14 CFR 141 PILOT SCHOOL

INSTRUMENT RATING—AIRPLANE
TRAINING COURSE OUTLINE

October 15, 2008,
Revision 1, October 1, 2010
Revision 2, October 26, 1011
Revision 3, May 9, 2014
Revision 4, May 16, 2017

LIST OF EFFECTIVE PAGES

INSTRUMENT RATING—AIRPLANE TRAINING COURSE OUTLINE

All pages were revised in Revision 1. No pages are marked "Revision 1".

Page	Revision
1-4	4
4A (added)	4
5-8	1
9-10	4
11-63	1
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LIST OF REVISED PAGES
Future revisions may be posted by pen-and-ink in the space provided.

DATE	REVISION #	PAGES AFFECTED

Summary of changes

Revision 4, May 16, 2017

COURSEWARE AND REFERENCES. Deleted alphabetical suffixes from FAA publication series numbers. Added GARMIN *G1000 Integrated Flight Deck Pilot's Guide* and GIFD trainer software.

INSTRUMENT RATING-AIRPLANE COURSE PLANNED TRAINING TIMES. Revised "Key" at bottom to include ATD with FTD time. Clarified "*Note".

TRAINING FACILITIES AND LOCATIONS. Added Frasca Mentor 172 G1000 Advanced Aviation Training Device (AATD) as an approved training device.

FLIGHT STAGE 1, LESSON 1. Added special syllabus Item 1 requiring students without prior G1000 experience to complete additional training. Renumbered remaining items.

FS2, L1, UNITS 3 THROUGH 7: (7.0 HR FTD) INSTRUMENT APPROACH TRAINING. Deleted NDB Approach as a required maneuver item.

FS2, L3, UNITS 2 THROUGH 5: (9.5 HR DUAL) INSTRUMENT CROSS-COUNTRY TRAINING. Deleted NDB Approach as a required maneuver item.

Revision 3, May 9, 2014

Deleted "FLIGHT OPERATIONS" from cover page. Front matter changed. Deleted assistant chief instructor. Facilities updated with revised floor plan of the Flight Operations building. No material changes to maneuvers.

Revision 2, October 26, 2011

Flight Lessons have been broken into more Units per lesson. The purpose of this is reduce the number of sorties graded Incomplete. Incomplete should be used only if the sortie was truncated due to weather, maintenance, etc. There are no material changes to the maneuvers. Talon/ETA will reflect the additional sorties. Talon/ETA sorties may be "zero-time" completed, if the student has met standards and minimum time in less than the allotted sorties.

Revision 1, October1, 2010

This document is substantially revised. All pages are renumbered. Multiple typographical and formatting errors were corrected.

Front matter (Preface, Training Facilities pages, Table of Contents, etc.) is rewritten and rearranged. Drawings were revised.

Ground Training Course Outline is now called Ground Training Syllabus, but is largely unchanged for content. References are moved to the front matter. Although it remains available, Professional Aviation 239, Aviation Weather, is no longer considered an included stage of the Instrument Rating—Airplane Course.

Flight Training Course Outline is now called Flight Training Syllabus. Grading procedures are changed. Maneuvers and daily overall grades use the Unsatisfactory-Fair-Good-Excellent scheme, vice the former A-B-C-F. Only stage checks are now graded A-B-C-F. The layout has changed. Flight lessons are divided into units. Lesson contents are directed either by line items or by "Special Syllabus" requirements. To indicated which line items are considered required, the convention was adopted of marking them on the Unit page with a '+'.

The Flight Training Course is now comprised of two stages, vice the previous four. Stage One consolidates Basic Attitudes, Navigation, and Communication. Stage Two now includes the Approaches and Cross-country categories, with Approaches getting a "Sub-stage Check" instead of being a separate stage.

Net flight times for the course are unchanged. One hour of FTD training was moved from the first half to the second half.

INSTRUMENT RATING—AIRPLANE TRAINING COURSE OUTLINE

COURSE OBJECTIVES

The student will obtain the aeronautical knowledge, skill, and experience to meet the requirements for an Instrument Rating—Airplane.

COURSEWARE AND REFERENCES:

Guided Flight Discovery Instrument Commercial Manual, Jeppesen Sanderson, Inc.
FAA Airman Certification Standards
AC 00-6 Aviation Weather
AC 00-45 Aviation Weather Services
AC 60-22 Aeronautical Decision Making
AC 61-65 Certification: Pilots and Flight Instructors
AC 61-84 Role of Preflight Preparation
AC 90-48 Pilots' Role in Collision Avoidance
AC 120-51 Crew Resource Management Training
FAA-H-8083-15 Instrument Flying Handbook
FAA-H-8083-1 Aircraft Weight and Balance Handbook
FAA-H-8083-3 Airplane Flying Handbook
FAA-H-8083-25 Pilot's Handbook of Aeronautical Knowledge
FAA-H-8083-27 Student Pilot Guide
Federal Aviation Regulations/Aeronautical Information Manual
Notices to Airmen
Louisiana Tech University Department of Professional Aviation *Flight Operations Safety Procedures and Practices, Policies, and Standard Operating Procedures*
Cessna 172 Pilot's Operating Handbook and Airplane Flight Manual
Applicable Flight Information Publications
GARMIN *G1000 Integrated Flight Deck Pilot's Guide* and GIFD trainer software

INSTRUMENT RATING—AIRPLANE COURSE PLANNED TRAINING TIMES

TRAINING STAGE	GROUND	DU	ATD/FTD*	ORL	INST	XC
GROUND STAGE ONE	35.0					
GROUND STAGE TWO	35.0					
FLIGHT STAGE ONE		10.0	6.0	13.0	16.0	
FLIGHT STAGE TWO		11.0	8.0	12.5	19.0	9.5
TOTALS	**70.0**	**21.0**	**14.0**	**25.5**	**35.0**	

Key: GROUND = formal ground school (aeronautical knowledge); DU = dual instruction in aircraft; ATD/FTD = aviation/flight training device; ORL = oral instruction associated with flight training; INST = instrument time; XC = cross-country flight

*Where "FTD" is observed in the Unit titles, ATD is authorized.

COURSE COMPLETION STANDARDS

The student must demonstrate to suitable authority through flight tests and school records that the aeronautical knowledge, skill, and experience requirements necessary to obtain an Instrument Rating—Airplane are accomplished.

Louisiana Tech University
TRAINING FACILITIES

TRAINING FACILITIES AND LOCATIONS

1. Louisiana Tech University (LTU) trains pilots at both the main campus in Ruston, LA, and at Louisiana Tech Flight Operations, Ruston Regional Airport. For a description of the rooms (size and maximum number of students), refer to pages 11-13.
2. Type training aids: Refer to pages 11-13.
3. Training Devices:
    a. FRASCA Level 6 Cessna 172 flight training device (FTD) located in Davison Hall, Room 110 (statement of qualification renewed annually.)
    b. FRASCA Mentor Cessna 172 advanced aviation training device (ATD) located in Davison Hall, Room 110
4. Airports at which training flights originate: Ruston Regional Airport, which meets the requirements of 14 CFR 141.38.
    a. Description of facilities: Louisiana Tech Flight Operations is located at Ruston Regional Airport; the building contains suitable offices, a dispatch area, and numerous training rooms.
    b. Pilot briefing areas: Located in Louisiana Tech Flight Operations building and consist of planning area, cubicles, and a large class room.
5. Aircraft: Cessna 172R/172S airplanes will be used for all flight training in this course.
6. Minimum qualifications and ratings for each instructor assigned: FAA Instrument Ground Instructor Certificate or FAA Flight Instructor Certificate, with Instrument Rating.
7. This course is listed in the Louisiana Tech University catalog as Instrument Ground I (PRAV 240), Instrument Ground II (PRAV 241), Instrument Flight I (PRAV 242), and Instrument Flight II (PRAV 243).
8. Chief Instructor for the course: James Zachry Staten.

TRAINING RECORDS:

Louisiana Tech University maintains flight training records in accordance with 14 CFR 141.101. Academic records are maintained per University policy.

TALON: Talon-Systems' Education and Training Administration (ETA) and Resource Management System (RMS) are web-based programs that assist in training management and record keeping. Talon/ETA supports all facets of LTU's training operations including curriculum management, instructor currencies, student training records, student accounting, resource management, resource planning, and scheduling and operations. This TCO and ETA will mirror each other. ETA typically refers to individual lesson activities as "Units", so that convention is used in the flight syllabus portion of the TCO.

While printing gradesheets can be done from Talon/ETA, only stage checks will be printed. Daily flight training course lessons will be input and maintained online, in Talon. Upon request from the FAA or the student, a full set of paper daily training lesson gradesheets will be provided for any student.

The Talon/ETA system will accept scanned copies of documents, as part of the student's record. The following required documents may be scanned and stored online: Trainee's Medical Certificate, Trainee's Pilot Certificate, Passport or Picture ID, Birth Certificate.

In the event of local Internet outage, instructors will print and use the applicable TCO page as a manual gradesheet (with subsequent input to Talon.)

FLIGHT STAGE 1, LESSON 1: BASIC ATTITUDES

OBJECTIVES: The objective is to introduce the student to the Instrument Rating—Airplane flight training course. Attitude instrument flight is introduced.

SPECIAL SYLLABUS:

1. Students lacking previous G1000 experience will, prior to completing this unit, complete the GARMIN *G1000 Integrated Flight Deck Pilot's Guide* and GIFD trainer software, and review it with an authorized instructor.
2. Create student training folder.
3. Intake student to Talon/ETA, if not already accomplished.
4. Verify student flight account.
5. Review course completion requirements
6. Review appropriate policies and procedures
7. Oral review of flight instruments.
8. Oral review of attitude instrument flying.
9. Throughout this syllabus, Basic Instrument Maneuvers consists of:
    a. Straight and level
    b. Change of airspeed
    c. Constant airspeed climbs and descents.
    d. Rate climbs and descents.
    e. Standard rate turns
    f. Timed turns
    g. Magnetic compass turns
10. Steep turns and recovery from unusual attitudes are graded separately.
    a. Unusual attitudes training in the aircraft requires day VMC.

COMPLETION STANDARDS: The student should be familiar with the Tech Flight Operations policies and procedures, the G1000 cockpit layout and switchology, have a flight record created, and be familiar with course completion requirements. The student completes this lesson when he/she can maintain airspeed ±10kts, heading ±10º, altitude ±100' during level flight and level-offs, and Bank ±5º during turns, for all maneuvers as applicable.

FS2, L1, UNITS 3 THROUGH 7: (7.0 HR FTD) INSTRUMENT APPROACH TRAINING

Preflight Preparation	G+
Ground Operations	G+
Takeoff	G+
Departure	G+
Steep Turns	F
Enroute Descent	G+
Traffic Pattern	F
Landing	F
Night Operations	U
Basic Instrument Maneuvers	G+
Partial Panel Skills	G+
Unusual Attitudes	G
Touch-and-Go	F
Go-around / Missed approach	F+
Use of Navigation Systems	G+
Holding	G+
Procedure Turn/Procedural Track	F+
NDB Approach	F
GPS Approach	F+
ILS Approach	F+
Localizer Approach	F+
VOR Approach	F+
Approach w/Loss of Primary Inst.	F+
Circling Approach	U
Transition to Landing	F+
Communication	G+
Checklist Procedures	G+
Risk Management / Decision Making	F+
Task Management	F+
Situational Awareness	F+
Emergency Procedures	G+
General Knowledge	G+
Basic Aircraft Control	G+
Special Syllabus Requirements	NG+

FS2, L3, UNITS 2 THROUGH 5: (9.5 HR DUAL) INSTRUMENT CROSS-COUNTRY TRAINING

Preflight Preparation	G+
Ground Operations	G+
Takeoff	G+
Departure	G+
Steep Turns	G+
Enroute Descent	G+
Traffic Pattern	G+
Landing	G+
Night Operations	F
Basic Instrument Maneuvers	G+
Unusual Attitudes	G+
Touch-and-Go	G
Go-around / Missed approach	G+
Use of Navigation Systems	G+
Holding	G+
Procedure Turn/Procedural Track	G+
NDB Approach	G
GPS Approach	G+
ILS Approach	G+
Localizer Approach	G+
VOR Approach	G+
Approach w/Loss of Primary Inst.	G+
Circling Approach	G+
Transition to Landing	G+
Communication	G+
Checklist Procedures	G+
Risk Management / Decision Making	G+
Task Management	G+
Situational Awareness	G+
Emergency Procedures	G+
General Knowledge	G+
Basic Aircraft Control	G+
Special Syllabus Requirements	NG+