INSTRUMENT RATING TRAINING COURSE OUTLINE
(FLIGHT TRAINING SYLLABUS)

Student Name

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

Training Device and Airplane Flight Section

COURSE INTRODUCTION

Crosswinds Aviation Training Course Outline for the Instrument Rating – Airplane is the syllabus portion of the Crosswinds 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.

COURSE CONCEPT

This 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.
Prerequisite ground lessons, assigned reading and viewing of the associated SPORTY'S VIDEO SEGMENTS must be completed prior to each respective flight lesson. 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.
The appropriate Crosswinds Aviation INSTRUMENT LESSON NOTES must be studied prior to each lesson. This is a separate document and may be found at the back of this Training Course Outline.

COURSE ELEMENTS

This course includes the latest FAA pilot certification requirements and a comprehensive level 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

Crosswinds Aviation uses Sporty's Complete Flight Training course for the Instrument Rating on DVD, Online, or iPad. It is important that the student view all seven 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 Sporty's Training Course, the student may also want to 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 will provide the student with an overview of the subject matter to be covered during the lesson. The instructor will 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 objectives and elements of each lesson.

TRAINING DEVICE

This course is designed to practice maneuvers and procedures in the airplane only after the student has been introduced to and taught the maneuver or procedure in an approved Training Device (TD). TD 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 only be used to practice what has been previously learned in the Training Device.

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 performed. 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

GRADING INSTRUCTIONAL LESSONS

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** or **task** will be evaluated at the completion of each instructional lesson.

Each **instructional lesson** will also 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 = UNSATIS FACTORY

Indicates that all or part of the task or lesson content was not completed to the standards outlined in the Completion Standards. One or more pilot operations graded as unsatisfactory" will require an overall lesson grade of unsatisfactory.

I = INCOMPLETE

Indicates that 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".

These grades will be noted in the Training Record Box shown at the top of the page for each lesson.

1. When a lesson is graded unsatisfactory, those pilot operations graded as "U" 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. Times spent on each lesson will be noted in the Training Record Box shown at the top of the page for each lesson. There is a line for times spent on the particular lesson as well as a line for the total times accrued using this syllabus. The explanations for each category are:

AFT – Airplane Flight Time
This will indicate **Flight** Time in the **Airplane** The totals will be ultimately accrued in the FAA 8710-1 Airplanes row, and Total column.

IFT - Instrument Flight Time
This will indicate **Simulated** (Hood) and **Actual** instrument time in the **Airplane**. The totals will be ultimately accrued in the FAA 8710-1 Airplanes row, and Instrument column.

TDT – Training Device Time
This will indicate **Instrument** time in the **Training Device**. The totals will be ultimately accrued in the FAA 8710-1 Training device row, and Instrument column

GDT – Ground Discussion Time
This will indicate **Ground Discussion** time during pre and post-flight briefings and Ground school lessons. The times will not be shown on the 8710-1, but, are required to be logged by the FAA.

Course Time Allocation Table - Student Name

STAGE			FLIGHT TIME				GROUND TIME
	LESSON	Grade	AFT	IFT	X-CNTRY	TDT	GDT
I	1	I / U / S					1.2
I	2	I / U / S					1.2
I	3	I / U / S				1.2	0.4
I	4	I / U / S				1.2	0.4
I	5	I / U / S	1.2	1			0.4
I	6	I / U / S					1.2
I	7	I / U / S				1.2	0.4
I	8	I / U / S	1.2	1			0.4
I	9	I / U / S					1.2
I	10	I / U / S					1.2
I	11	I / U / S				1.5	0.4
I	12	I / U / S	1.2	1			0.4
I	13	I / U / S	1.2	1			0.4
I	14	I / U / S					1.2
I	15	I / U / S				1.4	0.4
I	16	I / U / S	1.8	1.6			0.4
I	17	I / U / S					1.2
I	18	I / U / S	1.8	1.6			0.4
I - STG CHK	19	I / U / S	1.4	1.2			1
STAGE I TOTALS		**I / U / S**	**9.8**	**8.4**		**6.5**	**13.8**
II	20	I / U / S					1.2
II	21	I / U / S				3	0.6
II	22	I / U / S					1.2
II	23	I / U / S					1.2
II	24	I / U / S				1.5	0.4
II	25	I / U / S					1.2
II	26	I / U / S	1.8	1.6			0.4
II	27	I / U / S					1.2
II	28	I / U / S					1.2
II	29	I / U / S				1.5	0.4
II	30	I / U / S	2	1.8			0.4
II	31	I / U / S					1.2
II	32	I / U / S				1.5	0.4
II	33	I / U / S	2	1.8			0.4
II	34	I / U / S					1.2
II	35	I / U / S					1.2
II	36	I / U / S	2	1.8			0.4
II	37	I / U / S					1.2
II	38	I / U / S	2	1.8			0.4
II - STG CHK	39	I / U / S	2	1.8			1
STAGE II TOTALS		**I / U / S**	**11.8**	**10.6**		**7.5**	**16.8**
III	40	I / U / S					1.2
III	41	I / U / S					1.2
III	42	I / U / S				2	0.4
III	43	I / U / S	3.3	3	3.3		0.4
III	44	I / U / S				2	0.4
III	45	I / U / S	4.3	4	4.3		0.4
III	46	I / U / S					1.2
III	47	I / U / S	2	1.8			0.4
III - STG CHK	48	I / U / S	2	1.8			1
STAGE III TOTALS		**I / U / S**	**11.6**	**10.6**	**7.6**	**4**	**6.6**
COURSE TOTALS		**I / U / S**	**33.2**	**29.6**	**7.6**	**18**	**37.2**
INSTRUMENT TIME			**47.6**				

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 Name STUDENT SIGNATURE_____

INSTRUCTOR #_____INSTRUCTOR SIGNATURE_____

LESSON - AFT:_____IFT:_____TDT:_____GDT(1.2):_____

CRS TOTALS - AFT:_____IFT:_____TDT:_____GDT:_____

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

REQUIRED PRESTUDY:

Video: Sporty's *Complete* Flight Training Course for the Instrument Rating - Vol 1: Segments 1-5
Reading: See Lesson Note 1

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 and systems..

Notes:

STAGE I
LESSON 2
DUAL GROUND

BASIC ATTITUDE
INSTRUMENT FLYING

DATE_____GRADE (Circle One) S U I

STUDENT NAME: Student Name STUDENT SIGNATURE_____

INSTRUCTOR #_____INSTRUCTOR SIGNATURE_____

LESSON - AFT:_____IFT:_____TDT:_____GDT(1.2):_____

CRS TOTALS - AFT:_____IFT:_____TDT:_____GDT:_____

LESSON OBJECTIVE:

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

REQUIRED PRESTUDY:

Video: Vol 1: Segments 2-7
Reading: See Lesson Note 2

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

COMPLETION STANDARDS:

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

Notes:

STAGE I
LESSON 3
DUAL–TRAINING DEVICE

BASIC ATTITUDE INSTRUMENT FLYING

DATE_____GRADE (Circle One) S U I

STUDENT NAME: Student Name STUDENT SIGNATURE_____

INSTRUCTOR #_____INSTRUCTOR SIGNATURE_____

LESSON - AFT:_____IFT:_____TDT(1.2):_____GDT(.4):_____

CRS TOTALS - AFT:_____IFT:_____TDT:_____GDT:_____

LESSON OBJECTIVE:

To familiarize the student with the flight instruments; how changes in attitude and power affect the instruments, the instrument scan, trimming, hands-off, straight-and-level flight , turns, climbs and descents.

REQUIRED PRESTUDY:
Read Lesson Note No. 3 before viewing the video Segments.
Video: Vol 1: Segments 1-4

CONTENT:

Lesson Introduction

_____ Discuss Instrument Flying as a Process
_____ Discuss instruments used in the scan
_____ Control/Performance Instruments
_____ Primary/Supporting Instruments
_____ Selected Radial Cross-Check

Lesson Introduction

_____ Standby Inst. Cross-check
_____ Straight-and-Level Flight
_____ Standard Rate Turns
_____ Power and Pitch
_____ Constant Rate Climbs/Descents

COMPLETION STANDARDS:

The lesson will be successfully completed when the student understands the function and operation of the six flight instruments and power instruments. The student understands that "Attitude + Power = Performance", and is able to maintain straight-and-level flight using the selected radial cross-check process.

Notes:

STAGE I
LESSON 4
DUAL - TRAINING DEVICE

BASIC ATTITUDE
INSTRUMENT FLYING

DATE_____GRADE (Circle One) S U I

STUDENT NAME: Student Name STUDENT SIGNATURE_____

INSTRUCTOR #_____INSTRUCTOR SIGNATURE_____

LESSON - AFT:_____IFT:_____TDT(1.2):_____GDT(.4):_____

CRS TOTALS - AFT:_____IFT:_____TDT:_____GDT:_____

LESSON OBJECTIVE:

To develop the student's skill in the performance of the four basic flight maneuvers (climbs, descents, turns, and straight-and-level flight) while under simulated instrument flight rules.

REQUIRED PRESTUDY:

Video: Vol 1: Segments 4-7
Lesson Note No. 4
Reading: See Lesson Note 4

CONTENT:

Lesson Introduction

_____ Climbing/Descending Turns
_____ Constant A/S Climbs/Descents
_____ Level-Offs
_____ Use of the Power Card for the TD
_____ Pattern B

Lesson Review

_____ Selected Radial Scan and Cross-check
_____ Constant Rate Climbs/Descents
_____ Straight-and-Level Flight
_____ Standard Rate Turns
_____ Power and Pitch

COMPLETION STANDARDS:

The lesson will be successfully completed when the student can execute straight-and-level flight, climbs, descents at 500 feet per minute ±50 feet per minute, and standard rate turns ±10%.

Notes:

STAGE I
LESSON 5
DUAL – AIRCRAFT

BASIC ATTITUDE INSTRUMENT

DATE_____GRADE (Circle One) S U I

STUDENT NAME: Student Name STUDENT SIGNATURE_____

INSTRUCTOR #_____INSTRUCTOR SIGNATURE_____

LESSON - AFT(1.2):_____IFT(1.0):_____TDT:_____GDT(.4):_____

CRS TOTALS - AFT:_____IFT:_____TDT:_____GDT:_____

LESSON OBJECTIVE:

To further develop the student's skill in the performance of the four basic flight maneuvers (climbs, descents, turns, and straight-and-level flight) while under simulated IFR in the airplane.

REQUIRED PRESTUDY:

Review Video: Vol 1: Segments 4, 8
Reading: See Lesson Note 5

CONTENT:

Lesson Introduction

_____ Review of the Selected Radial Scan
_____ Power Card
_____ Straight-and-Level, Cruise and Approach
_____ Constant Rate Turns, Cruise and Appr.
_____ Climbs and Descents, Constant Rate
_____ Climbs and Descents, Constant Airspeed
_____ Pattern B

COMPLETION STANDARDS:

The lesson will be successfully completed when the student can execute straight-and-level flight, climbs, descents at 500 feet per minute ±50 feet per minute, and standard rate turns ±10%.

Notes:

STAGE I
LESSON 6
DUAL GROUND

MAGNETIC COMPASS

DATE_____GRADE (Circle One) S U I

STUDENT NAME: Student Name STUDENT SIGNATURE_____

INSTRUCTOR #_____INSTRUCTOR SIGNATURE_____

LESSON - AFT:_____IFT:_____TDT:_____GDT(1.2):_____

CRS TOTALS - AFT:_____IFT:_____TDT:_____GDT:_____

LESSON OBJECTIVE:

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

REQUIRED PRESTUDY:

Video: Vol 1: Segment 10
Reading: See Lesson Note 6

CONTENT:

Lesson Introduction

_____ Magnetic Compass Construction
_____ Principles of Magnetic Attraction
_____ Magnetic Dip
_____ Magnetic Variation
_____ Magnetic Deviation
_____ Northerly Turning Error
_____ Acceleration Error
_____ Oscillation Error

Lesson Introduction

_____ Turns to Magnetic Compass Headings
_____ Calibrating Turn Coordinator
_____ Timed Turns
_____ Partial Panel Instrument Flight
_____ Unusual Attitude Recoveries - Full Panel
_____ Unusual Attitude Recoveries - Partial Panel
_____ Aeromedical Factors for IFR Flight

COMPLETION STANDARDS:

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

Notes:

STAGE I
LESSON 7
DUAL – TD

BAI & PARTIAL PANEL

AUTOPILOT

DATE_____GRADE (Circle One) S U I

STUDENT NAME: Student Name STUDENT SIGNATURE_____

INSTRUCTOR #_____INSTRUCTOR SIGNATURE_____

LESSON - AFT:_____IFT:_____TDT(1.2):_____GDT(.4):_____

CRS TOTALS - AFT:_____IFT:_____TDT:_____GDT:_____

LESSON OBJECTIVE:

To develop the student's skill in the performance of constant vertical speed climbs and descents, climbing and descending turns with intermediate level-offs and rollouts, basic coordination maneuvers, primary flight display (PFD) failure, partial panel flying and Autopilot introduction.

REQUIRED PRESTUDY:

Video: Vol 1: Segments 10-12
Reading: See Lesson Note 7

CONTENT:

Lesson Introduction

_____ 100 feet Step Climbs/Descents
_____ Vertical S
_____ Constant Rate Turns - Climb and Descent
_____ PFD Failure - Straight-and-Level and Turns

Lesson Introduction

_____ Compass and Timed Turns
_____ PFD Indicator Failure - Climbs and Descents
_____ Autopilot Introduction, ROL, HDG, ALT, VS

COMPLETION STANDARDS:

The lesson will be successfully completed when the student can execute straight-and-level flight, climbs, descents at 500 feet per minute ±50 feet per minute, and standard rate turns ±10%.

Notes:

STAGE I
LESSON 8
DUAL - AIRCRAFT

BAI & PARTIAL PANEL
AUTOPILOT

DATE_____GRADE (Circle One) S U I

STUDENTNAME: Student Name STUDENT SIGNATURE_____

INSTRUCTOR #_____INSTRUCTOR SIGNATURE_____

LESSON - AFT(1.2):_____IFT(1.0):_____TDT:_____GDT(.4):_____

CRS TOTALS - AFT:_____IFT:_____TDT:_____GDT:_____

LESSON OBJECTIVE:

To develop the student's skill in the performance of constant vertical speed climbs and descents; climbing and descending turns with intermediate level-offs and rollouts; basic coordination maneuvers; primary flight display (PFD), failure, and partial panel flying in the airplane.

REQUIRED PRESTUDY:

Review Video: Vol 1: Segments 10-12
Reading: See Lesson Note 8

CONTENT:

Lesson Introduction (in the aircraft)

_____ 100 feet Step Climbs Descents
_____ Vertical S
_____ Constant Rate Turns - Climb and Descent
_____PFD Failure - Straight-and-Level and Turns
_____ Compass and Timed Turns
_____ PFD Indicator Failure - Climbs and Descents
_____ Autopilot ROL, HDG, ALT, VS

COMPLETION STANDARDS:

The lesson will be successfully completed when the student can execute: straight-and-level flight, climbs, descents at 500 feet per minute ±50 feet per minute, and standard rate turns ±10%. Also proper procedures for unusual attitude and partial panel recoveries

Notes:

Call Crosswinds Aviation to sign up for our structured Instrument Pilot course. You will receive the full syllabus during Lesson 1.

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