

Semper Fly Helicopters

14 CFR PART 141 FLIGHT SCHOOL



**AVIA 4642 - FLIGHT INSTRUCTOR
INSTRUMENT PILOT FLIGHT**

**ROTORCRAFT/HELICOPTER
CERTIFICATION COURSE
FLIGHT TRAINING MANUAL**

TABLE OF CONTENTS

SECTION	PAGE
<u>Section 1 - Flight Training Syllabus</u>	1-1
1.1 <u>Course Requirements and Objectives</u>	1-1
1.2 <u>Flight Instructor Instrument Pilot Course Minimum Time Summary</u>	1-3
1.3 <u>Grading Rubric</u>	1-4
<u>Section 2 - Stage One Flight Training</u>	2-1
2.1 <u>Lesson 1: Flight Operations Orientation</u>	2-3
2.2 <u>Lesson 2: Flight by Reference to Instruments - Part 1</u>	2-4
2.3 <u>Lesson 3: Flight by Reference to Instruments - Part 2</u>	2-5
2.4 <u>Lesson 4: Air Traffic Control Clearances & Procedures</u>	2-6
2.5 <u>Lesson 5: Navigation Systems - Part 1</u>	2-7
2.6 <u>Lesson 6: Navigation Systems - Part 2</u>	2-8
2.7 <u>Lesson 7: Navigation Systems - Part 3</u>	2-9
2.8 <u>Lesson 8: Emergency Operations</u>	2-10
2.9 <u>Lesson 9: Instrument Approach Procedures - Part 1</u>	2-11
2.10 <u>Lesson 10: Instrument Approach Procedures - Part 2</u>	2-12
2.11 <u>Lesson 11: Flight Instructor Instrument Final Stage Check</u>	2-13

SECTION 1 - FLIGHT TRAINING SYLLABUS

1.1 - Course Requirements and Objectives

Enrollment Prerequisites

The Semper Fly Helicopters Flight Instructor Instrument Pilot Rotorcraft / Helicopter Flight Training Course is designed to have the students concurrently enrolled in the associated Semper Fly Helicopters Flight Instructor Instrument Pilot Rotorcraft / Helicopter Ground Training Course. As such, students must meet the following criteria:

1. Minimum Age: 17
2. English Proficiency - Students must be proficient in reading, writing, and speaking English to comply with FAA regulations
3. Financial Readiness - Students must be able to provide proof of ability to finance the training program, either through personal funds, loans, or GI Bill benefits for eligible veterans
4. Interview and Assessment - Semper Fly Helicopters reserves the right to conduct an interview in which the motivation and fitness for flight training can be assessed
5. Required Documents
 - A. U.S. Citizens
 - i. Proof of U.S. Citizenship
 - ii. Valid, unexpired U.S. passport OR
 - iii. Original or government-issued birth certificate of the U.S., American Samoa, or Swains Island AND a government-issued picture identification OR
 - iv. Original certification of birth abroad with raised seal (Form FS-545 or Form DS-1350) AND a government-issued picture identification OR
 - v. Original certificate of U.S. citizenship with raised seal (Form N-560 or N-561) or a Certificate of Repatriation (Form N-581) AND government-issued picture ID OR
 - vi. Original U.S. Naturalization Certificate with raised seal (Form N-550 or N-570) AND a government-issued picture ID
 - vii. FAA Class I or Class II Medical
 - viii. FAA Airman's Certificate: Commercial Pilot Certificate (Rotorcraft)
 - ix. FAA Airman's Certificate: Certified Flight Instructor Pilot Certificate (Rotorcraft)
 - x. FAA Knowledge Test (if completed)
 - B. Foreign Nationals
 - i. Passport
 - ii. Visa
 - iii. FAA Class I or Class II Medical
 - iv. Complete TSA Training application

Additionally, all students must satisfy the requirements identified in Part 141; Appendix G, applicable to the certificate or rating sought by the learner. If the student is degree seeking, they must meet the enrollment criteria of the University of Oklahoma Aviation Department.

Flight Training Course Objective

The student will obtain the knowledge, skill, and aeronautical experience necessary to meet the requirements for a Flight Instructor Instrument Pilot Certificate with a Rotorcraft / Helicopter category rating.

Flight Training Course Completion Standards

The student must demonstrate through written tests, flight tests, and show through appropriate records that he or she meets the knowledge, skill, and experience requirements necessary to obtain a Flight Instructor Certificate with a Rotorcraft/Helicopter category rating, while maintaining the standards set in the Semper Fly Helicopters Standard Operating Procedures and Safety Policies Manual and the Practical Test Standards.

Flight Training Curriculum

Flight school for the Flight Instructor Pilot student is accomplished by enrollment in the Semper Fly Helicopters pilot course and a minimum of 15.3 flight hours. An outline for each lesson is provided in the following Flight Training Syllabus. The flight instructor will be responsible for student knowledge who obtained credit by exam or who have not taken these courses.

Flight Training Textbooks

The flight-training course is structured by the Helicopter Pilot Textbook. Jeppesen Sanderson, Inc., the Federal Regulations FAR/AIM. Flight training lessons generally follow the sequence and content of these textbooks. Other required reference materials are listed in the Introduction Section of the Practical Test Standards.

Training Records

Semper Fly Helicopters will establish and maintain current and accurate records of the participation of each student enrolled in the aviation program. These records will include as a minimum the date the student was enrolled, a chronological log of the student's course attendance, the subjects, and flight operations covered in the student's training, and the names and grades of any tests taken by the student. Additionally, a record will be maintained on the date the student graduated, terminated training, or transferred to another school. Whenever a student graduates, terminates training, or transfers to another school, the student's record will be certified to that effect by the chief instructor. The school will retain each student record for at least 1 year from the date that the student either graduates from the course to which the record pertains, terminates enrollment in the course to which the record pertains, or transfers to another school. These records will be kept in accordance with 14 CFR 141.101. The school will make a copy of these records available to the student upon request.

1.2 - Flight Instructor Instrument Pilot Course
Minimum Time Summary

<u>TRAINING STAGE</u>	<u>DUAL</u>	<u>SOLO</u>	<u>X/C</u>	<u>ORAL</u>	<u>GROUND</u>
Flight Stage One	15.3			8.0	
SUB-TOTAL	15.3	0.0	0.0	8.0	

**TOTAL FLIGHT TIME FOR FLIGHT INSTRUCTOR INSTRUMENT
PILOT COURSE: 15.3 HOURS**

MINIMUM TOTAL SIMULATED INSTRUMENT FLIGHT TIME: 13.0

1.3 - Grading Rubric

After each lesson, the instructor will assign grades for each ground or flight activity using the following scale:

GRADE	STUDENT PERFORMANCE	DESCRIPTION
A	Exceeds Standards	The student meets the FAA Practical Test Standards and usually (50% of the time or more) exceeds those standards.
B	Meets Standards	The student meets the FAA Practical Test Standards.
C	Below Standards	The student does not meet the FAA Practical Test Standards.
F	Failure	The safety of the flight is in question and/or the instructor was required to take control of the aircraft.
I	Incomplete	The allotted time was not sufficient for the student to perform the activity.
NG	Not Graded	The activity was not assigned to the student and will <u>not</u> be required to be completed in a separate training session.

NOTES

- With a grade of C, or F, the instructor must include amplifying comments on the grade form
- With a grade of C, F, or I, the student will be required to complete the activity to the FAA Practical Test Standards in a separate training session.

SECTION 2 - STAGE ONE FLIGHT TRAINING

OBJECTIVES:

The primary objective during flight training is to develop and refine techniques of instruction and mastery of maneuvers. The student will provide instruction on ground operations, flight maneuvers, and inflight emergencies. The student must develop the proficiency for their check ride using Flight Instructor Practical Test Standards (PTS).

Each student must review the syllabus content material for the scheduled flight lesson prior to arriving for training.

REFERENCES:

1. The Semper Fly Helicopters Training Course Outline for the Flight Instructor Instrument Pilot Rotorcraft / Helicopter Certification Course
2. The Semper Fly Helicopters Standard Operating Procedures and Safety Policies Manual
3. The Semper Fly Helicopters Instrument Study Guide
4. Guimbal Cabri G2 Flight Manual
5. Guimbal Cabri G2 Flight Instructor Guide
6. Helicopter Pilot Textbook. Jeppesen Sanderson, Inc
7. Aeronautical Decision Making for Pilots
8. The FAR/AIM Manual
9. Flight Instructor Instrument Practical Test Standards for Airplane and Helicopter Rating, FAA-S-8081-9E
10. Risk Management Handbook, FAA-H-8083-2
11. Aviation Instructor's Handbook, FAA-H-8083-9A

COMPLETION STANDARDS:

Refer to individual lesson completion standards.

INDEX

LESSON	DUAL	ORAL	PAGE
<u>2.1 - Lesson 1: Flight Operations Orientation</u>		2.0	2-3
<u>2.2 - Lesson 2: Flight by Reference to Instruments - Part 1</u>	1.2	0.8	2-4
<u>2.3 - Lesson 3: Flight by Reference to Instruments - Part 2</u>	1.2	0.8	2-5
<u>2.4 - Lesson 4: Air Traffic Control Clearances & Procedures</u>	1.5	0.8	2-6
<u>2.5 - Lesson 5: Navigation Systems - Part 1</u>	1.5	0.8	2-7
<u>2.6 - Lesson 6: Navigation Systems - Part 2</u>	1.5	0.8	2-8
<u>2.7 - Lesson 7: Navigation Systems - Part 3</u>	1.6	0.8	2-9
<u>2.8 - Lesson 8: Emergency Operations</u>	1.6	0.8	2-10
<u>2.9 - Lesson 9: Instrument Approach Procedures - Part 1</u>	1.6	0.8	2-11
<u>2.10 - Lesson 10: Instrument Approach Procedures - Part 2</u>	1.6	0.8	2-12
<u>2.11 - Lesson 11: Flight Instructor Instrument Final Stage Check</u>	2.0	2.8	2-13
SUB-TOTAL	15.3	12.0	

TOTAL FLIGHT TIME - STAGE ONE: 15.3

MINIMUM SIMULATED INSTRUMENT TIME: 13.0

2.1 - LESSON 1: FLIGHT OPERATIONS ORIENTATION

(Oral: 2.0 Hours)

OBJECTIVES:

This is an orientation of the flight school and flight line operations. This lesson provides an opportunity for the instructor and student to become acquainted. The instructor should resolve questions on the flight-training program.

CONTENTS:

1. Orientation of the aviation program and flight operations including aircraft and dispatch procedure.
2. Create student records
3. Completion of Flight Release Form
4. Procedures Training
 - A. Practice Checklist Usage (“chair-fly”) for normal and emergency procedures using aircraft at ramp.
5. Airworthiness
 - A. Airworthiness, Registration, Type Certificate, and Operational Limitations
 - B. Maintenance inspections
 - i. 100 hour inspections
 - ii. Annual inspections
 - iii. Airworthiness Directives
 - C. Equipment inspections
 - i. Emergency Locator Transmitter
 - ii. Transponder
 - iii. Pitot/static inspection
 - D. Weight and balance: Equipment List
6. Emergency Equipment
 - A. ELT
 - B. Fire Extinguisher

COMPLETION STANDARDS:

The student should be familiar with flight operations policies and procedures, have a flight record created, and understand course completion requirements.

2.2 - LESSON 2: FLIGHT BY REFERENCE TO INSTRUMENTS - PART 1

(Dual: 1.2 Hours, Simulated Instrument: 1.0 Hours, Pre/Post Flight Briefings: 0.8 Hours)

OBJECTIVES:

To determine that the student possesses an instructional understanding of basic flight maneuvers by reference to the flight instruments including climbs, descents, standard rate turns, and climbing turns and descents while using a view-limiting device.

CONTENTS:

1. Obtain weather briefing, preflight of aircraft and required systems for instrument flight
2. Instrument cockpit checks
3. Use of checklists
4. Flight by reference to instruments
 - A. Straight and level flight
 - B. Climbs
 - C. Turns
 - D. Descents
5. Post flight procedures - checking instruments and equipment

COMPLETION STANDARDS:

The student will be able to perform the proper preflight preparation and procedures unaided and by reference to instruments, maintain altitude within 200 feet, and maintain headings within 20 degrees, while providing verbal explanations of the process being applied related to referencing instruments during flight.

2.3 - LESSON 3: FLIGHT BY REFERENCE TO INSTRUMENTS - PART 2

(Dual: 1.2 Hours, Simulated Instrument: 0.7 Hours, Pre/Post Flight Briefings: 0.8 Hours)

OBJECTIVES:

To determine that the student possesses an instructional understanding of basic flight maneuvers by reference to the flight instruments including climbs, descents, standard rate turns, and climbing turns and descents while using a view-limiting device.

Furthermore, the student will demonstrate an instructional knowledge on air traffic control clearances and procedures by demonstrating a request for vectors to final for an approach, which will be flown without a view-limiting device.

**Note : Only the instrument approach portion of the flight will be done without the use of a view limiting device. Instructors must ensure appropriate simulated instrument time has been logged due to the lesson being partially flown under simulated conditions.*

CONTENTS:

6. Preflight of aircraft and required systems for instrument flight
7. Instrument cockpit checks
8. Flight by reference to instruments
 - A. Straight and level flight
 - B. Climbs
 - C. Descents
 - D. Standard rate turns
9. Air traffic control clearance & procedures
10. Vectors to final for an instrument approach without a view-limiting device
11. Post flight procedures

COMPLETION STANDARDS:

The student will be able to perform the proper preflight preparation and procedures unaided and by reference to instruments, maintain altitude within 200 feet, and maintain headings within 20 degrees, while providing verbal explanations of the process being applied related to referencing instruments during flight.

2.4 - LESSON 4: AIR TRAFFIC CONTROL CLEARANCES & PROCEDURES

(Dual: 1.5 Hours, Simulated Instrument: 1.3 Hours, Pre/Post Flight Briefings: 0.8 Hours)

OBJECTIVES:

To determine that the student possesses an instructional understanding of filing an IFR flight plan consisting of cross-country to include a VOR and ILS approach, which will be performed with a view-limited device.

To determine that the student exhibits instructional knowledge of the elements of normal and crosswind takeoffs and climbs, maximum performance takeoff and climbs, and rolling takeoffs.

CONTENTS:

1. Preflight of aircraft and required systems for instrument flight
2. Checklist procedures
3. Radio Communications
4. Demonstrate how to file an IFR flight plan
5. Perform IFR cross-country by vectors
6. Perform VOR and ILS approaches
7. Post flight procedures

COMPLETION STANDARDS:

The student will be able to perform the proper preflight preparation and procedures unaided and by reference to instruments, maintain altitude within 200 feet, and maintain headings within 20 degrees, while providing verbal explanations of the process being applied related to referencing instruments during flight.

2.5 - LESSON 5: NAVIGATION SYSTEMS - PART 1

(Dual: 1.5 Hours, Simulated Instrument: 1.3 Hours, Pre/Post Flight Briefings: 0.8 Hours)

OBJECTIVES:

To determine that the student possesses an instructional understanding of programming the GPS as a means of navigation and perform a cross-country by use of a GPS Navigation System, to include a GPS and ILS approach.

CONTENTS:

1. Preflight of aircraft and required systems for instrument flight
2. Checklist procedures
3. Radio Communications
4. Perform a cross-country based on GPS-based navigation
5. Perform a GPS and ILS approach
6. Post flight procedures

COMPLETION STANDARDS:

The student will be able to describe the process by which a destination is loaded into the GPS and successfully navigate a cross-country. While enroute the student will be able to maintain altitude within 100 feet, heading within 10 degrees and within full-scale deflection on the CDI while providing verbal explanations of the processes being applied related to referencing instruments during flight.

2.6 - LESSON 6: NAVIGATION SYSTEMS - PART 2

(Dual: 1.5 Hours, Simulated Instrument: 1.3 Hours, Pre/Post Flight Briefings: 0.8 Hours)

OBJECTIVES:

To determine that the student possesses an instructional understanding of navigating, intercepting, and tracking by use of the VOR and perform a cross-country flight to include a VOR and Localizer approach.

CONTENTS:

7. Preflight of aircraft and required systems for instrument flight
8. Checklist procedures
9. Radio Communications
10. Perform a cross-country flight based on VOR navigation
11. Perform a VOR and Localizer approach
12. Post flight procedures

COMPLETION STANDARDS:

The student will be able to describe the process of intercepting, tracking, and navigating using the VOR and successfully navigate a cross-country flight. While enroute the student will be able to maintain altitude within 100 feet, heading within 10 degrees and within full-scale deflection on the CDI while providing verbal explanations of the processes being applied related to referencing instruments during flight.

2.7 - LESSON 7: NAVIGATION SYSTEMS - PART 3

(Dual: 1.6 Hours, Simulated Instrument: 1.4 Hours, Pre/Post Flight Briefings: 0.8 Hours)

OBJECTIVES:

To determine that the student possesses an instructional understanding of navigating, intercepting, holding, and performing a DME arc while providing instruction on the concepts of the maneuver in flight.

CONTENTS:

- 13. Preflight of aircraft and required systems for instrument flight
- 14. Checklist procedures
- 15. Radio Communications
- 16. DME Arc
 - A. Intercepting
 - B. Tracking
 - C. Holding
- 17. Post flight procedures

COMPLETION STANDARDS:

The student will be able to describe the process of intercepting, tracking, holding, and performing a DME arc. While enroute the student will be able to maintain altitude within 100 feet, heading within 10 degrees and within $\frac{3}{4}$ deflection on the CDI while providing verbal explanations of the processes being applied related to referencing instruments during flight.

2.8 - LESSON 8: EMERGENCY OPERATIONS

(Dual: 1.6 Hours, Simulated Instrument: 1.4 Hours, Pre/Post Flight Briefings: 0.8 Hours)

OBJECTIVES:

To determine that the student possesses an instructional understanding of how to overcome gyro instrument and pitot/static instrument malfunctions while in flight by use of proper partial panel techniques. The student will also perform an instrument approach under partial panel conditions.

CONTENTS:

1. Preflight of aircraft and required systems for instrument flight
2. Checklist procedures
3. Radio Communications
4. Simulated Gyro Instrument Malfunction
 - A. Straight & Level
 - B. Turns
 - C. Descents
5. Simulated Pitot/Static Malfunction
 - A. Straight & Level
 - B. Turns
 - C. Descents
6. Instrument approach under partial panel conditions
7. Post flight procedures

COMPLETION STANDARDS:

The student will be able to describe the process of overcoming gyro instrument and pitot/static instrument malfunctions by performing proper partial panel techniques. While enroute the student will be able to maintain altitude within 100 feet, heading within 10 degrees and within $\frac{3}{4}$ deflection on the CDI while providing verbal explanations of the processes being applied related to referencing instruments during flight.

2.9 - LESSON 9: INSTRUMENT APPROACH PROCEDURES - PART 1

(Dual: 1.6 Hours, Simulated Instrument: 1.4 Hours, Pre/Post Flight Briefings: 0.8 Hours)

OBJECTIVES:

To determine that the student possesses an instructional understanding of how to load the selected approaches, provide briefings relative to the approaches, and communicate, and comply with, directions from Air Traffic control.

CONTENTS:

1. Preflight of aircraft and required systems for instrument flight
2. Checklist procedures
3. Radio Communications
4. Loading the appropriate approaches (as directed by the instructor)
5. Briefing the approaches
6. Performing an instrument approaches
7. Post flight procedures

COMPLETION STANDARDS:

The student will demonstrate an instructional understanding of how to load selected approaches, provide briefings relative to the approaches, and communicate, and comply with, directions from Air Traffic control. While enroute the student will be able to maintain altitude within 75 feet, heading within 10 degrees and within $\frac{3}{4}$ deflection on the CDI while providing verbal explanations of the processes being applied related to referencing instruments during flight.

2.10 - LESSON 10: INSTRUMENT APPROACH PROCEDURES - PART 2

(Dual: 1.6 Hours, Simulated Instrument: 1.4 Hours, Pre/Post Flight Briefings: 0.8 Hours)

OBJECTIVES:

To determine that the student possesses an instructional understanding of how to load the selected approaches, provide briefings relative to the approaches, missed approaches, and communicate, and comply with, directions from Air Traffic control.

CONTENTS:

8. Preflight of aircraft and required systems for instrument flight
9. Checklist procedures
10. Radio Communications
11. Loading the appropriate approaches (as directed by the instructor)
12. Briefing the approaches
13. Performing an instrument approaches
14. Performing missed approach procedures
15. Post flight procedures

COMPLETION STANDARDS:

The student will demonstrate an instructional understanding of how to load selected approaches, provide briefings relative to the approaches, missed approaches, and communicate, and comply with, directions from Air Traffic control. While enroute the student will be able to maintain altitude within 75 feet, heading within 10 degrees and within $\frac{3}{4}$ deflection on the CDI while providing verbal explanations of the processes being applied related to referencing instruments during flight.

2.11 - LESSON 11: FLIGHT INSTRUCTOR INSTRUMENT FINAL STAGE CHECK

(Dual: 2.0 Hours, Simulated Instrument: 1.8 Hours, Pre/Post Flight Briefings: 2.8 Hours)

OBJECTIVES:

Utilizing the Flight Instructor Instrument Practical Test Standards for Airplane Rating and Helicopter Rating to dictate tasks to be performed, the Stage Check Instructor will assess the student's ability to meet or exceed the PTS standards.

CONTENTS:

1. Fundamentals of Instruction
 - A. Human Behavior
 - B. The Learning Process
 - C. Effective Communications
 - D. The Teaching Process
 - E. Assessment
 - F. Planning Instructional Activity
 - G. Instructor Responsibilities & Professionalism
 - H. Techniques of Flight Instruction
 - I. Risk Management
2. Aircraft Instruments & Navigation Equipment
3. Aeromedical Factors
4. Regulations and Publications related to IFR Operations
5. Logbook Entries related to Instrument Instruction
6. Weather Information
7. Cross-Country Flight Planning
8. Instrument Cockpit Check
9. Air Traffic Control Clearances
10. Compliance with Departure, Enroute, and Arrival Procedures and Clearances
11. Maneuvers
 - A. Straight and Level Flight
 - B. Turns (Timed, Standard, Steep)
 - C. Varying Airspeeds
 - D. Climbs and Descents
 - E. Recovery from Unusual Attitudes
12. Intercepting and Tracking Navigational Systems and DME Arcs
13. Holding Procedures
14. Non-precision Instrument Approach
15. Precision Approach

16. Missed Approach
17. Circling Approach
18. Landing from a Straight-in Approach
19. Loss of Communication
20. Loss of Primary Flight Instrument Indicators
21. Post flight Checking of Instruments and Equipment

COMPLETION STANDARDS:

The student will demonstrate an instructional understanding of the ground and flight topics covered and will maintain an altitude within 75 feet, heading within 10 degrees and within $\frac{1}{2}$ deflection on the CDI while providing verbal explanations of the processes being applied related to referencing instruments during flight.