

**INSTRUMENT RATING COURSE
TRAINING COURSE OUTLINE AND SYLLABUS
OVERVIEW**

APPLICABILITY

This Training Course Outline prescribes the minimum curriculum required for an instrument rating course under Title 14 Part 141, Appendix C for an Airplane Single-Engine Land rating.

COURSE OBJECTIVE

The student will obtain the knowledge, skill, and aeronautical experience necessary to meet the requirements for an Instrument Rating in an Airplane Single-Engine Land.

COURSE COMPLETION STANDARDS

The student will demonstrate through written, computerized, oral, and flight tests, and show through appropriate records, that the knowledge, skill, and experience requirements necessary to obtain an Instrument Rating in an Airplane Single-Engine Land are met.

TRAINING SYLLABUS

The training syllabus meets all curriculum requirements as prescribed by FAR Part 141, Appendix C. It is composed of integrated ground and flight lessons to allow greater flexibility and to accommodate individual needs. The ground lessons may be taught either separately or concurrently with the flight lessons.

COURSE TIMEFRAME

The Training Course contains three (3) stages. Each stage is designed to be completed in no more than forty-five (45) days. Additionally, this course is designed to meet the 3 hours of dual flight training in an aircraft that is appropriate to the aircraft category and class for which the course applies, in preparation for the practical test within 60 days preceding the date of the test.

Sporty's Academy is located at Clermont County/Sporty's Airport (I69) and holds Air Agency Certificate **No. XSTS103K**.

Sporty's Academy is owned and operated as:

SPORTY'S ACADEMY, INC.
2001 SPORTY'S DRIVE
CLERMONT COUNTY/SPORTY'S AIRPORT
BATAVIA, OHIO 45103

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DESCRIPTION OF REVISIONS

REVISION #	REVISION DATE	REVISION DESCRIPTION	SECTION(S)	PAGE NUMBER(S)
Original	02-16-1998	Initial Course Offering	ALL	ALL
1	04-17-1998	Remove Assistant Chief Flight	IV	2
2	08-26-1998	Assistant Chief & Editorial	II, III, IV, & VI	NUMEROUS
3	08-04-1999	Revise Stage 2	VI	2, 17-24
4	06-01-2000	Personnel & Table of Contents	INTRO, IV	2, 1 & 2
5	10-20-2000	Chief	IV	1 & 2
6	04-27-2001	TCO & Chief	INTRO, IV, V, & VI	ALL
7	11-01-2001	Chief & Assistant Chief	IV	1 & 2
8	11-25-2002	Editorial Changes & Content Update Consolidation of Content	ALL	ALL
9	03-17-2006	Editorial Changes, Personnel, & Content Update	ALL	ALL
10	08-01-2008	Editorial Changes, Personnel, & Content Update	INTRO, I, II, IV, V, VI	NUMEROUS
11	07-20-2012	Editorial Changes, Personnel, & Content Update	ALL	ALL
12	10-10-2017	Editorial Changes, Personnel, & Content Update	ALL	ALL
13	05-10-2021	Editorial Changes, Personnel, & Content Update	ALL	ALL
14 / Master Original	09-29-2023	Initial Offering of Combined Master Training Course Outline Replacing Individual TCOs Approved Since 1997.	ALL	ALL
15 / Master 1	05-01-2024	Update Management Personnel for Chief Instructor, Assistant Chief Instructor, & for Satellite Assistant Chief. Update Flight Briefing Area Diagrams. Removed BATD from Equipment. Update Course Descriptions. Add End of Course Review Check. Remove LOC-BC from Flight Lessons and Prepare Flight Lessons for Loss of Local VORs.	INTRO, I, II, IV, V, VI	ALL
16	11-01-2024	Split from Master Back to Individual TCO with Requisite Header & Content Updates. Update Personnel to Include Director of Flight Operations. Cleaned Up Some Back Course & AVP Related Content in the Syllabus.	COVER, TABLE OF CONTENTS, I-VI	NUMEROUS
17	02-11-2026	Editorial Changes, Content Update, Update Flight Briefing Area Diagrams and Provisions for Examining Authority	ALL	VARIOUS
18	06-17-2026	Personnel Update, Aircraft Update, & Correct Typos	ALL	ALL

FAA Approved  GL-FSDO-05

Karin Hensellek	POI
Printed Name	Title
KARIN L HENSELLEK	6/22/2026
Signature	Date

SECTION I FACILITIES

TRAINING CENTER

The Training Center is the focal point for all flight lesson activity. The Training Center is located on the second floor of the Sportsman's Market, Inc. building at the Clermont County/Sporty's Airport. Adequate areas are provided for the dispatch and recovery of all flight lesson activity.

In addition, the Training Center provides three (3) Flight Briefing Areas.

FLIGHT BRIEFING AREAS

All flight briefing areas are equipped with tables and chairs adequate for both students and instructors.

In Flight Briefing Area No. 1, a telephone is available to provide communication with a Flight Service Station.

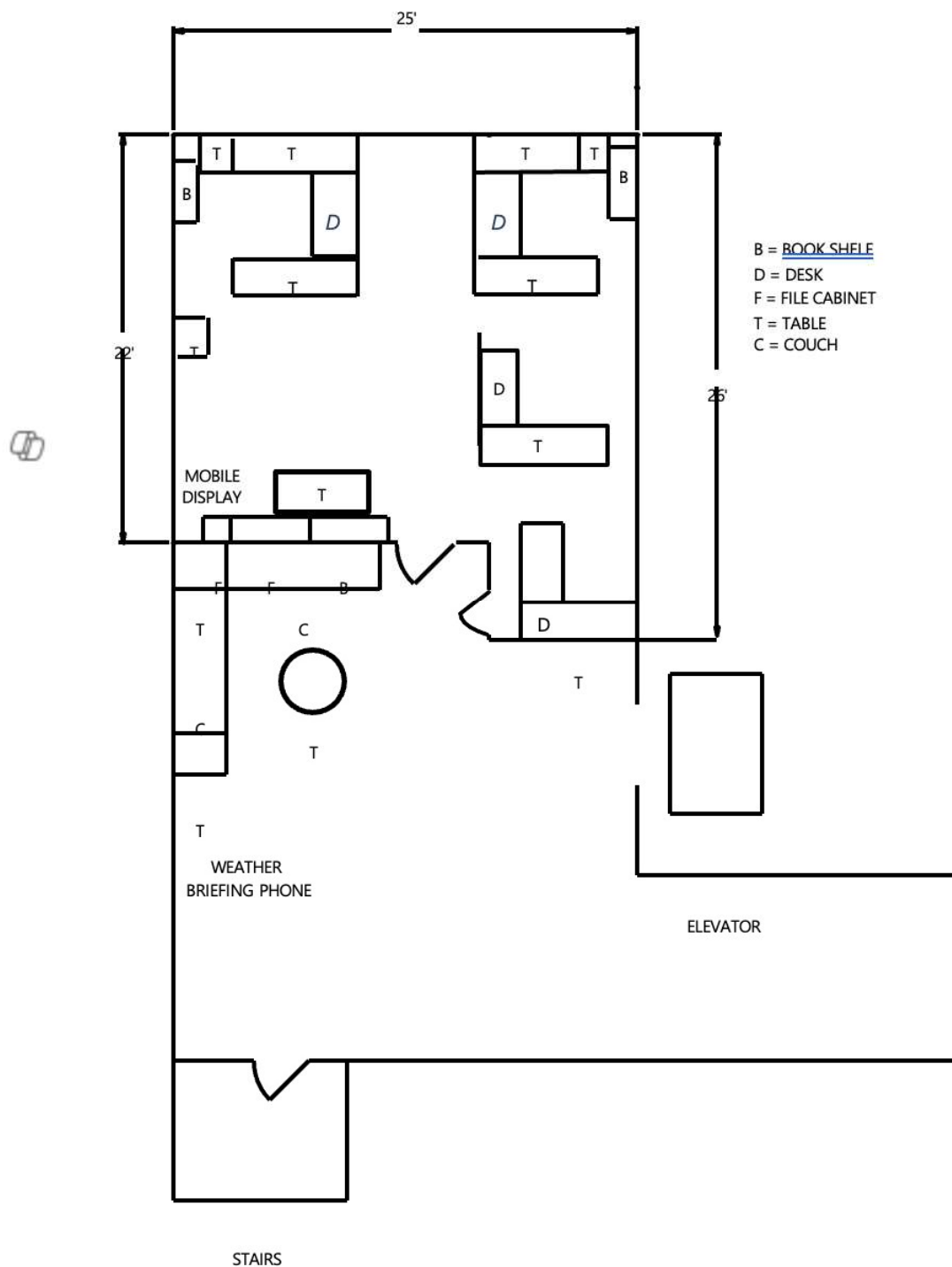
SATELLITE BASE

Sporty's Academy may conduct the classroom portion of the academic course at a satellite training facility. The classrooms used are provided by the University of Cincinnati. The typical University of Cincinnati Classroom is adequately equipped to present the appropriate ground lessons.

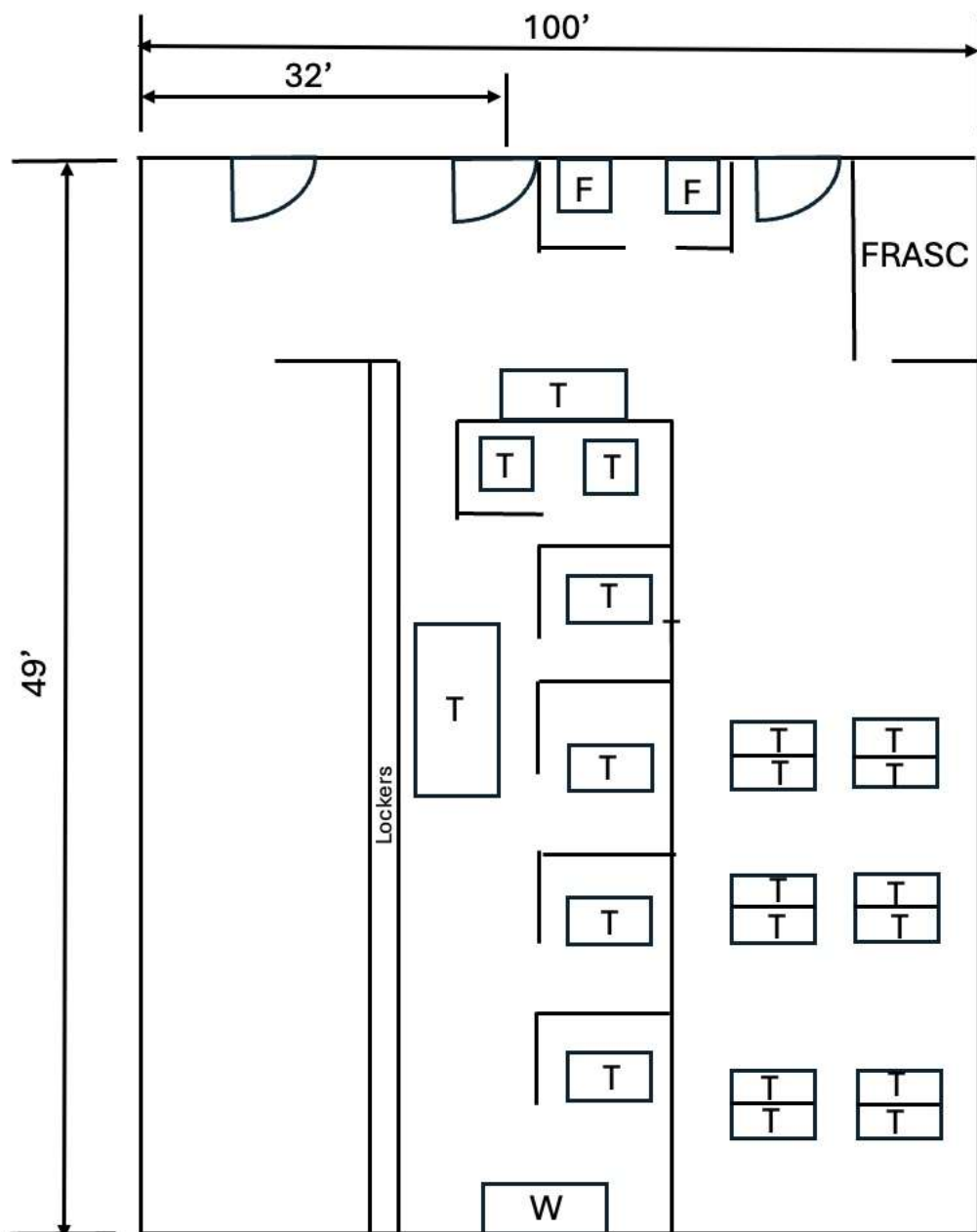
University of Cincinnati
Clermont College
4200 Clermont College Drive
Batavia, OH 45103

Note: All rooms and areas conform to local building, sanitation, and health codes. All rooms are designed and located so that students will not be distracted by the instruction conducted in other rooms or by flight and maintenance operations on the airport.

FLIGHT BRIEFING AREA #1
MAXIMUM NUMBER OF STUDENTS = 10

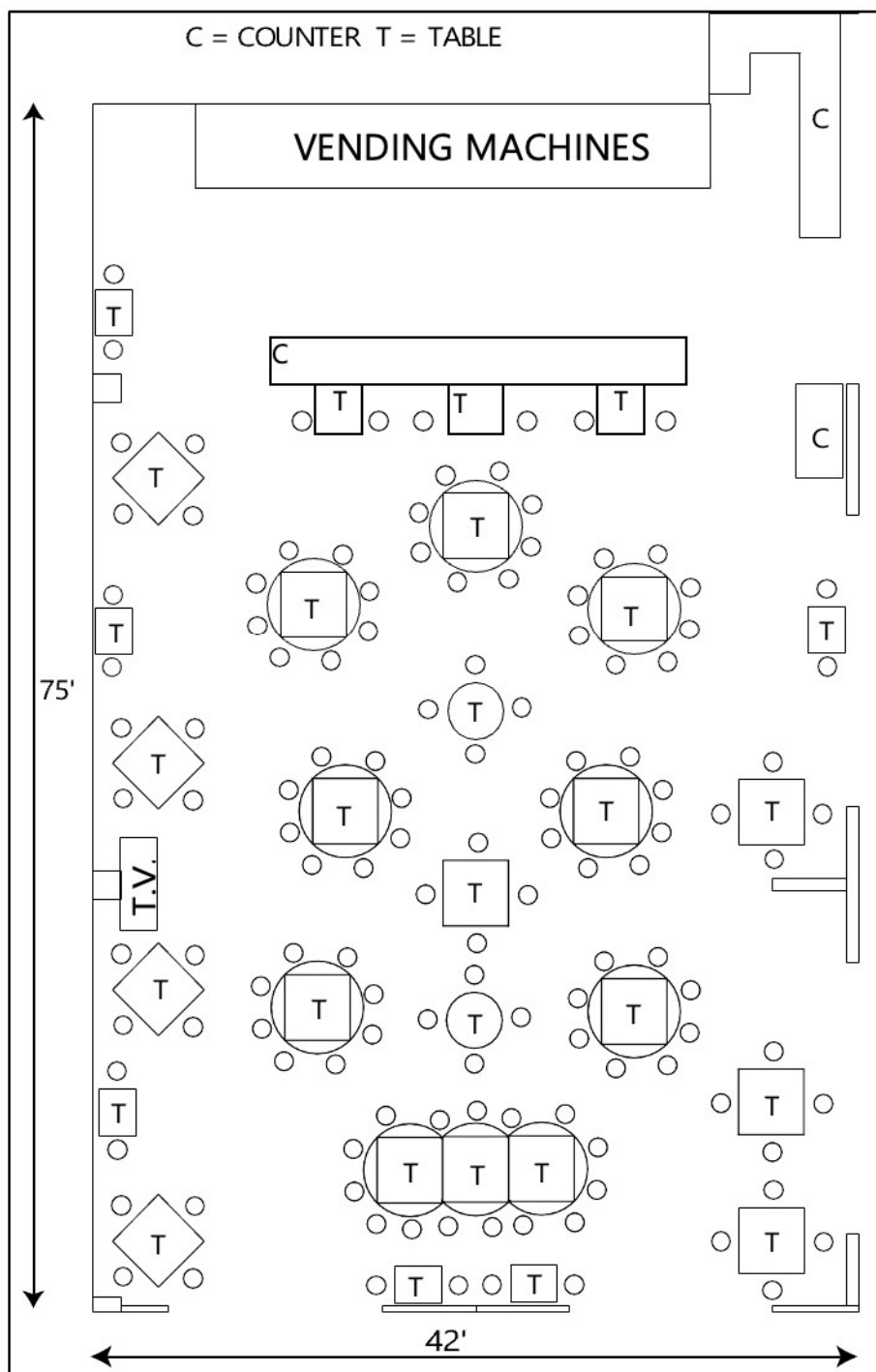


FLIGHT BRIEFING AREA #2
Maximum Number of Students=75



T-Table W- Workstation
 F-Fixed Training Device
 FRASC- FRASCA A RTD/AATD

FLIGHT BRIEFING AREA #3
MAXIMUM NUMBER OF STUDENTS = 75

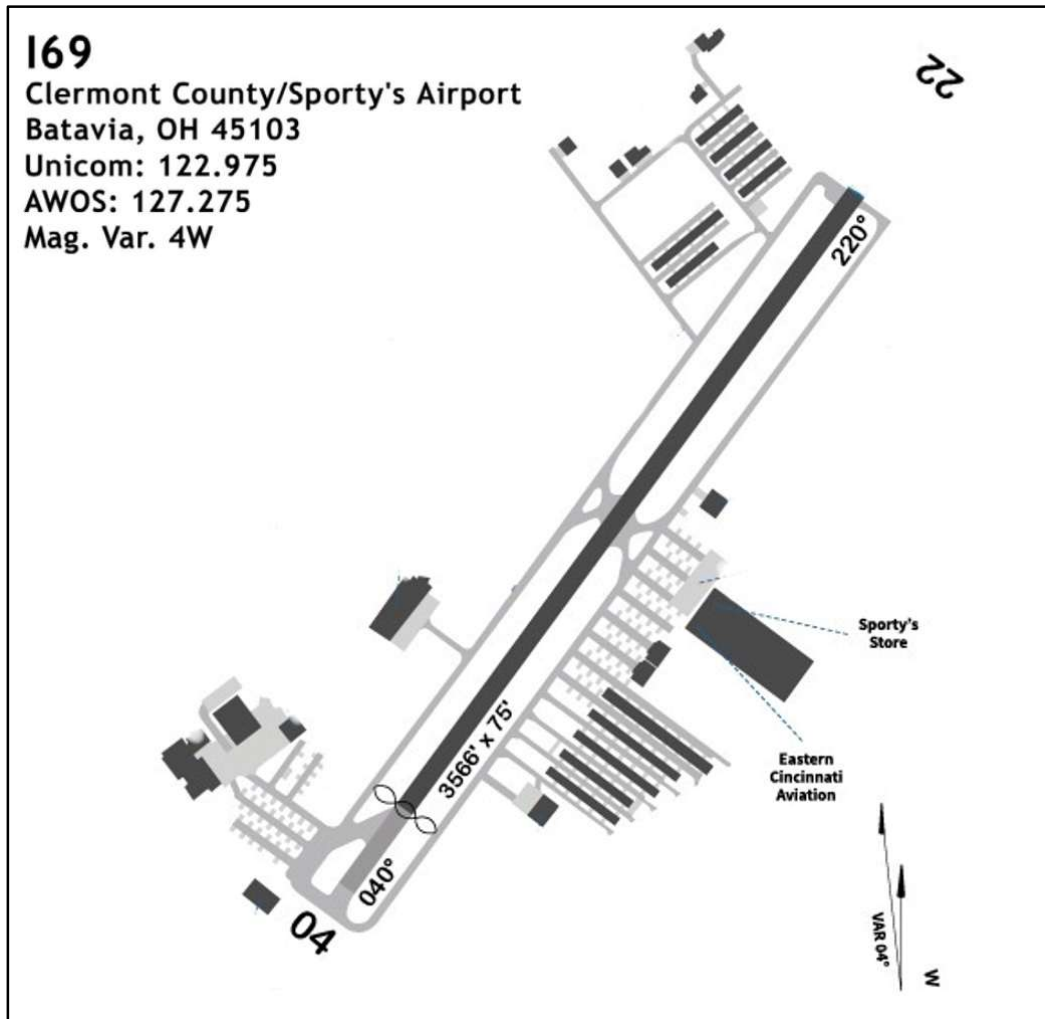


AIRPORT

Clermont County/Sporty's Airport (I69) is the main operations base for training. The airport has one hard surface runway and meets the requirements of 14 CFR §141.38 for day and night flight operations.

The airport provides Area Navigation, RNAV (GPS), approaches. Fuel and maintenance services are available between 0800 and 1800 hours, Monday through Saturday, and between 1100 and 1800 on Sundays.

AIRPORT DIAGRAM



SECTION II EQUIPMENT

GROUND TRAINING AIDS

The training aids available for use, as appropriate, in this course are as follows:

- Flight Instruments for demonstration purposes.
- Projectors, televisions, white boards, tablets, and computers.
- For enhancement and reinforcement of training, a variety of videos, online programs, tablet apps, and computer software are available
- Models of airplanes for demonstration
- Sporty's Learning Management System (LMS) may be used as an additional method to provide ground instruction in a synchronous or asynchronous manner as a planned part of the syllabi within this TCO. Other technologies may be utilized to supplement the LMS as needed. Monitoring of student activity and verification of online ground lesson attendance, testing and evaluation, and other routine classroom procedures may be completed through these technologies as required. Ground instruction completed within an LMS or remote environment will be included in the student's training record.

ADVANCED AVIATION TRAINING DEVICE

The Frasca RTD Advanced Aviation Training Device is a stationary trainer equipped with the necessary flight controls to simulate flight around the three axes of an airplane.

It is modeled as a Cessna 172. The Cessna 172 may be configured with a Garmin G1000 Integrated Flight Deck or traditional round dial instruments.

The Frasca RTD may be equipped with the following instrument displays:

G1000 -

1. Primary Flight Display (PFD)
2. Multi-Function Display (MFD)
3. Standby Airspeed Indicator
4. Standby Attitude Indicator
5. Standby Sensitive Altimeter
6. Magnetic Direction Indicator

Round Dial -

1. Airspeed Indicator
2. Attitude Indicator
3. Sensitive Altimeter
4. Turn Coordinator
5. Horizontal Situation Indicator (HIS) or Heading Indicator
6. Vertical Speed Indicator
7. Magnetic Direction Indicator
8. Clock

In addition, the Frasca RTD AATD may be equipped with the following avionics:

G1000 -

1. One simulated audio panel
2. Simulation of two integrated avionics units (Garmin GIA 63W) with interaction through the PFD, MFD and audio panel
3. One 2-axis autopilot with available flight director
4. One transponder

Round dial -

1. One audio panel with three light marker beacons
2. Two VHF communications radios
3. Two VOR/GPS navigation radios coupled to a VOR/LOC or HIS indicator
4. One medium/low frequency navigation receiver coupled to a relative bearing indicator
5. One transponder

A computer records the flight path flown during the use of the Advanced Aviation Training Device and allows the instructor to interact with the flight training environment.

Three high-resolution visual displays provides feedback to the student with regard to the outcome of visual maneuvers and instrument approaches.

This Advanced Aviation Training Device meets the requirements specified in 14 CFR §141.41 (b) and may be used to meet the total simulated flight time allowed in 14 CFR Part 141 for the following Appendices: B, C, D, E, F, G, I, and M as provided in its current FAA Letter of Authorization (LOA).

AIRCRAFT

The aircraft that may be used in this course are as follows:

1. Cessna 172 (2-4 Place)
 - a. All but 3 TAA aircraft per 14 CFR §61.129
2. Cessna 182 (4 Place, High Performance)
 - a. TAA per 14 CFR §61.129

Each student must demonstrate satisfactory proficiency prior to receiving an endorsement to operate as PIC of any Complex or High-Performance aircraft.

All aircraft used in this course must:

1. Be registered as a civil aircraft of the United States and certified in the Standard Airworthiness, Primary Airworthiness, or Special Light-Sport Airworthiness category.
1. Be maintained and inspected in accordance with the requirements of 14 CFR Part 91.
2. Have engine power controls and flight controls easily accessible and that operate in a normal manner from each pilot station.
3. Meet the requirements stated in 14 CFR § 141.39(a)(5) when used for IFR operations.

SECTION III TRAINING AIRPORTS

All airports in this course must meet the requirements outlined in 14 CFR §141.38.

In addition to the Clermont County/Sporty's Airport, the airports listed at <https://sportysacademy.com/customerportal1/approved-airports/> are approved for use during training and meet these requirements.

Only a Chief Instructor or a member of Sporty's Academy Management may approve airports other than those listed.

Airports listed without a hard surfaced runway or with a runway less than 3000' long may only be used on Dual flights with a Sporty's Academy instructor in an approved aircraft.

SECTION IV PERSONNEL

MEMBERS OF MANAGEMENT

The individuals listed below are considered to be the members of management for Sporty's Academy, Inc. Any interaction, requests, or other necessary contact concerning Sporty's Academy should be accomplished through the following individuals.

President - Charles Gallagher

Vice President - Dustin M. Yockey

CHIEF INSTRUCTOR

Chief Instructor designated for this course must meet the requirements outlined in 14 CFR §141.35 and will be designated by letter per LOA A006.

Chief Instructor – Dustin M. Yockey

ASSISTANT CHIEF INSTRUCTOR

The Assistant Chief Instructor designated for this course must meet the requirements outlined in 14 CFR §141.36 and will be designated by letter per LOA A006.

Assistant Chief Instructor - Jayme L. Frederick

Assistant Chief Instructor - Collin S. Keith

CHECK INSTRUCTOR

Check Instructors designated for this course must meet the requirements outlined in 14 CFR §141.37 and will be designated, in writing, by a Chief Instructor and approved by the Flight Standards District Office as required by 14 CFR §141.37 (b). Records of these designations will be maintained.

FLIGHT INSTRUCTOR

Each flight instructor assigned to this course must be the holder of at least a Commercial Pilot Certificate with an Airplane category rating and a Single Engine Land class rating. In addition, each instructor must hold a Flight Instructor – Airplane Single Engine; Instrument Airplane Certificate. All flight instructors are required to hold at least a third class medical certificate or meet alternative medical requirements as allowed by the FAA under 14 CFR §61.23(c), also known as BasicMed.

OTHER INSTRUCTOR

Each instructor assigned to this course for the purpose of teaching ground lessons must meet the flight instructor requirements listed above or hold a Ground Instructor certificate with an Advanced rating.

SECTION V

TRAINING COURSE INTRODUCTION

This Instrument Rating Course utilizes the building-block theory of learning, which recognizes that each item taught is presented on the basis of previously learned knowledge and skills.

Optimum effectiveness is realized when ground lessons and the viewing of the associated Sporty's Learning Management System (LMS) content are completed prior to the respective flight lessons. If a considerable length of time has elapsed between the ground lesson and the associated flight, the instructor may conduct a short review of essential material.

COURSE ELEMENTS

This Instrument Rating Course utilizes integrated flight and ground segments. The course includes the latest FAA Airman Certification Standards (ACS) and a maximum of student-oriented instruction. The syllabus and support materials not only provide necessary information but also guide the student through the training in a logical manner.

PREFLIGHT ORIENTATION

Prior to each dual lesson, an instructor must provide the student with an overview of the subject matter to be covered during the lesson. The instructor should select a quiet, private place to brief the student and explain the lesson material. It is important that the instructor defines unfamiliar terms and explains the maneuvers and objectives of each lesson.

LESSON REVIEW

When a lesson plan contains review tasks and maneuvers, the flight should begin with a review of previously learned maneuvers and tasks before new maneuvers and tasks are introduced. The instructor must be confident that the student can perform review tasks and maneuvers to the standards of the lesson.

USE OF AN AVIATION TRAINING DEVICE OR A FLIGHT TRAINING DEVICE

This Instrument Rating Course allows, as an option, the use of an approved basic or advanced aviation training device (BATD/AATD) for those lessons designated in the Course Time Allocation Table under the ATD/FTD heading and other lessons based on the discretion of a Chief Instructor or a member of management to the extent allowed by 141 regulations and the manufacturer's letter of authorization (LOA) from the FAA. The best results are obtained when a BATD/AATD introduction is accomplished just prior to the flight lesson.

Training in a flight training device may be credited for a maximum of 14 hours (40% of the total 35 hours required by CFR 141 Appendix C and the FAA Letter of Authorization (LOA) for the Frasca RTD AATD). Each training flight must include a preflight briefing and a postflight critique of the student by the flight instructor assigned to that flight.

Flight training must include the following approved areas of operation appropriate for an ASEL:

- Preflight preparation;
- Preflight procedures;
- Air traffic control clearances and procedures;
- Flight by reference to instruments;
- Navigation systems;
- Instrument approach procedures;
- Emergency operations; and
- Postflight procedures;

POSTFLIGHT EVALUATION

The postflight evaluation is equally as important as the preflight orientation. During each postflight session, the student must be thoroughly debriefed. Noticeable advancement should be apparent and recommendations should be made for improvement, where appropriate. This action is a valuable instructional technique because it increases retention and helps to prepare the student for the next lesson.

The instructor must bear in mind that all the times listed on the Course Time Allocation Table are recommended. The time designated for each lesson reflects the time spent with the well-prepared student. If necessary, additional time may be allotted.

STUDENT STAGE CHECKS AND END-OF-COURSE TEST

Stage checks and the end-of-course test measure the student's accomplishments during each stage of training. Each student must satisfactorily accomplish the stage check and end-of-course test according to the syllabus lessons and completion standards for an ASEL. The conduct of each stage check and the end-of-course test is the responsibility of the Chief Instructor. The authority to conduct these checks and tests may be delegated by the Chief Instructor to an Assistant Chief Instructor or Designated Check Instructor. This procedure provides close supervision of training and another opinion on the student's progress. The stage checks and the end-of-course test also give the Chief Instructor an opportunity to check the effectiveness of the instructors and their teaching methods.

An examination of the building-block theory of learning will show that it is extremely important for progress and proficiency to be satisfactory before the student enters a new stage of training. Therefore, the next stage should not begin until the student successfully completes the current stage. Failure to follow this progression may defeat the purpose of the stage check and lead to overall course breakdown. The Chief Instructor may approve flight operations in the subsequent stage, provided that this approval is documented and for a specific reason. Valid reasons might include aircraft maintenance that is preventing progress in the current stage or a client medical issue that temporarily prevents solo flight operations in the current stage. Operations in the subsequent stage should be limited.

GROUND TRAINING

In accordance with 14 CFR Part 141, ground training is an integral part of the pilot certification course. The ground training portion of the course may be presented to the student as a formal classroom program, individually by the instructor, or through Sporty's LMS. The ground lessons may be taught through the course of flight training or may be presented as an entire unit prior to the flight training. For a student who enrolls in this course who has a current knowledge test, their ground instruction will be tailored to ensure they demonstrate adequate knowledge per FAR 141 Appendix C.3. prior to the practical test. This allows greater flexibility and accommodation to individual student needs. In any case, no flight lesson may be conducted until the appropriately sequenced ground lesson has been completed.

The ground instruction is provided using three methods in this Instrument Rating Course/ Airplane: person to person discussion (individual or class), flight briefings, and video instruction. All three methods meet or exceed the minimum ground training requirement of 35 hours.

Sporty's LMS provides electronic tracking of the student's time spent on each topic which is viewable by the flight instructor. This tracking information will be transferred to the student's training record for review by the Chief Instructor during the graduation process. The video instruction portion of Sporty's LMS is designed to be viewed prior to the associated ground instruction and are noted by "ADDITIONAL STUDY" at the end of the ground lesson where appropriate. Sporty's LMS may be utilized in the form of online content, tablet apps, television apps, and other equivalent formats that allow tracking of views. Maximum LMS time for individual lessons is published in the signature block.

FLIGHT TRAINING

This course includes at least 35 hours of instrument training for the initial instrument rating for an Airplane Single Engine Land (ASEL), including at least one cross country flight, performed under IFR, that:

- (1) Is a distance of at least 250 nautical miles along airways or ATC-directed routing with one segment of the flight consisting of at least a straight-line distance of 100 nautical miles between airports;
- (2) Involves an instrument approach at each airport; and
- (3) Involves three different kinds of approaches with the use of navigation systems.

INSTRUMENT RATING COURSE IMPLEMENTATION

All of the lessons in the Instrument Rating Course/ Airplane are Dual lessons. The lesson sequence and content have been designed to provide the student with maximum training prior to the introduction of new maneuvers or procedures.

If absolutely necessary, the placement of lesson assignments in the coordinated program may be changed by allowing the student to progress more rapidly. If this method is used, the student should not be allowed to progress into the next stage until the completion of all flight lessons in the current stage of training. The only exception to this is that ground lessons may be accomplished prior to the completion of the previous stage or when approved as previously defined.

If deviation from the normal lesson progression is desired, only a Chief Instructor may grant approval for the change of sequence of Dual and Ground lessons (except as previously specified that ground lessons may be completed earlier). Flight lessons should not be conducted prior to the appropriately sequenced ground lessons. For example, if lesson #10 is a ground lesson, then lessons #11, 12, 13, etc., should not take place until lesson #10 has been satisfactorily completed.

If the student is completing the ground training and flight training courses concurrently, the flight instructor must ensure that the student's flight training does not progress faster than the ground training.

GRADING INSTRUCTIONAL LESSONS

Each instructional lesson will be assigned an overall grade based on the following criteria.

S = SATISFACTORY	The content of the lesson has been completed to the standards outlined in the individual lesson's Completion Standards.
U = UNSATISFACTORY	Indicates that all or part of the lesson content was not completed to the standards outlined in the individual lesson's Completion Standards. One or more pilot tasks/operations graded as a "5" when the required Completion Standard is 4 or above, will require an overall grade of unsatisfactory.
I = INCOMPLETE	Indicates the content of the lesson was not completed, but the pilot tasks/operations covered were satisfactory. Pilot operations not completed must be indicated with an "I."

FLIGHT LESSONS

Evaluation is an essential part of the teaching process. The student must be aware of their progress. All instructional flights must be graded in accordance with the following criteria.

All content pilot operations tasks marked "Lesson Task" must be completed and graded. Any task that is graded must meet or exceed the completion standard for that specific lesson for the student to move on to the next lesson. The instructor, at their discretion, may advance a student to the next lesson if there will be an opportunity to repeat the tasks graded below lesson completion standards on that next lesson.

Each pilot operation or task will be evaluated at the completion of each instructional lesson.

1 = EXCEEDS AIRMAN CERTIFICATION STANDARDS (ACS)	The student demonstrates knowledge or skills that exceed the lesson completion standard or ACS as appropriate, with no procedural or mechanical errors. The flight instructor does not provide any assistance.
2 = MEETS AIRMAN CERTIFICATION STANDARDS (ACS)	The student demonstrates knowledge or skills that exceed the lesson completion standard or meet the ACS as appropriate. Occasional procedural or mechanical errors are quickly recognized and corrected.
3 = AVERAGE	The student consistently demonstrates knowledge and skills that meet lesson completion standards with timely recognition of procedural or mechanical errors.
4 = BELOW AVERAGE	The student demonstrates knowledge and skills with difficulty. They are slow in recognizing and correcting procedural or mechanical errors.
5 = BELOW ACCEPTABLE STANDARDS	The student does not demonstrate adequate knowledge or skills. They are unable to recognize and correct procedural or mechanical errors.
I = INCOMPLETE	The student has not completed the pilot operation task listed.

GROUND LESSONS

For ground instruction lesson, all content pilot operations tasks marked "Lesson Task" must be completed and marked with a "C" designating the completion of the instructional element.

The overall ground lessons will be assigned a "grade" based on the following criteria.

C= COMPLETE	The student completed all the content tasks listed on the lesson sheet.
I = INCOMPLETE	The student did not complete all the content tasks listed on the lesson sheet.

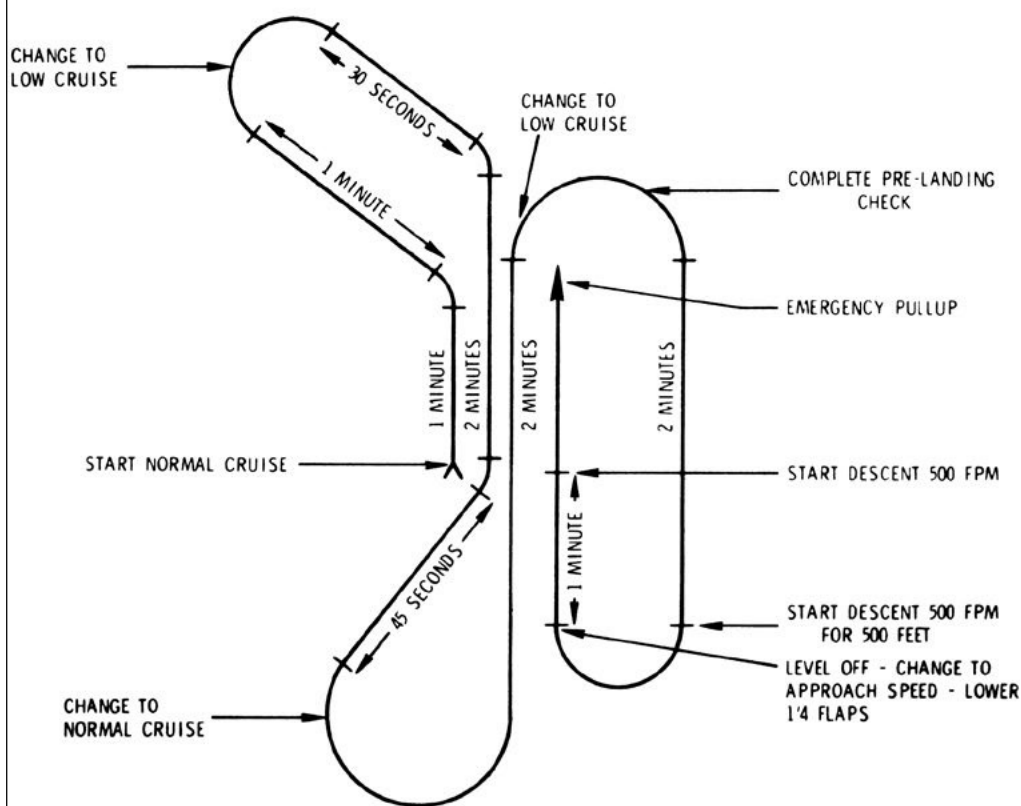
GRADING NOTES

1. When a lesson is graded unsatisfactory, only those tasks graded below lesson completion standards must be repeated to standards during the next lesson.
2. When a lesson is graded incomplete, the tasks not performed must be completed prior to attempting the tasks for the next lesson.
3. When a paper TCO is being utilized, use the "TOTAL IN COURSE: (D/S/G)" lines within the grading box to total the student's dual, solo, and ground instruction times in the course after each lesson.

- f. The turn coordinator and magnetic compass must be observed closely at all times. To correct a heading, use a timed turn (for small heading changes, use a half-standard rate turn).
- g. An efficient cross-check is required during airspeed changes so that corrections may be applied immediately.

Pattern "B"

1. *Brief Student Thoroughly Prior to the Flight*
2. *Performance of Maneuver in the Aircraft*
 - a. Do not demonstrate unless absolutely necessary.
 - b. All available instruments are used.
 - c. Roll out on headings regardless of time.
 - d. When changing airspeed in turns, *simultaneously* change bank and power, also pitch if applicable.
 - e. The descending final turn is made at an absolute rate.
 - f. The final descent is made to a minimum altitude set by the instructor, or until the time expires, whichever comes first.
 - g. The emergency pull-up is made as a normal go-around procedure, climbing to the original altitude.



STUDENT INFORMATION

COURSE ENROLLMENT

- Must be at least 17 years of age and able to read, speak, write, and understand the English language.
- Must hold at least a Private Pilot Certificate – Airplane Single Engine
- A Third Class FAA medical (or higher) or Basic Med must be obtained prior to the first flight lesson.

REQUIREMENTS FOR GRADUATION

- You must satisfactorily complete the training outlined in this syllabus.
- To obtain an Instrument Rating with Airplane Category, you must hold at least a Private Pilot Certificate.
- You must be at least 17 years of age and be able to read, speak, write, and understand the English language.
- In order to graduate from this course, you must meet the flight and ground training time requirements specified in 14 CFR Part 141, Appendix C.

LESSON DESCRIPTION AND STAGES OF TRAINING

Each lesson is fully described within the syllabus, including the objectives, standards, and measurable units of accomplishment and learning. The stage objectives and standards are described at the beginning of each stage within the syllabus.

TESTS AND CHECKS

The syllabus incorporates stage checks and an end-of-course test in accordance with 14 CFR Part 141. The conduct of each stage check and end-of-course test is the responsibility of the Chief Instructor. The authority to conduct these checks and tests may be delegated to an Assistant Chief Instructor or Designated Check Instructor as appropriate.

STUDENT USE OF THIS TRAINING COURSE OUTLINE AND SYLLABUS

Students should use this document to aid in preparation and review of each ground and flight lesson. Students should be aware of each lesson's objective and completion standards, as they will be evaluated against those standards.

The "additional study" items on each lesson should be reviewed by the student prior to completing that lesson regarding the pilot operation tasks listed. Various FAA handbooks are indicated by the FAA publication number and abbreviation. Students are required to use the Sporty's Instrument Rating Course video course.

Students will navigate between video chapters as standard component of the integrated ground and flight training process. It's in the best interest of each student to be familiar with all of the features within the video course, including the Flight Maneuvers Guide and the Interactive Scenarios.

Sporty's Instrument Rating Course video course segments are indicated as "Vol #: Segment #."

Volume 1: Instrument Flying Fundamentals

Volume 2: IFR Navigation

Volume 3: Instrument Approaches

Volume 4: Weather for IFR

Volume 5: Advanced IFR

Volume 6: IFR Flying Techniques

Volume 7: Interactive Scenarios (Optional)

**INSTRUMENT RATING COURSE
FLIGHT TRAINING SYLLABUS**

COURSE OBJECTIVES

The student will obtain the aeronautical skills and experience necessary to meet the requirements for an Airplane Category Instrument Rating.

COURSE COMPLETION STANDARDS

The student must demonstrate through flight tests and school records that the aeronautical knowledge, skill, and experience requirements necessary to obtain an Airplane Category Instrument Rating have been met.

COURSE TIME ALLOCATION TABLE

STAGE NO.	LESSON	TRAINING TIMES			
		FLT	INSTRUMENT TIME (ACTUAL OR SIMULATED)	ATD/FTD	DISCUSSION / LMS
I	1				1.2
I	2				1.2
I	3	1.2	1.0		0.4
I	4	1.2	1.0		0.4
I	5	1.2	1.0		0.4
I	6				1.2
I	7			1.5	0.4
I	8	1.2	1.0		0.4
I	9	1.2	1.0		0.4
I	10				1.2
I	11			1.5	0.4
I	12	1.2	1.0		0.4
I	13				1.2
I	14			1.5	0.4
I	15				1.2
I	16	1.8	1.6		0.4
I	17				1.2
I	18	1.8	1.6		0.4
I - STG CHK	19	1.4	1.2		1.0
STG I TOTALS		12.2	10.4	4.5	13.8
II	20				1.2
II	21			1.5	0.4
II	22				1.2
II	23				1.2
II	24			1.5	0.4
II	25				1.2
II	26	1.8	1.6		0.4
II	27				1.2
II	28				1.2
II	29			1.5	0.4
II	30	2.0	1.8		0.4
II	31				1.2
II	32			1.5	0.4
II	33	2.0	1.8		0.4
II	34				1.2
II	35				1.2
II	36	2.0	1.8		0.4
II	37				1.2
II	38	2.0	1.8		0.4
II - STG CHK	39	2.0	1.8		1.0
STG II TOTALS		11.8	10.6	6.0	16.6
III	40				1.2
III	41				1.2
III	42			2.0	0.4
III	43	3.0	2.8		0.4
III	44			2.0	0.4
III	45	4.0	3.8		0.4
III	46				1.2
III - EOC REV	46a	2.0	1.8		1.0
III	47	2.0	1.8		0.4
III - EOC TEST	48	2.0	1.8		1.0
STG III TOTALS		13.0	12.0	4.0	7.6
COURSE TOTALS		37	33.0	14.5	37
COMBINED COURSE TOTALS (Inst)			47.5		
FAA 141 REQUIREMENTS			35.0 TOTAL		30.0 TOTAL

STAGE I

STAGE OBJECTIVES

During this stage, the student will learn precise airplane attitude control solely by reference to the airplane instruments.

STAGE COMPLETION STANDARDS

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 panel and partial panel instrument reference. Tolerances for all maneuvers will be in accordance with the Instrument Rating Airman Certification Standards.

STAGE I
LESSON 1
DUAL – GROUND
FLIGHT INSTRUMENTS

DATE _____	GRADE (Circle One) S U I
STUDENT NAME _____	STUDENT SIGNATURE _____
INSTRUCTOR # _____	INSTRUCTOR SIGNATURE _____
GROUND (1.2) _____	LMS CREDIT (MAX 0.8) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____	

LESSON OBJECTIVE

During this lesson, the instructor will review the pitot-static and gyroscopic instruments with the student.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Altimeter	C		Attitude Indicator	C
	Types of Altitude	C		Gyro-Driven Heading Indicator	C
	Vertical Speed Indicator	C		Turn Coordinator/ Turn & Bank Indicator	C
	Airspeed Indicator	C		Slip and Skid Indicator	C
	Types of Airspeed	C		Gyroscopic Instrument Errors	C
	Pitot-Static Instrument Errors	C		Glass Panel Flight Instrument Displays	C

COMPLETION STANDARDS

At the completion of this lesson, the student will have a thorough knowledge of the pitot-static and gyroscopic instruments.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH – Instrument Flying Handbook - Chapter 5](#)

[Instrument Rating Airman Certification Standards \(ACS\)](#)

[Sporty's Instrument Rating Course - Video Vol 1: Segments 1, 3, 4, 11, 13, 16](#)

[Vol 5: Segment 2](#)

STAGE I
LESSON 2
DUAL – GROUND
BAI

DATE _____ GRADE (Circle One) S U I
STUDENT NAME _____ STUDENT SIGNATURE _____
INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____
GROUND (1.2) _____ LMS CREDIT (MAX 0.6) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to concepts related to the control of the aircraft using the aircraft instruments.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Instrument Scan	C		Primary Instruments	C
	Instrument Interpretation	C		Supporting Instruments	C
	Aircraft Control	C		Direct Indicating Instruments	C
	Performance Instruments	C		Indirect Indicating Instruments	C
	Control Instruments	C		Instrument Takeoff	C

COMPLETION STANDARDS

At the completion of this lesson, the student will understand controlling the aircraft by reference to the aircraft instruments.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH – Instrument Flying Handbook - Chapters 6 & 7](#)

[Instrument Rating Airman Certification Standards \(ACS\)](#)

[Vol 1: Segments 5, 6, 7, 10](#)

[Vol 6: Segments 2, 14](#)

STAGE I
LESSON 3
DUAL – AIRCRAFT

DATE _____	GRADE (Circle One) S U I
STUDENT NAME _____	STUDENT SIGNATURE _____
INSTRUCTOR # _____	INSTRUCTOR SIGNATURE _____
FLIGHT TIME (1.2) _____	INSTRUMENT (1.0) _____
GROUND (0.4) _____	
TOTAL IN COURSE (D/S/G) _____ / _____ / _____	

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to instrument pre-flight procedures, the instrument flight deck check, the instrument scan, and basic attitude instrument (BAI) flying. The instructor will assist the student in filling out the desired performance table (below) with information for the training aircraft.

CONTENT

Lesson Task			Lesson Task		
Task		Completion	Task		Completion
Grade		Standard	Grade		Standard
	Instrument Preflight and Flight Deck Check	5		Level, Standard Rate Turns	5
	Instrument Scan	5		Constant Airspeed Climbs	5
	Instrument Takeoff	5		Constant Airspeed Descents	5
	Straight-and-Level Flight	5		Level-offs and Trim Use	5

COMPLETION STANDARDS

At the completion of this lesson, the student will have a basic knowledge of the instrument preflight procedures, the instrument flight deck check, and the instrument scan.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 6 & 7](#)
[Instrument Rating ACS](#)
[Review Video Segments as Needed](#)

Performance Desired	Target IAS or VS	Power Setting	Pitch Attitude
Straight and Level (Low Cruise)			
Straight and Level (High Cruise)			
Cruise Climb			
High Performance Climb (Best Rate – Vy)			
Cruise Descent			
Low Speed Descent			

STAGE I

LESSON 4

DUAL – AIRCRAFT

DATE _____	GRADE (Circle One) S U I
STUDENT NAME _____	STUDENT SIGNATURE _____
INSTRUCTOR # _____	INSTRUCTOR SIGNATURE _____
FLIGHT TIME (1.2) _____	INSTRUMENT (1.0) _____
GROUND (0.4) _____	
TOTAL IN COURSE (D/S/G) _____ / _____ / _____	

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to constant rate climbs and descents, steep turns, and climbing and descending turns.

CONTENT

Lesson Task			Lesson Task		
Task		Completion	Task		Completion
Grade		Standard	Grade		Standard
	Instrument Preflight and Flight Deck Check	4		Constant Airspeed Climbs	4
	Instrument Takeoff	4		Constant Airspeed Descents	4
	Instrument Scan	4		Constant Rate Climbs/Descents	5
	Straight-and-Level Flight	4		Climbing/Descending Turns	5
	Level, Standard Rate Turns	4		Steep Turns	5

COMPLETION STANDARDS

At the completion of this lesson, the student will be able to perform 45° bank steep turns (180° or 360°) by reference to instruments and have a basic knowledge of constant rate climbs/descents, standard rate turns, and climbing and descending turns. The student will

- maintain or roll out on assigned headings $\pm 15^\circ$
- maintain or level off at assigned altitudes $\pm 150'$
- maintain airspeeds ± 15 knots
- maintain turning angles of bank $\pm 10^\circ$

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 6 & 7](#)

[Instrument Rating ACS](#)

[Review Video Segments as Needed](#)

STAGE I
LESSON 5
DUAL – AIRCRAFT

DATE _____	GRADE (Circle One) S U I
STUDENT NAME _____	STUDENT SIGNATURE _____
INSTRUCTOR # _____	INSTRUCTOR SIGNATURE _____
FLIGHT TIME (1.2) _____	INSTRUMENT (1.0) _____
GROUND (0.4) _____	
TOTAL IN COURSE (D/S/G) _____ / _____ / _____	

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to instrument flight patterns.

Note: Instrument flight patterns are available in the Course Introduction of this TCO. These patterns are a training tool, not a training goal. It is acceptable for the flight instructor to coach the student through the patterns and for the student to have the patterns available for reference during execution. The goal of using the flight patterns is to practice the four fundamental skills under simulated instrument conditions in a practical way that the student will use in normal IFR procedures. The student will practice intercepting and tracking headings/courses, in addition to understanding how to read and comply with published instructions.

CONTENT

Lesson Task		Lesson Task	
Task	Completion	Task	Completion
Grade	Standard	Grade	Standard
	Instrument Flight Patterns	5	

COMPLETION STANDARDS

At the completion of this lesson, the student will have a basic knowledge of instrument flight patterns. The student will

- maintain or roll out on assigned headings $\pm 15^\circ$
- maintain or level off at assigned altitudes $\pm 150'$
- maintain airspeeds ± 15 knots
- maintain turning angles of bank $\pm 10^\circ$

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 6 & 7](#)

[Instrument Rating ACS](#)

[Review Video Segments as Needed](#)

STAGE I

LESSON 6

DUAL – GROUND

MAGNETIC COMPASS

DATE _____ GRADE (Circle One) S U I STUDENT NAME _____ STUDENT SIGNATURE _____ INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____ GROUND (1.2) _____ LMS CREDIT (MAX 0.3) _____ TOTAL IN COURSE (D/S/G) _____ / _____ / _____
--

LESSON OBJECTIVE

During this lesson, the instructor will review the magnetic compass with the student.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Magnetic Compass Construction	C		Emergency Alternatives to Magnetic Compass Turns	C
	Principles of Magnetic Attraction	C		Calibrating the Turn Coordinator	C
	Magnetic Dip	C		Timed Turns	C
	Magnetic Variation	C		Partial Panel Instrument Flight	C
	Magnetic Deviation	C			

COMPLETION STANDARDS

At the completion of this lesson, the student will have a thorough knowledge of the magnetic compass.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 5 & 7](#)

[Instrument Rating ACS](#)

[Vol 1: Segments 8, 14, 15](#)

STAGE I
LESSON 7
DUAL – ATD/FTD

DATE _____	GRADE (Circle One) S U I
STUDENT NAME _____	STUDENT SIGNATURE _____
INSTRUCTOR # _____	INSTRUCTOR SIGNATURE _____
ATD/FTD/SIM (1.5) _____	GROUND (0.4) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____	

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to magnetic compass turns, timed turns, partial panel instrument flight, and unusual flight attitude recoveries in an ATD or FTD. Simulations will be used to introduce realistic and unexpected system failures and emergency alternatives to magnetic compass turns.

CONTENT

Lesson Task			Lesson Task		
Task		Completion	Task		Completion
Grade		Standard	Grade		Standard
	Magnetic Compass Turns	5		Emergency Alternatives to Magnetic Compass Turns	5
	Partial Panel Instrument Flight	5		Unusual Attitude Recoveries – Full Panel	5
	Partial Panel Instrument Flight Scenarios with Realistic Simulated Failures	5		Unusual Attitude Recoveries – Partial Panel	5
	Timed Turns	5			

COMPLETION STANDARDS

At the completion of this lesson, the student will have a basic knowledge of magnetic compass turns, timed turns, partial panel instrument flight, and unusual flight attitude recoveries. The student will

- maintain or roll out on assigned headings $\pm 15^\circ$
- maintain or level off at assigned altitudes $\pm 150'$
- maintain airspeeds ± 15 knots
- maintain turning angles of bank $\pm 10^\circ$

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 6 & 7](#)

[Instrument Rating ACS](#)

[Review Video Segments as Needed](#)

STAGE I
LESSON 8
DUAL – AIRCRAFT

DATE _____ GRADE (Circle One) S U I
STUDENT NAME _____ STUDENT SIGNATURE _____
INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____
FLIGHT TIME (1.2) _____ INSTRUMENT (1.0) _____
GROUND (0.4) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to magnetic compass turns, timed turns, and partial panel instrument flight.

CONTENT

Lesson Task			Lesson Task		
Task		Completion	Task		Completion
Grade		Standard	Grade		Standard
	Magnetic Compass Turns	5		Emergency Alternatives to Magnetic Compass Turns	5
	Partial Panel Instrument Flight	5		Instrument Flight Patterns	4
	Timed Turns	5			

COMPLETION STANDARDS

At the completion of this lesson, the student will have a basic knowledge of magnetic compass turns, timed turns, and partial panel instrument flight. The student will

- maintain or roll out on assigned headings $\pm 15^\circ$
- maintain or level off at assigned altitudes $\pm 150'$
- maintain airspeeds ± 15 knots
- maintain turning angles of bank $\pm 10^\circ$

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 6 & 7](#)

[Instrument Rating ACS](#)

[Review Video Segments as Needed](#)

STAGE I
LESSON 9
DUAL – AIRCRAFT

DATE _____	GRADE (Circle One) S U I
STUDENT NAME _____	STUDENT SIGNATURE _____
INSTRUCTOR # _____	INSTRUCTOR SIGNATURE _____
FLIGHT TIME (1.2) _____	INSTRUMENT (1.0) _____
GROUND (0.4) _____	
TOTAL IN COURSE (D/S/G) _____ / _____ / _____	

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to unusual attitude recoveries.

CONTENT

Lesson Task			Lesson Task		
Task		Completion	Task		Completion
Grade		Standard	Grade		Standard
	Unusual Attitude Recoveries – Full Panel	5		Emergency Alternatives to Magnetic Compass Turns	4
	Unusual Attitude Recoveries – Partial Panel	5		Instrument Flight Patterns	4
	Timed Turns	4		Partial Panel Instrument Flight	4

COMPLETION STANDARDS

At the completion of this lesson, the student will have a basic knowledge of unusual attitude recoveries.

During partial panel instrument flight, the student will

- maintain or roll out on assigned headings $\pm 15^\circ$
- maintain or level off at assigned altitudes $\pm 150'$
- maintain airspeeds ± 15 knots
- maintain turning angles of bank $\pm 10^\circ$.

During full panel instrument flight maneuvers, the student will

- maintain or roll out on assigned headings $\pm 10^\circ$
- maintain or level off at assigned altitudes $\pm 100'$
- maintain airspeeds ± 10 knots
- maintain turning angles of bank $\pm 5^\circ$

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 6 & 7](#)

[Instrument Rating ACS](#)

[Review Video Segments as Needed](#)

STAGE I

LESSON 10

DUAL – GROUND

VOR FUNDAMENTALS

DATE _____ GRADE (Circle One) S U I
STUDENT NAME _____ STUDENT SIGNATURE _____
INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____
GROUND (1.2) _____ LMS CREDIT (MAX 0.2) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____

LESSON OBJECTIVE

During this lesson, the instructor will discuss VOR fundamentals with the student.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	VOR Principles of Operation/ Transmitter/ Receiver	C		VOR Tuning and Identifying	C
	VOR Class Designations & Service Volumes	C		VOR Orientation and Position	C
	VOR Errors and Irregularities	C		VOR Intercepting	C
	Minimum Operational Network (MON)	C		VOR Tracking and Wind Correction Techniques	C
	VOR Receiver Accuracy Check	C		VOR Station Passage	C

COMPLETION STANDARDS

At the completion of this lesson, the student will have a thorough knowledge of the VOR and its operating principles. The student will also be able to accurately describe the proper techniques for orientation, intercepting, and tracking a VOR radial, and performing a VOR receiver check.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH – Chapter 9](#)

[FAA-H-8083-16-IPH – Chapter 2](#)

[AIM – Chapter 1](#)

[Instrument Rating ACS](#)

[Vol 2: Segment 4](#)

STAGE I

LESSON 11

DUAL – ATD/FTD

DATE _____ GRADE (Circle One) S U I
STUDENT NAME _____ STUDENT SIGNATURE _____
INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____
ATD/FTD/SIM (1.5) _____ GROUND (0.4) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____

LESSON OBJECTIVE

During this lesson, the instructor will introduce VOR procedures in an ATD or FTD.

CONTENT

Lesson Task			Lesson Task		
Task		Completion	Task		Completion
Grade		Standard	Grade		Standard
	VOR Tuning and Identifying	5		VOR Tracking and Wind Correction Techniques	5
	VOR Orientation and Position	5		VOR Station Passage	5
	VOR Intercepting	5		VOR Receiver Accuracy Check	5

COMPLETION STANDARDS

At the completion of this lesson, the student will have a basic knowledge of VOR procedures. The student will

- maintain or roll out on assigned headings $\pm 10^\circ$
- maintain or level off at assigned altitudes $\pm 100'$
- maintain airspeeds ± 10 knots
- maintain turning angles of bank $\pm 5^\circ$

ADDITIONAL STUDY

[FAA-H-8083-15-IFH – Chapter 9](#)

[AIM – Chapter 1](#)

[Instrument Rating ACS](#)

[Review Video Segments as Needed](#)

STAGE I
LESSON 12
DUAL – AIRCRAFT

DATE _____	GRADE (Circle One) S U I
STUDENT NAME _____	STUDENT SIGNATURE _____
INSTRUCTOR # _____	INSTRUCTOR SIGNATURE _____
FLIGHT TIME (1.2) _____	INSTRUMENT (1.0) _____
GROUND (0.4) _____	
TOTAL IN COURSE (D/S/G) _____ / _____ / _____	

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to VOR procedures in the training aircraft, if equipped and available*.

*If the training aircraft is not equipped with a VOR receiver or there is not an operable nearby VOR station, this lesson should be completed in an appropriate ATD or FTD.

CONTENT

Lesson Task		Lesson Task	
Task Grade	Completion Standard	Task Grade	Completion Standard
VOR Tuning and Identifying	4	VOR Station Passage	4
VOR Orientation and Position	4	VOR Receiver Accuracy Check	4
VOR Intercepting	4	Instrument Flight Patterns while Tracking To/From a VOR on a Specified Radial	5
VOR Tracking and Wind Correction Techniques	4		

COMPLETION STANDARDS

At the completion of this lesson, the student will have a basic knowledge of VOR procedures. While tracking a specified VOR course, the student will apply proper correction to maintain the course, allowing no more than 3/4 scale deviation on the CDI. The student will

- maintain or roll out on assigned headings $\pm 10^\circ$
- maintain or level off at assigned altitudes $\pm 100'$
- maintain airspeeds ± 10 knots
- maintain turning angles of bank $\pm 5^\circ$.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH – Chapter 9](#)

[Instrument Rating ACS](#)

[Review Video Segments as Needed](#)

STAGE I

LESSON 13

**DUAL – GROUND
GPS PRINCIPLES**

DATE _____ GRADE (Circle One) S U I STUDENT NAME _____ STUDENT SIGNATURE _____ INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____ GROUND (1.2) _____ LMS CREDIT (MAX 0.3) _____ TOTAL IN COURSE (D/S/G) _____ / _____ / _____
--

LESSON OBJECTIVE

During this lesson, the instructor will discuss the principles of GPS operations.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	GPS Use Under IFR	C		GPS Flight Plan Operations	C
	Substitution of GPS for Other Navigation Radios Under IFR	C		GPS Direct-To Operations	C
	GPS Principles of Operation	C		GPS Nearest Operations	C
	GPS Orientation and Position	C		GPS Course Intercepting	C
	GPS Waypoints	C		GPS Tracking and Wind Correction Techniques	C
	Waypoint Passage/ Sequencing	C		Receiver Autonomous Integrity Monitoring (RAIM)	C
	GPS Errors and Irregularities	C		Wide Area Augmentation System (WAAS)	C
	GPS Modes of Operation	C		Installed GPS Specific Procedures	C
	GPS CDI Scaling (En Route, Terminal, and Approach)	C		Computer/App-Based GPS Procedures Simulator (from appropriate GPS Manufacturer)	C

COMPLETION STANDARDS

At the completion of this lesson, the student will have a thorough knowledge of GPS operations.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH – Chapter 9](#)

[Instrument Rating ACS](#)

[Vol 2: Segment 2](#)

[AIM – Chapter 1](#)

Appropriate Manuals for the Installed GPS

STAGE I

LESSON 14

DUAL – ATD/FTD

DATE _____ GRADE (Circle One) S U I
STUDENT NAME _____ STUDENT SIGNATURE _____
INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____
ATD/FTD/SIM (1.5) _____ GROUND (0.4) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to GPS procedures in an ATD or FTD. VOR procedures will be reviewed as needed.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Installed GPS Specific Procedures	5		GPS Flight Plan Operations	5
	GPS Orientation and Position	5		GPS Direct-To Operations	5
	GPS Waypoints	5		GPS Nearest Operations	5
	Waypoint Passage/ Sequencing	5		GPS Course Intercepting	5
	GPS Errors and Irregularities	5		GPS Tracking and Wind Correction Techniques	5
	GPS Modes of Operation	5		Receiver Autonomous Integrity Monitoring (RAIM)	5
	GPS CDI Scaling (En Route, Terminal, and Approach)	5		Wide Area Augmentation System (WAAS)	5

COMPLETION STANDARDS

At the completion of this lesson, the student will have a working knowledge of GPS and VOR procedures. While tracking a specified course, the student will apply proper correction to maintain the course, allowing no more than 3/4 scale deviation on the CDI. The student will

- maintain headings $\pm 10^\circ$
- maintain altitudes $\pm 100'$
- maintain airspeeds ± 10 knots
- maintain turning angles of bank $\pm 5^\circ$

ADDITIONAL STUDY

[FAA-H-8083-15-IFH – Chapter 9](#)

[Instrument Rating ACS](#)

[Review Video Segments as Needed](#)

STAGE I

LESSON 15

DUAL – GROUND

AUTOPILOT PRINCIPLES

DATE _____ GRADE (Circle One) S U I
STUDENT NAME _____ STUDENT SIGNATURE _____
INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____
GROUND (1.2) _____ LMS CREDIT (MAX 0.3) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____

LESSON OBJECTIVE

During this lesson, the instructor will discuss the principles of autopilot operations.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Autopilot Principles of Operation	C		Autopilot Disconnect Options	C
	Autopilot Errors and Irregularities	C		Installed Autopilot Specific Procedures	C
	Autopilot Limitations	C		Using Autopilot to Track NAV Sources	C
	Autopilot Modes of Operation	C		Autopilot Altitude Changes	C
	Autopilot Failure Modes	C			

COMPLETION STANDARDS

At the completion of this lesson, the student will have a thorough knowledge of autopilot operations.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH – Chapter 5](#)

[Instrument Rating ACS](#)

[Vol 5: Segment 3](#)

Appropriate Manuals for the Installed Autopilot

STAGE I
LESSON 16
DUAL – AIRCRAFT

DATE _____	GRADE (Circle One) S U I
STUDENT NAME _____	STUDENT SIGNATURE _____
INSTRUCTOR # _____	INSTRUCTOR SIGNATURE _____
FLIGHT TIME (1.8) _____	INSTRUMENT (1.6) _____
GROUND (0.4) _____	
TOTAL IN COURSE (D/S/G) _____ / _____ / _____	

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to GPS and autopilot procedures (if equipped) and review VOR procedures (if equipped and available) with the student in the training aircraft.

CONTENT

Lesson Task		Lesson Task	
Task Grade	Completion Standard	Task Grade	Completion Standard
	GPS Flight Plan Operations		Autopilot Altitude Hold Modes
	GPS Direct-To Operations		Autopilot Heading Mode
	GPS Orientation, Position, and Waypoint Passage/Sequencing		Autopilot Navigation Modes
	GPS Course Intercepting and Tracking		Autopilot Disconnect Options
	Autopilot Before Takeoff Checks		Instrument Flight Patterns with Autopilot
	Autopilot Wing Leveler		VOR Procedures (if equipped)
	Autopilot Climb and Descent Modes		Partial Panel Instrument Flight (with and without Autopilot)

COMPLETION STANDARDS

At the completion of this lesson, the student will have a working knowledge of VOR procedures, and have a basic knowledge of GPS and autopilot procedures. While tracking a specified course, the student will apply proper correction to maintain the course, allowing no more than 3/4 scale deviation on the CDI. The student will

- maintain headings $\pm 10^\circ$
- maintain altitudes $\pm 100'$
- maintain airspeeds ± 10 knots
- maintain turning angles of bank $\pm 5^\circ$

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 5, 7, 9](#)
[Instrument Rating ACS](#)
[Review Video Segments as Needed](#)

STAGE I

LESSON 17

**DUAL – GROUND
FAR/AIM**

DATE _____ GRADE (Circle One) S U I
STUDENT NAME _____ STUDENT SIGNATURE _____
INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____
GROUND (1.2) _____ LMS CREDIT (MAX 0.5) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to the Federal Aviation Regulations (FARs) contained in 14 CFR and the sections of the Aeronautical Information Manual (AIM) that pertain to instrument flight.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	14 CFR Part 1	C		AIM – Chapter 1	C
	14 CFR Part 43	C		AIM – Chapter 2	C
	14 CFR Part 61	C		AIM – Chapter 3	C
	14 CFR Part 91	C		AIM – Chapter 4	C
	14 CFR Part 97	C		AIM – Chapter 5	C
	NTSB 830	C		AIM – Chapter 6	C
				AIM – Chapter 7	C

COMPLETION STANDARDS

At the completion of this lesson, the student will have a basic knowledge of the regulations and the sections of the AIM applicable to instrument flight.

ADDITIONAL STUDY

[FAR - 14 CFR Aviation Regulations](#)

[AIM - Chapters 1-7](#)

[Instrument Rating ACS](#)

[Vol 2: Segment 3](#)

[Vol 5: Segments 4, 8, 9](#)

[Vol 6: Segment 1](#)

STAGE I
LESSON 18
DUAL – AIRCRAFT

DATE _____	GRADE (Circle One) S U I
STUDENT NAME _____	STUDENT SIGNATURE _____
INSTRUCTOR # _____	INSTRUCTOR SIGNATURE _____
FLIGHT TIME (1.8) _____	INSTRUMENT (1.6) _____
GROUND (0.4) _____	
TOTAL IN COURSE (D/S/G) _____ / _____ / _____	

LESSON OBJECTIVE

During this lesson, the instructor will review VOR, GPS, and autopilot procedures (if equipped), steep turns by reference to instruments, instrument flight patterns, and partial panel instrument flight with the student in the training aircraft.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Instrument Takeoff	3		Autopilot Procedures (if equipped)	3
	Steep Turns	3		Partial Panel Instrument Flight	3
	VOR Procedures (if equipped)	3		Instrument Flight Patterns with Autopilot (if equipped)	3
	GPS Procedures	3		Instrument Flight Patterns while Tracking VOR/GPS Course (Hand Flown)	3

COMPLETION STANDARDS

At the completion of this lesson, the student will be able to perform 45° bank steep turns (180° or 360°) by reference to instruments and have a working knowledge of VOR, GPS, and autopilot procedures (if equipped). While tracking a specified course, the student will apply proper correction to maintain the course, allowing no more than 3/4 scale deviation on the CDI. The student will

- maintain headings $\pm 10^\circ$
- maintain altitudes $\pm 100'$
- maintain airspeeds ± 10 knots,
- maintain turning angles of bank $\pm 5^\circ$

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 5, 7, 9](#)

[Instrument Rating ACS](#)

[Review Video Segments as Needed](#)

PRE-STAGE CHECK – TIME SUMMARY

This page is intended to be used by the student's flight instructor to summarize the times accumulated through this course of instruction and determine that the times are sufficient for the stage requirements. The check instructor should verify that these times are acceptable for completion of the stage.

Part 141 / AATD LOA Note: The instrument time in an approved FTD or AATD used to meet the minimum requirements of Part 141 may not exceed 40% of the total flight training hours required for the course of instruction. Training time in an approved BATD cannot exceed 25% of the total flight training hours required for the course of instruction. The limit is raised to 50% for an approved full flight simulator or a combination of a simulator, an FTD, an AATD, and a BATD (FTD, AATD, & BATD time limits still apply).

DATE _____

STUDENT NAME _____ STUDENT SIGNATURE _____

INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____

STAGE TOTALS

FLIGHT TIME (DUAL): _____

FLIGHT TIME (DUAL CROSS-COUNTRY): _____

ATD/FTD/SIM: _____

INSTRUMENT: _____ (Simulated and actual instrument - flight only.)

GROUND: _____

STAGE I
LESSON 19
STAGE I CHECK

DATE _____ GRADE (Circle One) S U I STUDENT NAME _____ STUDENT SIGNATURE _____ INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____ FLIGHT TIME (1.4) _____ GROUND (1.0) _____ INSTRUMENT (1.2) _____ TOTAL IN COURSE (D/S/G) _____ / _____ / _____
--

LESSON OBJECTIVE

This stage check will determine that the student has accomplished the objectives of Stage I.

CONTENT

Lesson Task - Oral			Lesson Task - Flight		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Pilot Qualifications	2		Instrument Takeoff	2
	Aircraft Systems Related to IFR Operations	2		Steep Turns	2
	Aircraft Flight Instruments and Navigation Equipment	2		Recovery from Unusual Attitudes	2
	Instrument Flight Deck Check	2		VOR Procedures (if equipped)	2
				GPS Procedures	2
				Autopilot Procedures (if equipped)	2
				Partial Panel Instrument Flight	2

COMPLETION STANDARDS

At the completion of this lesson, the student will have proficiency in basic attitude instrument flight as well as VOR, GPS, and autopilot procedures (if equipped). While tracking a specified course, the student will apply proper correction to maintain the course, allowing no more than 3/4 scale deviation on the CDI. The student will

- maintain headings $\pm 10^\circ$
- maintain altitudes $\pm 100'$
- maintain airspeeds ± 10 knots
- maintain turning angles of bank $\pm 5^\circ$

STAGE II

STAGE OBJECTIVE

During this stage, the student will learn and refine basic radio navigation procedures, including the intercepting and tracking of courses through the use of VORs, Localizers, and other navigation systems. The student will also learn to perform instrument approaches.

STAGE COMPLETION STANDARDS

The student will demonstrate positional awareness and the ability to accurately navigate the aircraft by reference to navigation systems. At the completion of this stage, the student will be able to perform local instrument flight operations to the current Instrument Rating Airman Certification Standards.

STAGE II

LESSON 20

DUAL – GROUND HOLDING & IFR CLEARANCES

DATE _____	GRADE (Circle One) S U I
STUDENT NAME _____	STUDENT SIGNATURE _____
INSTRUCTOR # _____	INSTRUCTOR SIGNATURE _____
GROUND (1.2) _____	LMS CREDIT (MAX 0.6) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____	

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to holding procedures and IFR clearance procedures.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Purpose of Holding	C		Use of DME while Holding	C
	Holding Airspace	C		Use of GPS while Holding	C
	Holding Pattern Legs	C		Intersection Holding	C
	Standard vs Nonstandard Holding Patterns	C		Communication Requirements	C
	Maximum Holding Speeds	C		Pilot Responsibilities	C
	Holding Entry Procedures	C		ATC Responsibilities	C
	Holding and Wind Correction Techniques	C		Elements of an IFR Clearance	C
	Holding Clearances	C		Practical Methods for Copying an IFR Clearance	C
	Fix Crossing Check (5 T's)	C		Datalink IFR Clearance	C
	Timing during Holds	C		IFR Clearance Compliance, Limits, and Void Times	C

COMPLETION STANDARDS

At the completion of this lesson, the student will understand holding procedures and IFR clearances.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH – Chapter 10](#)

[FAA-H-8083-16-IPH – Chapter 2](#)

[AIM - Chapters 1, 4, 5](#)

[Instrument Rating ACS](#)

[Vol 1: Segment 1](#)

[Vol 2: Segment 5](#)

[Vol 3: Segments 12, 13](#)

STAGE II
LESSON 21
DUAL – ATD/FTD

DATE _____ GRADE (Circle One) S U I
STUDENT NAME _____ STUDENT SIGNATURE _____
INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____
ATD/FTD/SIM (1.5) _____ GROUND (0.4) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to holding procedures and IFR clearances.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Copying/ Understanding IFR Clearances	5		Fix Crossing Check (5 T's)	5
	ATC Communications	5		Timing during Holds	5
	Holding Pattern Entries	5		Use of DME while Holding	5
	Holding Patterns (VOR/GPS)	5		Intersection Holding	5

COMPLETION STANDARDS

At the completion of this lesson, the student will have a basic understanding of holding procedures and IFR clearances. While tracking a specified course, the student will apply proper correction to maintain the course, allowing no more than 3/4 scale deviation on the CDI.

The student will

- maintain headings $\pm 10^\circ$
- maintain altitudes $\pm 100'$
- maintain airspeeds ± 10 knots
- maintain turning angles of bank $\pm 5^\circ$

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapter 10](#)

[FAA-H-8083-16-IPH - Chapter 2](#)

[AIM - Chapters 4 & 5](#)

[Instrument Rating ACS](#)

[Review Video Segments as Needed](#)

STAGE II

LESSON 22

DUAL – GROUND

TERMINAL PROCEDURES

DATE _____ GRADE (Circle One) S U I STUDENT NAME _____ STUDENT SIGNATURE _____ INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____ GROUND (1.2) _____ LMS CREDIT (MAX 0.9) _____ TOTAL IN COURSE (D/S/G) _____ / _____ / _____
--

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to Terminal Procedures Publications.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Terminal Procedures Publication	C		Standard vs Expanded Circling Radii	C
	Aircraft Approach Categories	C		Cold Temperature Restricted Airports / Altitude Corrections	C
	Inoperative Components or Visual Aids Table	C		Descent Planning	C
	Airport Surface Hot Spots	C		Standard Terminal Arrival Procedures	C
	IFR Take-off Minimums	C		Descend Via STAR Clearance	C
	Declared Distance Information	C		Radar Instrument Approach Minimums	C
	Published Departure Procedures	C		Approach Plate: Pilot Briefing Information Section	C
	Climb Via SID Clearance	C		Approach Plate: Plan View	C
	ATC Communication and Compliance with Departure Instructions	C		Approach Plate: Minimums Section	C
	Situational Awareness during Departure	C		Approach Plate: Airport Sketch and Airport Diagram	C
	Climb and Descent Tables	C		Approach Plate: Missed Approach Section	C
	IFR Alternate Minimums	C		Approach Plate: Minimum Safe Altitude	C

COMPLETION STANDARDS

At the completion of this lesson, the student will understand terminal procedures.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 1, 2, 9, & 10](#)

[FAA-H-8083-16-IPH - Chapters 1-4](#)

[AIM - Chapters 4 & 5](#)

[Instrument Rating ACS](#)

[Vol 2: Segments 8, 10](#)

[Vol 3: Segments 7, 8, 15, 20](#)

STAGE II
LESSON 23
DUAL – GROUND
INSTRUMENT APPROACHES

DATE _____ GRADE (Circle One) S U I STUDENT NAME _____ STUDENT SIGNATURE _____ INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____ GROUND (1.2) _____ LMS CREDIT (MAX 1.1) _____ TOTAL IN COURSE (D/S/G) _____ / _____ / _____
--

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to various types of instrument approaches without a glideslope.

CONTENT

Lesson Task			Lesson Task		
<u>Task</u> <u>Grade</u>		<u>Completion</u> <u>Standard</u>	<u>Task</u> <u>Grade</u>		<u>Completion</u> <u>Standard</u>
	Terminal Arrival Area (TAA) Approaches	C		Visual Descent Point	C
	Vectored Approaches	C		Visual Approaches	C
	Non-precision Instrument Approaches	C		Approach Briefing	C
	Timed Approaches	C		Visibility Minimums	C
	Radar Approaches	C		Missed Approach Procedures	C
	Contact Approaches	C		Circling Approaches	C
	Charted Visual Flight Procedures	C		Lighting Systems	C

COMPLETION STANDARDS

At the completion of this lesson, the student will understand non-precision approaches.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 1, 9, & 10](#)

[FAA-H-8083-16-IPH - Chapter 4](#)

[AIM - Chapter 5](#)

[Vol 3: Segments 1-3, 9 -11, 14, 16, 17](#)

STAGE II
LESSON 24
DUAL – ATD/FTD

DATE _____ GRADE (Circle One) S U I
STUDENT NAME _____ STUDENT SIGNATURE _____
INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____
ATD/FTD/SIM (1.5) _____ GROUND (0.4) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to non-precision approaches and missed approach procedures. Holding procedures will be reviewed.

CONTENT

Lesson Task		Lesson Task	
Task	Completion	Task	Completion
Grade	Standard	Grade	Standard
IFR Navigation	5	Descend Via STAR Operations	5
Holding Pattern Entries	4	Approach Setup and Briefing	5
Holding Patterns (VOR/GPS)	4	VOR Approach	5
Copying/Understanding IFR Clearances	4	GPS Approach (LNAV or LP)	5
ATC Communications	4	Missed Approach Procedures	5
Climb Via SID Operations	5	Landing from an Approach	5
Departure Vectors to Filed Route	5		

COMPLETION STANDARDS

At the completion of this lesson, the student will have a basic understanding of holding procedures, non-precision approach procedures, and missed approach procedures. The student will

- maintain headings $\pm 10^\circ$
- maintain altitudes, other than flight at MDA, $\pm 100'$
- maintain airspeeds ± 10 knots
- maintain turning angles of bank $\pm 5^\circ$.

During non-precision approaches, the student will maintain the MDA, when reached, +200/-0 feet to the MAP and allow no more than a three-quarter-scale deflection of the CDI while on the final approach segment.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 1, 2, 9, & 10](#)

[FAA-H-8083-16-IPH - Chapters 1-4](#)

[AIM - Chapters 4 & 5](#)

[Review Video Segments as Needed](#)

STAGE II
LESSON 25
DUAL – GROUND
ATC SYSTEM

DATE _____ GRADE (Circle One) S U I STUDENT NAME _____ STUDENT SIGNATURE _____ INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____ GROUND (1.2) _____ LMS CREDIT (MAX 0.7) _____ TOTAL IN COURSE (D/S/G) _____ / _____ / _____
--

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to the structure of the Air Traffic Control (ATC) system and its applicability to IFR flight.

CONTENT

Lesson Task			Lesson Task		
<u>Task</u>		<u>Completion</u>	<u>Task</u>		<u>Completion</u>
<u>Grade</u>		<u>Standard</u>	<u>Grade</u>		<u>Standard</u>
	Clearance Delivery	C		Approach Control (TRACON)	C
	Ground Control	C		Final Controller	C
	Tower Control (Local Control)	C		Federal Airways	C
	Departure Control	C		Uncontrolled Airspace	C
	Air Traffic Control Centers (ARTCC)	C		IFR Flight Planning and Filing procedures	C
	Tower En Route Control (TEC)	C		Closing an IFR Flight Plan	C

COMPLETION STANDARDS

At the completion of this lesson, the student will understand the ATC structure and how it is structured to provide safe and efficient flow of IFR traffic.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 2 & 10](#)

[FAA-H-8083-16-IPH - Chapters 1-4](#)

[AIM - Chapters 4 & 5](#)

[Instrument Rating ACS](#)

[Vol 2: Segments 6, 7, 12](#)

[Vol 6: Segments 3, 4, 8](#)

STAGE II
LESSON 26
DUAL – AIRCRAFT

DATE _____ GRADE (Circle One) S U I STUDENT NAME _____ STUDENT SIGNATURE _____ INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____ FLIGHT TIME (1.8) _____ INSTRUMENT (1.6) _____ GROUND (0.4) _____ TOTAL IN COURSE (D/S/G) _____ / _____ / _____

LESSON OBJECTIVE

During this lesson, the instructor will review IFR navigation, ATC communication procedures, obtaining IFR clearances, performing an approach brief, and executing non-precision instrument approaches with the student in the training aircraft.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Filing an IFR Flight Plan	5		Holding Procedures	4
	Copying/ understanding IFR Clearances	4		Descend Via STAR Operations	4
	ATC Communications	4		Approach Setup and Briefing	4
	Departure Vectors to Filed Route	4		VOR Approach (if equipped)	4
	Pilot Navigation to Filed Route	4		GPS Approach (LNAV or LP)	4
	Climb Via SID Operations	4		Missed Approach Procedures	4
	IFR Navigation	4			

COMPLETION STANDARDS

At the completion of this lesson, the student will be able to navigate, hold en route, and perform VOR (if equipped and available) and GPS approaches with minimal instructor assistance. The student should also be able to perform ATC communications with minimal instructor assistance. The student will

- maintain headings $\pm 10^\circ$
- maintain altitudes, other than flight at MDA, $\pm 100'$
- maintain airspeeds ± 10 knots
- maintain turning angles of bank $\pm 5^\circ$.

During non-precision approaches, the student will maintain the MDA, when reached, $+200/-0$ feet to the MAP and allow no more than a three-quarter-scale deflection of the CDI while on the final approach segment.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 2, 9, & 10](#)

[FAA-H-8083-16-IPH - Chapters 1-4](#)

[AIM - Chapters 4 & 5](#)

[Review Video Segments as Needed](#)

STAGE II
LESSON 27
DUAL – GROUND
PILOT/CONTROLLER
RESPONSIBILITIES

DATE _____ GRADE (Circle One) S U I STUDENT NAME _____ STUDENT SIGNATURE _____ INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____ GROUND (1.2) _____ LMS CREDIT (MAX 0.2) _____ TOTAL IN COURSE (D/S/G) _____ / _____ / _____
--

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to the responsibilities of the Pilot and the Air Traffic Controller.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Air Traffic Clearance	C		Wake Turbulence Separations	C
	Contact Approach	C		Compulsory Reporting Points	C
	Visual Approach	C		Loss of Communications	C
	Instrument Approach	C		Land and Hold Short Operations	C
	Missed Approach	C		Practice Instrument Approaches	C
	Radar Vectors	C		IFR Separation Standards	C
	Safety Vectors	C		See and Avoid	C
	Speed Adjustments	C		Traffic Advisories	C
	Visual Separation	C		VFR-On-Top	C
	Instrument Departures	C		Minimum Fuel Advisory	C

COMPLETION STANDARDS

At the completion of this lesson, the student will understand pilot and controller responsibilities.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 2 & 10](#)

[FAA-H-8083-16-IPH - Chapters 1-4](#)

[AIM - Chapters 4 & 5](#)

[Vol 6: Segments 6, 10](#)

STAGE II
LESSON 28
DUAL – GROUND
INSTRUMENT LANDING
SYSTEM

DATE _____ GRADE (Circle One) S U I STUDENT NAME _____ STUDENT SIGNATURE _____ INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____ GROUND (1.2) _____ LMS CREDIT (MAX 0.4) _____ TOTAL IN COURSE (D/S/G) _____ / _____ / _____
--

LESSON OBJECTIVE

During this lesson, the instructor will introduce the instrument landing system and associated approaches to the student. WAAS approaches will also be covered.

CONTENT

Lesson Task		Lesson Task	
<u>Task</u> <u>Grade</u>	<u>Completion</u> <u>Standard</u>	<u>Task</u> <u>Grade</u>	<u>Completion</u> <u>Standard</u>
Localizer Principles of Operation	C	Localizer and Glideslope	C
Glideslope Principles of Operation	C	Critical Areas	C
Marker Beacons	C	Precision Approaches	C
ILS Receiving Equipment	C	Back Course Approaches	C
ILS Categories	C	APV Approaches	C
ILS Errors and Irregularities	C		

COMPLETION STANDARDS

At the completion of this lesson, the student will have a thorough knowledge of the ILS and WAAS systems and their operating principles.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapter 9](#)

[FAA-H-8083-16-IPH - Chapter 4](#)

[AIM - Chapter 5](#)

[Vol 3: Segments 4-6](#)

STAGE II
LESSON 29
DUAL – ATD/FTD

DATE _____ GRADE (Circle One) S U I
STUDENT NAME _____ STUDENT SIGNATURE _____
INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____
ATD/FTD/SIM (1.5) _____ GROUND (0.4) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to ILS and back course approach procedures.

CONTENT

Lesson Task		Lesson Task	
Task Grade	Completion Standard	Task Grade	Completion Standard
ILS Approach – Full	5	Back Course Approach	5
ILS Approach – Vectored	5	Missed Approach Procedures	5
Landing from an ILS Approach	5	APV Approach (LP or LNAV/VNAV)	5

COMPLETION STANDARDS

At the completion of this lesson, the student will have a basic understanding of ILS and back course approach procedures. The student will

- maintain headings $\pm 10^\circ$
- maintain altitudes, other than during the final approach segment, $\pm 100'$
- maintain airspeeds ± 10 knots
- maintain turning angles of bank $\pm 5^\circ$

During precision approaches, the student will avoid descents below the DA/DH before initiating a missed approach procedure or transitioning to a normal landing approach and allow no more than a three-quarter-scale deflection of the localizer or glideslope while on the final approach segment.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapter 9](#)

[FAA-H-8083-16-IPH - Chapter 4](#)

[AIM - Chapter 5](#)

[Review Video Segments as Needed](#)

STAGE II
LESSON 30
DUAL – AIRCRAFT

DATE _____ GRADE (Circle One) S U I
STUDENT NAME _____ STUDENT SIGNATURE _____
INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____
FLIGHT TIME (2.0) _____ INSTRUMENT (1.8) _____
GROUND (0.4) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to ILS and APV approach procedures in the training aircraft. Holding, VOR and GPS approaches, and missed approach procedures will be reviewed.

CONTENT

Lesson Task			Lesson Task		
Task		Completion	Task		Completion
Grade		Standard	Grade		Standard
	ILS Approach	4		Holding Procedures	3
	APV Approach (LPV or LNAV/VNAV)	4		Approach Setup and Brief	4
	Filing an IFR Flight Plan	4		VOR Approach (if equipped)	4
	Copying/Understanding IFR Clearances	4		GPS Approach (LNAV or LP)	4
	ATC Communications	4		Missed Approach Procedures	4
	IFR Navigation	3			

COMPLETION STANDARDS

At the completion of this lesson, the student will be able to navigate, hold en route, and perform ILS, VOR (if equipped), and GPS approaches with minimal instructor assistance. The student should also be able to perform ATC communications with minimal instructor assistance. The student will

- maintain headings $\pm 10^\circ$
- maintain altitudes, other than flight at MDA or during the final approach segment of a precision or APV approach, $\pm 100'$
- maintain airspeeds ± 10 knots
- maintain turning angles of bank $\pm 5^\circ$

During non-precision approaches, the student will maintain the MDA, when reached, $+200/-0$ feet to the MAP and allow no more than a three-quarter- scale deflection of the CDI while on the final approach segment.

During precision and APV approaches, the student will avoid descents below the DA/DH before initiating a missed approach procedure or transitioning to a normal landing approach and allow no more than a three-quarter-scale deflection of the CDI or glideslope while on the final approach segment.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 2, 9, & 10](#)

[FAA-H-8083-16-IPH - Chapters 1-4](#)

[AIM - Chapters 4 & 5](#)

[Review Video Segments as Needed](#)

STAGE II
LESSON 31
DUAL – GROUND
AUTOPILOT APPROACHES
AND DME

DATE _____ GRADE (Circle One) S U I STUDENT NAME _____ STUDENT SIGNATURE _____ INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____ GROUND (1.2) _____ TOTAL IN COURSE (D/S/G) _____ / _____ / _____

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to distance measuring equipment, the use of the autopilot for approaches, and instrument approaches with loss of primary flight instrument indicators (partial panel).

CONTENT

Lesson Task		Lesson Task	
<u>Task</u> <u>Grade</u>	<u>Completion</u> <u>Standard</u>	<u>Task</u> <u>Grade</u>	<u>Completion</u> <u>Standard</u>
Autopilot Approach Operations and Limitations	C	DME Principles of Operation	C
Non-precision Approaches with Autopilot	C	DME Errors and Irregularities	C
Precision Approaches with Autopilot	C	DME Arc Interception	C
Back Course Approaches with Autopilot	C	DME Arc Tracking	C
Missed Approaches with Autopilot	C	Use of GPS as DME Substitute	C
Holding Procedures with Autopilot	C	Instrument Approaches with Loss of Primary Flight Instrument Indicators (Partial Panel)	C

COMPLETION STANDARDS

At the completion of this lesson, the student will understand distance measuring equipment, the use of the autopilot for approaches, and partial panel approaches.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 5 & 9](#)

[FAA-H-8083-16-IPH - Chapter 4](#)

[AIM - Chapters 1 & 5](#)

[Review Video Segments as Needed](#)

STAGE I
LESSON 32
DUAL – ATD/FTD

DATE _____ GRADE (Circle One) S U I
STUDENT NAME _____ STUDENT SIGNATURE _____
INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____
ATD/FTD/SIM (1.5) _____ GROUND (0.4) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to partial panel approaches, DME arcs, and circle to land procedures.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Non-precision Approach with Loss of Primary Flight Instrument Indicators (Partial Panel)	5		APV Approach with Loss of Primary Flight Instrument Indicators (Partial Panel)	5
	Precision Approach with Loss of Primary Flight Instrument Indicators (Partial Panel)	5		DME Arc	5
	Inoperative Components or Visual Aids Table	5		Circle to Land Procedures	5

COMPLETION STANDARDS

At the completion of this lesson, the student will be able to perform partial panel approaches and DME arcs. The student will

- maintain headings $\pm 10^\circ$
- maintain altitudes, other than flight at MDA, $\pm 100'$
- maintain airspeeds ± 10 knots,
- maintain turning angles of bank $\pm 5^\circ$

During non-precision approaches, the student will maintain the MDA, when reached, $+200/-0$ feet to the MAP and allow no more than a three-quarter-scale deflection of the CDI while on the final approach segment.

During precision and APV approaches, the student will avoid descents below the DA/DH before initiating a missed approach procedure or transitioning to a normal landing approach and allow no more than a three-quarter-scale deflection of the CDI or glideslope while on the final approach segment.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapter 9](#)

[FAA-H-8083-16-IPH - Chapter 4](#)

[AIM - Chapter 5](#)

[Review Video Segments as Needed](#)

STAGE II
LESSON 33
DUAL – AIRCRAFT

DATE _____	GRADE (Circle One) S U I
STUDENT NAME _____	STUDENT SIGNATURE _____
INSTRUCTOR # _____	INSTRUCTOR SIGNATURE _____
FLIGHT TIME (2.0) _____	INSTRUMENT (1.8) _____
GROUND (0.4) _____	
TOTAL IN COURSE (D/S/G) _____ / _____ / _____	

LESSON OBJECTIVE

During this lesson, the instructor will review partial panel approaches, DME arcs, non-precision approaches, precision approaches, APV approaches, and circle to land procedures with the student.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Non-precision Approach with Loss of Primary Flight Instrument Indicators (Partial Panel)	4		DME Arcs	4
	APV Approach with Loss of Primary Flight Instrument Indicators (Partial Panel)	4		Circle to Land Procedures	4
	Precision Approach with Loss of Primary Flight Instrument Indicators (Partial Panel)	4			

COMPLETION STANDARDS

At the completion of this lesson, the student will be able to perform non-precision approaches, precision approaches, APV approaches, circling procedures, and DME arcs with minimal instructor assistance. The student will

- maintain headings $\pm 10^\circ$
- maintain altitudes, other than flight at MDA or during the final approach segment of a precision or APV approach, $\pm 100'$
- maintain airspeeds ± 10 knots
- maintain turning angles of bank $\pm 5^\circ$

During non-precision approaches, the student will maintain the MDA, when reached, $+100/-0$ feet to the MAP and allow no more than a three-quarter-scale deflection of the CDI while on the final approach segment.

During precision and APV approaches, the student will avoid descents below the DA/DH before initiating a missed approach procedure or transitioning to a normal landing approach and allow no more than a three-quarter-scale deflection of the CDI or glideslope while on the final approach segment.

ADDITIONAL STUDY

[FAA-H-8083-15-IPH - Chapter 9](#)

[FAA-H-8083-16-IPH - Chapter 4](#)

[AIM - Chapter 5](#)

[Review Video Segments as Needed](#)

STAGE II
LESSON 34
DUAL – GROUND
ICING

DATE _____	GRADE (Circle One) S U I
STUDENT NAME _____	STUDENT SIGNATURE _____
INSTRUCTOR # _____	INSTRUCTOR SIGNATURE _____
GROUND (1.2) _____	LMS CREDIT (MAX 0.5) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____	

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to weather conditions associated with icing and discuss strategies for avoidance and management.

CONTENT

Lesson Task		Lesson Task	
Task Grade	Completion Standard	Task Grade	Completion Standard
	Required Conditions for Ice Formation		AIRMETs Specific to Icing
	Formation of Frost		SIGMETs Specific to Icing
	Formation of Clear Ice		Winds/Temps Aloft Forecast
	Formation of Rime Ice		Deicing and Anti-Icing Equipment
	Formation of Mixed Ice		Icing Avoidance Strategies
	Icing Intensities		Inadvertent Encounter Strategies
	PIREPs Specific to Icing		Flight in Known Icing Conditions (FIKI)

COMPLETION STANDARDS

At the completion of this lesson, the student will understand icing associated with IFR flight.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 4, 10 & 11](#)

[FAA-H-8083-25-PHAK - Pilot's Handbook of Aeronautical Knowledge](#)

[FAA-H-8083-28-AWH - Aviation Weather Handbook](#)

[AIM - Chapter 7](#)

[Vol 4: Segments 3 – 5](#)

[Vol 5: Segment 11](#)

STAGE II
LESSON 35
DUAL – GROUND
THUNDERSTORMS

DATE _____	GRADE (Circle One) S U I
STUDENT NAME _____	STUDENT SIGNATURE _____
INSTRUCTOR # _____	INSTRUCTOR SIGNATURE _____
GROUND (1.2) _____	LMS CREDIT (MAX 0.5) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____	

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to thunderstorms and their associated phenomena.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Conditions Required for Thunderstorms	C		Hazards Associated with Thunderstorms	C
	Thunderstorm Lifecycle	C		Forecasts Associated with Thunderstorms	C
	Air Mass Thunderstorms	C		Radar Observations Associated with Thunderstorms	C
	Steady State Thunderstorms	C		Convective SIGMETs	C
	Squall Line Thunderstorms	C		Thunderstorm Avoidance Strategies	C
	Embedded Thunderstorms	C		Inadvertent Thunderstorm Encounter Strategies	C
	Frontal Thunderstorms	C			

COMPLETION STANDARDS

At the completion of this lesson, the student will understand thunderstorms and their associated phenomena.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 10 & 11](#)

[FAA-H-8083-25-PHAK](#)

[FAA-H-8083-28-AWH](#)

[AIM - Chapter 7](#)

[Vol 4: Segments 6 - 8](#)

STAGE II
LESSON 36
DUAL – AIRCRAFT

DATE _____	GRADE (Circle One) S U I
STUDENT NAME _____	STUDENT SIGNATURE _____
INSTRUCTOR # _____	INSTRUCTOR SIGNATURE _____
FLIGHT TIME (2.0) _____	INSTRUMENT (1.8) _____
GROUND (0.4) _____	
TOTAL IN COURSE (D/S/G) _____ / _____ / _____	

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to approaches using the autopilot and review non-precision, APV, and precision approaches, holding, and missed approach procedures with the student.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Non-precision Approach with Autopilot	4		Holding Procedures	4
	APV Approach with Autopilot	4		ATC Clearances and Clearance Compliance	4
	Precision Approach with Autopilot	4		Circle to Land Procedures	4
	Missed Approach Procedures with Autopilot	4			

COMPLETION STANDARDS

At the completion of this lesson, the student will be able to perform instrument approaches with minimal instructor assistance. The student will

- maintain headings $\pm 10^\circ$
- maintain altitudes, other than flight at MDA or during the final approach segment of a precision or APV approach, $\pm 100'$
- maintain airspeeds ± 10 knots
- maintain turning angles of bank $\pm 5^\circ$

During non-precision approaches, the student will maintain the MDA, when reached, $+100/-0$ feet to the MAP and allow no more than a three-quarter-scale deflection of the CDI while on the final approach segment.

During precision and APV approaches, the student will avoid descents below the DA/DH before initiating a missed approach procedure or transitioning to a normal landing approach and allow no more than a three-quarter-scale deflection of the CDI or glideslope while on the final approach segment.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapter 9](#)

[FAA-H-8083-16-IPH - Chapter 4](#)

[AIM - Chapter 5](#)

[Review Video Segments as Needed](#)

STAGE II
LESSON 37
DUAL – GROUND
FORECASTS AND REPORTS

DATE _____ GRADE (Circle One) S U I STUDENT NAME _____ STUDENT SIGNATURE _____ INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____ GROUND (1.2) _____ LMS CREDIT (MAX 1.1) _____ TOTAL IN COURSE (D/S/G) _____ / _____ / _____
--

LESSON OBJECTIVE

During this lesson, the instructor will review weather forecasts and reports with the student.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Graphical Forecasts for Aviation	C		Freezing Level Chart	C
	Terminal Aerodrome Forecasts	C		Upper Level Charts	C
	METARs	C		Significant Weather Prognostic Charts	C
	Winds/Temps Aloft Forecast	C		SIGMETs, AIRMETs, and Convective SIGMETs	C
	PIREPs	C		Recognition of Critical Weather Situations	C
	Radar Observations	C		Windshear Avoidance	C
	Surface Analysis Chart	C			

COMPLETION STANDARDS

At the completion of this lesson, the student will have a thorough understanding of weather forecasts and reports.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapter 10](#)

[FAA-H-8083-28-AWH](#)

[AIM - Chapter 7](#)

[Vol 1: Segment 9](#)

[Vol 4: Segments 1 - 2, 9-13](#)

STAGE II
LESSON 38
DUAL – AIRCRAFT

DATE _____ GRADE (Circle One) S U I
STUDENT NAME _____ STUDENT SIGNATURE _____
INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____
FLIGHT TIME (2.0) _____ INSTRUMENT (1.8) _____
GROUND (0.4) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____

LESSON OBJECTIVE

During this lesson, the instructor will review approaches using the autopilot, non-precision approaches, APV approaches, precision approaches, holding, and missed approach procedures with the student.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Autopilot Operations during Approaches	2		Precision Approaches -Full or Vectored (Full or Partial Panel)	2
	Missed Approach Procedures with Autopilot	2		Holding Procedures	2
	Non-precision Approaches -Full or Vectored (Full or Partial Panel)	2		ATC Clearances and Clearance Compliance	2
	APV Approaches -Full or Vectored (Full or Partial Panel)	2		Landing from Straight-In / Circling Approach	2

COMPLETION STANDARDS

At the completion of this lesson, the student will be able to perform instrument approaches with minimal instructor assistance. The student will

- maintain headings $\pm 10^\circ$
- maintain altitudes, other than flight at MDA or during the final approach segment of a precision or APV approach, $\pm 100'$
- maintain airspeeds ± 10 knots
- maintain turning angles of bank $\pm 5^\circ$

During non-precision approaches, the student will maintain the MDA, when reached, $+100/-0$ feet to the MAP and allow no more than a three-quarter-scale deflection of the CDI while on the final approach segment.

During precision and APV approaches, the student will avoid descents below the DA/DH before initiating a missed approach procedure or transitioning to a normal landing approach and allow no more than a three-quarter-scale deflection of the CDI or glideslope while on the final approach segment.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapter 9](#)

[FAA-H-8083-16-IPH - Chapter 4](#)

[AIM - Chapter 5](#)

[Review Video Segments as Needed](#)

PRE-STAGE CHECK – TIME SUMMARY

This page is intended to be used by the student's flight instructor to summarize the times accumulated through this course of instruction and determine that the times are sufficient for the stage requirements. The check instructor should verify that these times are acceptable for completion of the stage.

Part 141 / AATD LOA Note: The instrument time in an approved FTD or AATD used to meet the minimum requirements of Part 141 may not exceed 40% of the total flight training hours required for the course of instruction. Training time in an approved BATD cannot exceed 25% of the total flight training hours required for the course of instruction. The limit is raised to 50% for an approved full flight simulator or a combination of a simulator, an FTD, an AATD, and a BATD (FTD, AATD, & BATD time limits still apply).

DATE _____

STUDENT NAME _____ STUDENT SIGNATURE _____

INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____

STAGE TOTALS

FLIGHT TIME (DUAL): _____

FLIGHT TIME (DUAL CROSS-COUNTRY): _____

ATD/FTD/SIM: _____

INSTRUMENT: _____ (Simulated and actual instrument - flight only.)

GROUND: _____

COURSE TOTALS

FLIGHT TIME (DUAL): _____

FLIGHT TIME (DUAL CROSS-COUNTRY): _____

ATD/FTD/SIM: _____

INSTRUMENT: _____ (Simulated and actual instrument - flight only.)

GROUND: _____

STAGE II
LESSON 39
STAGE II CHECK

DATE _____ GRADE (Circle One) S U I
STUDENT NAME _____ STUDENT SIGNATURE _____
INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____
FLIGHT TIME (2.0) _____ GROUND (1.0) _____ INSTRUMENT (1.8) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____

LESSON OBJECTIVE

During this lesson, the student will complete a stage check covering approaches and holding procedures.

CONTENT

Lesson Task - Oral			Lesson Task - Flight		
Task		Completion	Task		Completion
Grade		Standard	Grade		Standard
	Weather Information	2		ATC Clearances and Clearance Compliance	2
	Holding Procedures	2		Holding Procedures	2
	Departure Procedures	2		Precision Approach	2
	Standard Terminal Arrival Procedures	2		Approach with Loss of Primary Flight Instrument Indicators (Partial Panel)	2
	Approach Procedures	2		Non-precision Approach with Autopilot	2
				Missed Approach Procedures	2
				Missed Approach Procedures with an Autopilot	2
				Circling Approach	2
				Landing from Straight-In / Circling Approach	2

COMPLETION STANDARDS

The student shall perform all maneuvers to the standards established by the Instrument Rating Airman Certification Standards. The student should demonstrate at least the number of approaches indicated in the ACS. Additional approaches within the capability of the aircraft are desirable.

STAGE III

STAGE OBJECTIVE

During this stage, the student will plan and perform IFR cross-country flights while refining the basic IFR skills required to operate in the instrument environment.

STAGE COMPLETION STANDARDS

The student will demonstrate positional awareness and the ability to accurately navigate the aircraft by reference to navigation systems. At the completion of this stage, the student will be able to perform instrument flight operations to the current Instrument Rating Airman Certification Standards.

STAGE III
LESSON 40
DUAL – GROUND
CHART REVIEW AND EN
ROUTE PROCEDURES

DATE _____ GRADE (Circle One) S U I STUDENT NAME _____ STUDENT SIGNATURE _____ INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____ GROUND (1.2) _____ LMS CREDIT (MAX 1.3) _____ TOTAL IN COURSE (D/S/G) _____ / _____ / _____
--

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to en route IFR publications and procedures.

CONTENT

Lesson Task			Lesson Task		
Task		Completion	Task		Completion
Grade		Standard	Grade		Standard
	Chart Supplements	C		ATS Route Course Changes	C
	IFR Preferred Routes	C		Flight Deck Management	C
	En Route Low Altitude IFR Chart	C		Position Reporting Requirements	C
	En Route Chart Symbolology	C		Additional Reporting Requirements	C
	Intersections and Changeover Points	C		Loss of Communication Procedures (IMC and VMC)	C
	Air Traffic Service (ATS) Route System	C			

COMPLETION STANDARDS

At the completion of this lesson, the student will understand IFR navigation charts.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 1, 9 & 10](#)

[FAA-H-8083-16-IPH - Chapters 1-3](#)

[AIM - Chapters 1, 4, & 5](#)

[Vol 2: Segments 1, 9, 11, 13](#)

[Vol 5: Segments 1, 5 – 7, 10](#)

[Vol 6: Segments 7, 9, 11](#)

STAGE III
LESSON 41
DUAL – GROUND
IFR CROSS-COUNTRY
PLANNING

DATE _____ GRADE (Circle One) S U I STUDENT NAME _____ STUDENT SIGNATURE _____ INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____ GROUND (1.2) _____ LMS CREDIT (MAX 0.5) _____ TOTAL IN COURSE (D/S/G) _____ / _____ / _____
--

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to IFR cross-country flight planning.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Charts and Publications	C		Cruising Altitudes	C
	Weather Briefing	C		Aircraft Performance	C
	NOTAMs	C		Flight Plan Filing	C
	Determining an Alternate	C		Flight Deck Management	C
	Preferred IFR Routes	C		Aeronautical Decision Making and Judgment	C
	Planning Departures and Arrivals	C		Crew Resource Management	C
	Takeoff Minimums	C			

COMPLETION STANDARDS

At the completion of this lesson, the student will be able to plan an IFR cross-country flight.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 1, 9 & 10](#)

[FAA-H-8083-16-IPH - Chapters 1-3](#)

[AIM - Chapters 1, 4, & 5](#)

[Vol 1: Segment 12](#)

[Vol 3: Segments 18-19](#)

[Vol 6: Segments 5, 12, 13](#)

STAGE III
LESSON 42
DUAL – ATD/FTD
CROSS COUNTRY

DATE _____ GRADE (Circle One) S U I
STUDENT NAME _____ STUDENT SIGNATURE _____
INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____
ATD/FTD/SIM (2.0) _____ GROUND (0.4) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____

LESSON OBJECTIVE

During this lesson, the instructor will introduce the student to IFR cross-country flight planning and review executing instrument approaches.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	En Route Navigation	5		ATC Clearances and Clearance Compliance	2
	Lost Communication Procedures	5		Non-precision Approach	2
	Dealing with En Route and Terminal Weather	5		APV Approach	2
	Determining an Alternate	5		Precision Approach	2
	Preparation of an IFR Navigation Log	5		Missed Approach Procedures	2
	Planning Departures and Arrivals	5		Landing from Straight-In / Circling Approaches	2
	Power/Fuel Management	4			

COMPLETION STANDARDS

At the completion of this lesson, the student will be able to plan an IFR cross-country flight and complete an IFR navigation log. The student will

- maintain headings $\pm 5^\circ$ en route/ $\pm 10^\circ$ on approaches
- maintain altitudes, other than flight at MDA or during the final approach segment of a precision or APV approach, $\pm 100'$
- maintain airspeeds ± 10 knots
- maintain turning angles of bank $\pm 5^\circ$

During non-precision approaches, the student will maintain the MDA, when reached, $+100/-0$ feet to the MAP and allow no more than a three-quarter-scale deflection of the CDI while on the final approach segment.

During precision and APV approaches, the student will avoid descents below the DA/DH before initiating a missed approach procedure or transitioning to a normal landing approach and allow no more than a three-quarter-scale deflection of the localizer or glideslope while on the final approach segment.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 1, 2, 9, & 10](#)

[FAA-H-8083-16-IPH - Chapters 1-4](#)

[AIM - Chapters 1, 4, & 5](#)

[Review Video Segments as Needed](#)

STAGE III
LESSON 43
DUAL – AIRCRAFT
CROSS COUNTRY

DATE _____	GRADE (Circle One) S U I
STUDENT NAME _____	STUDENT SIGNATURE _____
INSTRUCTOR # _____	INSTRUCTOR SIGNATURE _____
FLIGHT TIME (3.0) _____	INSTRUMENT (2.8) _____
GROUND (0.4) _____	
TOTAL IN COURSE (D/S/G) _____ / _____ / _____	

LESSON OBJECTIVE

During this lesson, the instructor will review IFR cross-country flight planning and executing instrument approaches with the student. The cross-country should be planned to multiple airports with at least one airport more than 75 nautical miles from the departure airport. All airports should be sufficiently spaced to allow the student at least some realistic en route time.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	En Route Navigation	3		ATC Clearances and Clearance Compliance	2
	Lost Communication Procedures	3		Non-precision Approach	2
	Dealing with En Route and Terminal Weather	3		APV Approach	2
	Determining an Alternate	3		Precision Approach	2
	Preparation of an IFR Navigation Log	3		Missed Approach Procedures	2
	Planning Departures and Arrivals	3		Landing from Straight-In / Circling Approaches	2
	Power/Fuel Management	3			

COMPLETION STANDARDS

At the completion of this lesson, the student will be able to perform an IFR cross-country with minimal assistance from the instructor. The student will

- maintain headings $\pm 5^\circ$ en route/ $\pm 10^\circ$ on approaches
- maintain altitudes, other than flight at MDA or during the final approach segment of a precision or APV approach, $\pm 100'$
- maintain airspeeds ± 10 knots
- maintain turning angles of bank $\pm 5^\circ$

During non-precision approaches, the student will maintain the MDA, when reached, $+100/-0$ feet to the MAP and allow no more than a three-quarter-scale deflection of the CDI while on the final approach segment.

During precision and APV approaches, the student will avoid descents below the DA/DH before initiating a missed approach procedure or transitioning to a normal landing approach and allow no more than a three-quarter-scale deflection of the localizer or glideslope while on the final approach segment.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 1, 2, 9, & 10](#)

[FAA-H-8083-16-IPH - Chapters 1-4](#)

[AIM - Chapters 4, 5, & 7](#)

[Review Video Segments as Needed](#)

STAGE III
LESSON 44
DUAL – ATD/FTD
CROSS COUNTRY

DATE _____ GRADE (Circle One) S U I
STUDENT NAME _____ STUDENT SIGNATURE _____
INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____
ATD/FTD/SIM (2.0) _____ GROUND (0.4) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____

LESSON OBJECTIVE

During this lesson, the instructor will review IFR cross-country flight planning and decision making and executing instrument approaches.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	En Route Navigation	3		DME Arc	3
	Lost Communication Procedures	3		ATC Clearances and Clearance Compliance	2
	Dealing with En Route and Terminal Weather	3		Non-precision Approach with Loss of Primary Flight Instrument Indicators (Partial Panel)	2
	Determining an Alternate	3		APV Approach	2
	Preparation of an IFR Navigation Log	3		Precision Approach	2
	Planning Departures and Arrivals	3		Missed Approach Procedures	2
	Power/Fuel Management	3		Landing from Straight-In / Circling Approaches	2

COMPLETION STANDARDS

At the completion of this lesson, the student will be able to plan an IFR cross-country flight and complete an IFR navigation log. The student will

- maintain headings $\pm 5^\circ$ en route/ $\pm 10^\circ$ on approaches
- maintain altitudes, other than flight at MDA or during the final approach segment of a precision or APV approach, $\pm 100'$
- maintain airspeeds ± 10 knots
- maintain turning angles of bank $\pm 5^\circ$

During non-precision approaches, the student will maintain the MDA, when reached, $+100/-0$ feet to the MAP and allow no more than a three-quarter-scale deflection of the CDI while on the final approach segment.

During precision and APV approaches, the student will avoid descents below the DA/DH before initiating a missed approach procedure or transitioning to a normal landing approach and allow no more than a three-quarter-scale deflection of the localizer or glideslope while on the final approach segment.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 1, 2, 9, & 10](#)

[FAA-H-8083-16-IPH - Chapters 1-4](#)

[AIM - Chapters 1, 4, 5, & 7](#)

[Review Video Segments as Needed](#)

STAGE II

LESSON 45

DUAL – AIRCRAFT CROSS COUNTRY

DATE _____	GRADE (Circle One) S U I
STUDENT NAME _____	STUDENT SIGNATURE _____
INSTRUCTOR # _____	INSTRUCTOR SIGNATURE _____
FLIGHT TIME (4.0) _____	INSTRUMENT (3.8) _____
GROUND (0.4) _____	
TOTAL IN COURSE (D/S/G) _____ / _____ / _____	

LESSON OBJECTIVE

During this lesson, the instructor will review IFR cross-country flight planning and executing instrument approaches with the student. **The student will also perform a cross-country flight of at least 250 nautical miles, along airways or an ATC-directed routing, with one segment of the flight consisting of at least a straight-line distance of 100 nautical miles between airports; involving an instrument approach at each airport; and involving three different kinds of approaches with the use of navigation systems.** The autopilot should be used where appropriate to assist in management of the aircraft.

CONTENT

Lesson Task			Lesson Task		
Task		Completion	Task		Completion
Grade		Standard	Grade		Standard
	Filing an IFR Flight Plan	2		ATC Clearances and Clearance Compliance	2
	En Route Navigation	2		Non-precision Approach	2
	Dealing with En Route and Terminal Weather	2		APV Approach	2
	Determining an Alternate	2		Precision Approach	2
	Preparation of an IFR Navigation Log	2		Autopilot Operations	2
	Planning Departures and Arrivals	2		Missed Approach Procedures	2
	Power/Fuel Management	2		Landing from Straight-In / Circling Approaches	2

COMPLETION STANDARDS

At the completion of this lesson, the student will be able to perform an IFR cross-country with minimal assistance from the instructor. The student will utilize the autopilot as appropriate to assist in managing the aircraft but will not display dependence on it. The student will

- maintain headings $\pm 5^\circ$ en route/ $\pm 10^\circ$ on approaches
- maintain altitudes, other than flight at MDA or during the final approach segment of a precision or APV approach, $\pm 100'$
- maintain airspeeds ± 10 knots
- maintain turning angles of bank $\pm 5^\circ$

During non-precision approaches, the student will maintain the MDA, when reached, $+100/-0$ feet to the MAP and allow no more than a three-quarter- scale deflection of the CDI while on the final approach segment.

During precision and APV approaches, the student will avoid descents below the DA/DH before initiating a missed approach procedure or transitioning to a normal landing approach and allow no more than a three-quarter-scale deflection of the localizer or glideslope while on the final approach segment.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH - Chapters 1, 2, 9, & 10](#)

[FAA-H-8083-16-IPH - Chapters 1-4](#)

[AIM - Chapters 1, 4, & 5](#)

[Review Video Segments as Needed](#)

STAGE III
LESSON 46
DUAL – GROUND
KNOWLEDGE TEST/
END OF STAGE REVIEW

DATE _____ GRADE (Circle One) S U I STUDENT NAME _____ STUDENT SIGNATURE _____ INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____ GROUND (1.2) _____ TOTAL IN COURSE (D/S/G) _____ / _____ / _____

LESSON OBJECTIVE

The objective of this lesson is to review and evaluate the aeronautical knowledge areas from this TCO in preparation for the end-of-course test and/or Instrument Rating Practical Test. Knowledge areas missed on the Instrument Rating Knowledge Test should also be reviewed.

CONTENT

Lesson Task			Lesson Task		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Instrument Rating Knowledge Test Review	C		Aircraft Systems Related to IFR Operations	C
	Pilot Qualifications	C		Aircraft Flight Instruments and Navigation Equipment	C
	Weather Information	C		Instrument Flight Deck Check	C
	Cross-Country Flight Planning	C			

COMPLETION STANDARDS

In order to complete the ground portion of the Instrument Rating Course, the student must score at least 70% on the Instrument Rating Knowledge Test. The instructor must review the knowledge areas found deficient on the Instrument Rating Knowledge Test and ensure that the student is ready for the oral and practical portions of exam. The student must have instrument pilot level knowledge of the items listed for review.

ADDITIONAL STUDY

[FAA-H-8083-15-IFH](#)

[FAA-H-8083-16-IPH](#)

[FAR](#)

[AIM](#)

[Review Video Segments as Needed](#)

STAGE III
LESSON 46a
END OF STAGE
REVIEW

DATE _____	GRADE (Circle One) S U I
STUDENT NAME _____	STUDENT SIGNATURE _____
INSTRUCTOR # _____	INSTRUCTOR SIGNATURE _____
FLIGHT TIME (2.0) _____	GROUND (1.0) _____ INSTRUMENT (1.8) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____	

LESSON OBJECTIVE

During this lesson, the student will complete an end-of-stage review check for the Instrument Rating with an instructor other than their normally assigned instructor. The instructor will maintain an evaluator role throughout the entire review similar to that of an examiner or an approved end-of-course test check instructor.

CONTENT

Lesson Task - Oral			Lesson Task - Flight		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Pilot Qualifications	2		Instrument Flight Deck Check	2
	Weather Information	2		ATC Clearances and Clearance Compliance	2
	Cross-Country Flight Planning	2		Holding Procedures	2
	Aircraft Systems Related to IFR Operations	2		Instrument Flight	2
	Aircraft Flight Instruments and Navigation Equipment	2		Recovery from Unusual Attitudes	2
	Instrument Flight Deck Check	2		Intercepting / Tracking Navigation Systems and DME Arcs	2
				Departure, En route, and Arrival Operations	2
				Non-Precision Approach	2
				Precision Approach	2
				Missed Approach Procedures	2
				Landing from Straight-In/ Circling Approach	2
				Autopilot Operations	2
				Loss of Communications	2
				Approach with Loss of Primary Flight Instrument Indicators	2
				Postflight: Checking Instruments and Equipment	2

COMPLETION STANDARDS

The student shall perform all maneuvers to the standards established by the Instrument Rating Airman Certification Standards.

*** Note:** The Non-precision Approach with Loss of Primary Flight Instrument Indicators and the Non-precision Approach with an Autopilot can be combined with the full and vectored approaches. The applicant may use navigation systems that display advisory vertical guidance during non-precision approach operations, if available. The evaluator must select and the applicant must accomplish at least two different non-precision approaches, at least one procedure must include a course reversal maneuver (e.g., procedure turn, holding in lieu, or the course reversal from an initial approach fix on a Terminal Area Arrival). One procedure must be flown from an initial approach fix without the use of autopilot and without the assistance of radar vectors. Flying without using the autopilot does not prevent use of the yaw damper and flight director. One procedure must be flown with reference to backup or partial panel instrumentation or navigation display, depending on the aircraft's instrument avionics configuration, representing a realistic failure mode(s) for the equipment used.

A precision approach to the decision altitude (DA) using aircraft navigational equipment for centerline and vertical guidance must be flown. A precision approach is a standard instrument approach procedure to a published decision altitude using provided approved vertical guidance.

The evaluator has discretion to have the applicant perform a landing or a missed approach at the completion of each approach.

STAGE III
LESSON 47
END OF STAGE
REVIEW

DATE _____ GRADE (Circle One) S U I STUDENT NAME _____ STUDENT SIGNATURE _____ INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____ FLIGHT TIME (2.0) _____ GROUND (0.4) _____ INSTRUMENT (1.8) _____ TOTAL IN COURSE (D/S/G) _____ / _____ / _____
--

LESSON OBJECTIVE

During this lesson, the instructor will review instrument flight procedures with the student in preparation for the final stage check.

CONTENT

Lesson Task			Lesson Task		
Task		Completion	Task		Completion
Grade		Standard	Grade		Standard
	Instrument Flight Deck Check	2		Precision Approach	2
	ATC Clearances and Clearance Compliance	2		Missed Approach Procedures	2
	Holding Procedures	2		Landing from Straight-In/ Circling Approach	2
	Instrument Flight	2		Autopilot Operations	2
	Recovery from Unusual Attitudes	2		Loss of Communications	2
	Intercepting / Tracking Navigation Systems and DME Arcs	2		Approach with Loss of Primary Flight Instrument Indicators	2
	Departure, En route, and Arrival Operations	2		Postflight: Checking Instruments and Equipment	2
	Non-Precision Approach	2			

COMPLETION STANDARDS

The student shall perform all maneuvers to the standards established by the Instrument Rating Airman Certification Standards.

*** Note:** The Non-precision Approach with Loss of Primary Flight Instrument Indicators and the Non-precision Approach with an Autopilot can be combined with the full and vectored approaches. The applicant may use navigation systems that display advisory vertical guidance during non-precision approach operations, if available. The evaluator must select and the applicant must accomplish at least two different non-precision approaches, at least one procedure must include a course reversal maneuver (e.g., procedure turn, holding in lieu, or the course reversal from an initial approach fix on a Terminal Area Arrival). One procedure must be flown from an initial approach fix without the use of autopilot and without the assistance of radar vectors. Flying without using the autopilot does not prevent use of the yaw damper and flight director. One procedure must be flown with reference to backup or partial panel instrumentation or navigation display, depending on the aircraft's instrument avionics configuration, representing a realistic failure mode(s) for the equipment used.

A precision approach to the decision altitude (DA) using aircraft navigational equipment for centerline and vertical guidance must be flown. A precision approach is a standard instrument approach procedure to a published decision altitude using provided approved vertical guidance.

The evaluator has discretion to have the applicant perform a landing or a missed approach at the completion of each approach.

END-OF-COURSE TIME SUMMARY

This page is intended to be used by the student's flight instructor to summarize the times accumulated through this course of instruction and determine that the times are sufficient for the stage and course requirements. The check instructor should verify that these times are acceptable for completion of the stage.

Part 141 / AATD LOA Note: The instrument time in an approved FTD or AATD used to meet the minimum requirements of Part 141 may not exceed 40% of the total flight training hours required for the course of instruction. Training time in an approved BATD cannot exceed 25% of the total flight training hours required for the course of instruction. The limit is raised to 50% for an approved full flight simulator or a combination of a simulator, an FTD, an AATD, and a BATD (FTD, AATD, & BATD time limits still apply).

DATE _____

STUDENT NAME _____ STUDENT SIGNATURE _____

INSTRUCTOR # _____ INSTRUCTOR SIGNATURE _____

STAGE TOTALS

FLIGHT TIME (DUAL): _____

FLIGHT TIME (DUAL CROSS-COUNTRY): _____

ATD/FTD/SIM: _____

INSTRUMENT: _____ (Simulated and actual instrument - flight only.)

GROUND: _____

COURSE TOTALS

FLIGHT TIME (DUAL): _____

FLIGHT TIME (DUAL CROSS-COUNTRY): _____

ATD/FTD/SIM: _____

INSTRUMENT: _____ (Simulated and actual instrument - flight only.)

GROUND: _____

STAGE III
LESSON 48
DUAL – LOCAL
END-OF-COURSE TEST

DATE _____	GRADE (Circle One) S U I
STUDENT NAME _____	STUDENT SIGNATURE _____
INSTRUCTOR # _____	INSTRUCTOR SIGNATURE _____
FLIGHT TIME (2.0) _____	INSTRUMENT (1.8) _____ GROUND (1.0) _____
TOTAL IN COURSE (D/S/G) _____ / _____ / _____	

LESSON OBJECTIVE

The student shall demonstrate the knowledge and skill of an Instrument Rated Pilot with an approved check instructor, Assistant Chief Instructor, or Chief Instructor. The end-of-course test will be completed in accordance with the Instrument Rating ACS, with the instructor using an individualized Plan of Action. At a minimum, the student's Airman Knowledge Test Report deficiencies will be tested.

CONTENT

Lesson Task - Oral			Lesson Task - Flight		
Task Grade		Completion Standard	Task Grade		Completion Standard
	Pilot Qualifications	2		Instrument Flight Deck Check	2
	Weather Information	2		ATC Clearances and Clearance Compliance	2
	Cross-Country Flight Planning	2		Holding Procedures	2
	Aircraft Systems Related to IFR Operations	2		Instrument Flight	2
	Aircraft Flight Instruments and Navigation Equipment	2		Recovery from Unusual Flight Attitudes	2
	Instrument Flight Deck Check	2		Intercepting / Tracking Navigation Systems and DME Arcs	2
				Departure, En route, and Arrival Operations	2
				Non-Precision Approach	2
				Precision Approach	2
				Missed Approach Procedures	2
				Landing from Straight-In/ Circling Approach	2
				Autopilot Operations	2
				Loss of Communications	2
				Approach with Loss of Primary Flight Instrument Indicators	2
				Postflight: Checking Instruments and Equipment	2

COMPLETION STANDARDS

The end-of-course test will be complete when the student performs all required maneuvers and tasks to the Instrument Rating ACS. Also, the instructor and student will review the 14 CFR part 141 requirements for the Instrument Rating and determine that the student has met all of them. Upon successful completion, the student will be issued a graduation certificate and will become eligible to take the practical examination.

Note: The Non-precision Approach with Loss of Primary Flight Instrument Indicators and the Non-precision Approach with an Autopilot can be combined with the full and vectored approaches. The applicant may use navigation systems that display advisory vertical guidance during non-precision approach operations, if available. The evaluator must select and the applicant must accomplish at least two different non-precision approaches, at least one procedure must include a course reversal maneuver (e.g., procedure turn, holding in lieu, or the course reversal from an initial approach fix on a Terminal Area Arrival). One procedure must be flown from an initial approach fix without the use of autopilot and without the assistance of radar vectors. Flying without using the autopilot does not prevent use of the yaw damper and flight director. One procedure must be flown with reference to backup or partial panel instrumentation or navigation display, depending on the aircraft's instrument avionics configuration, representing a realistic failure mode(s) for the equipment used.

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The evaluator has discretion to have the applicant perform a landing or a missed approach at the completion of each approach.

(Copy as Required)

CONTENT

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