Objective: Develop the ability to maintain coordinated constant altitude turns using uniform radius round ground reference points while using proper technique for wind drift correction.

Procedure:

1. Complete Pre-Maneuver Checklist, announce “Pre-Maneuver Checklist Complete.”
2. Select straight road/section line perpendicular to the wind for a reference line.
3. Maneuver the airplane downwind from the reference line.
4. Maintain 1700' MSL (or 800-1000' AGL as appropriate).
5. Maintain 100 KIAS (2200-2300 RPM).
6. Approach the reference line with a tail wind.
7. Maintain ½ mile radius turns during the procedure.
8. Exit on the entry heading.
9. When procedure is complete, climb to cruise altitude.

**Note:** Bank angles shall not exceed 45°.

**Completion Standards:**

- Proper use of checklists.
- Proper wind drift control to fly coordinated turns with uniform radius.
- Complete two 180° turns.
- Altitude +/-100’
- Airspeed +/-10 KIAS
Rectangular Course

Objective: Develop the ability to fly a rectangular course at constant altitude while adjusting for wind drift. This maneuver shall lay the foundation for the traffic pattern.

Procedure:

1. Complete Pre-Maneuver Checklist, announce “Pre-Maneuver Checklist Complete.”
2. Select road/section lines that define a large rectangle.
3. Maneuver airplane downwind from the rectangle.
4. Maintain 1700' MSL (or 800-1000' AGL as appropriate).
5. Maintain 100 KIAS (2200-2300 RPM).
6. Approach the downwind leg of rectangular course at a 45º angle.
7. Maintain ½ mile distance from rectangle.
8. Complete the rectangular course.
9. Exit 45º from the downwind leg.
10. Repeat in opposite direction.
11. When the procedure is complete, climb to cruise altitude.

Note: Traffic pattern may be used in lieu of the rectangular course.

Rectangular course practice in the practice areas shall precede the traffic pattern.

Completion Standards:

✓ Proper use of checklists.
✓ Proper wind drift control to fly coordinated turns with uniform radius.
✓ Tracks the rectangle boundaries at a constant distance.
✓ Altitude +/-100’
✓ Airspeed +/-10 KIAS
Eights On Pylons

Objective: Familiarize the student with pivotal altitudes, increase proficiency in smooth, coordinated control inputs with constantly changing control pressures.

Procedure:

1. Perform Pre-Maneuver Checklist, announce “Pre-Maneuver Checklist Complete.”
2. Select appropriate Pivotal Altitude.
3. Maintain 100 KIAS (2200-2300 RPM).
4. Select a straight boundary perpendicular to the wind.
5. Entry:
   a. Approach boundary at Pivotal Altitude, downwind as to cross at 45° angle between pylons
   b. Initiate turn when pylon is in line with the wing reference
   c. Use pitch to maintain correct Pivotal Altitude as groundspeed changes
   d. Briefly establish straight and level flight between pylons (no more than 3-5 seconds)
   e. Initiate turn to right when pylon is in line with the wing reference.
   f. Exit maneuver at entry point.

Completion Standards:

- Proper use of checklists.
- Selects suitable reference points.
- Maintain proper line of sight over pylons.
- Proper coordination.
Simulated Engine Failure/Abnormality During Takeoff Run (On Runway)

Objective: Familiarize the student with proper procedures for engine abnormalities during takeoff.

Procedure:

1. Instructor announces “Engine Failure,” “Low Oil Pressure,” “Smoke,” etc.
2. Immediately reduce power to idle.
3. Heavy braking (ensure directional control).
4. Announce (to instructor) “Abort.”
5. Stop on runway (if appropriate).

Note: When being practiced at a controlled airfield, ensure you are cleared for the option on takeoff.

Completion Standards:

- Proper use of checklists.
- Timely decision made to abort takeoff.
- Maintains directional control.
Simulated Engine Failure In Flight/Emergency Landing

Objective: Familiarize the student with proper procedures for emergencies, including descents and off-field landings; practice simulated engine-out emergencies.

Procedure:

1. Instructor announces, "Simulated Engine Failure."
2. Simultaneously:
   a. Pitch for best glide speed (68 KIAS) using near all nose-up trim
   b. Select suitable landing site
   c. Complete Engine Failure In Flight Checklist from memory
   d. Simulate declaring emergency
3. Proceed toward selected emergency landing site.
4. If time allows complete Engine Failure In Flight Checklist, announce "Engine Failure In Flight Checklist Complete."
5. Instructor decides if engine will "restart."
6. If no restart when landing is assured:
   a. Set 30º flaps in 10º increments
   b. If time permits, simulate completing Emergency Landing Checklist, announce "Emergency Landing Checklist Complete."
7. Continue procedure until instructor announces "Go-Around, simulation is over."
8. Climb to a safe altitude.

Note: Expose the student to both full and partial engine failures at various altitudes as well as other simulated in-flight emergencies.

Completion Standards:

✓ Proper checklist usage.
✓ Student displays understanding of emergency procedures.
✓ Demonstrates in-flight ability to use procedures in simulated emergency descent and landing while safely operating aircraft.
✓ Select suitable landing site in simulation.
Simulated Engine Fire or Smoke In Flight/Emergency Landing

Objective: Familiarize the student with proper procedures for emergencies, including descents and off-field landings; practice simulated engine fire emergencies.

Procedure:

1. Instructor announces “Simulated Engine Fire,” or “Simulated Engine Smoke.”
2. Simultaneously:
   a. Simulate completing the Engine Fire In Flight Checklist from memory
   b. Pitch for 100 KIAS
   c. Select suitable landing site
   d. Simulate declaring an emergency
3. Proceed toward selected emergency landing site.
4. If time allows, complete Engine Fire In Flight Checklist, announce “Engine Fire In Flight Checklist Complete.”
5. When landing is assured:
   a. Set 30° flaps in 10° increments
   b. Slow to landing speed (68 KIAS)
   c. If time permits, simulate completing Emergency Landing Checklist, announce “Emergency Landing Checklist Complete.”
6. Continue procedure until instructor announces “Go-Around, simulation is over.”
7. Climb to a safe altitude.

Completion Standards:

✓ Proper checklist usage.
✓ Student displays understanding of emergency procedures.
✓ Demonstrates in-flight ability to use procedures in simulated emergency descent and landing while safely operating aircraft.
✓ Selects suitable landing site in simulation.
Basic Instrument Maneuvers: Straight and Level Flight

Objective: Familiarize the student with principles of maneuvering an aircraft solely by reference to instruments in straight and level flight.

Procedure:

1. Approach the practice area and level off at 3000-3500' MSL (at least 2000' AGL) and cruise power, 2300-2400 RPM.
2. Note heading and altitude.
3. Fly straight and level by scanning instruments and making small corrections as necessary.
4. Maintain heading, altitude, airspeed, wings level, ball centered.

Completion Standards:

✓ Proper use of checklists.
✓ Altitude +/-100'
✓ Heading +/-10°
Basic Instrument Maneuvers: Climbs and Descents (Constant Airspeed)

Objective: Familiarize the student with the principles of maneuvering an aircraft solely by reference to instruments in climbs and descents using a constant airspeed.

Procedure:

1. Approach the practice area and level off at 3000-3500' MSL (at least 2000' AGL) and cruise power, 2300-2400 RPM.
2. Complete Pre-Maneuver Checklist, announce “Pre-Maneuver Checklist Complete.”
3. Note heading and altitude.

Constant Airspeed Climbs

1. Apply full power, pitch for 85 KIAS while maintaining wings level and ball centered.
2. Trim as necessary.
3. Climb to desired altitude (as specified by instructor).
4. Maintain constant airspeed and continue instrument scan.
5. 75-100' prior to desired altitude:
   a. Apply forward pressure to establish level attitude
   b. Accelerate to cruise speed
   c. Set power 2300-2400 RPM
   d. Trim

Constant Airspeed Descents

1. Reduce power to 1600-2000 RPM.
2. Pitch for 85-129 KIAS.
3. Trim as necessary.
4. Descent to desired altitude (as specified by instructor).
5. 75-100' prior to desired altitude:
   a. Apply cruise power, 2300-2400 RPM
   b. Apply backpressure to establish level attitude
   c. Trim

Completion Standards:

✓ Proper use of checklists.
✓ Establishes proper climb or descent and levels off at desired altitude.
✓ Altitude +/-100'
✓ Heading +/-10°
✓ Airspeed +/-10 KIAS
Basic Instrument Maneuvers: Climbs and Descents (Constant Rate)

Objective: Familiarize the student with the principles of maneuvering an aircraft solely by reference to instruments in climbs and descents using a constant rate.

Procedure:

1. Approach the practice area and level off at 3000-3500' MSL (at least 2000' AGL) and cruise power, 2300-2400 RPM.
2. Complete Pre-Maneuver Checklist, announce “Pre-Maneuver Checklist Complete.”
3. Note heading and altitude.

Constant Rate Climbs

1. Apply full power.
2. Pitch up 4º (adjust as necessary for a 500 FPM climb) while maintaining wings level and coordination.
3. Trim as necessary.
4. Climb to desired altitude (as specified by instructor).
5. Maintain constant airspeed and continue instrument scan.
6. 75-100’ prior to desired altitude:
   a. Apply forward pressure to establish level attitude
   b. Accelerate to cruise speed
   c. Set power 2300-2400 RPM
   d. Trim
7. Complete Climb/Cruise Checklist, announce “Climb/Cruise Checklist Complete.”

Constant Airspeed Descents

1. Reduce power to 1600-2000 RPM.
2. Pitch down 1-4º, adjust as necessary for a 500-1000 FPM descent (as specified by instructor).
3. Trim as necessary.
4. Descent to desired altitude (as specified by instructor).
5. 75-100’ prior to desired altitude:
   a. Apply cruise power, 2300-2400 RPM
   b. Apply backpressure to establish level attitude
   c. Trim

Completion Standards:

✓ Proper use of checklists.
✓ Establishes proper climb or descent and levels off at desired altitude.
✓ Rate +/-100 FPM
✓ Altitude +/-100’
✓ Heading +/-10º
✓ Airspeed +/-10 KIAS
Basic Instrument Maneuvers: Level Turns

Objective: Familiarize the student with the principles of maneuvering an aircraft solely by reference to instruments while making standard rate turns to desired headings.

Procedure:

1. Approach the practice area at 3000-3500’ MSL (at least 2000’ AGL) and cruise power, 2300-2400 RPM.
2. Complete Pre-Maneuver Checklist, announce “Pre-Maneuver Checklist Complete.”
3. Note heading and altitude.
4. Roll into a standard rate turn to the left or right (as specified by the instructor).
5. Initiate rollout 10° prior to desired heading.

Completion Standards:

✓ Proper use of checklists.
✓ Establishes level standard rate turns.
✓ Altitude +/-100’
✓ Heading +/-10°
✓ Airspeed +/-10 KIAS
Basic Instrument Maneuvers: Recovery from Unusual Attitudes

Objective: Familiarize the student with recovering from unusual attitudes solely by reference to instruments to develop proper technique, simulating inadvertent entry into IMC and resultant critical attitude such as nose-high with approaching stall, nose low with steep descent, or steep bank which can result in stall or a high load factor scenario.

Procedure:

1. Approach the practice area at 3000-3500' MSL and cruise power, 2300-2400 RPM.
2. Complete Pre-Maneuver Checklist, announce “Pre-Maneuver Checklist Complete.”

Method 1

1. Student closes eyes:
   a. Instructor waits until unusual attitude occurs

Method 2

2. Exchange flight controls (instructor flying).
3. Student closes eye.
4. Instructor maneuvers airplane into unusual attitude.

Recovery

5. Nose Low:
   a. Level wings
   b. Close throttle to idle
   c. Smoothly apply backpressure
   d. Airspeed less than Vno
   e. Cruise power
   f. Adjust power, return to entry attitude and heading
   g. Set cruise power, 2300-2400 RPM

6. Nose High:
   a. Level pitch
   b. Full power
   c. Level wings
   d. Accelerate to 100 KIAS
   e. Adjust power, return to entry attitude and heading
   f. Set cruise power, 2300-2400 RPM

Completion Standards:

✓ Proper use of checklists.
✓ Recognizes unusual attitude by reference to instruments.
✓ Makes timely recovery.
✓ Proper recovery sequence.
✓ Returns to last assigned heading and altitude.
Instrument Maneuvers: Timed Turns to Magnetic Compass Headings

Objective: Familiarize the student with using the magnetic compass to turn to desired headings during simulated loss of heading indicator and demonstrating knowledge of the errors associated with the magnetic compass.

Procedure:

1. Approach the practice area at 3000-3500' MSL (at least 2000' AGL) and cruise power, 2300-2400 RPM.
2. Complete Pre-Maneuver Checklist, announce “Pre-Maneuver Checklist Complete.”
3. Cover appropriate instruments (simulated vacuum failure).
4. Note beginning heading on compass.
5. Announce direction of turn and desired new heading (“Turn right heading 250”) and calculate time in seconds to turn to that heading.
6. Start timer and begin standard rate turn.
7. Perform level turn and rollout as required.
8. Check heading on compass and make corrections as appropriate (for smaller corrections, a half-standard rate turn may be appropriate).

Completion Standards:

✓ Proper use of checklists.
✓ Proper instrument cross-check.
✓ Altitude +/-100'
✓ Heading +/-10°
✓ Airspeed +/-10 KIAS
Instrument Procedures: VOR, NDB, LOC, and DME Arc Course Interception and Tracking

Instructor Notes:

- These operations will be generally flown at cruise power (2300-2400 RPM) or approach speed (90 KIAS), and at altitudes deemed appropriate by the instructor.
- Before using a navaid, the student shall conduct the 3 T’s:
  - Tune to the desired frequency.
  - Test the signal (maintain audio when using an NDB as appropriate).
  - Twist to the desired bearing as appropriate.
- Appropriate course interception angles for IFR are 30 to 45º.
- Student shall announce “Course Alive” when recognized.
- Perform time, speed, and distance calculations as appropriate.
- Instrument scans shall include periodic checks of aircraft systems as appropriate (i.e. vacuum, electrical load, engine gauges).
- Use full and partial panel scenarios.
- Operations will be flown based on available equipment in the aircraft.

Completion Standards:

- Proper use of checklists.
- Proper instrument cross-check.
- Altitude +/-100’
- Headings +/-10º
- Airspeed +/-10 KIAS
Holding Procedures

Objective: Familiarize the student with the principles related to IFR holding procedures.

Procedure:

1. Three minutes from the holding fix:
   a. Slow to holding speed (90 KIAS)

2. Arrive at the holding fix:
   a. Perform "5 Ts"
      i. **Throttle** - confirm 90 KIAS
      ii. **Turn** to the proper heading for the entry selected (or to the outbound leg)
      iii. **Time** - begin time when abeam the holding fix
      iv. **Twist** CDI to the inbound heading
      v. **Talk** - report "Established in the hold" to ATC.

**Note:** Complete instruction in this operation will include the three holding entries, standard and non-standard hold, non-published holds, and use of navaids appropriate to the aircraft (VOR, NDB holds, etc.).

Completion Standards:

✓ Situational awareness while in the hold.
✓ Altitude +/-100'
✓ Heading +/-10°
✓ Airspeed +/-10 KIAS
Instrument Approaches (Instructor/Student Expectations)

The Instructor Shall:

- Expose the student to both full and ATC vectored instrument approaches.
- Expose the student to instrument approaches at unfamiliar airports.
- Expose the student to both full panel and partial panel approaches.
- Expose the student to published missed approach procedures following an instrument approach.
- Allow as much time as possible in IMC.
- Provide the student with scenario-based training to include equipment failures, loss of navigation equipment while flying an instrument approach and non-planned approaches.

The Student Shall:

- Brief the approach prior to becoming established on a published segment of the approach.
- Announce “Course Alive” when navigation guidance is recognized.
- Not descend referencing an instrument approach procedure unless properly established (course guidance recognized).
- Announce failures (actual or simulated) of any equipment onboard to ATC or the Instructor, as appropriate.
- Continue the approach to the MAP, followed by the published missed approach procedure unless:
  - In IMC
    - The student acquires the airport visually
  - In VMC
    - The Instructor announces “Approach Lights In Sight” or “Runway In Sight.”
- Execute missed approach procedure without prompting if more than ¾ scale (or 5° RB) off course while on approach.
- Execute missed approach procedure without prompting if it becomes apparent that the approach cannot be completed after equipment failure.
- Execute missed approach procedure if MAP cannot be identified.
- Expect to fly the published missed approach procedure unless ATC or the Instructor indicates otherwise.
Setup/Approach Briefing

This required procedure is intended to streamline the setup prior to initiation of the approach. This procedure shall be used for every IAP. All items shall be verbally reviewed by the student.

1. ATIS/AWOS
   a. Obtain (if multiple approaches at the same airport are flown the weather must be obtained only once)
   b. Choose the Approach (communicate desired/expected approach to ATC/Instructor as appropriate)

2. Load Approach/Frequencies
   a. Tune/Identify (ensure that the actual Morse code is observed)
   b. Twist (set the final approach course)
      i. **Note:** if the aircraft is equipped with multiple nav. radios the default procedure is to tune both to the approach being flown. This may be omitted if the second radio is required to identify a required fix or if a complex missed approach procedure is required.

3. Brief Approach
   a. Identify Approach Chart Date (currency)
   b. Navigation
      i. Frequencies (cross check all frequencies)
      ii. Approach course selected
   c. Special Notes
   d. Altitudes
      i. Procedure turn altitude
      ii. Step-downs
      iii. Minimums (ensure students are prepared to fly different minimums should it become necessary during the approach)
         1. DH
         2. MDA
         3. Circling
      iv. TDZE, HAT, HAA
   e. Missed Approach Procedure
      i. MAP
      ii. Initial procedure to be flown
      iii. Hold entry
Instrument Approach (VOR, NDB, GPS, LOC) Full Approach
Straight-in and Circle-to-Land

**Full Approach**- Maintain cruise power, 2300-2400 RPM

1. Prior to the IAF:
   a. Brief the approach
   b. Final approach speed (90 KIAS)
   c. Perform Pre-Landing Checklist, announce “Pre-Landing Checklist Complete.”

2. Once cleared for the approach and established on a published segment of the approach:
   a. Start time (2 minutes minimum)
   b. Descend to published altitude
   c. Execute published procedure turn as appropriate
   d. Descend to published altitude

3. Prior to the FAF/FAP:
   a. Perform Pre Landing Checklist, announce “Pre-Landing Checklist Complete.”

4. Reaching the FAF/FAP:
   a. 3 Ts:
      i. **Time** as appropriate
      ii. **Throttle**- 1600-1700 RPM, set 10° flaps, 90 KIAS, 800 FPM
      iii. **Talk**- report FAF as appropriate

5. Final Approach Segment:
   a. Announce altitudes in 100' increments when within 500' from intermediate level off or MDA
   b. 150' from intermediate level off or MDA, set 2200 RPM and maintain 90 KIAS
   c. Maintain MDA +50'
   d. Maintain current configuration until runway is visually acquired leaving MDA

6. Reaching MAP:
   a. Execute missed approach procedure

**Completion Standards:**

- Proper use of checklists.
- Altitude +/-100' (altitude inside FAF +100/-100')
- Heading +/-10°
- Airspeed +/-10 KIAS
- Bank angles +/-5° during turns
**Instrument Approach (VOR, NDB, GPS, LOC) Vectors to Final**

**Vectors to Final**: Maintain cruise power, 2300-2400 RPM

1. Upon receiving initial vector for the approach:
   a. Brief the approach
   b. Final approach speed (90 KIAS)
   c. Perform Pre-Landing Checklist, announce “Pre-Landing Checklist Complete.”

2. Reaching the FAF/FAP
   a. 3 Ts:
      i. **Time** as appropriate
      ii. **Throttle**: 1600-1700 RPM, set 10° flaps, 90 KIAS, 800 FPM
      iii. **Talk**: report FAF as appropriate

3. Final Approach Segment:
   a. Announce altitudes in 100’ increments when within 500’ from intermediate level off or MDA
   b. 150’ from intermediate level off or MDA, set 2200 RPM and maintain 90 KIAS
   c. Maintain MDA +50’
   d. Maintain current configuration until runway is visually acquired leaving MDA

4. Reaching MAP:
   a. Execute missed approach procedure

**Completion Standards:**

- Proper use of checklists.
- Altitude +/-100’ (altitude inside FAF +100/-0’)
- Heading +/-10°
- Airspeed +/-10 KIAS
- Bank angles +/-5° during turns
Instrument Approach (ILS) Full Approach
Straight-In and Circle-to-Land

Full Approach- Maintain 2300-2400 RPM Full Approach- Maintain cruise power, 2300-2400 RPM

1. Prior to the IAF:
   a. Brief the approach
   b. Final approach speed (90 KIAS)
   c. Perform Pre-Landing Checklist, announce “Pre-Landing Checklist Complete.”

2. Once cleared for the approach and established on a published segment of the approach:
   a. Start time (2 minutes minimum)
   b. Descend to published altitude
   c. Execute published procedure turn as appropriate
   d. Descend to published altitude

3. Prior to Glide Slope Intercept:
   a. Perform Pre Landing Checklist, announce “Pre-Landing Checklist Complete.”
   b. Set 10º Flaps

4. Glide Slope Intercept
   a. 1900 RPM (or as necessary to maintain glide slope and 90 KIAS)

5. Reaching the FAF:
   a. 3 Ts:
      i. Time as appropriate
      ii. Throttle- 1600-1700 RPM, set 10º flaps, 90 KIAS, 800 FPM
      iii. Talk- report FAF as appropriate

6. Final Approach Segment:
   a. Announce altitudes in 100’ increments when within 500’ DH
   b. Announce passing circling and LOC minimums
   c. Maintain current configuration until runway is visually acquired

7. Reaching MAP:
   a. Execute missed approach procedure

Completion Standards:

✓ Proper use of checklists.
✓ Altitude +/-100’ (altitude inside FAF +100/-0’)
✓ Heading +/-10º
✓ Airspeed +/-10 KIAS
✓ Bank angles +/-5º during turns
Instrument Approach (ILS) Vectors to Final
Straight-In and Circle-to-Land

**Vectors to Final**- Maintain cruise power, 2300-2400 RPM

1. Upon receiving initial vector for the approach:
   a. Brief the approach
   b. Final approach speed (90 KIAS)
   c. Perform Pre-Landing Checklist, announce “Pre-Landing Checklist Complete.”

2. Once cleared for the approach and established on a published segment of the approach:
   d. Maintain assigned altitude

3. Prior to Glide Slope Intercept:
   a. Perform Pre Landing Checklist, announce “Pre-Landing Checklist Complete.”
   b. Set 10º Flaps

4. Glide Slope Intercept
   a. 1900 RPM (or as necessary to maintain glide slope and 90 KIAS)

5. Reaching the FAF:
   a. 3 Ts:
      i. **Time** as appropriate
      ii. **Throttle**- 1600-1700 RPM, set 10º flaps, 90 KIAS, 800 FPM
      iii. **Talk**- report FAF as appropriate

6. Final Approach Segment:
   a. Announce altitudes in 100' increments when within 500' DH
   b. Announce passing circling and LOC minimums
   c. Maintain current configuration until runway is visually acquired

7. Reaching MAP:
   a. Execute missed approach procedure

**Completion Standards:**

✓ Proper use of checklists.
✓ Altitude +/-100' (altitude inside FAF +100/-0')
✓ Heading +/-10º
✓ Airspeed +/-10 KIAS
✓ Bank angles +/-5º during turns
Missed Approach

Objective: Familiarize the student with procedure for discontinuing approach due to unsafe conditions or lack of visual references necessary for landing; developing good decision-making skills.

Procedure:

1. Apply full power and enough forward pressure to regain sufficient airspeed for climb without losing altitude.
2. Set 20° flaps (if Go-Around initiated with full flaps).
3. Immediately establish a positive rate of climb on required heading.
4. Retrim as necessary.
5. Establish 85 KIAS and continue to climb to heading and altitude required by the missed approach procedure.
7. Report missed approach as appropriate.

Note: This operation may be followed by the published holding procedure, a non-published hold, or ATC vectors.

Completion Standards:

✓ Proper use of checklists.
✓ Timely judgment to execute missed approach.
✓ Proper procedure for Go-Around.
✓ Positive climb with proper airspeed and configuration.
Simulated Emergency Scenarios

Notes: Use instrument approach speed and power settings previously outlined as appropriate.

Simulate emergencies in flight when deem safe (VMC, IMC, as appropriate).

- No-Gyro approaches (at an ATC facility equipped for this operation)
- Loss of Communications
- Various System Malfunctions (mechanical, in addition to partial panel)
- Icing
- Turbulence
- Low Fuel
- Engine Failure

Completion Standards:

- ✔ Demonstrates appropriate recognition of the emergency.
- ✔ Proper use of checklists.
- ✔ Appropriate use of cockpit and external resources.
- ✔ Safe management of simulated emergencies.