This curriculum is designed to satisfy FAA requirements for Instrument Pilot training under CFR 61 and CFR 141. Ten hours of PCATD time may be credited toward the experience required for the instrument rating when flown with a supervising flight instructor.

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Instrument Pilot Rating
PCATD - Integrated
Training Course Outline
and
Course Syllabus

Latest revision: August 28, 1997

AOPA Air Safety Foundation
PCATD- Integrated Training Course Outline
Instrument Pilot Rating

Prerequisites: - Private or Commercial Pilot Certificate

Stage 1: Basic Attitude Instrument Flying

6 hours dual instruction

		Ground	PCATD	Flight
Lesson 1:	Pitch and Power Instruments	1.5	1.0	
	Straight and level			
	Climbs and descents			
	Standard-rate turns			
	Timed turns			
Lesson 2:	Bank Instruments	1.5	1.0	
	Climbing and descending turns			
	Timed turns - partial panel			
	Instrument patterns			
	Aircraft speed and configuration changes			
Lesson 3:	IFR Preflight	1.0		1.0
	Normal maneuvers			
	Constant airspeed climbs and descents			
	Standard-rate turns			
	Timed turns - partial panel			
	Climbing and descending turns			
	Constant-rate climbs and descents			
	Instrument patterns			
Lesson 4:	Unusual Maneuvers	1.0	1.0	
	Steep turns			
	Recovery from unusual attitudes			
	Partial panel			

		Ground	PCATD	Flight
Lesson 5:	Unusual Maneuvers Steep turns Recovery from unusual attitudes Partial panel Compass turns	1.0		1.0
Lesson 6:	Stage Check	1.0		1.0
	Totals for Stage 1:	**7.0**	**3.0**	**3.0**

Stage 2: Introduction to Navigation Procedures

6 hours dual instruction

		Ground	PCATD	Flight
Lesson 7:	VOR Navigation Orientation Tracking and intercepting radials VOR intercept patterns Vacuum instrument failures Situational awareness	1.5	1.0	
Lesson 8:	NDB Navigation Orientation Tracking and intercepting courses NDB intercept patterns Vacuum instrument failures	1.5	1.0	
Lesson 9:	Holding Patterns VOR and NDB entries Intersection holding Climbs and descents Partial panel	1.5	1.0	
Lesson 10:	Holding Patterns VOR and NDB entries Intersection holding Climbs and descents Partial panel	1.0		1.5
Lesson 11:	Stage Check	1.0		1.5
	Totals for Stage 2:	**6.5**	**3.0**	**3.0**
	Cumulative Totals:	**13.5**	**6.0**	**6.0**

Latest revision: August 28, 1997

Stage 3: Instruction Approaches

15 hours dual instruction

		Ground	PCATD	Flight
Lesson 12:	VOR Approaches Approaches to selected airports Missed approaches Partial panel	1.5	1.0	
Lesson 13:	VOR Approaches Approaches to selected airports Missed approaches Partial panel	1.0		2.0
Lesson 14:	NDB Approaches Approaches to selected airports Missed approaches Partial panel	1.5	1.0	
Lesson 15:	NDB Approaches Approaches to selected airports Missed approaches Partial panel	1.0		2.0
Lesson 16:	LOC/ILS Approaches Approaches to selected airports Missed approaches Partial panel	1.5	1.0	
Lesson 17:	LOC/ILS Approaches Approaches to selected airports Missed approaches Partial panel	1.0		2.0
Lesson 18:	Unusual Approaches BC, DME arc, ASR, PAR, LDA, SDF Missed approaches Partial panel	1.5	1.0	
Lesson 19:	Unusual Approaches BC, DME arc, ASR, PAR, LDA, SDF Missed approaches Partial panel	1.5		1.5

		Ground	PCATD	Flight
Lesson 20:	Review of Approaches	1.0		1.5
Lesson 21:	Stage Check	1.5		2.0
	Totals for Stage 3:	**13.0**	**4.0**	**11.0**
	Cumulative Totals:	**26.5**	**10.0**	**17.0**

Stage 4: Instruction Cross-Country Procedures

13 hours dual instruction

		Ground	PCATD	Flight
Lesson 22	FARs, STARs, SIDs Lost communications Inoperative equipment Departure and arrival procedures	1.5		
Lesson 23:	Cross-country Procedures ATC procedures Approaches to unfamiliar airports Emergencies	1.5		2.5
Lesson 24:	Cross-country Procedures ATC procedures Approaches to unfamiliar airports Emergencies	1.0		2.5
Lesson 25:	250-mile Cross-country Flight ATC procedures En route procedures Approaches to unfamiliar airports	1.0		4.0
Lesson 26:	Practical Test Preparation Timed turns and compass turns Steep turns Unusual-attitude recovery Holding procedures Approaches and missed approaches	2.0		2.0
Lesson 27:	Stage Check	1.5		2.0
	Totals for Stage 4:	**8.5**		**13.0**
	Cumulative totals:	**35.0**	**10.0**	**30.0**

Latest revision: August 28, 1997

Stage 1
BASIC ATTITUDE INSTRUMENT FLYING

LESSON 1: PITCH AND POWER INSTRUMENTS

- 1.5 hours ground instruction
- 1.0 hour dual instruction - PCATD

Objective: To develop an understanding of and ability to manage pitch instruments and power control.

Preflight Discussion

- 1.0 hour ground instruction
- The instructor will demonstrate each instrument on the PCATD.

I. Attitude indicator
   A. A/I pitch markings
   B. Pitch changes vs. airspeed changes

II. Altimeter
   A. Relationship of altitude and attitude
   B. Primary instrument for level flight
   C. Large vs. small pitch changes

III. VSI
   A. Trend and rate instrument

IV. Airspeed indicator
   A. Effect of power changes in level flight
   B. Effect of pitch changes in level flight

Flight

- 1.0 hour dual instruction - PCATD
- PCATD weather: 1000' ceiling, 3 miles visibility
- Normal takeoff and climb to 2000'

I. Introduce pitch instruments
   A. Maintain level flight by incorporating each pitch instrument
   B. Maintain altitude while covering:
      1. Altimeter
      2. Attitude indicator

II. Introduce power control
    A. Constant altitude at different airspeeds and configurations
        1. Cruise flight
        2. Slow flight
            a. Cruise configuration
            b. Landing configuration
    B. Constant airspeed climb/descents
    C. Constant rate climb/descent

Postflight Discussion and Critique

- 0.5 hour ground instruction

Completion Standards

The student will:

- Maintain altitude +/- 100' in level flight
- Maintain airspeed +/- 10 knots
- Maintain constant rate of climb/descent +/- 100 ft/min.

LESSON 2: BANK INSTRUMENTS

- 1.5 hours ground instruction
- 1.0 hour dual instruction - PCATD

Objective: To develop an understanding of and ability to manage bank instruments.

Preflight Discussion

- 1.0 hour ground instruction
- The instructor will demonstrate each instrument on the PCATD.

I. Attitude indicator
   A. A/I bank markings
   B. Bank angle to aileron input
   C. Changes in roll rate to airspeed changes

II. Heading indicator
   A. Roll rate to heading change
   B. Roll out lead

III. Turn coordinator
   A. Bank angle to rate of turn
   B. Standard rate of turn
   C. Relationship of airspeed to standard-rate turns
   D. Relationship of time to standard-rate turns
   E. Use of rudder and ball placement during turns

Flight

- 1.0 hour dual instruction - PCATD
- PCATD weather: 1000' ceiling, 3 miles visibility
- Normal takeoff and climb to 2000'

I. Introduce bank instruments.
   A. Standard-rate turns - full panel
   B Standard-rate turns - inoperative attitude indicator
   C. Timed turns
      1. Check accuracy of turn coordinator
         a. In 10 seconds, should turn 30 degrees.
      2. Standard-rate turns
      3. ½-standard-rate turns
      4. Repeat with inoperative heading indicator

II. Review all instruments
   A. Fly standard-rate turns while climbing/descending.
   B. Fly timed turns while climbing/descending.

Postflight Discussion and Critique

- 0.5 hour ground instruction

Completion Standards

The student will:

- Maintain altitude +/- 100' during maneuvers
- Maintain standard-rate turn during airspeed changes
- Maintain heading +/- 10 degrees
- Maintain airspeed +/- 10 knots

LESSON 3: NORMAL MANEUVERS

- 1.0 hour ground instruction
- 1.0 hour dual instruction - airplane

Objective: To incorporate additional IFR items in normal preflight tasks and develop basic skills required for normal maneuvers under instrument flight conditions.

Preflight Discussion

- 0.8 hour ground instruction
- The instructor will discuss IFR preflight procedures and review maneuvers on the PCATD.

I. IFR preflight
   A. Required inspections and checks
      1. Annual/100 hour inspection
      2. Pitot/static system
      3. Transponder/data correspondence
      4. VOR accuracy
   B. Pitot and static sources/pitot heat
   C. Position and cockpit lights
   D. Weather briefing
   E. Required fuel
   F. Taxi checks
      1. Attitude indicator
         a. Stabilize within 5 min. of initial power-up.
         b. No flag
         c. No more than 5 degrees false bank
      2. Heading indicator
         a. Correct direction during taxi turns
         b. Use to verify correct runway
      3. Altimeter
         a. Check accuracy on ground - within 75' of known airport elevation
      4. VSI
         a. Indicate approximately 0 on the ground
      5. Turn coordinator
         a. Taxi turns
            i. Turn left - skid right
            ii. Turn right - skid left
      6. Magnetic compass
         a. Fluid
         b. Correct direction during taxi turns
      7. Clock
         a. Wound and set

II. Review normal maneuvers
   A Constant airspeed climbs/descents
   B. Constant-rate climbs/descents
   C. Standard-rate turns
   D. Timed turns
   E. Climbing/descending turns
   F. Constant-rate climbs/descents

Flight

- 1.0 hour dual instruction - airplane

I. Preflight
   A. External items
   B. Cockpit check
   C. Taxi check

II. Flight
   A. Constant airspeed climbs/descents
      1. Climb at constant airspeed for 3000'
      2. Level off
      3. Descend for 1000'
      4. Level off
   B. Constant-rate climbs/descents
      1. Climb at 500' per minute for 1000'
      2. Descend at 500' per minute for 1000'
   C. Standard-rate turns
      1. Fly 180-degree turns left then right
      2. Fly turns at various airspeeds and configurations
      3. Fly turns with simulated inoperative attitude indicator
   D. Timed turns
      1. Fly timed turns for calibration
      2. Fly timed turns left/right for 1 minute
      3. Fly timed turns to selected headings with simulated inoperative heading indicator
   E. Climbing/descending turns
      1. Climb 1000' while turning 180 degrees at constant airspeed
      2. Descend 1000' while turning 180 degrees at constant airspeed
      3. Use standard-rate turns
   F. Climbing/descending turns at a constant rate
      1. Climb 1000' while turning 360 degrees at a constant airspeed and 500 feet per minute
      2. Descend 1000' per minute while turning 360 degrees at a constant airspeed and 500 feet per minute
      3. Use standard-rate turns

Postflight Discussion and Critique

- 0.2 hour ground instruction

Completion Standards

The student will:

- Maintain altitude +/- 100 feet
- Maintain airspeed +/- 10 knots
- Maintain heading +/- 10 degrees
- Operate controls smoothly
- Complete timed turns to within 20 degrees of heading with heading indicator covered

LESSON 4: UNUSUAL MANEUVERS

- 1.0 hour ground instruction
- 1.0 hour dual instruction - PCATD

Objective: To improve scan skills, to operate the aircraft at its limits, and to recover from unusual situations.

Preflight Discussion

- 0.8 hour ground instruction
- The instructor will demonstrate the following maneuvers and procedures on the PCATD.

I. Steep turns
   A. Full panel
   B. Partial panel

II. Unusual attitudes
   A. Bank angles in excess of 30 degrees
   B. Nose-low attitudes
      1. Low pitch on AI
      2. Increasing airspeed
      3. VSI indicating high rate of descent
   C. Nose-high attitudes
      1. High pitch on AI
      2. Decreasing airspeed
      3. High climb rate on VSI
   D. Partial panel
      1. Loss of gyro instruments

III. Recovery techniques
   A. Nose-low attitude
      1. Reduce power
      2. Level wings
      3. Raise pitch
   B. Nose-high attitude
      1. Add power
      2. Lower nose
      3. Level wings
   C. Partial panel
      1. Loss of gyro instruments

Flight

- 1.0 hour dual instruction - PCATD
- Start flight at 2,000’ in IFR conditions

I. Steep turns of 45 degree bank
   A. Establish 45-degree-bank turn
   B. Roll out on preselected heading

II Partial-panel steep turns
   A. Fail attitude indicator
   B. Turn indicator becomes primary for bank
      1. Turn greater than standard rate is steep turn

III. Unusual attitudes
   A. Nose-low attitude is set by instructor
      1. Reduce power
      2. Roll wings level
      3. Raise nose
      4. Use AI to establish level flight
   B. Inoperative heading indicator and attitude indicator
      1. Use altimeter to establish level flight
      2. VSI can be used for supporting instrument after recovery is established
      3. Use ASI to also establish level flight
   C. Nose-high attitude is set by instructor
      1. Add power
      2. Lower nose
      3. Level wings
      4. Use AI to establish level flight
   D. Fail gyro instruments
      1. Use altimeter to establish level flight
      2. VSI can be used as a supporting instrument after recovery is established
      3. Use ASI to also establish level flight

Postflight Discussion and Critique

- 0.2 hour ground instruction

Completion Standards

The student will:

- Maintain altitude +/- 100 feet
- Maintain bank angle +/- 10 degrees
- Recover promptly to level flight from unusual maneuvers

LESSON 5: UNUSUAL MANEUVERS

- 1.0 hour ground instruction
- 1.0 hour dual instruction - airplane

Objective: To continue instrument flight without reference to all gyro instruments.

Preflight Discussion

- 0.8 hour ground instruction
- The instructor will review the following maneuvers on the PCATD.

I. Review unusual maneuvers
   A. Steep turns
   B Unusual attitudes
   C. Partial panel

II. Magnetic compass
   A. Turning errors
      1. Undershoot the headings when turning through north
      2. Overshoot the heading when turning through south
      3. Turning from north the compass will lag
      4. Turning from south the compass will lead
      5. Turning from east/west compass will be accurate if turn is smooth
   B. Acceleration errors
      1. Accelerate gives a northerly turn
      2. Decelerate gives a southerly turn
      3. (ANDS) mnemonic device

Flight

- 1.0 hour dual instruction - airplane
- IFR conditions simulated at 100' agl after takeoff
- Climb to appropriate altitude using assigned headings and constant-climb airspeed

I. Steep turns
   A. 45-degree-bank turns 360 degrees left then immediately right
   B. As above with attitude indicator covered

II. Unusual attitudes
   A. Nose-low attitude set by instructor with student not looking at panel
      1. Recover smoothly to assigned altitude and heading
   B. Nose-low attitude with attitude indicator covered
      1. Recover smoothly to assigned altitude and heading
   C. Nose-high attitude set by instructor with student not looking at panel
      1. Recover smoothly to assigned altitude and heading
   D. Nose-high altitude with attitude indicator covered

1. Recover smoothly to assigned altitude and heading

III. Flight by reference to magnetic compass
   A. Cover heading indicator
   B. Fly headings referencing magnetic compass
   C. Makes timed turns to specific magnetic compass headings

IV. Patterns
   A. Fly patterns that incorporate altitude, heading, and airspeed changes using standard-rate and timed turns

Postflight Discussion and Critique

- 0.2 hour ground instruction

Completion Standards

The student will:

- Maintain altitude +/- 100 feet
- Maintain bank +/- 5
- Maintain heading +/- 10 degrees
- Maintain airspeed +/- 10 knots
- Recover smoothly to level flight from unusual attitudes

LESSON 6: STAGE CHECK

- 1.0 hour ground instruction
- 1.0 hour dual instruction - airplane

Objective: To determine the student's comprehension and understanding of Stage 1 lessons.

Preflight Discussion

- 0.8 hour ground instruction
- The instructor will question the student on preflight preparations

Flight

- 1.0 hour dual instruction - airplane
- The flight will consist of student demonstrations of representative normal and unusual maneuvers as chosen and directed by the flight instructor

Postflight Discussion and Critique

- 0.2 hour ground instruction

Completion Standards

- As established by the FAA Practical Test Standards for the Instrument Rating

STAGE 2
INTRODUCTION TO NAVIGATION PROCEDURES

LESSON 7: VOR NAVIGATION

- 1.5 hours ground instruction
- 1.0 hour dual instruction - PCATD

Objective: To learn how to use the VOR for orientation, positioning and tracking.

Preflight Discussion

- 1.0 hour ground instruction
- Upon completion of preflight discussion, test student's awareness of VORs by positioning the aircraft at various locations from a VOR or intersection and have the student show location on the chart. Check the map for accuracy.
- Use the PCATD to demonstrate tracking and correcting for winds, then show map and see how tracking and orientation relates to the desired course.

I. Description of the VOR
   A. Radial - magnetic bearing outbound from a VOR
   B. Ranges
      1. High altitude
      2. Low altitude
      3. Terminal
   C. MEA - lowest published altitude between radio fixes
      1. Assures acceptable navigational coverage
      2. Meets obstacle clearance requirements
   D. MOCA
      1. Assures acceptable navigation coverage only within 22 nm of a VOR
      2. Meets obstacle clearance requirements
   E. VOR changeover point (COP)
   F. MRA
   G. Course deviation
      1. 1 dot=2 degrees of course deviation
      2. Full scale at 5 dots=10 degrees deviation or more
   H. VOR sensitivity
   I. VOR receiver checks
      1. VOT
      2. Ground checkpoint
      3. Airborne checkpoint
      4. Dual-system VOR check
   J. Reverse sensing
      1. Use PCATD for demonstration

II. Orientation
   A. Obtaining position using one VOR
   B. Obtaining position using two VORS
   C. Obtaining position using VOR and DME (if applicable)
   D. Obtaining position passing abeam a VOR
   E. Setting and identifying an intersection with two VORs or VOR and DME (if applicable)

III. Tracking to/from a VOR
   A. Demonstrate tracking to/from a VOR
   B. Homing by centering OBS
   C. Intercepting a radial
   D. Bracketing - estimating a wind correction angle
   E. Intercept a radial from a DME arc (if DME equipped)

Flight

- 1.0 hour dual instruction - PCATD
- PCATD weather: IFR conditions, no wind
- Start flight in air

I. Basic VOR orientation
   A. Using one VOR, determine relative position from the VOR
      1. Display map and check for accuracy
   B. Using two VORs, determine location on the chart
      1. Display map and check for accuracy
   C. Using VOR and DME determine location on the chart
      1. Display map and check for accuracy
   D. Determine position when flying abeam the VOR
      1. Display map and show location

II. Basic VOR navigation
   A. Homing to a station
      1. Center VOR and fly toward station
   B. Intercepting and tracking
      1. Intercept and track radial inbound and outbound from the VOR
   C. Identify, intercept, and track a known airway
   D. Identify and fly to a known intersection

PCATD - Add crosswind

   E. Intercepting and tracking by bracketing
      1. Intercept and track radial inbound and outbound from the VOR, correcting for winds
   F. Identify, intercept, and track a known airway
   G. Identify and fly to a known intersection
   H. Fly a radial outbound from the VOR for 1 minute, turn and intercept a known radial back to the VOR (a teardrop pattern)

I. If DME equipped, fly a radial outbound 5 DME, fly a 5 DME arc to intercept another radial inbound

Postflight Discussion and Critique

- 0.5 hour ground instruction
- Review the PCATD printout on tracking of the radial and patterns for accuracy on intercepting and bracketing for winds

Completion Standards

The student will:

- Accurately obtain VOR position fixes and identify intersections
- Maintain altitude +/-100'
- Maintain airspeed +/-10 knots
- Maintain desired course within 1 dot

LESSON 8: NDB NAVIGATION

- 1.5 hour ground instruction
- 1.0 hour dual instruction - PCATD

Objective: To learn orientation to and tracking of nondirectional beacons.

Preflight Discussion

- 1.0 hour ground instruction
- Use PCATD to demonstrate the ADF - use rotating-card or RMI as required. Show map and compare course flown with desired course.
- Test student's awareness of location by positioning the aircraft at various points from the NDB and having student show on a chart the position of the aircraft. Check the map for accuracy of location.

I. NDB orientation
   A. The NDB (nondirectional beacon)
   B. Identifying the NDB
   C. Monitoring the signal during an approach
   D. Testing the ADF

II. Ranges of an NDB
   A. Compass locator
   B. MH
   C. H
   D. HH

III. Accuracy of the NDB
   A. Thunderstorms
   B. Interference
   C. Night effect
   D. Mountain and coastal effect

IV. Tracking inbound to an NDB
   A. Homing
   B. Desired bearing without wind
   C. Desired bearing with wind correction

V. Track outbound from the NDB
   A. Desired bearing without wind
   B. Desired bearing with wind

VI. Identifying location with NDB and VOR

VII. Identifying location using two NDBs

Flight

- 1.0 hour dual instruction - PCATD
- PCATD weather: IFR conditions
- Start lesson in the air with no wind
- Refer to map periodically to check on accuracy of position and tracking. Question the student frequently as to airplane position in relation to the beacon and then confirm accuracy by showing position on the map. If lesson is conducted with a movable-card ADF, fly some bearings with the RMI, and vice versa if using an RMI.

I. NDB tuning and identifying
   A. Tune and identify the local NDB

II. Tracking NDB bearings
   A. Home to the NDB station
   B. Intercept and track a known bearing to and from the NDB with no wind
   C. Intercept and track a known bearing to and from the NDB with 15 knots of wind
   D. Determine position on chart with the NDB and a VOR
   E. Intercept a bearing to an NDB, fly another bearing outbound for 1 minute, turn and track another bearing inbound (teardrop pattern)

Postflight Discussion and Critique

- 0.5 hour ground instruction
- Review tracking and intercept from the PCATD printout. Emphasize effect winds have on tracking a bearing.

Completion Standards

The student will:

- Accurately track NDB bearings inbound and outbound correcting for winds
- Maintain altitude +/-100'
- Maintain airspeed +/-10 knots

LESSON 9: HOLDING PATTERNS

- 1.5 hours ground instruction
- 2.0 hours dual instruction - PCATD

Objective: To understand the purpose of a holding pattern, and to be able to enter and hold at any type of fix assigned by ATC.

Preflight Discussion

- 1.0 hour ground discussion
- Demonstrate as needed on the PCATD

I. Reasons for holding patterns
   A. Delaying action
   B. Course reversal for an approach
   C. To lose or gain altitude within specified airspace

II. Components of a holding pattern
   A. The holding fix
      1. VOR
      2. NDB
      3. Outer marker
      4. Intersection
      5. DME fix
   B. The holding radial or bearing
   C. The position of the holding pattern relative to the fix (northeast, southeast, etc.)
   D. The direction of turns (right-hand is standard)
   E. The timing or distance (DME equipped) 1 minute inbound leg is standard
   F. Altitude
   G. Time to expect further clearance

III. Holding pattern entries
   A. Direct
   B. Teardrop
   C. Parallel

IV. Determining type of entry to the holding pattern
   A. Looking at a chart
   B. Using the heading indicator
      1. Place right thumb on the 90-degree position of the heading indicator
      2. Imagine line sloping to the top of your thumb to determine the 70-degree position
      3. Imagine line coming straight down from the top of the heading indicator

4. For a standard holding pattern where the radial to hold on is:
    a. Ahead to the left or sector 1 is a parallel entry
    b. Ahead to the right or sector 2 is a teardrop entry
    c. Behind or sector 3 is a direct entry
5. Use your left thumb for nonstandard pattern on the 270-degree position of the HI
6. For a nonstandard holding pattern where the radial to hold on is:
    a. Ahead to the left or sector 1 is a teardrop entry
    b. Ahead to the right or sector 2 is a parallel entry
    c. Behind or sector 3 is a direct entry

Flight

- 2.0 hours dual instruction - PCATD
- PCATD weather: IFR conditions
- Start lesson in the air

I. Basic standard holding pattern at a VOR
   A. Enter a holding pattern as a direct entry
      1. Slow to holding speed prior to entry
   B. Fly the pattern under no-wind condition with 1-minute legs
   C. Climb/descend 1,000' in the holding pattern
   D. Add 15-knot winds
   E. Adjust outbound leg as necessary for a 1-minute inbound leg
   F. Climb/descend 1,000' in the holding pattern

II. Basic standard holding pattern at a NDB, no wind
   A. Climb/descend 1,000' in the holding pattern
   B. Add 15-knot winds
   C. Climb/descend 1,000' in the holding pattern

III. Entries to holding patterns (standard and nonstandard)
   A. VOR
      1. Teardrop
      2. Parallel
   B. NDB
      1. Teardrop
      2. Parallel
   C. Intersection
      1. Teardrop
      2. Parallel

IV. Holding patterns with various instrument failures
   A. Fail ADF or VOR
   B. Fail attitude indicator
   C. Fail heading indicator

Latest revision: August 28, 1997

Postflight Discussion and Critique

- 0.5 hour ground instruction
- Review the PCATD printout of the holding patterns for discussion and critique

Completion Standards

The student will:

- Enter holding patterns appropriately, correcting for winds to staying in pattern and maintaining 1-minute inbound legs
- Maintain altitude +/- 100'
- Maintain airspeed +/- 10 knots

LESSON 10: HOLDING PATTERNS

- 1.0 hour ground instruction
- 1.5 hours dual instruction - airplane

Objective: To transfer knowledge of holding patterns to actual flight conditions

Preflight Discussion

- 0.8 hour ground instruction
- Review holding patterns and entries demonstrating on the PCATD. Quiz student on type of entry from various points from a VOR/ NDB.

I. Clearances
   A. Components of a clearance
      1. Route
      2. Initial direction
      3. Altitude
      4. Departure frequency
      5. Squawk

Flight

- 2.0 hours dual instruction - airplane

I. Preflight
   A. VOR
      1. VOR receiver check
      2. Identify VOR frequency
      3. No off red flag
   B. NDB
      1. Identify frequency
      2. Testing the ADF receiver
         a. ANT - best for identifying
         b. Test - deflects needle from present position
         c. Volume knob - adjust accordingly
   C. Clearance
      1. Give clearance and holding instruction to a local VOR
   D. VOR and VOR holding
      1. Track on an assigned radial to a local VOR
      2. Hold at the VOR using a direct entry
      3. In holding pattern, climb/descend 1,000'
      4. In holding pattern, hold on a different radial using either teardrop or parallel entry
      5. Stay in holding pattern, using different entries and altitudes
      6. Hold with partial panel
   E. NDB and NDB holding
      1. Give clearance to a local NDB with holding instructions

2. In holding pattern using different entries and altitudes
3. Hold with partial panel

F. Intersections using two VORs or VOR and DME (if applicable)
1. Give clearance to a local intersection and hold
2. Hold with partial panel

Postflight Discussion and Critique

- 0.2 hour ground instruction

Completion Standards

The student will:

- Accurately copy clearances and understand holding instructions.
- Enter holding from any entry, both standard and nonstandard at any type of fix
- Maintain altitude +/- 100'
- Maintain airspeed +/- 10 knots

LESSON 11: STAGE CHECK

- 1.0 hour ground instruction
- 1.5 hours dual instruction - airplane

Objective: To determine the student's comprehension and understanding of Stage 2 lessons

Preflight Discussion

- 0.8 hour ground instruction
- The instructor will question student on navigation procedures, holding patterns, and entries.

Flight

- 1.5 hours dual instruction - airplane
- The flight will consist of student demonstration of navigation procedures and holding patterns using VOR, NDB, and intersections as chosen and directed by the flight instructor.

Postflight Discussion and Critique

- 0.2 hour ground instruction

Completion Standards

- As established by the FAA Practical Test Standards for the Instrument Rating

STAGE 3
INSTRUMENT APPROACHES

LESSON 12: VOR APPROACHES

- 1.5 hours ground instruction
- 1.0 hour dual instruction - PCATD

Objective: To understand VOR and VOR/DME approaches and to accurately fly VOR or VOR/DME approaches and missed approach procedures.

Preflight Discussion

- 1.0 hour ground instruction
- Use PCATD to demonstrate the VOR and a VOR/DME approach
- Use approaches for local area
- Periodically question the student concerning location of the aircraft on the approach
- Check the map for accuracy
- Fly the complete approach with no vectors, explaining the following elements as required:
    1. Timing outbound
    2. Descent in procedure turn/holding pattern
    3. Descent and timing (if required) to MDA
    4. Missed approach
    5. If DME approach used - DME step-down fixes and missed approach point
- Review approaches on the map and vertical profile printout

I. Flight plans
   A. Format
   B. Fast file
   C. Towered vs. Nontowered
      1. Clearance delivery
      2. Receiving clearance airborne
      3. Void time

II. Segments of an approach
   A. Feeder route/arrival segments
   B. Initial approach segments
   C. Intermediate approach segment
   D. Final approach segment
   E. Missed approach

III. The approach chart
   A. Type of approach
   B. Plan view of the approach and missed approach
   C. Profile view of the approach

D. Altitude, minimums, and categories
E. Radio facilities associated with the approach and missed approach
F. Terrain detail necessary for a safe approach
G. Airport chart showing airport layout and lighting information

IV. Landing from an MDA
A. Requirements for continuing approach beyond the MDA
B. VDP
C. Circle to land
1. Use next highest category for minimums due to increased speed
2. Executing a missed approach from circling

FLIGHT

- 1.0 hour dual instruction - PCATD
- PCATD weather: variable conditions at MDA
- Begin approach in air sufficient distance from VOR to allow for orientation and slowing to approach speed. Altitude should be high enough to allow for descent to initial approach altitude.
- If student is not flying with a DME-equipped aircraft, fly one VOR/DME approach for familiarization

I. VOR approach and VOR/DME (if required) approach
A. Fly approach to below MDA or missed approach as the PCATD allows
B. If able to fly visually below MDA, execute a missed approach
C. Set PCATD for 10-knot winds and weather 200' above MDA
D. Fly one approach to a circle-to-land
E. Fly one approach to a circle-to-land with a missed approach
F. Fly one approach with random instrument failures to a landing

Postflight Discussion and Critique

- 0.5 hour ground instruction
- Review PCATD printout for critique and discussion

Completion Standards

The student will:

- Fly complete VOR and VOR/DME (if required) approaches to MDAs and either execute a missed approach or complete the approach to a landing from the MDA or from a circling approach
- FAA practical test standards will apply

LESSON 13: VOR APPROACHES

- 1.0 hour ground instruction
- 2.0 hours dual instruction - airplane

Objective: To obtain weather briefings, file flight plans, copy clearances, and communicate with ATC while flying VOR or VOR/DME approaches.

Preflight Discussion

- 0.8 hour ground instruction

I. Review
   A. VOR and VOR/DME approaches
   B. Weather briefing
   C. Flight plan
   D. Clearance
   E. Aircraft preflight

Flight

- 2.0 hours dual instruction - airplane

I. Normal preflight with emphasis on:
   A. VOR receiver checks
   B. VOR frequency and identification
   C. DME identification
   D. Clearance (simulated or real)
   E. Current charts

II. VOR approach
   A. Fly the VOR approach with student communicating with ATC
   B. Fly the missed approach procedure
   C. Fly another VOR or VOR/DME approach to the MDA and then circling approach to a missed approach
   D. Fly a VOR approach with the attitude indicator covered to a normal landing
   E. If DME equipped and a VOR/DME approach is available, execute the VOR/DME approach

Postflight Discussion and Critique

- 0.2 hour ground instruction

Completion Standards

The student will:

-Understand weather briefings, flight plans, and clearances

-Execute a VOR, VOR/DME, circling, missed approaches, and approaches to landing while communicating with ATC

- FAA practical test standards apply

LESSON 14: NDB APPROACHES

- 1.5 hours ground instruction
- 1.0 hour dual instruction - PCATD

Objective: To understand and to accurately fly NDB approaches and missed approaches.

Preflight Discussion

- 1.0 hour ground instruction
- Demonstrate the approaches to be used on the PCATD
- Periodically question the student on location of the aircraft. Check the map for accuracy.

I. Use two different NDB approaches
   A. Local-area NDB
   B. NDB approach that differs from local (if local is NDB on field, use an approach with NDB off field)

II. Review the approach chart
   A. Look at differences between the two approaches
      1. Review tracking inbound and outbound from the NDB
      2. Review correcting for winds
   B. Review requirement to monitor ADF signal while executing the approach

Flight

- 1.0 hour dual instruction - PCATD
- PCATD weather - variable condition at MDA
- Fly both approaches, but stress the approach that is not in the local area (unless both types of approaches are available to be flown in the airplane)
- Begin approach in the air sufficient distance from the NDB to allow for orientation and slowing to approach speed. Altitude should be high enough to allow for descent to initial approach altitude.

I. Local NDB approach
   A. Fly NDB approach and execute missed approach
   B. Add winds of 10-15 knots
   C. Fly approach to either missed approach or circling approach as the PCATD allows

II. Other NDB approach
   A. Fly NDB approach and execute missed approach
   B. Set weather to 200' above minimums
   C. Fly NDB approach to a circle-to-land with a missed approach
   D. Fly NDB approach with random instrument failure to a landing
      1. Include an ADF failure to see if student recognizes problem

Postflight Discussion and Critique

- 0.5 hour ground instruction
- Review PCATD printout for critique and discussion

Completion Standards

The student will:

- Fly complete NDB approaches either to a beacon on the field or an off-field beacon and execute missed approaches
- FAA practical test standards apply

LESSON 15: NDB APPROACHES

- 1.0 hour ground instruction
- 2.0 hours dual instruction - airplane

Objective: To accurately fly NDB approaches and missed approaches while communicating with ATC.

Preflight Discussion

- 0.8 hour ground instruction

I. Review
   A. NDB approach with a beacon located on the field
   B. NDB approach with beacon located off the field
   C. Local NDB approach
   D. Identifying the beacon
   E. Testing the ADF

Flight

- 1.0 hour dual instruction - airplane

I. Normal preflight with emphasis on:
   A. NDB identification
   B. Testing the ADF
   C. Clearance (simulated or real)
   D. Current charts

II. NDB approach
   A. Fly the NDB approach with student communicating with ATC
   B. Fly the missed approach
   C. Fly the NDB approach to circle-to-land to a landing
   D. Fly the NDB approach to circle-to-land to a missed approach
   E. Fly the NDB with partial panel to a normal landing

Postflight Discussion and Critique

- 0.2 hour ground instruction

Completion Standards

The student will:

-Copy clearances, communicate with ATC, and fly NDB approaches to either a missed approach, circle-to-land, or normal landing from the MDA

- FAA practical test standards apply

LESSON 16: LOC/ ILS APPROACHES

- 1.5 hours ground instruction
- 1.0 hour dual instruction - PCATD

Objective: To accurately fly LOC and ILS approaches to minimums.

Preflight Discussion

- 1.0 hour ground instruction

I. Localizer
   A. Ground equipment
      1. Yellow and blue sectors
      2. Course width/full-scale deflection
      3. Back course
   B. Airborne equipment
      1. Identifying
      2. Sensitivity vs. VOR
      3. Single fixed course
         a. Good practice to dial in course using the OBS

II. Glideslope
   A. Ground equipment
      1. Vertical guidance
      2. Usually 3-degree descent path
      3. 300' per nautical mile
      4. Land in touchdown zone
   B. Airborne equipment
      1. Position of horizontal needle
      2. Off flag
      3. Intercept glideslope from below

III. Additional components of an ILS
   A. Marker beacons
   B. Compass locators
   C. Approach light system
   D. Runway markings
   E. Runway lighting
      1. VASI
      2. Control of lighting system

IV. Flying the LOC and ILS
   A. Closer to runway more sensitive to corrections
   B. Small corrections emphasized
   C. Control airspeed with power
   D. Correct glideslope deviations with pitch attitude

V. Review a LOC and an ILS approach
   A. LOC is a nonprecision approach
   B. ILS is a precision approach
   C. DH vs. MDA
   D. Glideslope intercept altitude

VI. Use the PCATD to demonstrate a local LOC and ILS approach
   A. Show reverse sensing when flying outbound on the inbound LOC course
   B. Show how the HSI operates and eliminates reverse sensing
   C. Demonstrate establishing stable rate of descent for glideslope accuracy
   D. Show tracking and vertical guidance on PCATD printout

Flight

- 1.0 hour dual instruction - PCATD
- PCATD weather: variable conditions at MDA and DH
- Begin approach in air with sufficient distance and altitude from the initial fix for student to become established
- When vectoring for an approach, question the student on location of the aircraft and then check the map for accuracy
- Fly various LOC and ILS approaches with 10-15 knot wind and various ceilings and random instrument failures

I. LOC approach
   A. Fly entire approach with reverse sensing on the outbound leg
   B. Fly to MDA and execute a missed approach
   C. Fly approach with various instruments set to fail randomly to a missed approach

II. ILS approach
   A. Fly entire ILS approach to a missed approach
   B. Fly a vectored ILS to a missed approach
   C. Fly an ILS with random instrument failures including possible glideslope failure to a landing

Postflight Discussion and Critique

- 0.5 hour ground instruction
- Review the PCATD printouts for discussion and critique

Completion Standards

The student will:

- Exhibit full understanding of LOC and ILS approaches and ability to fly to the MDA and DH and execute either a missed approach or normal descent to landing
- FAA practical test standards apply

LESSON 17: LOC/ ILS APPROACHES

- 1.0 hour ground instruction
- 2.0 hours dual instruction - airplane

Objective: To accurately fly LOC/ILS approaches to MDA/DH, execute missed approaches or normal landings while communicating with ATC

Preflight Discussion

- 0.8 hour ground instruction
- Use PCATD to review and brief local LOC/ILS approaches as necessary

I. Review
   A. LOC/ ILS approach procedures
   B. Local approaches
   C. Identifying LOC/ILS frequencies
   D. Testing equipment

Flight

- 2.0 hours dual instruction - airplane

I. Preflight
   A. LOC/ ILS frequencies
   B. Identifying
   C. Testing appropriate equipment
   D. Clearance (real or simulated)
   E. Current charts

II. LOC approaches
   A. Fly a full LOC approach to minimums and execute missed approach
   B. Fly either a full or vectored LOC approach to minimums with a normal landing

III. ILS approaches
   A. Fly a full ILS approach to a missed approach
   B. Fly a vectored ILS approach to a normal landing
   C. Fly a vectored ILS with partial panel to a missed approach
   D. Fly a full ILS, failing the glideslope prior to the FAF to a missed approach
   E. Fly a full ILS to a normal landing

Postflight Discussion and Critique

- 0.2 hour ground instruction

Completion Standards

The student will:

- Fly full or vectored LOC/ILS approaches to either a normal landing from the MDA/DH or to a missed approach while communicating with ATC
- FAA practical test standards apply

LESSON 18: BC/DME ARCS/UNUSUAL APPROACHES

- 1.5 hours ground instruction
- 1.0 hour dual instruction - PCATD

Objective: To familiarize the student with BC and other type approaches that may be required, depending on ground and aircraft equipment. If these approaches are not available locally, the student will be able to see and execute these approaches on the PCATD.

Preflight Discussion

- 1.0 hour ground instruction
- Use the PCATD to demonstrate a BC and a DME arc. Demonstrate other unusual approaches in your local area, or approaches that may be flown due to aircraft equipment.

I. Back course approach
   A. Reverse sensing inbound
   B. No glideslope/false glideslope indications
   C. Use of HSI (if appropriate)
   D. Nonprecision approach

II. DME arcs
   A. Often used to transition from en route to intermediate segment of the approach
   B. Turn 90 degrees to intercept the DME arc
   C. Lead in distance
   D. Maintaining the arc
      1. By RMI
      2. By VOR indicator
      3. Allowing for wind
   E. Lead in to approach radial

III. Other approaches
   A. RNAV
   B. SDF
   C. Side-stepping
   D. Radar
      1. ASR
      2. PAR
   E. Requirements for a visual approach
   F. Requirements for a contact approach

Flight

- 1.0 hour dual instruction - PCATD
- PCATD weather: 100' above minimums
- Start flight in the air

I. Back course approach
   A. Fly entire approach to a missed approach
   B. Fly entire approach to a normal landing

II. DME arc
   A. Fly entire approach to a missed approach

III. Other approaches as desired

Postflight Discussion and Critique

- 0.5 hour ground instruction
- Review the PCATD printout for discussion and critique

Completion Standards

The student will:

-Be familiar with and demonstrate ability to fly less common approaches
-FAA practical test standards apply

LESSON 19: BC/DME ARCS/UNUSUAL APPROACHES

- 1.5 hours ground instruction
- 1.5 hours dual instruction - airplane

Objective: To review and fly local approaches in preparation for cross-country training.

Preflight Discussion

- 1.0 hour ground instruction
- Use PCATD as necessary to review approaches to be flown

I. Review
   A. Weather
   B. Flight plan
   C. Fuel requirements
   D. Approaches to be flown
      1. Emphasize BC and DME arcs as appropriate
   E. ATC communications
   F. Clearances

Flight

- 1.5 hours dual instruction - airplane

I. Preflight
   A. Navigational aids required - tuned and tested
   B. Fuel on board
   C. Current charts

II. Flight
   A. Fly BC (if possible) to a missed approach
   B. Fly DME arc (if possible) to a missed approach
   C. Fly variety of local approaches to missed approach
   D. Fly one approach with partial panel
   E. Fly either
      1. ASR or
      2. PAR

Postflight Discussion and Critique

- 0.5 hour ground instruction

Completion Standards

- FAA practical test standards will apply

LESSON 20: REVIEW OF APPROACHES

- 1.0 hour ground instruction
- 1.5 hours dual instruction - airplane

Objective: To gain proficiency with all aspects of instrument approaches and ATC procedures prior to beginning cross-country flights.

Preflight Discussion

- 0.8 hour ground instruction

I. Review
   A. Areas not clearly understood
   B. Approaches flown in previous lesson

Flight

- 1.5 hours dual instruction - airplane

I. Preflight
   A. Normal preflight activities
   B. Clearance for local area

II. Flight
   A. Fly approaches without giving student advance notice
   B. Fly approaches and missed approaches as deemed necessary
   C. Fly some approaches with partial panel

Postflight Discussion and Critique

- 0.2 hour ground instruction

Completion Standards

The student will:

-Meet or exceed FAA practical test standards with respect to:

Knowledge of the IFR and ATC systems

Ability to fly various approaches and missed approaches while communicating with ATC

LESSON 21: STAGE CHECK

- 1.5 hour ground instruction
- 2.0 hours dual instruction - airplane

Objective: To determine the student's ability to perform instrument approaches and capability of continuing to cross-country procedures.

Preflight Discussion

- 1.0 hour ground instruction
- The instructor will question the student on preflight preparations, approach procedures, and communication

Flight

- 2.0 hours dual instruction - airplane
- The flight will consist of the student demonstrating a representation of approaches as chosen and directed by the flight instructor

Postflight Discussion and Critique

- 0.5 hour ground instruction

Completion Standards

- The FAA Instrument Rating Practical Test Standards will apply

STAGE 4
INSTRUMENT CROSS COUNTRY AND PREPARATION

LESSON 22: FARs, STARs, AND SIDs

- 1.5 hours ground instruction

Objective: To familiarize the student with the FARs governing flying under instrument procedures. Preparation for cross country and to familiarize the student with arrival and departure procedures (STARS/SIDS).

Preflight Discussion

- 1.5 hours ground instruction

I. FAR review
   A. Pilot-in-command authority
   B. Airspace classes
   C. Currency requirements
   D. Aircraft requirements for IFR flight
   E. Preflight requirements
      1. Weather - current and forecast
      2. Fuel
      3. Alternates
      4. Flight plan
   F. Minimum altitudes for IFR operation
   G. Operation beyond DH or MDA
   H. IFR radio communications
   I. Two-way radio communication failure
      1. In VFR conditions
      2. In IFR conditions
         a Route
         b. Altitude
         c. Leave clearance limit
         d. Transponder code

II. SIDs
   A. Published IFR procedure for standard route from terminal to en route navigation
   B. Information on a SID - show an actual SID chart
      1. Initial heading
      2. Initial altitude
      3. Departure frequency
      4. Lost communications procedure
      5. Route flown
   C. Not required to fly SID but is recommended
   D. Must have at least a textual description of the SID

III. STARs - show an actual STAR chart
   A. Transition from the en route to terminal portion of the instrument approach
   B. Not required to fly a STAR
   C. Must have at least the textual description of the STAR

Completion Standards

The student will:

- Demonstrate understanding of applicable regulations, cross-country preflight planning, and lost communication procedures

LESSON 23: CROSS-COUNTRY PROCEDURES

- 1.5 hours ground instruction
- 2.5 hours dual instruction - airplane

Objective: To gain experience in planning and executing IFR cross-country flights.

Preflight Discussion

- 1.0 hour ground instruction
- Plan a short cross country in a triangle format to allow for approaches to three different airports, using three different types of approaches if possible

II. Flight preparation considerations
   A. Weather
      1. Setting personal minimums
      2. Setting aircraft minimums
         a. Single vs. multiengine
         b. Radar equipment
         c. Icing equipment
   B. Route of flight
   C. Notams
   D. Preparation of charts
   E. Fuel requirement
   F. Flight log
   G. File flight plan
   H. Aircraft IFR preflight
   I. Organization of the cockpit

III. Review en route chart
   A. Airways
   B. MEA/MOCA/MCA/MRA
   C. Terrain
   D. Airspace

IV. Organize IFR flight log
   A. Course
   B. Distance
   C. MEA/altitude
   D. ETAs

Flight

- 2.5 hours dual instruction - airplane

I. Preflight review
   A. Aircraft items
   B. Radio and nav checks
   C. Taxi checks
   D. Clearance

II. Flight
   A. SID departure if possible
   B. En route portion
      1. Review lost communication
      2. Call flight service for weather update
      3. Partial panel
   C. Approach to airport to a missed approach
   D. En route portion
      1. Holding instructions to an intersection
      2. Failure of one or two navigation instruments
   E. Approach to airport to a circle-to-land to a missed approach
   F. En route portion
      1. Simulate an engine failure
   G. Approach with partial panel to a landing

Postflight Discussion and Critique

- 0.5 hour ground instruction
- Review and critique the cross country
- Assign student the destination airports for the next lesson.

Completion Standards

The student will:

- Operate to FAA standards in the ATC system under IFR conditions

LESSON 24: CROSS-COUNTRY PROCEDURES

- 1.0 hour ground instruction
- 2.5 hours dual instruction - airplane

Objective: To gain additional experience in planning and executing IFR cross-country flights.

Preflight Discussion

- 0.8 hour ground instruction

I. Review student's cross-country planning assignment
   A. Weather
   B. Route
   C. Flight Log
   D. Publications

Flight

- 2.5 hours dual instruction - airplane

I Preflight review
   A. Aircraft items
   B. Radio and nav checks
   C. Taxi checks
   D. Clearance

II Flight
   A. SID departure if possible
   B. En route portion
      1. Review lost communication procedures
      2. Call flight service for weather update
      3. Partial panel
   C. Approach to airport to a missed approach
   D. En route portion
      1. Holding instructions to an intersection
      2. Failure of one or two navigation instruments (partial panel)
   E. Approach to airport to a circle-to-land to a missed approach
   F. En route portion
      1. Simulate a mechanical emergency
   G. Approach with partial panel to a landing

Postflight Discussion and Critique

- 0.2 hour ground instruction
- Review and critique the cross-country flight
  - Assign student the destination airports for the 250-mile cross-country flight

Completion Standards

The student will:

- Meet or exceed FAA practical test standards

LESSON 25: 250-MILE CROSS COUNTRY

- 1.0 hour ground instruction
- 4.0 hours dual instruction - airplane

Objective: To meet FAA requirement for the instrument rating and to build pilot proficiency in IFR cross-country operations.

Preflight Discussion

- 0.8 hour ground instruction
- Instructor will review student's preparation for the 250-mile cross-country flight

Flight

- 4.0 hour dual instruction - airplane

I. Flight

A. One VOR, NDB, and ILS approach at different airports
B. One approach using partial panel
C. One full stop landing - obtain clearance to next destination

Postflight Discussion and Critique

- 0.2 hour ground instruction

Completion Standards

The student will:

- Meet or exceed FAA practical test standards for operation in the ATC system under IFR conditions

LESSON 26: PRACTICAL TEST PREPARATION

- 2.0 hours ground instruction
- 2.0 hours dual instruction - airplane

Objective: To prepare the student for the instrument rating practical test.

Preflight Discussion

- 1.5 hours ground instruction
- Review student's knowledge test results and questions answered incorrectly
- Review sampling of questions on the FAA oral
- Review student's logbook to ensure all requirements are satisfied

I. Review
   A. FARs
   B. Weather briefing
   C. Preflight planning
   D. Approach charts
   E. En route charts
   F. Communications

Flight

- 2.0 hours dual instruction - airplane

I. Review
   A. Timed turns/magnetic compass
   B. Steep turns
   C. Unusual attitudes
   D. Holding procedures
   E. Approaches/missed approaches

Postflight Discussion and Critique

- 0.5 hour ground instruction

Completion Standards

- The student will demonstrate the knowledge and ability to pass the instrument rating practical test

LESSON 27: STAGE CHECK

- 1.5 hours ground instruction
- 2.0 hours dual instruction - airplane

Objective: To determine that the student is prepared for the instrument rating practical test.

Preflight Discussion

- 1.0 hours ground instruction
- Sampling of questions required on the FAA oral

Flight

- 2.0 hours dual instruction - airplane
- Flight will be conducted to simulate the FAA check ride

Postflight Discussion and Critique

- 0.5 hour ground instruction
- Review and discuss any material necessary in preparation for the instrument check ride

Completion Standards

- The student will demonstrate the knowledge and ability to pass the instrument rating practical test