Lassen Community College Course Outline

AERO- 50 UAV/UAS Ground School 3 Units

I. Catalog Description

A ground school course designed specifically to provide complete aeronautical concepts related to unmanned aerial systems (UAS). It is designed to prepare the student for the Federal Aviation Administration (FAA) written examination for the part 107 UAS. In alignment with the FAA requirement to be 15 years of age to take the FAA Part 107 Knowledge Test, a minimum age of 14 at time of enrollment is required. Course may be repeated as needed for recertification. This course has been approved for Hybrid delivery.
Additionally, this class will explore careers and practical applications of UAS technology.
This is a web enhanced course; Computer and internet access are required.
Important Note:
To enhance Student learning experience, all students will be required to enroll in a supplementary online aviation class at an additional cost. This online component offers more in-depth coverage of advanced topics and tools essential for success in taking the Federal Aviation Administration (FAA) written examination for the part 107 UAS . Cost of the online component will be an additional $159.00 payable to the Pilot Institute https://pilotinstitute.com/.
Details regarding the online class, registration information, will be provided on the first day of the course.

Diversity Statement

Our commitment to diversity requires that we strive to eliminate barriers to equity and that we act deliberately to create a safe and inclusive environment where individual and group differences are valued and leveraged for the growth and understanding as an educational community.

Recommended Preparation: Prepared to enter Introduction to Academic Reading and Writing and Critical Thinking or equivalent through multiple measures. Alternate Reference Documents; United States Department of Transportation - Federal Aviation Administration (FAA) Advisory Circular AC 60-28B English Language Standard.

Prerequisite(s): In alignment with the FAA requirement to be 15 years of age to take the FAA Part 107 Knowledge Test, a minimum age of 14 at time of enrollment is required.

Corequisite(s): To enhance Student learning experience, all students will be required to enroll in a supplementary online aviation class at an additional cost. This online component offers more in-depth coverage of advanced topics and tools essential for success in taking the Federal Aviation Administration (FAA) written examination for the part 107 UAS . Cost of the online component will be an additional $159.00 payable to the Pilot Institute https://pilotinstitute.com/.
Details regarding the online class, registration information, will be provided on the first day of the course.

Additional Course Information

- Transfer Status: NT
- Total Number of Hours by Instructional Method: 51 Hours Lecture, 102 hours Expected Outside class hours, 153 Total Student Learning Hours
- Scheduled: Fall

II. Coding Information

Repeatability: Not Repeatable
Grading Option: Graded
Credit Type: - Degree Applicable
TOP Code: 302020

III. Course Objectives

A. Course Student Learning Outcomes:

Upon completion of the course, the student will be able to:

1. Demonstrate a basic understanding of UAS systems and aerodynamics
2. Apply basic understanding of airspace and related regulations to use of UAS.

B. Course Objectives:

Upon completion of the course the student will be able to:

1. Demonstrate a basic understanding of UAS systems and aerodynamics
2. Demonstrate basic understanding of airspace and related regulations
3. Identify the basic elements of weather and evaluate aviation weather reports
4. Identify the capabilities and limitations of UAS systems and calculate performance measures and weight and balance
5. Demonstrate basic understanding of applicable UAS regulations
6. Identify and analyze medical and physiological factors to consider
7. Identify airborne emergencies and prepare solutions
8. Demonstrate a basic understanding of pre-flight preparation and flight planning procedures

IV. Course Content

A. Outline of Topics

1. Introduction to UAS Systems, opportunities and obtaining a commercial certificate
2. Principles of flight
   a. Forces of flight
   b. Airfoil design
   c. Properties of air
3. Aerodynamics
   a. Propellers and rotors
   b. Axes of an aircraft
   c. Stability and control
4. Weather Formation
   a. Atmospheric composition
   b. Air masses
   c. Temperature and dew point
5. Obtaining Weather Information

    a. Weather resources
    b. Weather reports
    c. Significant weather reports
6. Hazardous Weather
    a. Effects of wind
    b. Cloud formation
    c. Convection
7. Airspace
    a. Classes
    b. Special Use
    c. Regulations
8. Aeronautical Charts
    a. Sectional charts
    b. Symbols
    c. FAA UAS Charts
9. Fitness for Flight
    a. Medicals
    b. Physiological conditions
    c. Health for pilots
10. Aeronautical Decision Making
    a. Risk management
    b. Hazardous attitudes
    c. PAVE checklist
11. Airworthiness
    a. Preflight inspections
    b. Maintenance
    c. Record keeping
12. Drone Flight Rules
    a. Commercial versus Personal use
    b. Line of sight
    c. Night operations
13. Operating Near Airports
    a. Controlled airspace
    b. Signage
    c. Radio communications
14. Hazards and Emergencies
    a. Batteries
    b. Flyaways
    c. Accident reporting
15. Loading and Performance
    a. Weight and balance
    b. Performance charts
    c. Calculations
16. Remote Pilot Certificate
    a. Testing
    b. Issuance
    c. Continuing education

V. Assignments

A. Appropriate Readings

1. The student will be required to read the assigned text and supplemental FAA material

B. Writing Assignments

1. The student will complete assigned homework problems such as weight and balance calculations.

C. Expected Outside Assignments

1. The student should expect to spend an average of two hours outside of class for each hour of lecture to complete the appropriate Readings and Writing/Computation assignments. Students may also view supplemental videos in conjunction with the textbook assignments.

D. Specific Assignments that Demonstrate Critical Thinking

1. The student will identify, analyze, and solve a wide variety of aeronautical problems including flight operations, weather and performance data.

VI. Methods of Evaluation

Traditional Evaluation

Term paper (topic choice, thesis statement, outline, bibliography, rough draft, final draft), homework, classroom discussion, essay, journals, lab demonstrations and activities, multiple choice quizzes, and participation. Final exam and assignments. Reports, Midterm and final Exams.

Hybrid Evaluation

Quizzes and exams could be administered in person and/ or online. Students will be expected to complete online assignments and activities equivalent to in class assignments and activities for the online portion of the course. Electronic communication, both synchronous and asynchronous (chat/forum) will be evaluated for participation and to maintain effective communication between instructor and students.

VII. Methods of Delivery

Check those delivery methods for which this course has been separately approved by the Curriculum/Academic Standards Committee

☒ Traditional Classroom Delivery
☐ Correspondence Delivery
☒ Hybrid Delivery
☐ Online Delivery

Traditional Classroom Delivery

Lecture, discussion, audio/visual aids, demonstration, group exercises, guest speakers, lab, individualized programs and other as needed.

Hybrid Delivery

A combination of traditional classroom and online instruction will be utilized. Each semester a minimum of 17 hours, or 1/3 of the lecture hours, will be taught

face-to face by the instructor and the remaining hours will be instructed online through the technology platform adopted by the District. Traditional class instruction will consist of exercises/assignments, lectures, visual aids, and practice exercises. Online delivery will consist of exercises/assignments, lecture posts, discussions, adding extra resources and other media sources as appropriate.

VIII. Representative Text and Supplies

A. Gardner, Bob and Devid Ison. *The Complete Remote Pilot*. Second Edition. 2018-2022 Aviation Supplies & Academics, Inc. ASA Part Number ASARPT ISBN 978-1-64425-207-9

B. Instructor Provided Materials:
   - FAA Remote Pilot Study Guide - FAA-G-8082-22
   - FAA Advisory Circular 107-2A
   - Federal Aviation Regulations / Aeronautical Information Manual "FAR/AIM" - ASA current edition

C. To enhance Student learning experience, all students will be required to enroll in a supplementary online aviation class at an additional cost. This online component offers more in-depth coverage of advanced topics and tools essential for success in taking the Federal Aviation Administration (FAA) written examination for the part 107 UAS . Cost of the online component will be an additional $159.00 payable to the Pilot Institute https://pilotinstitute.com/. Details regarding the online class, registration information, will be provided on the first day of the course.

IX. Course Status:

1. Current Status: Active
2. Original Approval Date: 6/14/2024
3. Course Originator: Dan Weaver
4. Board Approval Date: 6/10/2025
5. Chancellor's Office Approval Date: 6/14/2024
6. Revised By: Dan Weaver
7. Curriculum/Academic Standards Committee Revision Date: 5/20/2025