TRAINING COURSE OUTLINE
INSTRUMENT RATING - AIRPLANE

COURSE OBJECTIVES
The student will obtain the aeronautical skill 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 skill and experience requirements necessary to obtain an Airplane Category Instrument Rating have been met.
TRAINING COURSE OUTLINE
INSTRUMENT RATING - AIRPLANE

COURSE INTRODUCTION

Sporty’s Training Course Outline for the Instrument Rating – Airplane is the syllabus portion of the Sporty’s Academy 14 CFR Part 141* Approved Instrument Rating Training Course. This outline provides a logical, structured sequence that maximizes learning and meets 14 CFR Part 141 training time requirements. Training times must be increased slightly to meet 14 CFR Part 61* requirements for students training under those rules. This Training Course Outline also contains ground lessons appropriate to the Instrument Rating.

COURSE CONCEPT

The Instrument Rating course utilizes the building-block theory of learning, which recognizes that each item taught must be presented on the basis of previously learned knowledge and skills.

For optimum effectiveness, the ground lessons and viewing of the associated video segments should be 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 wish to conduct a short review of essential material.

COURSE ELEMENTS

The course includes the latest FAA pilot certification requirements and a maximum of student-oriented instruction. The syllabus and support materials not only provide necessary information, but also guide the student through the course in a logical manner.

STUDENT VIDEO PREPARATION

The Sporty’s Instrument Rating Training Course Outline is based on Sporty’s Complete Flight Training course for the Instrument Rating DVD, Online, or App. It is important that the student view all seven video volumes in the Instrument course. For each ground and flight lesson, there is required review of specific video sections, and this should be accomplished as part of a self-study program. Additional topics may also be assigned by the instructor. To maximize the learning benefit of the videos, the student should also review the video sections after completion of the lesson. This is particularly true of any subject areas where the student encountered difficulty.

PREFLIGHT ORIENTATION

Prior to each dual lesson, the instructor must provide the student with a thorough 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 define unfamiliar terms and explain the maneuvers and objectives of each lesson.

*14 CFR Part 141 and 14 CFR Part 61 refer to the appropriate parts of Title 14 of the Code of Federal Regulations. Title 14 covers aeronautics and space. The regulations in this title are often referred to as the Federal Aviation Regulations or FARs.
FLIGHT TRAINING DEVICE

Sporty’s Training Course Outline for the Instrument Rating is designed to allow practice of maneuvers and procedures in the airplane only after the student has been introduced to and taught the maneuver or procedure in an approved flight training device. Flight training device lessons are more effective for initial explanation, discussion, and introduction of new material. The best results are obtained when the student learns a maneuver or procedure prior to flying the airplane. Ideally the airplane should be used to practice what has been learned in the flight training device. If a flight training device is not available the “(FTD)” lessons can be accomplished in the airplane. When procedures and maneuvers are introduced in the airplane the instructor must explain and discuss the new material to insure that the student thoroughly understands the new material.

AIRPLANE PRACTICE

Airplane practice must be conducted so that the student obtains the maximum benefit from each flight. Each flight, where applicable, should begin with a review of previously practiced maneuvers, as deemed necessary by the instructor, before any new maneuvers are reviewed. If the airplane is not equipped for all of the tasks detailed in a particular lesson, the items that cannot be completed for this reason should be discussed. If there is a possibility that the student will use an airplane that is equipped for these tasks during the practical test, the tasks should be successfully demonstrated by the student at some point in the training.

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. The instructor must also discuss the elements of the next lesson. This prepares the student for the video assignment and will enhance the student’s understanding.

LESSON TIMES

Lesson times are specified as a guide to meeting the 14 CFR Part 141 training requirements for the Instrument Rating. Under the building block concept, however, the student must achieve a specific level of proficiency before starting the next lesson. Lessons may be combined or repeated as needed based on the progress made by the student. The Course Time Allocation Table is provided for planning purposes. It is imperative that the instructor and student periodically review the student’s overall progress and determine that the training requirements are consistently being met.
STUDENT STAGE CHECKS

Stage checks measure the student’s accomplishments during each stage of training. This procedure provides close supervision of training and another opinion on the student’s progress. 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.

GRADING

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

Each pilot operation will be evaluated at the completion of each flight.

1 = EXCELLENT The student demonstrates knowledge or skills with no procedural or mechanical errors and the flight instructor does not provide any assistance

2 = ABOVE AVERAGE The student demonstrates knowledge or skills that exceed standards. Occasional procedural or mechanical errors are quickly recognized and corrected.

3 = AVERAGE The student consistently demonstrates knowledge and skills that meet standards with timely recognition of procedural or mechanical errors.

4 = BELOW AVERAGE The student demonstrates knowledge and skills with difficulty, is slow in recognizing and correcting procedural or mechanical errors.

5 = BELOW ACCEPTABLE STANDARDS The student does not demonstrate adequate knowledge or skills, is unable to recognize and correct procedural or mechanical errors.

I = INCOMPLETE The student has not completed the pilot operation listed.

Each 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 Completion Standards.

U = UNSATISFACTORY Indicates that all or part of the lesson content was not completed to the standards outlined in the individual lesson Completion Standards. One or more pilot operations graded as a “5” will require an overall grade of unsatisfactory.

I = INCOMPLETE Indicates the content of the lesson was not completed, but the pilot operations covered were satisfactory. Pilot operations not completed must be indicated with an “I”.
GRADING NOTES

1. When a lesson is graded unsatisfactory, only those pilot operations graded as “5” must be repeated to standards during the next lesson.
2. When a lesson is graded incomplete, the pilot operations not performed must be completed prior to attempting the pilot operations for the next lesson.
3. Use the “CRS TOTALS: (F/I/D/FS)” lines within the grading box to total the student’s flight, instrument (in the airplane), ground instruction (discussion), and FTD/simulator times in the course after each lesson.

INSTRUMENT FLIGHT PATTERNS

The instrument flight patterns “A” and “B” and associated text on the following pages have been reprinted from AC 61-27C, the Instrument Flying Handbook that preceded FAA-H-8083-15. AC 61-27C is no longer available, but these patterns are still quite useful in developing a pilot’s ability to control the aircraft while flying solely by reference to the instruments. Aircraft control is the primary goal of using the flight patterns; the patterns are only a teaching tool for this purpose.

The instrument flight patterns are used in Stage I of this Training Course Outline.

TSA ALIEN FLIGHT STUDENT PROGRAM RECORDS

The TSA mandated Alien Flight Student Program (AFSP) has a number of compliance and record keeping requirements. Refer to the TSA website for details. The inside front cover of this book has a place to record that you have completed the requirements. That line is there to serve as a reminder to complete the TSA mandates but does not meet the documentation requirements.

Per the TSA, an instructor may elect to use an endorsement in the Student’s and the Instructor’s logbooks to document confirmation of a Student’s U.S. Citizenship (not allowed for aliens). The Instructor’s copy of the record must be kept for at least 5 years. The recommended text of the endorsement is as follows:

“I certify that [insert student’s name] has presented me a [insert type of document presented, such as a U.S. birth certificate or U.S. passport, and the relevant control or sequential number on the document, if any] establishing that [he or she] is a U.S. citizen or national in accordance with 49 CFR 1552.3(h). [Insert date and instructor’s signature and CFI number.]”

For details or clarification, refer to the TSA’s website.
Pattern “A”

The purpose of both Pattern “A” and Pattern “B” is to further develop the pilot’s ability to control the aircraft without deliberate thought. These patterns help prepare the student for the holding patterns and procedure turns he will fly during radio navigation. Initial practice should be on cardinal headings for simplification; however, as proficiency increases the student should be able to accomplish the patterns on any heading. The instructor may make various changes in the patterns, or, the patterns may be flown over a navigational facility, correcting for drift on each leg.

1. Brief Student Thoroughly Prior to the Flight
2. Performance of Maneuver in the Aircraft
   a. This maneuver should be performed first with all available instruments, then on partial panel.
   b. Start Pattern “A” and demonstrate through the first three turns, then have the student continue.
   c. Timing should start when the clock second hand is on a cardinal point, preferably the 12 o’clock position.
   d. The timing for this pattern is consecutive in that the time for each leg is started when control pressure is applied to recover from the preceding turn.
   e. After recovery from turns, allow sufficient time for the compass card to stop oscillating, then note the heading and correct if necessary. An exception is the 30-second leg. If you note an error in heading here, compensate for it by lengthening or shortening the time allotted for the next turn.

   ![Diagram of Pattern A](image)

   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.
### Course Time Allocation Table

<table>
<thead>
<tr>
<th>STAGE NO.</th>
<th>LESSON</th>
<th>TRAINING TIMES</th>
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**Note:** A cross-country flight 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 is required for Part 141. The flight must involve an instrument approach at each airport and involve 3 different kinds of approaches with the use of navigation systems. Part 61 requires a similar cross-country flight but does not require the 100 miles distance for one segment of the flight.
STAGE I

STAGE OBJECTIVE:

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 Practical Test Standard.
STAGE I
LESSON 1
DUAL - GROUND
FLIGHT INSTRUMENTS

DATE_________          GRADE (Circle One)  S  U  I
STUDENT NAME _____________ STUDENT SIGNATURE_______________
INSTRUCTOR # _____________ INSTRUCTOR SIGNATURE_____________
DISCUSSION: (1.2) ___________
CRS TOTALS: (F/I/D/FS) ____/____/____/____

LESSON OBJECTIVE:

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

CONTENT:

Lesson Introduction

Altimeter
Types of Altitude
Vertical Speed Indicator
Airspeed Indicator
Types of Airspeed
Pitot-Static Instrument Errors

Lesson Introduction

Attitude Indicator
Gyro Driven Heading Indicator
Turn Coordinator / Turn & Bank Indicator
Slip & Skid Indicator
Gyroscopic Instrument Errors
Glass Panel Flight Instrument Displays

COMPLETION STANDARDS:

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

REQUIRED STUDY:

Instrument Rating Practical Test Standards (Refer to Section 1 of the PTS Study Guide, which accompanies Sporty's Complete Flight Training Course for the Instrument Rating.)
Sporty's Complete Flight Training Course for the Instrument Rating - Video Vol 1: Segments 1-12 (DVD 1-13)

Note on Video Segment Numbering: The DVDs, online course, and iOS app for the course contain the same video content at the time of production. The numbering is slightly different on the DVDs due to Introductory segment of each DVD being labeled as a separate Segment 1. This introductory material is included with the first lesson segment on the online and iOS versions thus causing the segment numbers to be different by one.

Notes:

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STAGE I
LESSON 2
DUAL - GROUND
BAI

DATE_______          GRADE (Circle One)  S  U  I
STUDENT NAME _____________ STUDENT SIGNATURE_______________
INSTRUCTOR # _____________ INSTRUCTOR SIGNATURE_____________
DISCUSSION: (1.2) ___________
CRS TOTALS: (F/I/D/FS) ____/____/____/____

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 Introduction

_____ Instrument Scan
_____ Instrument Interpretation
_____ Aircraft Control
_____ Performance Instruments
_____ Control Instruments

Lesson Introduction

_____ Primary Instruments
_____ Supporting Instruments
_____ Direct Indicating Instruments
_____ Indirect Indicating Instruments
_____ Instrument Takeoff

COMPLETION STANDARDS:

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

REQUIRED STUDY:

FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 1: Segments 1-12 (DVD 1-13)
STAGE I
LESSON 3
DUAL - AIRCRAFT

DATE__________ ACFT/FTD ID_________ GRADE (Circle One)  S  U  I
STUDENT NAME _____________ STUDENT SIGNATURE_______________
INSTRUCTOR # _____________ INSTRUCTOR SIGNATURE_____________
CRS TOTALS: (F/I/D/FS) ____/____/____/____
FLIGHT TIME: (1.2) _______ DISCUSSION: (0.4) _______
INSTRUMENT: (1.0) _______ CRS TOTALS: (F/I/D/FS) ___/___/___/___

LESSON OBJECTIVE:

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

CONTENT:

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<thead>
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<th>Lesson Introduction</th>
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<td>_____ Instrument Preflight and Cockpit Check</td>
<td>_____ Level Standard Rate Turns</td>
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<tr>
<td>_____ Instrument Scan</td>
<td>_____ Constant Airspeed Climbs</td>
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<td>_____ Constant Airspeed Descents</td>
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<td>_____ Level-Offs &amp; Trim Use</td>
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COMPLETION STANDARDS:

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

REQUIRED STUDY:

FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 1: Segments 1-4, 8 (DVD 1-5, 9)

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<td>Cruise Descent</td>
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<tr>
<td>Low Speed Descent</td>
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</tbody>
</table>

Notes:

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_________________________________________________________________
STAGE I
LESSON 4
DUAL - AIRCRAFT

DATE__________ ACFT/FTD ID_________ GRADE (Circle One)  S  U  I
STUDENT NAME ______________ STUDENT SIGNATURE ______________
INSTRUCTOR # _____________ INSTRUCTOR SIGNATURE ______________

FLIGHT TIME: (1.2) ______ DISCUSSION: (0.4) ______
INSTRUMENT: (1.0) ______ CRS TOTALS: (F/I/D/FS) / / / /

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 Introduction

-Constant Rate Climbs/Descents
- Climbing/Descending Turns
- Steep Turns

Lesson Review

- Instrument Preflight
- Instrument Cockpit Check
- Straight-and-Level
- Standard Rate Turns
- Constant Airspeed Climbs/Descents
- Level-Offs
- Instrument Takeoff

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 ±15°, maintain or level off at assigned altitudes ±150', maintain airspeeds ±15 knots, and maintain turning angles of bank ±10°.

REQUIRED STUDY:

FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 1: Segments 3-8 (DVD 4-9)
Stage I

LESSON 5
DUAL - AIRCRAFT

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 book.

CONTENT:

Lesson Introduction

_____ Instrument Flight Patterns

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 ±15°, maintain or level off at assigned altitudes ±150', maintain airspeeds ±15 knots, and maintain turning angles of bank ±10°.

REQUIRED STUDY:

FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 1: Segments 6-8 (DVD 7-9)
During this lesson, the instructor will review the magnetic compass with the student

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<tr>
<th>Lesson Introduction</th>
<th>Lesson Introduction</th>
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<tbody>
<tr>
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<td>_____ Turns to Magnetic Compass Headings</td>
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<td>_____ Calibrating Turn Coordinator</td>
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<td>_____ Magnetic Dip</td>
<td>_____ Timed Turns</td>
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<td>_____ Magnetic Variation</td>
<td>_____ Partial Panel Instrument Flight</td>
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<td>_____ Magnetic Deviation</td>
<td>_____ Unusual Attitude Recoveries - Full Panel</td>
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<tr>
<td>_____ Northerly Turning Error</td>
<td>_____ Unusual Attitude Recoveries - Partial Panel</td>
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<td>_____ Acceleration Error</td>
<td>_____ Aeromedical Factors for IFR Flight</td>
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<tr>
<td>_____ Oscillation Error</td>
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</tbody>
</table>

**COMPLETION STANDARDS:**

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

**REQUIRED STUDY:**

- FAA-H-8083-15-IFH
- Instrument Rating Practical Test Standards
  - Vol 1: Segments 8-12 (DVD 9-13)
STAGE I
LESSON 7
DUAL - AIRCRAFT

LESSON OBJECTIVE:

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

CONTENT:

Lesson Introduction

- Magnetic Compass Turns
- Partial Panel Instrument Flight
- Timed Turns

Lesson Review

- Instrument Flight Patterns

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 ±15°, maintain or level off at assigned altitudes ±150', maintain airspeeds ±15 knots, and maintain turning angles of bank ±10°.

REQUIRED STUDY:

- FAA-H-8083-15-IFH
- Instrument Rating Practical Test Standards
  Vol 1: Segments 8-10 (DVD 9-11)
STAGE I
LESSON 8
DUAL - AIRCRAFT

STUDENT NAME _______________ STUDENT SIGNATURE _______________
INSTRUCTOR # _______________ INSTRUCTOR SIGNATURE _______________

FLIGHT TIME: (1.2) _______ DISCUSSION: (0.4) _______
INSTRUMENT: (1.0) _______ CRS TOTALS: (F/I/D/FS) ___ / ___ / ___ / ___

LESSON OBJECTIVE:

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

CONTENT:

Lesson Introduction
Unusual Attitude Recoveries - Full Panel
Unusual Attitude Recoveries - Partial Panel

Lesson Review
Instrument Flight Patterns
Partial Panel Instrument Flight

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 ±15°, maintain or level off at assigned altitudes ±150', maintain airspeeds ±15 knots, and maintain turning angles of bank ±10°. During full panel instrument flight maneuvers, the student will maintain or roll out on assigned headings ±10°, maintain or level off at assigned altitudes ±100', maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°.

REQUIRED STUDY:

FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 1: Segments 10-12 (DVD 11-13)
STAGE I
LESSON 9
DUAL - GROUND
NDB FUNDAMENTALS

DATE_________GRADE (Circle One) S U I
STUDENT NAME ______________ STUDENT SIGNATURE ______________
INSTRUCTOR # ______________ INSTRUCTOR SIGNATURE ______________
DISCUSSION: (1.2) ___________
CRS TOTALS: (F/I/D/FS) ____/____/____/____

LESSON OBJECTIVE:

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

CONTENT:

Lesson Introduction

NDB Principles of Operation
NDB Transmitter
ADF
Types of NDBs & Service Volumes
NDB Errors & Irregularities
NDB Tuning, Identifying, and Monitoring

Lesson Introduction

NDB Orientation, Position and Station Passage
Intercepting NDB Bearings
Tracking NDB Bearings / Wind Correction Techniques

COMPLETION STANDARDS:

At the completion of this lesson, the student will have a thorough knowledge of the NDB and its operating principles. The student will also be able to accurately describe the proper techniques for orientation, intercepting, and tracking an NDB bearing.

REQUIRED STUDY:

FAA-H-8083-15-IFH
AIM - Aeronautical Information Manual
Instrument Rating Practical Test Standards
Vol 3: Segments 10-11 (DVD 11-12)
STAGE I
LESSON 10
DUAL - GROUND
VOR FUNDAMENTALS

DATE_________          GRADE (Circle One)  S  U  I
STUDENT NAME _____________ STUDENT SIGNATURE ______________
INSTRUCTOR # _____________ INSTRUCTOR SIGNATURE ______________
DISCUSSION: (1.2) ___________
CRS TOTALS: (F/I/D/FS) ____/____/____/____

Notes:

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

CONTENT:

Lesson Introduction

- VOR Principles of Operation
- VOR Transmitter
- VOR Receiving Equipment
- VOR Receiver Accuracy Check
- VOR Class Designations & Service Volumes
- VOR Errors & Irregularities

Lesson Introduction

- VOR Tuning and Identifying
- VOR Orientation
- VOR Intercepting
- VOR Tracking / Wind Correction Techniques
- VOR Station Passage

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 also performing a VOR receiver check.

REQUIRED STUDY:

FAA-H-8083-15-IFH
AIM
Instrument Rating Practical Test Standards
Vol 3: Segment 8 (DVD 9)
Stage I
Lesson 11
Dual - FTD

Lesson Objective:

During this lesson, the instructor will introduce NDB and VOR procedures in the FTD.

Content:

Lesson Introduction

- NDB Tuning, Identifying, and Monitoring
- NDB Orientation, Position, and Station Passage
- NDB Intercepting and Tracking Procedures / Wind Correction Techniques

Lesson Introduction

- VOR Tuning and Identifying
- VOR Orientation, Position, and Station Passage
- VOR Radial Intercepting and Tracking Procedures / Wind Correction Techniques

Completion Standards:

At the completion of this lesson, the student will have a basic knowledge of NDB and VOR procedures. The student will maintain or roll out on assigned headings ±10°, maintain or level off at assigned altitudes ±100’, maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°.

Required Study:

FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 3: Segments 8 & 10 (DVD 9 & 11)
STAGE I
LESSON 12
DUAL - AIRCRAFT

| DATE__________ ACFT/FTD ID_________ GRADE (Circle One) S U I |
| STUDENT NAME _____________ STUDENT SIGNATURE _____________ |
| INSTRUCTOR # _____________ INSTRUCTOR SIGNATURE _____________ |
| FLIGHT TIME: (1.2) _______ DISCUSSION: (0.4) _______ |
| INSTRUMENT: (1.0) _______ CRS TOTALS: (F/I/D/FS) _______ /_ /_ /_ |

LESSON OBJECTIVE:

During this lesson, the instructor will introduce NDB procedures in the training aircraft.

Note: If an airplane with an ADF is not available at the flight school, this lesson may be discarded while still meeting the training requirements of Parts 61 and 141. For Part 141 training operations, the Chief Instructor must sign-off on discarding this lesson.

CONTENT:

Lesson Introduction

_____ NDB Tuning, Identifying, and Monitoring
_____ NDB Orientation, Position, and Station
   Passage

Lesson Introduction

_____ NDB Intercepting and Tracking Procedures
   / Wind Correction Techniques

COMPLETION STANDARDS:

At the completion of this lesson, the student will have a basic knowledge of NDB procedures. The student will maintain or roll out on assigned headings ±10°, maintain or level off at assigned altitudes ±100’, maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°. While tracking a specified NDB course, the student will apply proper correction to maintain the course, allowing no more than ±20° of deviation.

REQUIRED STUDY:

FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 3: Segments 10-11 (DVD 11-12)

Notes:

______________________________________________________________________________
______________________________________________________________________________
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______________________________________________________________________________
Stage I

Lesson 13

DUAL - AIRCRAFT

DATE___________ ACFT/FTD ID_________ GRADE (Circle One)  S  U  I
STUDENT NAME _____________ STUDENT SIGNATURE_______________
INSTRUCTOR # _____________ INSTRUCTOR SIGNATURE_____________

CRS TOTALS: (F/I/D/FS) ____/____/____/____

Notes:

LESSON OBJECTIVE:

During this lesson, the instructor will introduce the student to VOR procedures and review NDB procedures in the training aircraft.

CONTENT:

Lesson Introduction Lesson Review

_____ VOR Tuning and Identifying

_____ VOR Orientation, Position, and Station Passage

_____ VOR Radial Intercepting and Tracking Procedures / Wind Correction Techniques

_____ Instrument Flight Patterns while Tracking To or From a VOR on a Specified Radial

_____ NDB Procedures

COMPLETION STANDARDS:

At the completion of this lesson, the student will have a basic knowledge of VOR and NDB procedures. The student will maintain or roll out on assigned headings ±10°, maintain or level off at assigned altitudes ±100', maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°. 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.

REQUIRED STUDY:

FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 1: Review Segments as Needed
Vol 3: Segments 8 & 10 (DVD 9 & 11)
Stage I
Lesson 14
DUAL - GROUND
GPS / AUTOPILOT
PRINCIPLES

LESSON OBJECTIVE:

During this lesson, the instructor will discuss the principles of GPS and autopilot operation.

CONTENT:

Lesson Introduction

- GPS Principles of Operation
- Receiver Autonomous Integrity Monitoring (RAIM)
- GPS Errors & Irregularities
- Wide Area Augmentation System (WAAS)
- GPS Modes of Operation
- GPS Use Under IFR
- GPS CDI Scaling (En Route, Terminal, & Approach)
- GPS Waypoints
- GPS Direct-To Operations
- GPS Flight Plan Operations
- GPS Nearest Functions

Lesson Introduction

- Substitution of GPS for Other Navigation Radios Under IFR
- Orientation, Position, and Waypoint Passage / Sequencing
- GPS Course Intercepting and Tracking Procedures / Wind Correction Techniques
- Computer Based GPS Procedures Simulator (from Appropriate GPS Manufacturer)
- Autopilot Principles of Operation
- Autopilot Errors & Irregularities
- Autopilot Disconnect Options

COMPLETION STANDARDS:

At the completion of this lesson, the student will have knowledge of GPS and autopilot operation.

REQUIRED STUDY:

FAA-H-8083-15-IFH
AIM
Appropriate Manuals for the Installed GPS & Autopilot
Instrument Rating Practical Test Standards
Vol 6: Segments 4 & 12 (DVD 5 & 13)
STAGE I
LESSON 15
DUAL - FTD

DATE__________ ACFT/FTD ID_________ GRADE (Circle One)  S  U  I
STUDENT NAME ___________ STUDENT SIGNATURE_________________
INSTRUCTOR # ___________ INSTRUCTOR SIGNATURE_________________
FTD/SIM: (1.5) _______ DISCUSSION: (0.4) _______
CRS TOTALS: (F/I/D/FS) ____/____/____/____

LESSON OBJECTIVE:

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

CONTENT:

Lesson Introduction

GPS Direct-To Operations
GPS Flight Plan Operations
GPS Nearest Functions
GPS Orientation, Position, and Waypoint
Passage / Sequencing
GPS Course Intercepting and Tracking
Procedures / Wind Correction Techniques

Lesson Review

NDB Procedures
VOR Procedures

COMPLETION STANDARDS:

At the completion of this lesson, the student will have a working knowledge of GPS, NDB, and VOR procedures. The student will maintain headings ±10°, maintain altitudes ±100', maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°. 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 or ±20° of deviation on the ADF.

REQUIRED STUDY:

FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 6: Segment 12 (DVD 13)
STAGE I  
LESSON 16  
DUAL - AIRCRAFT

During this lesson, the instructor will introduce the student to GPS and autopilot procedures and review NDB and VOR procedures with the student in the training aircraft.

CONTENT:

Lesson Introduction

- GPS Direct-To Operations
- GPS Flight Plan Operations
- GPS Orientation, Position, and Waypoint Passage / Sequencing
- GPS Course Intercepting and Tracking Procedures / Wind Correction Techniques
- Autopilot Before Takeoff Checks
- Autopilot Wing Leveler, Heading, & Navigation Modes (as appropriate)
- Autopilot Climb, Descent, & Altitude Hold Modes (as appropriate)
- Autopilot Mode Transitions
- Autopilot Disconnect Options
- Instrument Flight Patterns with the Autopilot

Lesson Review

- NDB Procedures
- VOR Procedures
- Partial Panel Instrument Flight

COMPLETION STANDARDS:

At the completion of this lesson, the student will have a working knowledge of NDB and VOR procedures, and have a basic knowledge of GPS and autopilot procedures. The student will maintain headings ±10°, maintain altitudes ±100', maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°. 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 or ±15° of deviation on the ADF.

REQUIRED STUDY:

FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 1: Segment 10 (DVD 11)
Vol 6: Segments 4 & 12 (DVD 5 & 13)
STAGE I
LESSON 17
DUAL - GROUND
FAR/AIM

DATE_________          GRADE (Circle One)  S  U  I
STUDENT NAME _____________ STUDENT SIGNATURE_______________
INSTRUCTOR # _____________ INSTRUCTOR SIGNATURE_____________
DISCUSSION: (1.2) ___________
CRS TOTALS: (F/I/D/FS) ____/____/____/____

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 Introduction

______ 14 CFR Regulations - Applicable to IFR Flight
______ Part 1
______ Part 43
______ Part 61
______ Part 91
______ Part 97
______ NTSB 830

Lesson Introduction

______ AIM - Chapters Applicable to IFR Flight
______ Chapter 1
______ Chapter 2
______ Chapter 3
______ Chapter 4
______ Chapter 5
______ Chapter 6
______ Chapter 7

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.

REQUIRED STUDY:

FAA-H-8083-15-IFH
FAR - 14 CFR Aviation Regulations
AIM
Instrument Rating Practical Test Standards
Vol 1: Segments 1 (DVD 1-2)
Vol 7: Segments 1-13 (DVD 1-14)
STAGE I
LESSON 18
DUAL - AIRCRAFT

DATE________ ACFT/FTD ID_______ GRADE (Circle One)  S  U  I
STUDENT NAME _____________ STUDENT SIGNATURE _____________
INSTRUCTOR # _____________ INSTRUCTOR SIGNATURE _____________
FLIGHT TIME: (1.8) _______ DISCUSSION: (0.4) _______
INSTRUMENT: (1.6) _______ CRS TOTALS: (F/I/D/FS) / / / 

LESSON OBJECTIVE:

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

CONTENT:

Lesson Review

_____ Steep Turns
_____ NDB Procedures
_____ VOR Procedures
_____ GPS Procedures
_____ Autopilot Procedures

Lesson Review

_____ Partial Panel Instrument Flight
_____ Instrument Flight Patterns with Autopilot
_____ Instrument Flight Patterns while Tracking VOR Radial (without Autopilot)

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 NDB, VOR, GPS, and autopilot procedures. The student will maintain headings ±10°, maintain altitudes ±100', maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°. 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 or ±10° of deviation on the ADF.

REQUIRED STUDY:

FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 1: Review Segments as Needed
Vol 6: Segments 4 & 12 (DVD 5 & 13)
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 Note:** The instrument time in an approved FTD used to meet the minimum requirements of Part 141 may not exceed 40% of the total instrument time required for the course of instruction. This limit is raised to 50% for an approved flight simulator or a combination of an FTD and a simulator.

DATE__________ STUDENT NAME ___________ STUDENT SIGNATURE_________
INSTRUCTOR # ___________ INSTRUCTOR SIGNATURE_________

STAGE TOTALS

FLIGHT TIME: ________ (In stage only.)
GROUND/DISCUSSION: ________ (Be sure to include the Ground Lesson times.)
FTD/SIM: ________ (In stage only.)
INSTRUMENT: ________ (In flight only.)
### STAGE I CHECK

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<td>INSTRUCTOR #</td>
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<th>FLIGHT TIME: (1.4)</th>
<th>DISCUSSION: (1.0)</th>
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<th>INSTRUMENT: (1.2)</th>
<th>CRS TOTALS: (F/I/D/FS)</th>
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### LESSON OBJECTIVE:

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

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#### Lesson Review

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<td>IFR Required Equipment</td>
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<td>Inspection Requirements for IFR Flight</td>
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#### Lesson Review

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<td>VOR Procedures</td>
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<td>GPS Procedures</td>
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<td>Autopilot Procedures</td>
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<tr>
<td>Partial Panel Instrument Flight</td>
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</table>

### COMPLETION STANDARDS:

At the completion of this lesson, the student will have proficiency in basic attitude instrument flight as well as NDB, VOR, GPS, and autopilot procedures. The student will maintain headings ±10°, maintain altitudes ±100', maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°. 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 or ±10° of deviation on the ADF.

### REQUIRED STUDY:

FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 1: Review Segments as Needed
Vol 6: Review Segments as Needed

### Notes:

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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, NDBs 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 Practical Test Standards.
STAGE II
LESSON 20
DUAL - GROUND
HOLDING & IFR CLEARANCES

DATE_________          GRADE (Circle One)  S  U  I
STUDENT NAME _____________ STUDENT SIGNATURE _____________
INSTRUCTOR # _____________ INSTRUCTOR SIGNATURE _____________
DISCUSSION: (1.2) ___________
CRS TOTALS: (F/I/D/FS) ____/____/____/____

LESSON OBJECTIVE:

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

CONTENT:

- Lesson Introduction
- Holding
- Purpose of Holding
- Holding Airspace
- Legs of a Holding Pattern
- Standard vs. Nonstandard Holding Patterns
- Maximum Holding Speeds
- Holding Entry Procedures
- Holding Wind Correction Techniques
- Holding Clearances
- Fix Crossing Check (5T's)
- Lesson Introduction
- Timing
- Use of DME while Holding
- Intersection Holding
- Communication Requirements
- Pilot Responsibilities
- ATC Responsibilities
- Elements of an IFR Clearance
- IFR Clearance Compliance, Limits, and Void Times

COMPLETION STANDARDS:

At the completion of this lesson, the student will have an understanding of holding procedures and IFR clearances.

REQUIRED STUDY:

- FAA-H-8083-15-IFH
- AIM
- Instrument Rating Practical Test Standards
  Vol 2: Segments 3-8 (DVD 4-9)
  Vol 3: Segment 13 (DVD 14)
  Vol 7: Segment 11 (DVD 12)

Notes:
Stage II
Lesson 21
Dual - FTD

Date____________ ACFT/FTD ID_________ Grade (Circle One)  S  U  I
Student name _______________ Student signature_______________
Instructor # _______________ Instructor signature_____________

Crs totals: (F/I/D/FS) ____/____/____/____

Notes:

Stage II
Lesson 21
Dual - FTD

Lesson Objective:

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

Content:

Lesson introduction

- Copying / Understanding IFR Clearances
- ATC Communications
- Holding Pattern Entries
- Holding Patterns (VOR/NDB/GPS)

Lesson introduction

- Fix Crossing Check (5T’s)
- Timing
- Use of DME while Holding
- Intersection Holding

Completion Standards:

At the completion of this lesson, the student will have a basic understanding of holding procedures and IFR clearances. The student will maintain headings ±10°, maintain altitudes ±100’, maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°. 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 or ±10° of deviation on the ADF.

Required Study:

FAA-H-8261-1-IPH
FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 3: Segment 13 (DVD 14)
Vol 7: Segment 11 (DVD 12)
Stage II
Lesson 22
Dual - Ground
Terminal Procedures

Date_________ Grade (Circle One)  S  U  I
Student Name_____________ Student Signature_____________
Instructor #_____________ Instructor Signature_____________
Discussion: (1.2) ___________

Crs Totals: (F/I/D/FS) ____/____/____/____

Notes:

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

Content:

Lesson Introduction

- Terminal Procedures Publication
- Aircraft Approach Categories
- Inoperative Components or Visual Aids Table
- IFR Take-Off Minimums
- Published Departure Procedures
- ATC Communication and Compliance with Departure Instructions
- Situational Awareness during Departure
- Climb & Descent Tables
- IFR Alternate Minimums

Lesson Introduction

- Radar Instrument Approach Minimums
- Pilot Briefing Information Section
- Plan View
- Profile View
- Minimums Section
- Airport Sketch & Airport Diagram
- Minimum Safe Altitude
- Descent Planning
- Standard Terminal Arrival Procedures

Completion Standards:

At the completion of this lesson, the student will have an understanding of terminal procedures.

Required Study:

FAA-H-8261-1-IPH
FAA-H-8083-15-IFH
AIM
Instrument Rating Practical Test Standards
Vol 3: Segments 1-2 (DVD 1-3)
LESSON OBJECTIVE:
During this lesson, the instructor will introduce the student to various types of instrument approaches without a glideslope.

CONTENT:

Lesson Introduction

- Nonprecision Instrument Approaches
- Missed Approach Procedures
- Timed Approaches
- Radar Approaches
- Visual Approaches
- Contact Approaches
- Charted Visual Flight Procedures
- Visual Descent Point

Lesson Introduction

- Approach Briefing
- Circling Approaches
- Vectored Approaches
- Terminal Arrival Area (TAA) Approaches
- Lighting Systems
- Visibility Minimums

COMPLETION STANDARDS:

At the completion of this lesson, the student will have an understanding of nonprecision approaches.

REQUIRED STUDY:

FAA-H-8261-1-IPH
FAA-H-8083-15-IFH
AIM
Vol 3: Segments 6-17 (DVD 7-18)
STAGE II
LESSON 24
DUAL - FTD

LESSON OBJECTIVE:

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

CONTENT:

Lesson Introduction

- Departure Vectors to Filed Route
- IFR Navigation
- Approach Setup and Briefing
- VOR Approach
- NDB Approach
- GPS Approach (LNAV)
- Missed Approach Procedures
- Landing from an Approach

Lesson Review

- Copying / Understanding IFR Clearances
- ATC Communications
- Holding Pattern Entries
- Holding Patterns (VOR/NDB/GPS)

COMPLETION STANDARDS:

At the completion of this lesson, the student will have a basic understanding of holding procedures, nonprecision approach procedures, and missed approach procedures. The student will maintain headings ±10°, maintain altitudes, other than flight at MDA, ±100', maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°. During nonprecision 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.

REQUIRED STUDY:

FAA-H-8261-1-IPH
FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 3: Segments 8-13 (DVD 9-14)
Vol 4: Review Segments 1-7 (DVD 1-8) as Needed
Vol 7: Segment 11 (DVD 12)
Stage II

Lesson 25
DUAL - GROUND
ATC SYSTEM

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 Introduction

Clearance Delivery
Ground Control
Tower Control (Local Control)
Terminal Approach Control Facilities
Approach Control
Departure Control
Final Controller

Lesson Introduction

Air Route Traffic Control Centers (ARTCC)
Tower En Route Control (TEC)
Federal Airways
Uncontrolled Airspace
IFR Flight Planning and Filing Procedures
Closing an IFR Flight Plan

COMPLETION STANDARDS:

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

REQUIRED STUDY:

FAA-H-8261-1-IPH
FAA-H-8083-15-IFH
AIM
Instrument Rating Practical Test Standards
Vol 2: Segments 1-12 (DVD 1-13)
Vol 7: Segment 11 (DVD 12)
STAGE II
LESSON 26
DUAL - AIRCRAFT

DATE__________ ACFT/FTD ID__________ GRADE (Circle One)  S  U  I
STUDENT NAME _______________ STUDENT SIGNATURE _______________
INSTRUCTOR # _______________ INSTRUCTOR SIGNATURE _______________
FLIGHT TIME: (1.8) _______ DISCUSSION: (0.4) _______
INSTRUMENT: (1.6) _______ CRS TOTALS: (F/I/D/FS) _______ _______ _______ _______

LESSON OBJECTIVE:

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

CONTENT:

Lesson Introduction

Filing an IFR Flight Plan
Copying / Understanding IFR Clearances
ATC Communications
Departure Vectors to Filed Route or Pilot
Nav to Filed Route
IFR Navigation

Lesson Introduction

Holding Procedures
Approach Setup and Brief
VOR Approach
NDB Approach
GPS Approach (LNAV)
Missed Approach Procedures

COMPLETION STANDARDS:

At the completion of this lesson, the student will be able to navigate, hold en route, and perform VOR, NDB, 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 ±10°, maintain altitudes, other than flight at MDA or during the final approach segment of a precision approach, ±100’, maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°. During nonprecision 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.

REQUIRED STUDY:

FAA-H-8261-1-IPH
FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 3: Segments 6-12 (DVD 7-13)

Notes:

________________________________________________________________________
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________________________________________________________________________
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________________________________________________________________________
STAGE II  
LESSON 27  
DUAL - GROUND  
Pilot/Controller Responsibilities  

Date_________ Grade (Circle One) S U I  
Student Name _____________ Student Signature _____________  
Instructor # _____________ Instructor Signature _____________  
Discussion: (1.2) ___________  
CRS Totals: (F/I/D/FS) ___/___/___/___  

Notes:

Stage II  

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

Content:  

Lesson Introduction  

Lesson Introduction  

Air Traffic Clearance  
Contact Approach  
Visual Approach  
Instrument Approach  
Missed Approach  
Radar Vectors  
Safety Alerts  
Speed Adjustments  
Visual Separation  
Instrument Departures  

Wake Turbulence Separations  
Compulsory Reporting Points  
Loss of Communications  
Land and Hold Short Operations  
Practice Instrument Approaches  
IFR Separation Standards  
See and Avoid  
Traffic Advisories  
VFR-On-Top  
Minimum Fuel Advisory  

Completion Standards:  
At the completion of this lesson, the student will have an understanding of pilot and controller responsibilities.  

Required Study:  

FAA-H-8261-1-IPH  
FAA-H-8083-15-IFH  
AIM  
Instrument Rating Practical Test Standards  
Vol 2: Segments 1-12 (DVD 1-13)  
Vol 3: Segments 6-7 (DVD 7-8)
Stage II
Lesson 28
Dual - Ground
Instrument
Landing System

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 Introduction

Localizer Principles of Operation
Glideslope Principles of Operation
Marker Beacons
ILS Receiving Equipment
ILS Categories
ILS Errors & Irregularities

Lesson Introduction

Localizer and Glideslope Critical Areas
Simplified Directional Facility
Localizer-Type Directional Aid
Precision Instrument Approaches
Back Course Approaches
APV Instrument Approaches

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

Required Study:

FAA-H-8261-1-IPH
FAA-H-8083-15-IFH
AIM
Instrument Rating Practical Test Standards
Vol 3: Segments 1-4 (DVD 1-5)
## STAGE II
### LESSON 29
#### DUAL - FTD

<table>
<thead>
<tr>
<th>DATE____________</th>
<th>ACFT/FTD ID_______</th>
<th>GRADE (Circle One)</th>
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<th>I</th>
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<tbody>
<tr>
<td>STUDENT NAME ___________</td>
<td>STUDENT SIGNATURE_______________</td>
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<tr>
<td>INSTRUCTOR # _____________</td>
<td>INSTRUCTOR SIGNATURE_____________</td>
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<tr>
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<td>CRS TOTALS: (F/I/D/FS) <strong><strong>/</strong></strong>/<strong><strong>/</strong></strong></td>
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</tbody>
</table>

### LESSON OBJECTIVE:

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

### CONTENT:

<table>
<thead>
<tr>
<th>Lesson Introduction</th>
<th>Lesson Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILS Approach (Full &amp; Vectored)</td>
<td>Missed Approach Procedures</td>
</tr>
<tr>
<td>Landing from an ILS Approach</td>
<td></td>
</tr>
<tr>
<td>Back Course Approach</td>
<td></td>
</tr>
</tbody>
</table>

### 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 ±10°, maintain altitudes, other than during the final approach segment, ±100', maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°. 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.

### REQUIRED STUDY:

- FAA-H-8261-1-IPH
- FAA-H-8083-15-IFH
- Instrument Rating Practical Test Standards
- Vol 3: Segments 1-4 (DVD 1-5)
- Vol 4: Segments 8-9 (DVD 9-10)

### Notes:

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STAGE II
LESSON 30
DUAL - AIRCRAFT

<table>
<thead>
<tr>
<th>DATE____________ ACFT/FTD ID_______</th>
<th>GRADE (Circle One) S U I</th>
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</thead>
<tbody>
<tr>
<td>STUDENT NAME _______________</td>
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<tr>
<td>INSTRUCTOR # _______________</td>
<td>INSTRUCTOR SIGNATURE</td>
</tr>
<tr>
<td>FLIGHT TIME: (2.0) ________</td>
<td>DISCUSSION: (0.4) ________</td>
</tr>
<tr>
<td>INSTRUMENT: (1.8) ________</td>
<td>CRS TOTALS: (F/I/D/FS) / / /</td>
</tr>
</tbody>
</table>

LESSON OBJECTIVE:

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

CONTENT:

<table>
<thead>
<tr>
<th>Lesson Introduction</th>
<th>Lesson Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILS Approach</td>
<td>Filing an IFR Flight Plan</td>
</tr>
<tr>
<td>Back Course Approach</td>
<td>Copying / Understanding IFR Clearances</td>
</tr>
<tr>
<td>APV Approach (LPV or LNAV/VNAV)</td>
<td>ATC Communications</td>
</tr>
<tr>
<td></td>
<td>IFR Navigation</td>
</tr>
<tr>
<td></td>
<td>Holding Procedures</td>
</tr>
<tr>
<td></td>
<td>Approach Setup and Brief</td>
</tr>
<tr>
<td></td>
<td>VOR Approach</td>
</tr>
<tr>
<td></td>
<td>GPS Approach (LNAV)</td>
</tr>
<tr>
<td></td>
<td>Missed Approach Procedures</td>
</tr>
</tbody>
</table>

COMPLETION STANDARDS:

At the completion of this lesson, the student will be able to navigate, hold en route, and perform ILS, VOR, 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 ±10°, maintain altitudes, other than flight at MDA or during the final approach segment of a precision approach, ±100’, maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°. During nonprecision 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.

REQUIRED STUDY:

FAA-H-8261-1-IPH
FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 3: Segments 3-12 (DVD 4-13)
Vol 6: Segment 12 (DVD 13)

Notes:

____________________________________________________________________
____________________________________________________________________
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____________________________________________________________________

Training Course Outline
Page 33
LENNON 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 Introduction

- Autopilot Approach Operations & Limitations
- Nonprecision Approaches with an Autopilot
- APV Approaches with an Autopilot
- Precision Approaches with an Autopilot
- Back Course Approaches with an Autopilot
- Missed Approach Procedures with an Autopilot
- Holding Procedures with an Autopilot

Lesson Introduction

- DME Principles of Operation
- DME Errors & Irregularities
- DME Arc Interception
- DME Arc Tracking
- Use of GPS as Substitute for DME
- Instrument Approaches with Loss of Primary Flight Instrument Indicators (Partial Panel)

COMPLETION STANDARDS:

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

REQUIRED STUDY:

- FAA-H-8261-1-IPH
- FAA-H-8083-15-IFH
- AIM
- Instrument Rating Practical Test Standards
- Vol 3: Segments 15-17 (DVD 16-18)
- Vol 6: Segments 2-4 (DVD 3-5)
STAGE II
LESSON 32
DUAL - FTD

DATE__________ ACFT/FTD ID__________ GRADE (Circle One) S  U  I
STUDENT NAME ____________ STUDENT SIGNATURE __________________
INSTRUCTOR # ________ INSTRUCTOR SIGNATURE __________________
FTD/SIM: (1.5) ______ DISCUSSION: (0.4) ______
CRS TOTALS: (F/I/D/FS) ______/_____/_____/_____

LESSON OBJECTIVE:

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

CONTENT:

Lesson Introduction

Nonprecision Approach with Loss of Primary Flight Instrument Indicators (Partial Panel)

Precision Approach with Loss of Primary Flight Instrument Indicators (Partial Panel)

Lesson Introduction

DME Arc

Circle to Land Procedures

COMPLETION STANDARDS:

At the completion of this lesson, the student will be able to perform partial panel VOR approaches, and DME arcs. The student will maintain headings ±10°, maintain altitudes, other than flight at MDA, ±100', maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°. During nonprecision 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.

REQUIRED STUDY:

FAA-H-8261-1-IPH
FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 2: Review Segments as Needed
Vol 3: Segments 14-17 (DVD 15-18)
LESSON OBJECTIVE:

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

CONTENT:

<table>
<thead>
<tr>
<th>Lesson Introduction</th>
<th>Lesson Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>_____ Nonprecision Approach with Loss of Primary Flight Instrument Indicators (Partial Panel)</td>
<td>_____ Nonprecision Approaches - Full &amp; Vectored (Full Panel)</td>
</tr>
<tr>
<td>_____ APV Approach with Loss of Primary Flight Instrument Indicators (Partial Panel)</td>
<td>_____ APV Approaches - Full &amp; Vectored (Full Panel)</td>
</tr>
<tr>
<td>_____ Precision Approach with Loss of Primary Flight Instrument Indicators (Partial Panel)</td>
<td>_____ Precision Approaches - Full &amp; Vectored (Full Panel)</td>
</tr>
<tr>
<td>_____ DME Arcs</td>
<td></td>
</tr>
<tr>
<td>_____ Circle to Land Procedures</td>
<td></td>
</tr>
</tbody>
</table>

COMPLETION STANDARDS:

At the completion of this lesson, the student will be able to perform nonprecision approaches, precision approaches, circling procedures, and DME arcs with minimal instructor assistance. The student will maintain headings ±10°, maintain altitudes, other than flight at MDA or during the final approach segment of a precision approach, ±100', maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°. During nonprecision 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.

REQUIRED STUDY:

FAA-H-8261-1-IPH
FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 3: Review Segments as Needed
Stage II

Lesson 34
DUAL - GROUND ICING

Lesson Objective:
During this lesson, the instructor will introduce the student to weather conditions associated with icing.

Content:
Lesson Introduction

- Required Conditions for Ice Formation
- Formation of Frost
- Formation of Clear Ice
- Formation of Rime Ice
- Formation of Mixed Ice

Icing Intensities

PIREPs Specific to Icing

AIRMETs Specific to Icing

SIGMETs Specific to Icing

Winds / Temps Aloft Forecast

Completion Standards:
At the completion of this lesson, the student will have an understanding of icing associated with IFR flight.

Required Study:
FAA-H-8083-15-IFH
AIM
Instrument Rating Practical Test Standards
AC 00-6-AvWx - Aviation Weather
AC 00-45-AvWxSvc - Aviation Weather Services
Vol 5: Segments 1-4 (DVD 1-5)
STAGE II  
LESSON 35  
DUAL - GROUND  
THUNDERSTORMS

<table>
<thead>
<tr>
<th>DATE_________</th>
<th>GRADE (Circle One) S  U  I</th>
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<tbody>
<tr>
<td>STUDENT NAME _____________</td>
<td>STUDENT SIGNATURE_____________</td>
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<tr>
<td>INSTRUCTOR # _____________</td>
<td>INSTRUCTOR SIGNATURE_____________</td>
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<tr>
<td>DISCUSSION: (1.2) ___________</td>
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<tr>
<td>CRS TOTALS: (F/I/D/FS) <strong><strong>/</strong></strong>/<strong><strong>/</strong></strong></td>
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</tr>
</tbody>
</table>

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

CONTENT:

<table>
<thead>
<tr>
<th>Lesson Introduction</th>
<th>Lesson Introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditions Required for Thunderstorms</td>
<td>Radar Reports / Radar Summary Chart</td>
</tr>
<tr>
<td>Thunderstorm Lifecycle</td>
<td>Frontal Thunderstorms</td>
</tr>
<tr>
<td>Air Mass Thunderstorms</td>
<td>Hazards Associated with Thunderstorms</td>
</tr>
<tr>
<td>Steady State Thunderstorms</td>
<td>Forecasts Associated with Thunderstorms</td>
</tr>
<tr>
<td>Squall Line Thunderstorms</td>
<td>Convective SIGMETs</td>
</tr>
<tr>
<td>Embedded Thunderstorms</td>
<td></td>
</tr>
</tbody>
</table>

COMPLETION STANDARDS:
At the completion of this lesson, the student will have an understanding of thunderstorms and their associated phenomena.

REQUIRED STUDY:
FAA-H-8083-15-IFH  
AIM  
Instrument Rating Practical Test Standards  
AC 00-6-AvWx  
AC 00-45-AvWxSvc  
Vol 5: Segments 4-13 (DVD 5-14)
Stage II
Lesson 36
Dual - Aircraft

Lesson Objective:

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

Content:

Lesson Introduction

- Nonprecision Approach with an Autopilot
- APV Approach with an Autopilot
- Precision Approach with an Autopilot
- Back Course Approach with an Autopilot
- Missed Approach Procedures with an Autopilot

Lesson Review

- Nonprecision Approach - Full & Vectored (Full & Partial Panel)
- APV Approach - Full & Vectored (Full & Partial Panel)
- Precision Approach - Full & Vectored (Full & Partial Panel)
- Back Course Approach
- Holding Procedures
- ATC Procedures
- Missed Approach Procedures
- Circle To Land Procedures

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 ±10°, maintain altitudes, other than flight at MDA or during the final approach segment of a precision approach, ±100’, maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°. During nonprecision 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.

Required Study:

FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 3: Review Segments as Needed
Vol 6: Segments 2-4 (DVD 3-5)
Stage II
LESSON 37
DUAL - GROUND
FORECASTS & REPORTS

DATE_________          GRADE (Circle One)  S  U  I
STUDENT NAME _____________ STUDENT SIGNATURE________________
INSTRUCTOR # _____________ INSTRUCTOR SIGNATURE________________
DISCUSSION: (1.2) ___________
CRS TOTALS: (F/I/D/FS) ____/____/____/____

LESSON OBJECTIVE:

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

CONTENT:

Lesson Introduction

______ Area Forecasts
______ Terminal Aerodrome Forecasts
______ METARs
______ Winds / Temperatures Aloft
______ Pilot Reports
______ Radar Reports / Radar Summary Chart
______ Surface Analysis Chart
______ Weather Depiction Chart

Lesson Introduction

______ Freezing Level Chart
______ Upper Level Charts
______ Significant Weather Prognostic Charts
______ SIGMETs, AIRMETs, & Convective SIGMETs
______ Recognition of Critical Weather Situations
______ Windshear Avoidance

COMPLETION STANDARDS:

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

REQUIRED STUDY:

FAA-H-8083-15-IFH
AIM
Instrument Rating Practical Standard
AC 00-6-AvWx
AC 00-45-AvWxSvc
Vol 7:  Segments 1-3 (DVD 1-4)

Notes:

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**Stage II**

**Lesson 38**

**DUAL - AIRCRAFT**

<table>
<thead>
<tr>
<th>DATE ______________</th>
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<tbody>
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<tr>
<td>INSTRUCTOR # ___________</td>
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</table>

**Flight Time:** (2.0) _______  **Discussion:** (0.4) _______

**Instrument:** (1.8) _______  **CRS Totals:** (F/I/D/FS) / / / __

**Lesson Objective:**

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

**Content:**

- **Nonprecision Approach with an Autopilot**
- **Precision Approach with an Autopilot**
- **Missed Approach Procedures with an Autopilot**
- **Nonprecision Approach - Full & Vectored (Full & Partial Panel)**
- **APV Approach - Full & Vectored (Full & Partial Panel)**
- **Back Course Approach**
- **Holding Procedures**
- **ATC Communications**
- **Missed Approach Procedures**
- **Circle to Land Procedures**

**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 ±10°, maintain altitudes, other than flight at MDA or during the final approach segment of a precision approach, ±100', maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°. During nonprecision 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.

**Required Study:**

FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 3: Review Segments as Needed
Vol 4: Segments 10-13 (DVD 11-14)
Vol 5: Segments 10-13 (DVD 11-14)
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 Note: The instrument time in an approved FTD used to meet the minimum requirements of Part 141 may not exceed 40% of the total instrument time required for the course of instruction. This limit is raised to 50% for an approved flight simulator or a combination of an FTD and a simulator.

DATE_________ STUDENT NAME ___________ STUDENT SIGNATURE____________
INSTRUCTOR # ___________ INSTRUCTOR SIGNATURE_____________

STAGE TOTALS
FLIGHT TIME: ________  (In stage only.)
GROUND/DISCUSSION: ________  (Be sure to include the Ground Lesson times.)
FTD/SIM: ________  (In stage only.)
INSTRUMENT: ________  (In flight only.)

COURSE TOTALS
FLIGHT TIME: ________  (In course only.)
GROUND/DISCUSSION: ________  (Be sure to include the Ground Lesson times.)
FTD/SIM: ________  (In course only.)
INSTRUMENT: ________  (In flight only.)
STAGE II
LESSON 39
STAGE II CHECK

DATE________ ACFT/FTD ID______ GRADE (Circle One) S  U  I
STUDENT NAME ___________ STUDENT SIGNATURE ____________
INSTRUCTOR # ___________ INSTRUCTOR SIGNATURE __________

FLIGHT TIME: (2.0) _______ DISCUSSION: (1.0) _______
INSTRUMENT: (1.8) _______ CRS TOTALS: (F/I/D/FS) _____ / _____ / _____

LESSON OBJECTIVE:

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

CONTENT:

Lesson Review

ORAL

_____ Weather Information
_____ Holding Procedures
_____ Terminal Procedures Publication
_____ Approach Procedures
_____ Published Departure Procedures
_____ Standard Terminal Arrival Procedures
_____ Instrument Approaches with Loss of Primary Flight Instrument Indicators (Partial Panel)

Lesson Review

FLIGHT

_____ ATC Clearances
_____ Clearance Compliance
_____ Holding Procedures
_____ Nonprecision Approach
_____ APV Approach
_____ Precision Approach
_____ Missed Approach Procedures
_____ Nonprecision Approach with Loss of Primary Flight Instrument Indicators
_____ APV Approach with Loss of Primary Flight Instrument Indicators
_____ Precision Approach with Loss of Primary Flight Instrument Indicators
_____ Nonprecision Approach with Autopilot
_____ Missed Approach Procedures with an Autopilot
_____ Circling Approach
_____ Landing from Straight-In / Circling Approach

COMPLETION STANDARDS:

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

REQUIRED STUDY:

Instrument Rating Practical Test Standards
Vol 1-7: Review Segments as Needed

Notes:

________________________________________________________________________
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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 Practical Test Standards.
Stage III
Lesson 40
Dual - Ground
Chart Review &
En Route Procedures

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

Content:

Lesson Introduction

- Airport / Facility Directory
- VFR / IFR Low Altitude Planning Chart
- En Route Low Altitude IFR Chart
- En Route Chart Symbology
- Air Traffic Service (ATS) Route System
- Intersections and Changeover Points

Lesson Introduction

- ATS Route Course Changes
- Cockpit Management
- Position Reporting Requirements
- Additional Reporting Requirements
- Loss of Communications Procedures (IMC and VMC)

Completion Standards:

At the completion of this lesson, the student will have an understanding of IFR navigation charts.

Required Study:

FAA-H-8261-1-IPH
FAA-H-8083-15-IFH
AIM
Instrument Rating Practical Test Standards
Vol 4: Segments 1-13 (DVD 1-14)
Stage III
Lesson 41
Dual - Ground
IFR Cross-Country
Planning

LESSON OBJECTIVE:

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

CONTENT:

Lesson Introduction

Charts & Publications
Weather Briefing
NOTAMs
Determination of an Alternate
Preferred IFR Routes
DPs / STARs
Takeoff Minimums

Lesson Introduction

Cruising Altitudes
Aircraft Performance
Flight Plan Filing
Cockpit Management
Aeronautical Decision Making & Judgment
Crew Resource Management

COMPLETION STANDARDS:

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

REQUIRED STUDY:

FAA-H-8083-15-IFH
AIM
Instrument Rating Practical Test Standards
Vol 4: Segments 1-5 (DVD 1-6)
Vol 7: Segments 4-13 (DVD 5-14)
**STAGE III**
**LESSON 42**
**DUAL – FTD**
**CROSS-COUNTRY**

<table>
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<tr>
<th>DATE___________</th>
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<th>GRADE (Circle One)</th>
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<tbody>
<tr>
<td>STUDENT NAME _____________</td>
<td>STUDENT SIGNATURE ________________</td>
<td>INSTRUCTOR # _____________</td>
<td>INSTRUCTOR SIGNATURE ________________</td>
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<tr>
<td>FTD/SIM: (2.0)</td>
<td>DISCUSSION: (0.4)</td>
<td>CRS TOTALS: (F/I/D/FS) <strong><strong><strong>/</strong></strong>_/</strong>_<strong>/</strong>__</td>
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</table>

**LESSON OBJECTIVE:**

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

**CONTENT:**

<table>
<thead>
<tr>
<th>Lesson Introduction</th>
<th>Lesson Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>En Route Navigation Including Lost Communications Procedures</td>
<td>Copying / Understanding IFR Clearances</td>
</tr>
<tr>
<td>Dealing with En Route &amp; Terminal Weather - Planning an Alternate</td>
<td>Nonprecision Approach</td>
</tr>
<tr>
<td>Preparation of an IFR Navigation Log</td>
<td>Precision Approach</td>
</tr>
<tr>
<td>Planning Departures and Arrivals</td>
<td>Missed Approach Procedures</td>
</tr>
<tr>
<td>Power / Fuel Management</td>
<td>Circle to Land Procedures</td>
</tr>
</tbody>
</table>

**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 ±5° en route/±10° on approaches, maintain altitudes, other than flight at MDA or during the final approach segment of a precision approach, ±100', maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°. During nonprecision 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 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.

**REQUIRED STUDY:**

FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 4: Review Segments as Needed
Vol 6: Segments 1-4 (DVD 1-5)

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**Notes:**

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Training Course Outline Page 47
LESSON 43
DUAL - AIRCRAFT
CROSS-COUNTRY

STAGE III

DATE__________ ACFT/FTD ID_________ GRADE (Circle One)  S  U  I
STUDENT NAME ______________ STUDENT SIGNATURE______________
INSTRUCTOR # _____________ INSTRUCTOR SIGNATURE_____________

FLIGHT TIME: (3.0) _______ DISCUSSION: (0.4) _______
INSTRUMENT: (2.8) _______ CRS TOTALS: (F/I/D/FS) __/__/__/__

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 Introduction

Dealing with En Route Weather
Preparation of an IFR Navigation Log
Planning Departures and Arrivals
Power / Fuel Management

Lesson Review

Filing an IFR Flight Plan
Copying / Understanding IFR Clearances
Nonprecision Approach
APV Approach
Precision Approach
Missed Approach Procedures
Circle to Land Procedures

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 ±5° en route/±10° on approaches, maintain altitudes, other than flight at MDA or during the final approach segment of a precision approach, ±100', maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°. During nonprecision 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 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.

REQUIRED STUDY:

FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 2: Review Segments as Needed
Vol 3: Review Segments as Needed
Vol 5: Review Segments as Needed
Vol 6: Segments 5-9 (DVD 6-10)

Notes:

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STAGE III
LESSON 44
DUAL – FTD
CROSS-COUNTRY

DATE___________ ACFT/FTD ID_________ GRADE (Circle One)  S  U  I
STUDENT NAME _______________ STUDENT SIGNATURE _______________
INSTRUCTOR # _______________ INSTRUCTOR SIGNATURE _______________

FTD/SIM: (2.0) _______ DISCUSSION: (0.4) _______
CRS TOTALS: (F/I/D/FS) ____/____/____/____

LESSON OBJECTIVE:

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

CONTENT:

<table>
<thead>
<tr>
<th>Lesson Review</th>
<th>Lesson Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>______ Dealing with En Route &amp; Terminal Weather</td>
<td>______ DME Arc</td>
</tr>
<tr>
<td>______ Preparation of an IFR Navigation Log</td>
<td>______ Nonprecision Approach - Partial Panel</td>
</tr>
<tr>
<td>______ Planning Departures and Arrivals</td>
<td>______ Precision Approach</td>
</tr>
<tr>
<td>______ Lost Communications Procedures</td>
<td>______ Missed Approach Procedures</td>
</tr>
<tr>
<td>______ Copying / Understanding IFR Clearances</td>
<td>______ Circle to Land Procedures</td>
</tr>
</tbody>
</table>

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 ±5° en route/±10° on approaches, maintain altitudes, other than flight at MDA or during the final approach segment of a precision approach, ±100’, maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°. During nonprecision 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 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.

REQUIRED STUDY:

FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 3: Segments 14-17 (DVD 15-18)
Vol 4: Review Segments as Needed
STAGE III
LESSON 45
DUAL - AIRCRAFT CROSS-COUNTRY

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 Review

- Filing an IFR Flight Plan
- Copying / Understanding IFR Clearances
- Dealing with En Route Weather
- Preparation of an IFR Navigation Log
- Planning Departures and Arrivals
- Power / Fuel Management

Lesson Review

- Nonprecision Approach
- Precision Approach
- Missed Approach Procedures
- Approaches with an Autopilot (Precision & Nonprecision)
- Circle to Land Procedures

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 ±5° en route/±10° on approaches, maintain altitudes, other than flight at MDA or during the final approach segment of a precision approach, ±100’, maintain airspeeds ±10 knots, and maintain turning angles of bank ±5°. During nonprecision 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 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.

REQUIRED STUDY:

FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 4: Review Segments as Needed
Vol 6: Review Segments as Needed
Stage III
Lesson 46
Dual - Ground
End of Stage Review

Date_________ Grade (Circle One) S U I
Student Name _______________ Student Signature _______________
Instructor # _______________ Instructor Signature _______________
Discussion: (1.2) ___________
Crs totals: (F/I/D/FS) ___/___/___/___

Lesson Objective:

The objective of this lesson is to evaluate the student’s comprehension of the material presented in the Instrument Pilot Certification ground lessons.

Content:

Lesson Review

- Instrument Pilot Knowledge Test
- Weather Information
- Cross-Country Flight Planning
- Aircraft Systems Related to IFR Flight

Lesson Review

- Aircraft Flight / Navigation Equipment
- Instrument Cockpit Check
- FARs Related to IFR Flight

Completion Standards:

In order to complete the ground portion of the Instrument Pilot Certification Course, the student must score at least a 70% on the Instrument Pilot Knowledge Test. The student must have instrument pilot level knowledge of the items listed for review.

Notes:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
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Stage III

Lesson 47

Dual - Aircraft

End of Stage Review

Lesson Objective:

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

Content:

Lesson Review

- Instrument Cockpit Check
- ATC Clearances & Communications
- Compliance with Departure, En Route, and Arrival Procedures and Clearances
- Holding Procedures
- Basic Instrument Flight Maneuvers
- Partial Panel Instrument Flight
- Steep Turns
- Recovery from Unusual Attitudes
- Interceptor/Tracking Navigation Systems
- Nonprecision Approach - Full Approach
- Nonprecision Approach - Vectored
- Nonprecision Approach with an Autopilot

Lesson Review

- Nonprecision Approach with Loss of Primary Flight Instrument Indicators
- APV Approach
- Precision Approach
- Missed Approach Procedures
- Missed Approach Procedures with an Autopilot
- Circling Approach
- Landing from Straight-In / Circling Approaches
- Loss of Communications
- Checking Instruments and Equipment

Completion Standards:

The student shall perform all maneuvers to the standards established by the Instrument Rating Practical Test Standards.

Required Study:

FAA-H-8083-15-IFH
Instrument Rating Practical Test Standards
Vol 7: Segments 1-13 (DVD 1-14)

Note: The Nonprecision Approach with Loss of Primary Flight Instrument Indicators and the Nonprecision Approach with an Autopilot can be combined with the full and vectored approaches. Just as the practical test standards require, the student should complete at least 2 nonprecision approaches and 1 precision approach during this review session. At least 1 nonprecision approach should include a procedure turn or a full TAA transition. An APV approach may be substituted for one of the nonprecision approaches if so equipped. While this review flight can be flown as a practice checkride, it is important to ensure that the student is fully prepared for any type of approach that the airplane is capable of flying prior to the checkride thus additional approaches may be appropriate.
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 Note: The instrument time in an approved FTD used to meet the minimum requirements of Part 141 may not exceed 40% of the total instrument time required for the course of instruction. This limit is raised to 50% for an approved flight simulator or a combination of an FTD and a simulator.

DATE ___________ STUDENT NAME ___________ STUDENT SIGNATURE ______________
INSTRUCTOR # ___________ INSTRUCTOR SIGNATURE ______________

STAGE TOTALS
FLIGHT TIME: ________ (In stage only.)
GROUND/DISCUSSION: ________ (Be sure to include the Ground Lesson times.)
FTD/SIM: ________ (In stage only.)
INSTRUMENT: ________ (In flight only.)

COURSE TOTALS
FLIGHT TIME: ________ (In course only.)
GROUND/DISCUSSION: ________ (Be sure to include the Ground Lesson times.)
FTD/SIM: ________ (In course only.)
INSTRUMENT: ________ (In flight only.)
STAGE III
LESSON 48
STAGE III CHECK

DATE_________ ACFT/FTD ID_________ GRADE (Circle One)  S  U  I
STUDENT NAME ______________ STUDENT SIGNATURE_____________
INSTRUCTOR # ______________ INSTRUCTOR SIGNATURE_____________

FLIGHT TIME: (2.0) _______ DISCUSSION: (1.0) _______
INSTRUMENT: (1.8) _______ CRS TOTALS: (F/I/D/FS) __ / __ / __ / __

LESSON OBJECTIVE:

During this lesson, the student will complete a stage check for the Instrument Rating.

CONTENT:

Lesson Review

ORAL

Weather Information
Cross-Country Flight Planning
Aircraft Systems Related to IFR Flight
Aircraft Flight / Navigation Equipment
Instrument Cockpit Check
FARs Related to IFR Flight

FLIGHT

Instrument Cockpit Check
ATC Clearances
Compliance with Departure, En Route, and Arrival Procedures and Clearances
Holding Procedures
Basic Instrument Flight Maneuvers
Partial Panel Instrument Flight
Steep Turns
Recovery from Unusual Attitudes

FLIGHT (continued)

Intercepting / Tracking Navigation Systems
Nonprecision Approach - Full Approach
Nonprecision Approach - Vectored
Nonprecision Approach with an Autopilot
Nonprecision Approach with Loss of Primary Flight Instrument Indicators
APV Approach
Precision Approach
Missed Approach Procedures
Missed Approach Procedures with an Autopilot
Circling Approach
Landing from Straight-In / Circling Approaches
Loss of Communications
Checking Instruments and Equipment

COMPLETION STANDARDS:

The student shall perform all maneuvers to the standards established by the Instrument Rating Practical Test Standards.

REQUIRED STUDY:

Instrument Rating Practical Test Standards
Vol 1-7: Review Segments as Needed

Note: The Nonprecision Approach with Loss of Primary Flight Instrument Indicators and the Nonprecision Approach with an Autopilot can be combined with the full and vectored approaches. Just as the practical test standards require, the student should complete at least 2 nonprecision approaches and 1 precision approach during this stage check. At least 1 nonprecision approach should include a procedure turn or a full TAA transition. An APV approach may be substituted for one of the nonprecision approaches if so equipped.
## RECORD OF EXTRA TRAINING

<table>
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<tr>
<th>DATE</th>
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FLIGHT TIME: ________  DISCUSSION: ___________

CRS TOTALS: (F/I/D/FS) ____/____/____/____

### CONTENT:

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RECORD OF EXTRA TRAINING

DATE__________ ACFT/FTD ID________GRADE (Circle One) S U I
STUDENT NAME __________ STUDENT SIGNATURE____________
INSTRUCTOR # __________ INSTRUCTOR SIGNATURE____________

FLIGHT TIME: _______ DISCUSSION: ___________
CRS TOTALS: (F/I/D/FS) ____/____/____/____

CONTENT:

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... SIGNATURE_____________
FLIGHT TIME: _______ DISCUSSION: ___________
CRS TOTALS: (F/I/D/FS) ____/____/____/____
RECORD OF EXTRA TRAINING

DATE____________ ACFT/FTD ID_________ GRADE (Circle One) S U I
STUDENT NAME ___________ STUDENT SIGNATURE__________________
INSTRUCTOR # ____________ INSTRUCTOR SIGNATURE________________

FLIGHT TIME: ________ DISCUSSION: ___________

CRS TOTALS: (F/I/D/FS) ____/____/____/____

CONTENT:

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