### UNIVERSITY OF OKLAHOMA DEPARTMENT OF AVIATION INSTRUMENT RATING COURSE (3572) AUG 2023 FLIGHT TRAINING SYLLABUS

### PREREQUISITES FOR ENROLLMENT IN THE FLIGHT PORTION OF THE INSTRUMENT RATING AIRPLANE

**COURSE:** You must hold at least a private pilot certificate with an airplane single engine land rating and have an FAA medical certificate valid for at least third class privileges.

**COURSE OBJECTIVE:** You will obtain the knowledge, skill and aeronautical experience to meet the requirements of 14 CFR, Section 141, Appendix C to add an Instrument Airplane Rating to your Private Pilot Certificate (with existing Airplane Single Engine Land Rating)

### **COURSE POLICY:**

At the discretion of the instructor, students who progress rapidly within a specific stage, may within reasonable variances, continue to the next lesson with less time than is specified in the specific lesson curriculum, provided all content and completion standards are satisfactorily completed. The time staged in the lesson is the approximate minimum time that a student would need to meet the lesson objective and completion standards; not absolute required times. The lesson time could be slightly more or slightly less. These reduced hours must be included in other lessons to complete the total ground and flight time specified by category in the syllabus in order to satisfactorily complete the course.

At no time will a student be allowed to continue to the next stage without having successfully completed all of the lessons and the required tests or stage checks related to the completion of the pervious stage.

Any lesson stated as an AATD lesson may be flown in an aircraft or AATD. The lesson will include the required pre- and post- flight procedures.

Flight training for this course will be done in accordance with the FAA approved syllabus. Deviations from the syllabus within a stage due to student training requirements weather related factors or other items as necessary will be allowed as long as the following requirements are met:

- The deviation is approved by the chief or assistant chief flight instructor.
- A notation will be made in the student training record as to the lesson covered and the reason for the deviation.
- -The student will complete all syllabus requirements before a graduation certificate is issued.

### UNIVERSITY OF OKLAHOMA DEPARTMENT OF AVIATION INSTRUMENT RATING COURSE

To satisfactorily complete the course of training the student must meet all course objectives and completion standards. The student must complete the required ground training and pass the FAA Instrument Rating Airplane Knowledge test prior to the completion of flight training.

**EXPECTED ACCOMPLISHMENTS AND STANDARDS:** To satisfactorily complete each flight stage you must complete the lessons in that stage and pass the end of stage check. Each lesson lists specific objectives and standards of completion.

<u>CHECKS AND TESTS</u>: The flight training portion of the syllabus contains a quiz at the end of Stage VI. Stages VII, VIII and IX have a quiz and stage check flight. The stage checks will be administered by the Chief/Assistant Chief Instructor or check instructor approved by the FSDO. The stage IX check is the end of course stage check which will be equal in scope, depth and difficulty to the practical test defined by the FAA Instrument Rating — Airplane Airman Certification Standards for addition of an Instrument Airplane Rating to a Private Pilot Certificate (with existing Airplane Single Engine Land Rating).

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### INSTRUMENT PILOT CERTIFICATION COURSE STAGE VI, VII, VIII, IX LESSON TIME ALLOCATION

LESSON	DUAL	IDL	DXC	AATD	QUIZ
STAGE VI					
1				1.0	
2				1.0	
3				1.0	
4	1.0	0.8			
5	1.0	0.8			
6					0.5
STAGE VII					
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4				1.0	
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9	1.0	0.8			
10	1.0	0.8			
11	1.0	0.8			
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STAGE VIII					
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4	1.0	0.8			
5				1.0	
6	1.0	0.8			
7	1.0	0.8			
8	1.0	0.8			
9	1.0	0.8			
10					0.5
11	1.0	0.8	Appro	oach Stag	e VIII Check
STAGE IX					
1	2.2	2.0	2.2		
2	2.5	2.3	2.5		
3	4.0	3.6	4.0		
4	1.0	0.8			
5	1.0	0.8			
6					0.5
7	1.5	1.3	I	inal Stag	e Check
TOTAL	25.2*	21.2*	8.7*	14.0**	2.0

<sup>\*</sup> These are the minimum times for Dual, IDL and DXC

Dual=Dual is in an Airplane DXC=Dual Cross Country

IDL=Instrument dual in an Airplane AATD=Advanced Aviation Training Device

<sup>\*\*</sup> A shortage of AATD time can be made up by flying IDL in an airplane in excess of 21.2 hours To equal the shortage of AATD time

DI	Dxc	ldl	AATD	PP	GI
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**X** = Indicates minimum times required by FSP to complete the lesson.

**Y** = Times indicated in Lesson Time Allocation Table

If X is less than Y on a particular lesson the shortage must be made up in a future lesson

\*Nldg = Solo Night Landings at an Airport with an Operating Control Tower

# UNIVERSITY OF OKLAHOMA INSTRUMENT PILOT CERTIFICATION COURSE STAGE VI

### **STAGE OBJECTIVE**

The emphasis of this stage is on IFR flight operations. The student will learn precise airplane attitude control by instrument reference and radio navigation.

### **COMPLETION STANDARD**

At the completion of this stage the student will demonstrate precise airplane attitude control by instrument reference only. This will include the use of full and partial panel reference. In addition, the student will demonstrate accurate radio navigation.

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### UNIVERSITY OF OKLAHOMA

### STAGE VI FLIGHT LESSON 1 DUAL -AATD

**LESSON OBJECTIVE:** During this lesson, the student is provided with an in-depth review of takeoff and landing procedures and attitude instrument flying with special emphasis on learning precise aircraft control by instrument reference.

### **CONTENT:**

### Lesson Review

Aircraft Flight Instruments and Navigation Equipment Required for IFR Flight

Operation of Airplane Systems

Use of Checklists

**Engine Starting** 

Cockpit Management

Pre-takeoff Flight Instrument Check

### Full Panel Instrument

- Straight and Level
- Standard-Rate Turns
- Constant Airspeed Climbs
- Climbing Turns
- Constant Airspeed Descents
- Descending Turns
- Power-Off Stalls (Imminent)
- Power-On Stalls (Imminent)
- Maneuvering During Slow Flight
- Recovery From Unusual Flight Attitudes
- Operations in Turbulence

Post Flight Procedures

### **COMPLETION STANDARDS:**

At the completion of the flight lesson, the student should demonstrate an understanding of the full panel instrument references as they relate to aircraft control. During this flight, the student will maintain altitude within  $\pm$ 200 feet and headings within  $\pm$ 150 during level flight. Climb and descent airspeeds will be maintained within  $\pm$ 5 knots.

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### STAGE VI FLIGHT LESSON 2 DUAL – AATD

### **LESSON OBJECTIVE:**

This lesson reviews full panel attitude instrument flying to prepare the student for the later introduction of partial panel airwork.

### CONTENT:

Lesson Review

Aircraft Flight Instruments and Navigation Equipment Full Panel Instrument

- Straight and Level
- Standard-Rate Turns
- Constant Airspeed Climbs
- Constant Airspeed Descents
- Maneuvering During Slow Flight

### Lesson Introduction

- Instrument Cockpit Check
- Change of Airspeed
- Steep Turns
- Instrument Takeoffs
- Timed Turns to Magnetic Headings

### **COMPLETION STANDARDS:**

The student will demonstrate an understanding of aircraft attitude control by instrument reference. Altitude should be maintained within  $\pm$ 200 feet and airspeeds within  $\pm$ 15 knots of the desired values. Additionally, the student will demonstrate how to perform an instrument cockpit check.

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### STAGE VI FLIGHT LESSON 3 DUAL - AATD

**LESSON OBJECTIVE:** The objective of this lesson is to increase the student's proficiency in attitude instrument flying.

### **CONTENT:**

### Lesson Review

Preflight of Instruments and Equipment

Instrument Cockpit Check

Full Panel Instrument

- Straight and Level
- Climbs and Descents
- Change of Airspeed
- Standard-Rate Turns
- Recovery From Unusual Flight Attitudes
- Operations in Turbulence
- Climbing Turns
- Descending Turns

### **Lesson Introduction**

Partial Panel Instrument

- Straight and Level
- Level Turns, including Standard Rate Turns
- Constant Airspeed Climbs
- Constant Airspeed Descents
- Change of Airspeed
- Timed Turns
- Compass Turns
- Instrument Failures

Full Panel Instrument

- Steep Turns

### **COMPLETION STANDARDS:**

The student should be able to precisely control the airplane using full panel instrument reference. The student should also be able to control the airplane using only partial panel to assigned altitudes of  $\pm$ 200 feet and airspeeds of  $\pm$ 10 knots. The student will be able to demonstrate the correct recovery procedures from unusual flight attitudes.

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### STAGE VI FLIGHT LESSON 4 DUAL - AIRPLANE

**LESSON OBJECTIVE** This lesson provides additional practice in full panel attitude instrument flying and introduces more complex partial panel instrument procedures. The student will also be introduced to IFR flight plans and IFR Clearances.

### **CONTENT:**

### Lesson Review

Full and Partial Panel Instrument

- Straight and Level
- Standard-Rate Turns
- Constant Airspeed Climbs
- Constant Airspeed Descents
- Maneuvering During Slow Flight

Systems and Equipment Failures

### **Lesson Introduction**

Full Panel Instrument

- Constant Rate Climbs
- Constant Rate Descents

Partial Panel Instrument

- Recovery From Unusual Flight Attitudes
- Timed Turns
- Magnetic Compass Turns
- Constant Rate Climbs
- Constant Rate Descents
- Power-Off Stalls (Imminent)
- Power-On Stalls (Imminent)
- Maneuvering During Slow Flight

IFR Flight Plans

IFR Clearances

### **COMPLETION STANDARDS:**

Using partial panel instrument reference, the student should be able to maintain altitude within +/- 200 feet, headings within +/- 15', and airspeeds within +/- 15 knots of the desired values. The student should be able to file an IFR flight plan and be able to obtain an IFR clearance from ATC.

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### STAGE VI FLIGHT LESSON 5 DUAL - AIRPLANE

**LESSON OBJECTIVE:** This lesson continues to develop the student's knowledge and skill in full and partial panel attitude instrument flying. It also prepares the student for more complex procedures -- specifically, combining attitude instrument flight and radio navigation.

### **CONTENT:**

### Lesson Review

Full and Partial Panel Instrument

- Straight and Level
- Constant Rate Climbs
- Constant Airspeed Climbs
- Constant Rate Descents
- Constant Airspeed Descents
- Timed Turns
- Magnetic Compass Turns
- Recovery From Unusual Flight Attitudes
- Change of Airspeed
- Power-Off Stalls (Imminent)
- Power-On Stalls(Imminent)
- Maneuvering During Slow Flight

### **COMPLETION STANDARDS:**

The student will be able to recognize the approach of stalls as well as perform recoveries per the standards of the Commercial Pilot Airman Certification Standards. Recovery techniques for unusual attitudes, using both full and partial panel will be to the standards of the Instrument Rating Airman Certification Standards. During basic attitude instrument maneuvers headings will be maintained within  $\pm 10$  degrees, airspeed within  $\pm 10$  knots and altitude within  $\pm 10$  feet.

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### STAGE VI LESSON 6 QUIZ

**LESSON OBJECTIVE:** The objective of this lesson is to test the student's knowledge of this stage through a quiz.

**CONTENT:** The quiz will cover the following areas.

Cockpit Instrument Check Instrument Errors Instrument Scan

### **COMPLETION STANDARDS:**

This lesson is complete when the student scores 70% or better. In addition, the instructor is responsible for reviewing those questions missed.

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# UNIVERSITY OF OKLAHOMA INSTRUMENT PILOT CERTIFICATION COURSE STAGE VII

### **STAGE OBJECTIVE**

During this stage the student will refine basic attitude instrument flying, learn to use navigation systems to maintain orientation in the national airspace system, intercept and track courses to and from navigation aids and demonstrate proper holding procedures.

### **COMPLETION STANDARD**

The student will be able to use available navigation systems to establish their position, intercept and track courses to and from navigation aids and demonstrate proper holding procedures.

### STAGE VII FLIGHT LESSON 1 DUAL - AATD

**LESSON OBJECTIVE:** This lesson has two objectives: to teach orientation in relation to a VOR station, and to intercept and track a specified radial.

### **CONTENT:**

### Lesson Review

Full and Partial Panel Instrument

- Straight and Level
- Standard-Rate Turns
- Constant Rate Climbs
- Constant Airspeed Climbs
- Constant Rate Descents
- Constant Airspeed Descents
- Recovery from Unusual Flight Attitudes

### **Lesson Introduction**

- VOR Accuracy Test
- VOR Radial Interception and Tracking
- VOR Orientation
- VOR Holding

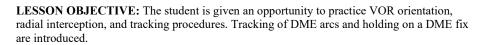
### **COMPLETION STANDARDS:**

The student will display increased proficiency in attitude instrument flight. The student also will understand VOR orientation and tracking procedures, including the interception of specific VOR radials and application of the correct wind correction angle. The student will determine the optimum holding entry procedure and apply the appropriate wind correction angles and timing correction. Headings will be maintained within +/- 10 degrees, airspeed within +/- 10 knots and altitude within +/- 100 feet.

### UNIVERSITY OF OKLAHOMA

STUDENT NAME ID#								
INSTRUCTOR NAME CERT#								
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STAGE VII FLIGHT LESSON 2 DUAL - AATD



### **CONTENT:**

### Lesson Review

- VOR Orientation
- VOR Radial Interception and Tracking
- VOR Holding

### **Lesson Introduction**

- Intercepting and Tracking DME Arcs
- DME Fix Holding

### **COMPLETION STANDARDS:**

The student will demonstrate an understanding of the procedures used to intercept and track DME arcs as well as VOR and DME Fix holding to include execution of the optimum holding entry procedure and application of the correct wind correction angles and time correction. Headings will be maintained within+/- 10 degrees, airspeed within plus or minus 10 knots and altitude within +/- 100 feet.

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### STAGE VII FLIGHT LESSON 3 DUAL – AATD

**LESSON OBJECTIVE:** This lesson reviews VOR and DME procedures and introduces programming and tracking courses in the GPS.

### **CONTENT:**

### Lesson Review

- VOR Orientation
- VOR Tracking
- Intercepting and Tracking DME Arcs

### **Lesson Introduction**

- GPS Course Programming and Tracking

### **COMPLETION STANDARDS:**

The student will demonstrate increased proficiency in all VOR procedures and radial interception and tracking, applying the optimum intercept heading and wind correction angle. Headings will be maintained within+/- 10 degrees, airspeed within +/- 10 knots and altitude within +/- 100 feet.

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### STAGE VII FLIGHT LESSON 4 DUAL - AATD

**LESSON OBJECTIVE:** This lesson reviews previously learned procedures, and introduces ILS navigation, and localizer and intersection holding.

### **CONTENT:**

### Lesson Review

- VOR Procedures
- Intercepting and tracking DME arcs
- VOR Holding

### **Lesson Introduction**

- ILS Navigation
- Localizer Tracking
- Localizer Holding
- Intersection Holding

### **COMPLETION STANDARDS:**

The student will demonstrate increased proficiency in all the listed procedures. The student will demonstrate the optimum holding entry procedure and apply the correct wind correction angles and time correction. Headings will be maintained within+/- 10 degrees, airspeed within +/- 10 knots and altitude within +/- 100 feet.

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### STAGE VII FLIGHT LESSON 5 DUAL – AATD

**LESSON OBJECTIVE:** This lesson will review VOR, DME interception and tracking and introduce the student to GPS holding.

### **CONTENT:**

### **Lesson Review**

- VOR Orientation
- VOR Tracking

### **Lesson Introduction**

- GPS Holding Patterns

### **COMPLETION STANDARDS:**

The student will demonstrate increased proficiency in all VOR Procedures. The student will demonstrate the optimum holding entry procedure and apply the correct wind correction angles and timing correction. Headings will be maintained within+/-  $10 \, \text{degrees}$ , airspeed within +/-  $10 \, \text{knots}$  and altitude within +/-  $100 \, \text{feet}$ .

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### STAGE VII FLIGHT LESSON 6 DUAL - AATD

**LESSON OBJECTIVE:** This lesson reviews previously learned procedures to increase proficiency. Procedures to be reviewed will be selected by the instructor.

### **CONTENT:**

### Lesson Review

- VOR Course Interception and Tracking
- Localizer Interception and Tracking
- DME Arc Interception and Tracking
- VOR Holding
- DME Fix Holding
- Localizer Holding
- Intersection Holding

### **COMPLETION STANDARDS:**

The student will demonstrate the optimum holding entry procedure and apply the correct wind correction angles and timing correction. Headings will be maintained within +/- 10 degrees, airspeed within +/- 10 knots and altitude within +/- 100 feet. Additionally, by the third turn inbound to the holding fix the student will demonstrate a smooth interception of the inbound course and the time from roll out to the fix will be one minute, +/- 10 seconds.

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### UNIVERSITY OF OKLAHOMA

### STAGE VII FLIGHT LESSON 7 DUAL - AATD

LESSON OBJECTIVE: During this flight, the student learns front and back course localizer tracking. The primary emphasis is on learning to interpret the CDI indications associated with the increased sensitivity of the localizer while tracking inbound on the front or back course.

### **CONTENT:**

### Lesson Review

Partial Panel Instrument

- Straight and Level
- Constant Rate Climbs
- Constant Airspeed Climbs
- Constant Rate Descents
- Timed Turns

### **Lesson Introduction**

- Localizer Tracking

### **COMPLETION STANDARDS:**

In addition to partial panel instrument review, the student will demonstrate the optimum holding entry procedure and apply the correct wind correction angles and timing correction. Headings will be maintained within +/- 10 degrees, airspeed within +/ 10 knots and altitude within +/- 100 feet. Additionally, by the third turn inbound to the holding fix the student will demonstrate a smooth interception of the inbound course and the time from roll out to the fix will be one minute, +/- 10 seconds.

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### STAGE VII FLIGHT LESSON 8 DUAL – AIRPLANE

**LESSON OBJECTIVE:** The objective for this lesson is for the student to review and practice basic attitude instrument flight and navigation to increase proficiency and review holding procedures selected by the instructor.

### **CONTENT:**

### Lesson Review

Full Panel Instrument Partial Panel Instrument Holding

- VOR Holding
- DME Fix Holding
- Localizer Holding
- Intersection Holding
- GPS Holding

### **COMPLETION STANDARDS:**

In addition to partial panel instrument review, the student will demonstrate the optimum holding entry procedure and apply the correct wind correction angles and timing correction. Headings will be maintained within +/- 10 degrees, airspeed within +/ 10 knots and altitude within +/- 100 feet. Additionally, by the third turn inbound to the holding fix the student will demonstrate a smooth interception of the inbound course and the time from roll out to the fix will be one minute, +/- 10 seconds.

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### STAGE VII FLIGHT LESSON 9 DUAL - AIRPLANE

**LESSON OBJECTIVE** The objective of this lesson is to introduce the student to use of the GPS receiver to navigate to a fix and hold on a GPS waypoint. Additionally, the student will review holding procedures as selected by the instructor. If an IFR GPS equipped aircraft is not available this lesson will consist of the review portion only.

### CONTENT:

### **Lesson Review:**

Holding

- VOR Holding
- DME Fix Holding
- Localizer Holding
- Intersection Holding
- GPS Holding

### **COMPLETION STANDARDS:**

The student will demonstrate the optimum holding entry procedure and apply the correct wind correction angles and timing correction. Headings will be maintained within +/- 10 degrees, airspeed within +/ 10 knots and altitude within +/- 100 feet. Additionally, by the third turn inbound to the holding fix the student will demonstrate a smooth interception of the inbound course and the time from roll out to the fix will be one minute, +/- 10 seconds.

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### STAGE VII LESSON 10 DUAL - AIRPLANE

### LESSON OBJECTIVE

During this lesson the student will review course interception and tracking and holding procedures as selected by the instructor.

### **CONTENT:**

### Lesson Review:

Course Interception and Tracking

- GPS
- VOR

Holding

- GPS Holding
- VOR HoldingDME Fix Holding
- Localizer Holding
- Intersection Holding

### **COMPLETION STANDARDS:**

The student will demonstrate the optimum holding entry procedure and apply the correct wind correction angles and timing correction. Headings will be maintained within  $\pm$ 10 degrees, airspeed within  $\pm$ 10 knots and altitude within  $\pm$ 10 feet. Additionally, by the third turn inbound to the holding fix the student will demonstrate a smooth interception of the inbound course and the time from roll out to the fix will be one minute,  $\pm$ 10 seconds.

### UNIVERSITY OF OKLAHOMA

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### STAGE VII FLIGHT LESSON 11 DUAL - AIRPLANE

LESSON OBJECTIVE During this lesson the student will review course interception and tracking and holding procedures as selected by the instructor.

### **CONTENT:**

### **Lesson Review:**

Course Interception and Tracking

- GPS
- VOR
- Localizer

Holding

- GPS Holding
- VOR Holding
- DME Fix Holding
- Localizer Holding
- Intersection Holding

### **COMPLETION STANDARDS:**

The student will demonstrate the optimum holding entry procedure and apply the correct wind correction angles and timing correction. Headings will be maintained within +/- 10 degrees, airspeed within +/ 10 knots and altitude within +/- 100 feet. Additionally, by the third turn inbound to the holding fix the student will demonstrate a smooth interception of the inbound course and the time from roll out to the fix will be one minute, +/- 10 seconds.

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### STAGE VII LESSON 12 QUIZ

**LESSON OBJECTIVE:** The objective of this lesson is to test the student's knowledge of this stage through a quiz.

**CONTENT:** The quiz will cover the following:

Holding Procedures

### **COMPLETION STANDARDS:**

This lesson is complete when the student scores 70% or better. In addition, the instructor is responsible for reviewing each question missed.

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### STAGE VII FLIGHT LESSON 13 DUAL - AIRPLANE

# STAGE CHECK BASIC ATTITUDE INSTRUMENT, NAVIGATION and HOLDING

**LESSON OBJECTIVE:** During this lesson the student will be evaluated on basic attitude instrument flying, course interception and tracking and holding procedures. This stage check will be conducted by the Chief/Assistant Chief Flight Instructor or Check Instructor.

### **CONTENT:**

### Lesson Review

Basic Attitude Instrument Flying

- Straight and Level
- Straight Climbs and Descents
- Climbing and Descending Turns
- Unusual Attitude Recovery

Course Interception, Tracking and Holding (at least two of the following)

- GPS
- VOR
- DME Fix
- Localizer
- Intersection

### **COMPLETION STANDARDS:**

The student will demonstrate correct procedures for recovering from unusual attitudes. The student will demonstrate the optimum holding entry procedure and apply the correct wind correction angles and timing correction. Headings will be maintained within  $\pm 10$  degrees, airspeed within  $\pm 10$  knots and altitude within  $\pm 100$  feet. Additionally, by the third turn inbound to the holding fix the student will demonstrate a smooth interception of the inbound course and the time from roll out to the fix will be one minute,  $\pm 100$  seconds.

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# UNIVERSITY OF OKLAHOMA INSTRUMENT PILOT CERTIFICATION COURSE STAGE VIII

### **STAGE OBJECTIVE**

The purpose of Stage VIII is to introduce and train the student to perform accurate instrument approach procedures including missed approaches. The student will also review holding procedures.

### **COMPLETION STANDARD**

The student will be able to demonstrate all types of IFR approaches and accurately perform holding patterns.

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### STAGE VIII FLIGHT LESSON 1 DUAL – AATD

**LESSON OBJECTIVE** This lesson introduces the student to non-precision instrument approach procedures and missed approach planning.

### **CONTENT:**

### Lesson Review

Full Panel Instrument Systems and Equipment Failures

### **Lesson Introduction**

VOR Approaches Localizer Approaches (Front Course) Straight-In Approach Procedures Missed Approach Procedures

### **COMPLETION STANDARDS:**

At the completion of this lesson, the student should be able to:

- Explain and use the information displayed on the approach charts.
  - Execute several initial and intermediate approach segments to arrive at the final approach fix.
  - Complete the final approach and letdown to the missed approach point.
  - Demonstrate the missed approach procedure, as published on the appropriate chart or as instructed by ATC.

Headings will be maintained +/-10 degrees, airspeeds +/-10 knots and altitude +/-100 feet and altitudes at the MDA +100/-0 feet. Upon arriving at the missed approach point the student will execute the published missed approach procedure and hold entry. Course will be maintained with less than full scale needle deflection.

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### STAGE VIII FLIGHT LESSON 2 DUAL – AATD

**LESSON OBJECTIVE:** This lesson is aimed toward developing instrument flight proficiency. First, VOR and front course localizer approaches are reviewed and practiced. Localizer Back Course approach is introduced.

### **CONTENT:**

### Lesson Review

Intercepting and Tracking DME Arcs VOR Approaches Localizer Approaches Missed Approach Procedures (including holding)

### **Lesson Introduction**

Localizer Back Course Approaches

### **COMPLETION STANDARDS:**

During localizer back course approaches, the student will demonstrate proper tracking, using power and attitude changes to control airspeed and descent rates. Headings will be maintained +/- 10 degrees, airspeeds +/- 10 knots and altitudes +/- 100 feet and altitude at the MDA +100/-0 feet. Course will be maintained with less than full scale needle deflection. The student will recognize arrival at the missed approach point and execute the published miss approach procedure and hold entry.

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### STAGE VIII FLIGHT LESSON 3 DUAL - AATD

**LESSON OBJECTIVE:** The objective of Lesson 3 is for the student to increase proficiency by review and practice of those procedures listed. In addition, the student will be introduced to ILS approach procedures.

### **CONTENT:**

### Lesson Review (One or more approaches as selected by the instructor)

VOR Approaches Localizer Approaches (as appropriate) Missed Approach Procedures (including holding)

### **Lesson Introduction**

- ILS Approaches
- GPS Approaches
  - Full Procedures
  - Vector to Final

### **COMPLETION STANDARDS:**

Headings will be maintained  $\pm$ 10 degrees, airspeeds  $\pm$ 10 knots and altitudes  $\pm$ 100 feet. On precision approaches, the student will demonstrate accurate lateral course interception and tracking and make a transition to the vertical guidance at the correct point. The course and vertical guidance will be maintained with less than  $\pm$ 24 scale needle deflection to the missed approach point – DA  $\pm$ 100/-0 feet. On non-precision approaches lateral guidance will be maintained with less than  $\pm$ 24 scale needle deflection. The student will maintain altitude at the MDA  $\pm$ 100/-0 feet to the missed approach point. Upon arriving at the missed approach point the student will execute the published missed approach procedure and hold entry.

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### STAGE VIII FLIGHT LESSON 4 DUAL - AIRPLANE

**LESSON OBJECTIVE:** During this lesson, the student will be introduced to no-gyro radar vectoring and approach procedures. With this introduction and a review of attitude instrument flying, the student will obtain the necessary knowledge and skill for the introduction of enroute procedures and holding patterns.

### **CONTENT:**

# Lesson Review (One or more approaches as selected by the instructor):

Full Panel Instrument (As Necessary)
ILS Approaches
Localizer Approaches
GPS Approaches
- Full Procedure

- Full Procedure - Vector to Final

Missed Approach Procedure

### **Lesson Introduction**

Partial Panel Approach Procedures Landing From Straight In and Circling Approaches

### **COMPLETION STANDARDS:**

The student will understand the procedures used to perform partial panel non precision instrument approaches and demonstrate proficiency in copying and complying with ATC clearances that pertain to the approach. Headings will be maintained  $\pm$ 10 degrees, airspeeds  $\pm$ 10 knots and altitudes  $\pm$ 100 feet. On precision approaches, the student will demonstrate accurate lateral course interception and tracking and make a transition to the vertical guidance at the correct point. The Course and vertical guidance will be maintained with less than  $\pm$ 24 scale needle deflection to the missed approach point  $\pm$ 100/-0 feet. On non-precision approaches lateral guidance will be maintained with less than  $\pm$ 24 scale needle deflection. The student will maintain altitude at the MDA  $\pm$ 100/-0 feet to the missed approach point. Upon arriving at the missed approach point the student will either execute the alternate or published missed approach procedure if the runway environment is not in sight; or execute a normal landing if the runway environment is in sight and the student determines the landing can be made using a normal rate of descent and normal maneuvers. The landing will be made to the standard of the private pilot ACS.

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### STAGE VIII FLIGHT LESSON 5 DUAL - AATD

**LESSON OBJECTIVE** The objective of this lesson is to increase the student's knowledge and proficiency in the procedures listed below. This includes full and partial panel approaches.

### **CONTENT:**

### Lesson Review (One or more approaches as selected by the instructor):

ILS Approaches VOR Approaches Localizer Approaches (as appropriate) GPS Approaches Missed Approach Procedures Partial Panel Approach Procedures

### **COMPLETION STANDARDS:**

Headings will be maintained  $\pm$ 10 degrees, airspeeds  $\pm$ 10 knots and altitudes  $\pm$ 100 feet. On precision approaches, the student will demonstrate accurate lateral course interception and tracking and make a transition to the vertical guidance at the correct point. The Course and vertical guidance will be maintained with less than  $\frac{3}{4}$  scale needle deflection to the missed approach point  $\pm$ 100/-0 feet. On non-precision approaches lateral guidance will be maintained with less than  $\frac{3}{4}$  scale needle deflection. The student will maintain altitude at the MDA  $\pm$ 100/-0 feet to the missed approach point. Upon arriving at the missed approach point the student will execute the published missed approach procedure and hold entry.

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### STAGE VIII FLIGHT LESSON 6 DUAL – AIRPLANE

**LESSON OBJECTIVE** The objective of this lesson is to increase the student's knowledge and proficiency in the procedures listed below. This includes full and partial panel approaches.

### **CONTENT:**

Lesson Review (One or more procedures as selected by the instructor):

Approaches

- ILS
- GPS
- Localizer
- VOR

Partial Panel Approach Procedures

Missed Approach Procedures

Landing from a straight in or circling approach

### **COMPLETION STANDARDS:**

Headings will be maintained +/- 10 degrees, airspeeds +/- 10 knots and altitudes +/- 100 feet and altitude at the MDA +100/-0 feet. On precision approaches, the student will demonstrate accurate lateral course interception and tracking and make a transition to the vertical guidance at the correct point. The Course and vertical guidance will be maintained with less than 3/4 scale needle deflection to the missed approach point – DA +100/-0 feet. On non-precision approaches lateral guidance will be maintained with less than 3/4 scale needle deflection. The student will maintain altitude at the MDA +100/-0 feet to the missed approach point. Upon arriving at the missed approach point the student will either execute the alternate or published missed approach procedure if the runway environment is not in sight; or execute a normal landing if the runway environment is in sight and the student determines the landing can be made using a normal rate of descent and normal maneuvers. The landing will be made to the standards of the private pilot ACS.

### **UNIVERSITY OF OKLAHOMA**

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### STAGE VIII FLIGHT LESSON 7 DUAL - LOCAL, INSTRUMENT

**LESSON OBJECTIVE:** The objective of this lesson is to increase the student's knowledge and proficiency in the procedures listed below. This includes full and partial panel approaches.

### **CONTENT:**

Lesson Review (One or more procedures as selected by the instructor):

Approaches

- ILS
- Localizer
- VOR

Partial Panel Approach Procedures

Missed Approach Procedures

Landing from a straight in or circling approach

### **COMPLETION STANDARDS:**

Headings will be maintained  $\pm$ 10 degrees, airspeeds  $\pm$ 10 knots and altitudes  $\pm$ 100 feet and altitude at the MDA  $\pm$ 100/-0 feet. On precision approaches, the student will demonstrate accurate lateral course interception and tracking and make a transition to the vertical guidance at the correct point. The Course and vertical guidance will be maintained with less than  $\pm$ 24 scale needle deflection to the missed approach point  $\pm$ 100/-0 feet. On non-precision approaches lateral guidance will be maintained with less than  $\pm$ 24 scale needle deflection. The student will maintain altitude at the MDA  $\pm$ 100/-0 feet to the missed approach point. Upon arriving at the missed approach point the student will either execute the alternate or published missed approach procedure if the runway environment is not in sight; or execute a normal landing if the runway environment is in sight and the student determines the landing can be made using a normal rate of descent and normal maneuvers. The landing will be made to the standards of the private pilot ACS.

### **UNIVERSITY OF OKLAHOMA**

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### STAGE VIII FLIGHT LESSON 8 DUAL - AIRPLANE

**LESSON OBJECTIVE**: The objective of this lesson is to increase the students knowledge and proficiency in the procedures listed below. This includes full and partial panel approaches.

### **CONTENT:**

### Lesson Review (One or more procedures as selected by the instructor):

Approaches

- ILS
- Localizer
- VOR
- GPS

Partial Panel Approach Procedures

Missed Approach Procedures

Landing from a straight in or circling approach

### **COMPLETION STANDARDS:**

Headings will be maintained  $\pm$ 10 degrees, airspeeds  $\pm$ 10 knots and altitudes  $\pm$ 100 feet and altitude at the MDA  $\pm$ 100/-0 feet. On precision approaches, the student will demonstrate accurate lateral course interception and tracking and make a transition to the vertical guidance at the correct point. The Course and vertical guidance will be maintained with less than  $\pm$ 2 scale needle deflection to the missed approach point  $\pm$ 100/-0 feet. On non-precision approaches lateral guidance will be maintained with less than  $\pm$ 2 scale needle deflection. The student will maintain altitude at the MDA  $\pm$ 100/-0 feet to the missed approach point. Upon arriving at the missed approach point the student will either execute the alternate or published missed approach procedure if the runway environment is not in sight; or execute a normal landing if the runway environment is in sight and the student determines the landing can be made using a normal rate of descent and normal maneuvers. The landing will be made to the standards of the private pilot ACS.

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### STAGE VIII FLIGHT LESSON 9 DUAL LOCAL-INSTRUMENT

### **LESSON OBJECTIVE:**

The objective of this lesson is to increase the student's knowledge and proficiency in the procedures listed below. This includes full and partial panel approaches.

### **CONTENT:**

### Lesson Review (One or more procedures as selected by the instructor):

Approaches

- ILS
- Localizer
- VOR
- GPS

Partial Panel Approach Procedures

Missed Approach Procedures

Landing from a straight in or circling approach

### **COMPLETION STANDARDS:**

Headings will be maintained +/- 10 degrees, airspeeds +/- 10 knots and altitudes +/- 100 feet and altitude at the MDA +100/-0 feet. On precision approaches, the student will demonstrate accurate lateral course interception and tracking and make a transition to the vertical guidance at the correct point. The Course and vertical guidance will be maintained with less than  $\frac{3}{4}$  scale needle deflection to the missed approach point – DA +100/-0 feet. On non-precision approaches lateral guidance will be maintained with less than  $\frac{3}{4}$  scale needle deflection. The student will maintain altitude at the MDA +100/-0 feet to the missed approach point. Upon arriving at the missed approach point the student will either execute the alternate or published missed approach procedure if the runway environment is not in sight; or execute a normal landing if the runway environment is in sight and the student determines the landing can be made using a normal rate of descent and normal maneuvers. The landing will be made to the standards of the private pilot ACS.

#### UNIVERSITY OF OKLAHOMA

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**LESSON OBJECTIVE:** The objective of this lesson is to evaluate the student's knowledge of this stage through a quiz.

**CONTENT:** The quiz will cover the following area:

Instrument Approach Procedures

STAGE VIII LESSON 10 QUIZ

### **COMPLETION STANDARDS:**

This lesson is complete when the student scores 70% or better. In addition, the instructor is responsible for reviewing those questions missed.

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#### STAGE VIII FLIGHT LESSON 11

#### **DUAL-AIRPLANESTAGE CHECK**

#### INSTRUMENT PROCEDURES AND APPROACHES

#### **LESSON OBJECTIVE:**

During this lesson the student will be evaluated on instrument approach procedures. This stage check will be conducted by the Chief/Assistant Flight Instructor or a Check Instructor.

#### **CONTENT:**

#### Lesson Review (One or more procedures as selected by the check pilot):

Approaches

- ILS
- Localizer
- VOR
- GPS

Partial Panel Approach Procedures Missed Approach Procedures Landing from a straight in or circling approach

#### **COMPLETION STANDARDS:**

The student should demonstrate instrument pilot proficiency, as outlined in the current FAA Instrument Rating – Airman Certification Standards, in each of the listed procedures.

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# UNIVERSITY OF OKLAHOMA INSTRUMENT PILOT CERTIFICATION COUSE STAGE IX

#### **STAGE OBJECTIVE**

The purpose of stage IX is to introduce the student to IFR cross-country procedures and to increase the student's proficiency to the level required of an instrument rated pilot.

## **COMPLETION STANDARD**

At the completion of Stage IX, the student must be able to demonstrate all IFR flight maneuvers and procedures at the proficiency level of an instrument rated pilot, as outlined in the current FAA Instrument Rating – Airplane Airman Certification Standards.

#### STAGE IX FLIGHT LESSON 1 DUAL - AIRPLANE, CROSS-COUNTRY

**LESSON OBJECTIVE** During this lesson, the student will plan and conduct an IFR cross-country flight. During the flight, the student will become familiar with IFR departure and arrival procedures.

#### **CONTENT:**

#### Lesson Review

Filing an IFR Flight Plan
Air Traffic Control Clearances
Navigation using VOR and GPS
Precision and Nonprecision Approaches (as selected by the instructor)
Simulated Emergency Procedures
Landing from a straight in or circling approach
Postflight Procedures

#### **Lesson Introduction**

Ensuring currency/proficiency and establishing personal minimums for IFR Flight

IFR Cross-Country Flight Planning

- Obtaining Weather Information
- Aircraft Performance, Limitations, and Systems Related to IFR Operation
- Use of IFR enroute charts
- Calculation of magnetic heading, ETE and fuel consumption

IFR Clearances Departure and Arrival Procedures

**Enroute Course Changes** 

#### **COMPLETION STANDARDS:**

The student will perform the tasks above to the level required by the current FAA Instrument Rating – Airplane Airman Certification Standards.

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#### STAGE IX FLIGHT LESSON 2 DUAL - CROSS-COUNTRY, INSTRUMENT

**LESSON OBJECTIVE:** The objective of this lesson is to increase the student's proficiency in instrument cross-country procedures by conducting another IFR cross country flight.

#### **CONTENT:**

#### Lesson Review

Ensuring currency/proficiency and establishing personal minimums for IFR Flight

IFR Cross-Country Planning

Filing an IFR Flight Plan

Obtaining an IFR Clearance

- Clearance Copying
- Clearance Readback

IFR Departure Procedures and Clearances

IFR Enroute Procedures and Clearances IFR Approach Procedures and Clearances

Canceling an IFR Flight Plan

Precision and Nonprecision Approaches (as selected by the instructor)

Holding (as selected by the instructor)

Landing from straight in or circling approach

Postflight Procedures

#### **COMPLETION STANDARDS:**

The student will perform the tasks above to the level required by the current FAA Instrument Rating – Airplane Airman Certification Standards.

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#### STAGE IX FLIGHT LESSON 3 DUAL – AIRPLANE, CROSS-COUNTRY

LESSON OBJECTIVE: This flight gives the student an in-depth and in-detail exposure to IFR cross-country operations, including departure, enroute, emergency, and arrival procedures. The flight must be a distance of at least 250 n.m. in length along airways or ATCdirected routing with one segment of the flight consisting of at least a straight-line distance of 100 n.m. between airports and involves an instrument approach at each airport; and involves three different kinds of approaches with the use of navigation systems.

#### **CONTENT:**

#### Lesson Review

Ensuring currency/proficiency and establishing personal minimums for IFR Flight IFR Cross-Country Planning

Filing an IFR Flight Plan

Preflight Check of Instruments and Equipment

Obtaining an IFR Clearance

Departure Procedures and Clearances

- Departure Procedures
- Use of Radar

Enroute Procedures and Clearances

- Navigation Using VOR's and GPS
- Holding
- Enroute Course Changes

Simulated Emergency Procedures

- Loss of Communications
- Radio Failure
- Instrument Failure
- Systems Failure
- Icing
- Turbulence
- Low Fuel Supply
- Engine Failure

Arrival Procedures and Clearances

- Use of Arrival Procedures
- Use of Radar
- At least three different instrument approaches, including one approach at each airport (as determined by the instructor)
- Circling Approach Procedures
- Missed Approach Procedures
- Landing from a straight in or circling approach

Postflight Procedures

#### **COMPLETION STANDARDS:**

The student will perform the tasks above to the level required by the current FAA Instrument Rating – Airplane Airman Certification Standards.

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#### STAGE IX FLIGHT LESSON 4 LOCAL - DUAL, AIRPLANE

#### INSTRUMENT PROCEDURES AND APPROACHES

**LESSON OBJECTIVE:** The objective of this lesson is to evaluate the student's proficiency in the proper execution of holding patterns and instrument approach procedures.

#### CONTENT:

## Lesson Review (As Selected by the Instructor)

Precision Approaches

Nonprecision Approaches (full and partial panel)

Circling Approach Procedures

Straight-In Approach Procedures

Missed Approach Procedures

Unusual Attitudes

Landing From a Straight In or Circling Approach

Postflight Procedures

#### **COMPLETION STANDARDS:**

The student will perform the tasks above to the level required by the current FAA Instrument Rating – Airplane Airman Certification Standards.

#### **UNIVERSITY OF OKLAHOMA**

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#### STAGE IX FLIGHT LESSON 5 DUAL - AIRPLANE

**LESSON OBJECTIVE:** The objective of this lesson is to evaluate the student's proficiency in preparation for the final stage check.

#### **CONTENT:**

#### **Lesson Review (As Selected by the Instructor)**

Precision Approaches

Nonprecision Approaches (full and partial panel)

Circling Approach Procedures

Strait-In Approach Procedures

Missed Approach Procedures

Unusual Attitudes

Landing From a Straight In or Circling Approach

Postflight Procedures

#### **COMPLETION STANDARDS:**

The student will perform the tasks above to the level required by the current FAA Instrument Rating – Airplane Airman Certification Standards

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## STAGE IX LESSON 6 QUIZ

**LESSON OBJECTIVE:** The objective of this lesson is to test the student's knowledge of this stage through a quiz.

## CONTENT: The quiz will over the following areas

Cross Country Flight Planning Weather Holding Instrument Approaches

#### **COMPLETION STANDARDS:**

This lesson is complete when the student scores a 70% or better. In addition, the instructor is responsible for reviewing those questions missed.

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#### STAGE IX FLIGHT LESSON 7 DUAL - AIRPLANE

#### FINAL STAGE CHECK

#### LESSON OBJECTIVE:

This lesson is the final stage check conducted by the Chief or Assistant Chief Flight Instructor or Check Instructor approved by the FSDO. During this lesson, the student must demonstrate Knowledge (KN), Risk Management (RM) and Skill (SK) as required by the FAA Instrument Rating – Airplane Airman Certification Standards. The order of material examined under lesson content is based on how this material may be covered during the ground and flight potions of the practical test. The material is not required to be covered in this order as long as it is covered in its entirely. The ground portion of the test must be completed prior to the flight portion of the test.

#### PRE-TEST PLANNNING:

The evaluator will check for updates to the Airman Certification Standards. Any changes will be incorporated into the evaluation.

The evaluator will list the ACS codes missed on the knowledge test and annotate these codes on the KN or RM line for each task or groups of tasks in the ground portion of the lesson plan. These items must be evaluated as part of the practical test.

#### CONTENT:

Cross Country Flight Scenario. The applicant will plan an instrument cross country flight from OUN to an airport outside of the OKC area into Class C or B airspace. The applicant will use real world weather in the flight planning process. In both the ground and flight portions of the test the evaluator will present the applicant with different situations within the scenario (weather, equipment failure, ATC requests, medical issues etc.) In the process of demonstrating the KN, RM and SK to deal with these situations as many of the tasks as possible will be evaluated. Any remaining tasks will be evaluated outside the context of the scenario. In some cases tasks are grouped together to facilitate evaluation as part of a scenario. The evaluator will make note of unsatisfactory performance on the KN, RM or SK lines as appropriate.

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#### STAGE IX FLIGHT LESSON 7 DUAL - LOCAL, INSTRUMENT (CONT'D)

#### GROUND PORTION OF PRACTICAL TEST

All SK elements must be evaluated. At least one KN and one RM element from each task must be evaluated. If an element was missed on the knowledge test evaluation of this element may count as the one element to be evaluated. At the evaluator's discretion more than one element may be evaluated.

Pilot Qualifications (AOI, Task A)
KN:
RM:
SK:
Weather Information (AOI, Task B)
KN:
RM:
SK:
Cross-Country Flight Planning (AOI, Task C) Departure, En Route and Arrival Operations (AOV, Task B) Aircraft Systems Related to IFR Operations (AOII, Task A) Aircraft Flight Instruments and Navigation Equipment (AOII, Task B) Loss of Communications (AOVII, Task A)
KN:
RM:
SK:
FLIGHT PORTION OF THE PRACTICAL TEST

All SK elements must be evaluated. At least one KN and RM element from each task will be evaluated through observation and/or questioning with emphasis on application of these elements in execution of SK associated with each task.

(CONTINUED ON NEXT PAGE)

In order to facilitate execution of the scenario the evaluator will simulate ATC to issue clearances and respond to requests from the applicant. Care must be exercised to ensure communication and compliance with actual ATC clearances (usually OUN Tower and OKC Approach) especially when operating in Class C and D airspace. After the applicant simulates a request or response to the evaluator, the evaluator will direct the applicant to contact ATC as required.

Instrument Flight Deck Check (AOII, Task C)
SK:
KN:
RM:
Aircraft Flight Instruments and Navigation Equipment (AOII, Task Evaluated Throughout the Flight
SK:
KN:
RM:
Instrument Flight (AOIV, Task A) Evaluated Throughout the Flight
SK:
KN:
RM:
Compliance with Air Traffic Control Clearances (AOIII, Task A) Evaluated Throughout the Flight
SK:
KN:

RM:

## STAGE IX FLIGHT LESSON 7 DUAL - LOCAL, INSTRUMENT (CONT'D)

Departure, En Route, and Arrival Operations (AOV, Task B) Evaluated Throughout the Flight	Recovery from Unusual Flight Attitudes (AOIV, Task B) Evaluated at Some Point During the Flight
SK:	SK:
KN:	KN:
RM:	RM:
Intercepting and Tracking Navigational Systems and DME ARCS (AOV, Task A) Evaluated Throughout the Flight	Holding Procedures (AOIII, Task B)
SK:	SK:
KN:	KN:
RM:	RM:
Simulated Operation of Anti/Deice Equipment (AOII, Task A)	Nonprecision Approach (AOVI, Task A)
SK:	SK:
KN:	KN:
RM:	RM:
Obtain Weather During Flight (AOI, Task B)	Precision Approach (AOVI, Task B)
SK:	SK:
KN:	KN:
RM:	RM:
Loss of Communication (AOVII, Task A) Evaluated at Some Point During the Flight	
SK:	
KN:	(CONTINUED ON NEXT PAGE)
RM:	

## STAGE IX FLIGHT LESSON 7 DUAL - LOCAL, INSTRUMENT (CONT'D)

Circling Approach (AOVI, Task D) from a nonprecision approach which must be different type of approach than first nonprecision approach.
SK:
KN:
RM:
Missed Approach (AOVI, Task C) Execute the published or alternate missed approach procedure from one of the above approaches.
SK:
KN:
RM:
Landing from an Instrument Approach (AOVI, Task E) Execute a landing from one of the above approaches.
SK:
KN:
RM:
Approach with Loss of Primary Flight Instrument Indicators (AOVII, Task D) Fail the Attitude Indicator and DG for one of the nonprecision approaches above.
SK:
KN:
RM:

Postflight Checking Instruments and Equipment (AOVIII, Task A)
SK:
KN:

#### COMPLETION STANDARDS

RM:

The student will demonstrate proficiency in strict accordance with the Instrument Rating – Airplane Airman Certification Standards

OK: Task performed satisfactorily within ACS standards.

U: Performance on task not within ACS standards. Explanation of Unsatisfactory performance in KN, RM and/or SK lines as Appropriate.

NC: Task not evaluated due to not completing the test – weather cancellation, maintenance, termination due to failure on an earlier task, etc.