COURSE OUTLINE : AT 114
D Credit – Degree Applicable
COURSE ID 001331
Cyclical Review: October 2020

COURSE DISCIPLINE : AT

COURSE NUMBER : 114

COURSE TITLE (FULL) : Instrument Flight Lab

COURSE TITLE (SHORT) : Instrument Flight Lab

CATALOG DESCRIPTION

AT 114 is a flight training lab course instructing students to operate an airplane by reference to instruments. Topics include: basic and advanced attitude instrument flying, recovery from unusual attitudes, holding patterns, Instrument Flight Rules (IFR) en-route procedures, IFR cross-country planning, departure and arrival procedures, and precision and non-precision approach procedures.

COURSE NOTE

Recommended - Possession of a FAA Private Pilot Certificate-Single Engine Land, have recent flight experience per FAR 61.57, logged 50 hours of Pilot-in-Command Cross County flight time per FAR 61.65, and have passed the FAA Instrument Rating Knowledge Test within the past 12 months.

Total Lecture Units: 2.00

Total Laboratory Units: 2.00

Total Course Units: 4.00

Total Lecture Hours: 36.00

Total Laboratory Hours: 108.00

Total Laboratory Hours To Be Arranged: 0.00

Total Contact Hours: 144.00

Total Out-of-Class Hours: 72.00

Prerequisite: AT 125 or equivalent.

ENTRY STANDARDS

	Subject	Number	Title	Description	Include
1	AT	125	Instrument Rating Ground School	explain the proper procedures in the event of lost communication;	Yes
2	AT	125	Instrument Rating Ground School	recite the steps required to file an instrument flight plan;	Yes
3	AT	125	Instrument Rating Ground School	compare and contrast ground-based and satellite-based navigation systems;	Yes
4	AT	125	Instrument Rating Ground School	interpret published material necessary for instrument flight;	Yes
5	AT	125	Instrument Rating Ground School	solve problematic in-flight navigation situations.	Yes

EXIT STANDARDS

1 pilot a single engine land airplane solely by instrument reference;
2 maintain slow flight and recover from stalls solely by instrument reference;
3 conduct precision and non-precision instrument approaches;
4 recover from unusual attitudes by reference to instruments;
5 enter and maintain holds and Distance Measuring Equipment (DME) arcs;
6 recognize and adapt to instrument failures;
7 plan and execute Instrument Flight Rules (IFR) cross-country flights;
8 comply with the Air Traffic Control system;
9 interpret published material necessary for instrument flight;
10 solve problematic in-flight navigation situations.

STUDENT LEARNING OUTCOMES

1 describe the FAA Air Traffic Control system, advanced radio navigation concepts, instrument departure, cruise, holding and approach procedures as designed into the National Airspace System;
2 discuss the concepts of human physiology and human factors while piloting aircraft solely by reference to the flight deck instruments;
3 apply regulatory requirements, Aviation Safety and Aviation Decision Making concepts, as well as established best practices, to conduct safe and efficient instrument flights.

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours
1	Basic Attitude Instrument Flying • Basic Attitude Instrument Flying •Climbs • Descents • Standard rate turns • Steep turns • Straight-and-level	4	10	14
2	Advanced Attitude Instrument Flying • Advanced Attitude Instrument Flying • Slow flight • Stalls • Unusual attitude recovery • Partial panel (pilot-static, vacuum, and electrical failures)	4	10	14
3	Radio Navigation • Radio Navigation • Interception and tracking of VOR (Very high frequency Omnidirectional Range) radials • RNAV (Area Navigation) course interception and tracking ◦ Direct-to navigation • Distance Measuring Equipment (DME) use DME arcs	4	20	24
4	VOR (Very high frequency Omnidirectional Range) Approaches • VOR Approaches • Circle to land procedures	3	15	18
5	RNAV (Area Navigation) Approaches • RNAV approaches ◦ Circle to land procedures ◦ Vertical guidance procedures ◦ Missed approach procedures ◦ RNAV Overlay procedures	2	10	12
6	Localizer Approaches • Localizer approaches • Back course	1	4	5
7	Instrument Landing System (ILS) Approaches • ILS approaches • Missed Approach Procedures	3	10	13

8	Holding Patterns • Holding patterns • Holds over VOR • Holds at intersections • Holds at waypoints	4	10	14
9	Partial Panel Approaches • Partial Panel Approaches • Partial panel ILS approach • Partial panel VOR approach • Partial panel RNAV approach • Partial Panel Missed Approaches	4	10	14
10	Instrument Cross Country Dual • Instrument cross country • VOR approach • Localizer back course approach • ILS approach	7	9	16
				144

OUT OF CLASS ASSIGNMENTS

1 study IFR departure, enroute and approach charts to apply during flights;
2 study FAA regulations, IFR Air Traffic Control procedures;
3 flight plan IFR flights prior to next flight session;
4 read textbook chapters for later discussion and to prepare for FAA IFR Practical Test.

METHODS OF EVALUATION

1 daily verbal evaluation by instructor;
2 phase checks during semester.

METHODS OF INSTRUCTION

- [x] Lecture
- [x] Laboratory
- [ ] Studio
- [x] Discussion
- [ ] Multimedia
- [x] Tutorial
- [ ] Independent Study
- [ ] Collaboratory Learning

- [x] Demonstration
- [ ] Field Activities (Trips)
- [ ] Guest Speakers
- [ ] Presentations

TEXTBOOKS

Title	Type	Publisher	Edition	Medium	Author	IBSN	Date
Instrument Pilot Oral Exam Guide	Required	Aviation Supplies & Academics, Inc.	10	print	Hayes, Michael D,	978-1-64425-019-8	2020