LEADING EDGE FLIGHT ACADEMY

PART 141

SPECIAL CURRICULA:

ROBINSON R-22 PIC QUALIFICATION COURSE

Leading Edge Flight Academy, Inc.
Bend Municipal Airport (BDN)
63048 Powell Butte Hwy
Bend, OR 97701
Phone (541) 383-8825
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FAA Approved Effective Date 11/15/2025

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Original: 11/15/2025

Special Curricula
Robinson R22 PIC Qualification Course

Revision Log

Revision	Date	Page Number(s) Effected	Changes
Original	Nov-15-2025	All	Initial Release

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LEADING EDGE
FLIGHT ACADEMY

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TRAINING COURSE OUTLINE

Leading Edge Flight Academy

Bend Municipal Airport
63048 Powell Butte Hwy
Bend, Oregon 97701

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1. Course Title

Special Curricula: Robinson R22 PIC Qualification Course

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2. Course Compliance

This Training Course Outline (TCO) complies with the requirements outlined in 14 CFR Part 141.57 and meets the requirements of SFAR 73 to Part 61 to act as PIC of a Robinson R-22 helicopter.

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3. Course Structure

This course consists of a structured ground training curriculum and a flight training curriculum, both of which will be conducted concurrently.

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4. Course Objective

This course is designed to equip students with the knowledge, skills, and aeronautical experience necessary to obtain endorsement to act as pilot in command of a Robinson R-22 helicopter.

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5. Completion Standards

To successfully complete this course, students must demonstrate proficiency in the required knowledge, skills, and experience through:

- Written examinations
- Practical flight assessments
- Training records, ensuring compliance with all FAA certification standards

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6. Ground Training Facilities

Leading Edge Flight Academy operates three facilities at Bend Municipal Airport, dedicated to:

1. Aircraft maintenance
2. Fixed-wing flight training
3. Rotor-wing flight training (this course's primary facility)

Rotor-Wing Ground Instructional Facilities

- Training Rooms 1 & 2: Equipped with tables, chairs, and whiteboards for one-on-one or group instruction (11'x12', capacity: 6 students each).
- Training Room 7: Primarily used for testing but available for ground training (13'x9', capacity: 4 students).
- Training Rooms 3-6: Cubicle-style study spaces with tables, chairs, and whiteboards (21'x12', capacity: 8 students).
- Conference Room: Used for group instruction, one-on-one training, and testing (26'x15', capacity: 8 students).

Each room is:

- Well-lit and thermostatically controlled
- Ventilated to meet all city health and building codes
- Designed to minimize distractions from flight and maintenance operations

Ground Training Aids

Instructional tools include:

- Textbooks and diagrams
- Training videos
- Aircraft models
- Gyro and static salvaged aircraft parts

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7. Training Airport

All flight operations take place at Bend Municipal Airport (KBDN), which meets the requirements of FAR § 141.38 for day and night operations. The airport offers:

- A hard-surfaced runway
- Fuel and maintenance services (listed in the Chart Supplement)

Preflight Planning Area

Located within the Leading Edge Flight Academy Facility, the briefing area meets FAR § 141.43 requirements and includes:

- Internet-enabled computers
- A direct-line telephone to the Flight Service Station (FSS)
- Planning tables

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8. Satellite Ground Instructional Facilities

Central Oregon Community College (COCC)
2600 NW College Way, Bend, OR 97701
(541) 383-7700

COCC Training Facilities

- Conform to FAR § 141.45
- Offer a college-classroom environment with minimal distractions
- Each classroom is 20’x30’ with:
    - HD projectors and retractable screens
    - Dual 12’x8’ dry-erase whiteboards
    - Seating for up to 32 students
    - Thermostatically controlled ventilation

COCC Instructor Requirements

- Hold a Commercial Pilot Certificate, and
- Hold a Certified Flight Instructor (CFI) certificate
- Alternatively, hold an appropriate Ground Instructor certificate

Additional Training

Students pursuing an Associate in Applied Science (AAS) in Helicopter at COCC must complete up to 12 additional courses, including but not limited to:

- Aerodynamics
- Meteorology
- Technically Advanced Aircraft
- Aircraft Systems
- Human Factors
- Aviation Safety

Student Resources

COCC students have access to:

- A full-service library and on-campus bookstore with required aviation texts
- Campus-wide internet and study rooms
- Aviation tutoring provided by a staff CFI

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9. Aircraft Utilized

The following aircraft are used for all flight training in this course, meeting the requirements of FAR § 141.39:

- Robinson R22

Each aircraft is equipped with:

- 360-channel transceivers
- 4096-code transponders with Mode C capability
- Required avionics for day and night VFR flight (per FAR § 91.205)

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10. Flight Instructor Requirements

Chief Flight Instructor

Listed in Appendix A**,** meeting the requirements of FAR § 141.35**.**

Assistant Chief Flight Instructor(s)

Listed in Appendix A**,** meeting the requirements of FAR § 141.36**.**

Flight Instructor Qualifications

- Must hold a Commercial Pilot Certificate (Rotorcraft-Helicopter)
- Must hold a Flight Instructor Certificate (Rotorcraft-Helicopter)
- Holds the appropriate SFAR 73 instructor endorsement

Ground Instructor Qualifications

- Must meet the qualifications of a flight instructor for this course, or

- Must hold at least an appropriate Ground Instructor certificate

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11. Enrollment Prerequisites

To enroll, students must:

1. Hold a valid Private Pilot Certificate (Rotorcraft-Helicopter) or higher
2. Hold a current Third-Class Medical Certificate or BasicMed

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12. Training Course Objectives

Students will receive training required to act as pilot in command of a Robinson R-22 helicopter, gaining:

- The skills and knowledge required by SFAR 73
- The ability to safely act as pilot in command of Robinson R22 helicopters.

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13. Training Course Completion Standards

Successful completion requires:

- Completion of all ground and flight training requirements
- Satisfactory performance in end of course evaluation

Training records may reflect lessons completed out of sequential order, provided all required stage checks and quizzes are successfully passed.

LEADING EDGE
FLIGHT ACADEMY

141 GROUND TRAINING SYLLABUS

Special Curricula: Robinson R-22 PIC Qualification Course

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1. Ground Training Requirements

- **Requirements:** Students must complete **10 hours** of **ground training**, covering all ground lessons.

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2. Course Objectives

This course is designed to ensure that students:

- Acquire the aeronautical knowledge required by SFAR 73 and knowledge necessary to safely act as pilot in command of Robinson R22 helicopters.

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3. Completion Standards

To successfully complete the ground training syllabus, students must:

- Demonstrate proficiency in airframe-specific knowledge through an oral end-of-course assessment.
- Satisfy the 10-hour ground training minimum as required by curriculum.
- Receive a logbook endorsement from an authorized instructor certifying completion of SFAR 73 PIC ground training requirements for the R-22.

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4. Ground Training Syllabus & Structure

- Lesson durations are recommended but not required.
- The total ground training hours must be completed prior to course completion.
- Lessons may be completed non-sequentially, with the exception of the End-of-Course Stage Check, which must be completed last.

GROUND TRAINING SYLLABUS

GROUND TRAINING: 10.0 Hours

Overview

Lesson	Time	Content
1	2.0 h	Intro to R-22, SFAR 73 Ground Training, R-22 Preflight
2	2.0 h	R-22 Limitations, Weight and Balance, & Performance
3	2.0 h	R-22 Systems
4	2.0 h	R-22 Emergency Procedures
5	2.0 h	Evaluation & Review
Total:	**10.0 h**	

Ground Lesson 1: Introduction to R-22, SFAR 73 Ground Training, R-22 Preflight

1.0 Hours of Ground Instruction

OBJECTIVES: The student will be introduced to the Robinson R-22 with awareness of its variants but will focus on the R-22 Beta as the primary training model. They will gain familiarity with the SFAR 73 requirements, including energy management, mast bumping, low rotor RPM/rotor stall, low-G conditions, and rotor RPM decay, and understand their relevance to safe operations. The student will also learn the purpose and sequence of the R-22 preflight inspection and begin identifying key components and airworthiness items.

LESSON CONTENT

Introduction to R-22

1. Models & Variants
    a. TCDS H10WE
        i. Models (R-22, R-22 ALPHA, R22 BETA, R22 MARINER)

SFAR 73 Ground Training

1. Energy Management
2. Mast Bumping
3. Low Rotor Revolutions per Minute (RPM) and Rotor Stall
4. Low G Conditions, Effects, and Proper Recovery Procedures
5. Rotor RPM Decay

Preflight Procedures

1. R-22 Preflight

COMPLETION STANDARDS: The student demonstrates a general awareness of the R-22 Beta, can describe the purpose of SFAR 73 training, and shows introductory understanding of the preflight process appropriate to this stage of training.

Ground Lesson 2: R-22 Limitations, Weight and Balance, & Performance

2.0 Hours of Ground Instruction

OBJECTIVES: Introduce the student to R-22 helicopter limitations, weight and balance considerations, and performance planning. Emphasize safe loading, operating within published limits, and interpreting performance charts for flight planning and decision-making.

LESSON CONTENT

Limitations

1. R-22 Limitations
2. Effects of Exceeding Limitations

Weight and Balance

1. Loading Instructions

Performance

1. Hover Charts
    a. IGE
    b. OGE
2. Height-Velocity Diagram

COMPLETION STANDARDS: The student will demonstrate an understanding of R-22 operating limitations, correctly calculate weight and balance, and accurately interpret performance charts and height-velocity diagrams to ensure safe operational planning.

Ground Lesson 3: R-22 Systems

2.0 Hours of Ground Instruction

OBJECTIVES: Provide the student with a comprehensive understanding of the major systems of the R-22 helicopter. Emphasize system functions, normal and abnormal operations, and their relationship to safe flight.

LESSON CONTENT

Systems

1. General Information
2. Fuel System
3. Powerplant
4. Drive System
5. Rotor Systems
6. Flight Controls
7. Landing Gear
8. Pitot-Static System
9. Electrical Systems
10. Instrument Panel & Avionics
11. Environmental System
12. Seats, Belts, and Baggage

COMPLETION STANDARDS: The student will demonstrate knowledge of each primary aircraft system, describe its operation and purpose, and explain how system performance or failures affect flight operations.

Ground Lesson 4: R-22 Emergency Procedures

2.0 Hours of Ground Instruction

OBJECTIVES: Familiarize the student with R-22 emergency procedures, emphasizing quick recognition, correct pilot response, and maintaining aircraft control under abnormal conditions.

LESSON CONTENT

Emergency Procedures

1. Power Failure
2. Air Restart Procedure
3. Emergency Water Landings
4. Loss of Tail Rotor Thrust
5. Headset Audio Failure
6. Engine Fire
7. Electrical Fire
8. Tachometer Failure
9. Governor Failure
10. Warning/Caution Lights
11. Audio Alerts

COMPLETION STANDARDS: The student will demonstrate knowledge of each emergency procedure, accurately describe required pilot actions, and explain how to maintain control and ensure safety during emergency situations.

Ground Lesson 5: Evaluation & Review

1.0 Hours of Ground Instruction

OBJECTIVES: Assess the student's comprehensive knowledge of R-22 helicopter systems, limitations, performance, weight and balance, and emergency procedures to ensure readiness for flight operations.

LESSON CONTENT

Review

1. Written Evaluation
2. Review of Written Evaluation
3. Safety Tips and Notices

COMPLETION STANDARDS: The student must achieve a satisfactory score on the written exam, demonstrate accurate understanding of key concepts, and address any deficiencies through review and instructor feedback.

141 FLIGHT TRAINING SYLLABUS

Special Curricula: Robinson R-22 PIC Qualification Course

1. Flight Training Hours

	Dual Flight Training
Helicopter	10.0 hours
Total	**10.0 hours**

2. Course Objectives

This course is designed to ensure that students:

- Acquire the aeronautical knowledge and flight proficiency required by SFAR 73 to Part 61 to safely act as Pilot in Command of a Robinson R-22 helicopter.
- Demonstrate mastery of R-22 normal, abnormal, and emergency procedures, with particular emphasis on areas of operation identified in SFAR 73.
- Gain proficiency in operational decision-making, limitations awareness, and energy management specific to the R-22.

3. Completion Standards

To successfully complete the flight training syllabus, students must:

- Demonstrate proficiency in all SFAR 73–required flight maneuvers, including normal, abnormal, and emergency operations.
- Successfully complete the End-of-Course Stage Check in the R-22.
- Receive a logbook endorsement from an authorized flight instructor confirming completion of the SFAR 73 training requirements for R-22 PIC privileges.

4. Flight Training Syllabus & Structure

- Single-stage curriculum with recommended minimum flight hours per lesson**.**
- **Lesson Sequencing Flexibility:** Lessons may be completed non-sequentially, except the End-of-Course Stage Check**,** which must be last.
- **Total Flight Hour Requirement:** All required flight lessons and course minimums must be completed before course completion.

FLIGHT TRAINING SYLLABUS
FLIGHT TRAINING: 10.0 Hours

Overview

Lesson	Time	Equipment	Content
1	1.2 h	Helicopter	Normal Procedures
2	1.2 h	Helicopter	Off Airport Operations & Intro to EP's
3	1.2 h	Helicopter	Emergency Procedures 2
4	1.2 h	Helicopter	Emergency Procedures 3
5	1.3 h	Helicopter	Enhanced Autorotations
6	1.3 h	Helicopter	Areas of Weakness
7	1.3 h	Helicopter	Review
8	1.3 h	Helicopter	End of Course Check
TOTAL	**10.0 HRS. DUAL HELICOPTER**		

Flight Lesson 1: Normal Procedures

1.2 Hours Dual Flight Instruction

OBJECTIVE: The student will learn and practice normal operating procedures of the R-22, including preflight, checklist usage, and fundamental flight maneuvers. Emphasis is placed on developing safe habits and familiarity with cockpit orientation and aircraft handling.

LESSON CONTENT

Preflight & Runup

1. Verification of SFAR 73 Ground Training Completion & Endorsement
2. Cockpit Orientation
3. Checklist and Checklist Usage

Flight

1. Vertical Takeoffs and Landings
2. Hover Taxi
3. Normal Takeoff
4. Basic Flight Maneuvers
    a. Straight and Level
    b. Shallow, Medium, Steep bank turns
    c. Climbs and Descents
    d. Flights at various airspeeds
5. Normal Approach
6. Steep Approach
7. Go Around
8. Air Taxi
9. Rapid Deceleration

Postflight

1. Checklist and Checklist Usage

COMPLETION STANDARDS: The lesson is complete when the student demonstrates proper checklist usage, can perform normal procedures and maneuvers with instructor assistance, and shows increasing confidence and situational awareness in both ground and flight operations.

Flight Lesson 2: Off Airport Operations & Intro to EP's

1.2 Hours Dual Flight Instruction

OBJECTIVE: To introduce the pilot to R22-specific off-airport procedures and foundational emergency maneuver skills, including slope operations, limited-run areas, and initial rotor/engine management without the governor. The student will develop confidence operating the R22 in confined environments while maintaining safe aircraft control.

LESSON CONTENT

Flight Tasks

1. Off-Airport Operations
2. Slope Operations
3. Shallow Approach & Running Landing
4. Engine rotor RPM control without the use of the governor
5. Low rotor RPM recognition and recovery
    a. In forward flight
    b. In a hover

COMPLETION STANDARDS: The student must demonstrate safe aircraft handling during all off-airport operations, maintain positive aircraft control during slope landings and running landings, and properly recognize and recover from low-RPM conditions in both hover and forward flight. Satisfactory performance requires adherence to R22 limitations, smooth control inputs, proper use of power and RPM, and instructor-judged readiness to progress to more advanced EP training.

Flight Lesson 3: Emergency Procedures 2

1.2 Hours Dual Flight Instruction

OBJECTIVE: To introduce the pilot to fundamental R22 autorotation procedures, including entry, RPM management, glide control, and flare/power-recovery technique. The student will also learn to recognize and recover from vortex ring state while developing confidence in early-stage emergency maneuver training.

LESSON CONTENT

Flight Tasks

1. Vortex Ring State
2. Autorotations at altitude
3. Autorotations to a flare and power recovery

COMPLETION STANDARDS: The student must demonstrate understanding of proper autorotation entry, maintain safe rotor RPM and airspeed during the glide, and perform coordinated flares followed by smooth power recoveries. Vortex ring state recognition and recovery must be performed promptly and correctly. Satisfactory completion requires consistent positive aircraft control, adherence to R22 limitations, and instructor-assessed readiness to progress to more advanced autorotation training.

Flight Lesson 4: Emergency Procedures 3

1.2 Hours Dual Flight Instruction

OBJECTIVE: The student will expand their proficiency in emergency procedures by practicing advanced autorotations, hover power failures, and other emergency procedures. Emphasis is placed on maintaining aircraft control, proper configuration, and safe execution of each maneuver.

LESSON CONTENT

Flight Tasks

1. Autorotations at an entry altitude that permits safe maneuvering and recovery utilizing maximum glide configuration and minimum rate of descent configuration
2. Power Failure in a Hover
3. Other R22 Emergencies

COMPLETION STANDARDS: The lesson is complete when the student demonstrates an understanding of energy management by recognizing abnormal conditions, maintaining rotor RPM and airspeed within safe limits, and applying appropriate control inputs to safely recover from simulated emergencies in forward flight, hover, and autorotation scenarios.

Flight Lesson 5: Enhanced Autorotations

1.3 Hours Dual Flight Instruction

OBJECTIVE: The student will refine autorotation skills by applying advanced energy management techniques and coordinated control inputs to achieve precise landings from a variety of entry conditions. Training emphasizes judgment, accuracy, and adaptability when maneuvering to a designated landing area.

LESSON CONTENT

Flight Tasks

1. Review of Maneuvers Selected by CFI
2. Training in autorotation procedures and energy management, including utilizing a combination of flight control inputs and maneuvering to prevent overshooting or undershooting the selected landing area from an entry altitude that permits safe recovery

COMPLETION STANDARDS: The lesson is complete when the student demonstrates consistent control of rotor RPM, airspeed, and glide path through effective use of attitude and control inputs, and successfully manages energy to reach the selected landing area without overshooting or undershooting.

Flight Lesson 6: Areas of Weakness

1.3 Hours Dual Flight Instruction

OBJECTIVE: To identify and address the student's individual areas of weakness in R22 operations, reinforcing proper techniques, procedures, and decision-making. The lesson aims to strengthen overall proficiency and build consistency across all previously introduced skills.

LESSON CONTENT

Review

1. Areas of Student Weakness

COMPLETION STANDARDS: The student shows measurable improvement in previously weak areas, applies correct procedures with minimal prompting, and maintains safe, stable aircraft control throughout all tasks.

Flight Lesson 7: Review

1.3 Hours Dual Flight Instruction

OBJECTIVE: To review and evaluate the students' overall proficiency in R22 operations to ensure readiness for the end-of-course (EOC) check.

LESSON CONTENT

Assess & Review

1. Preflight
2. Runup
3. Normal Procedures
4. Emergency Procedures
5. Postflight

COMPLETION STANDARDS: The student demonstrates safe, consistent, and confident performance of normal and emergency R22 procedures, maintains positive aircraft control, and exhibits sound judgment and checklist discipline throughout all flight phases.

Flight Lesson 8: End of Course Check

1.3 Hours Dual Flight Instruction

OBJECTIVE: A 141 check instructor will evaluate the student's ability to act as PIC of the Robinson R22, including completion of the SFAR 73 flight training requirement tasks. The evaluation will confirm overall proficiency in normal and emergency procedures, aircraft handling, and decision-making.

LESSON CONTENT

Assess & Review

1. Preflight
2. Runup
3. Normal Procedures
4. Emergency Procedures
5. Postflight

COMPLETION STANDARDS: The evaluation is complete when the student demonstrates safe aircraft control, proper checklist discipline, and sound energy management in all phases of flight, meeting the performance standards required for graduation and PIC qualification under SFAR 73.