

# Course Outline of Record

Los Medanos College

2700 East Leland Road

Pittsburg CA 94565

Course Title: Remote Pilot Certification Preparation

Subject Area/Course Number: DRONE-010N

New Course  OR Existing Course

Author(s): Dave Wahl

Subject Area/Course No.: DRONE-010N

Units: NC

Course Title: Remote Pilot Certification Preparation

Discipline(s): Aeronautics, Electronic Technology

Pre-Requisite(s): none

Co-Requisite(s): none

**Advisories:** At least 16 years old, able to read, write, speak, and understand English, be in a physical and mental condition to safely fly a UAS

**Catalog Description:** This course reviews and prepares students to take the Federal Aviation Administration's initial aeronautical knowledge test, and help complete FAA Form 8710-13 for a remote pilot certificate, through lecture, discussion and individual flying of drones. It will help guide students on basic aeronautics and operations as they pertain to drone piloting.

**Schedule Description:** This course reviews and prepares you to take the Federal Aviation Administration's initial aeronautical knowledge test, and helps you complete FAA Form 8710-13 for a remote pilot certificate, through lecture, discussion and individual flying of drones. It will help guide you on basic aeronautics and operations as they pertain to drone piloting.

Hrs/Mode of Instruction: Lecture: \_18\_ Scheduled Lab: \_\_\_\_ HBA Lab: \_\_\_\_ Composition: \_\_\_\_ Activity: \_\_\_\_ Total Hours \_18\_\_

Credit	<input type="checkbox"/> Credit Degree Applicable (DA)	Grading	<input checked="" type="checkbox"/> Pass/No Pass/Satisfactory Progress (P/NP/SP)	Repeatability	<input type="checkbox"/> 0
	<input type="checkbox"/> Credit Non-Degree (NDA)		<input type="checkbox"/> Letter (LR)		<input type="checkbox"/> 1
	<input checked="" type="checkbox"/> Noncredit (NC)		<input type="checkbox"/> Student Choice (SC)		<input type="checkbox"/> 2
					<input type="checkbox"/> 3
					<input checked="" type="checkbox"/> Unlimited

Last date of Assessment: \_\_\_\_\_

Cohort #: \_4\_\_

Please apply for:

LMC General Education Requirement(s): none

Transfer to:  CSU  UC  IGETC Area \_\_\_\_  CSU GE Area \_\_\_\_  C-ID Number \_\_\_\_

Course is Baccalaureate Level:  Yes  No

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**Signatures:**

Department Chair _____	Date _____
Librarian _____	Date _____
Dean (Technical Review) _____	Date _____
Curriculum Committee Chair _____	Date _____
President/Designee _____	Date _____
CCCCD Approval Date (Board or Chancellor's Office) _____	Date _____

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**STAND ALONE COURSE:**                      **YES**                      **NO**

**Course approved by Curriculum Committee as Baccalaureate Level:**                      **YES**                      **NO**

**LMC GE Requirement Approved by the Curriculum Committee:** \_\_\_\_\_

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**FOR OFFICE OF INSTRUCTION ONLY. DO NOT WRITE IN THE SECTION BELOW.**

Begin in Semester \_\_\_\_\_    Catalog year 20\_\_\_\_/20\_\_\_\_    Class Max: \_\_\_\_\_  
Dept. Code/Name: \_\_\_\_\_    T.O.P.s Code: \_\_\_\_\_    Crossover course 1/ 2: \_\_\_\_\_  
ESL Class: \_\_\_\_\_ Yes / No    DSPS Class: \_\_\_\_\_ Yes / No    Coop Work Exp: \_\_\_\_\_ Yes / No

- |                   |  |                 |  |                          |   |
|-------------------|--|-----------------|--|--------------------------|---|
| <b>Class Code</b> | <input type="checkbox"/> A Liberal Arts & Sciences         | <b>SAM Code</b> | <input type="checkbox"/> A Apprenticeship        | <b>Remediation Level</b> | <input type="checkbox"/> B Basic Skills       |
|                   | <input type="checkbox"/> B Developmental Preparatory       |                 | <input type="checkbox"/> B Advanced Occupational |                          | <input type="checkbox"/> NBS Not Basic Skills |
|                   | <input type="checkbox"/> C Adult/Secondary Basic Education |                 | <input type="checkbox"/> C Clearly Occupational  |                          |   |
|                   | <input type="checkbox"/> D Personal Development/Survival   |                 | <input type="checkbox"/> D Possibly Occupational |                          |   |
|                   | <input type="checkbox"/> E For Substantially Handicapped   |                 | <input type="checkbox"/> E* Non-Occupational     |                          |   |
|                   | <input type="checkbox"/> F Parenting/Family Support        |                 |  |                          |   |
|                   | <input type="checkbox"/> G Community/Civic Development     |                 |  |                          |   |
|                   | <input type="checkbox"/> H General and Cultural            |                 |  |                          |   |
|                   | <input type="checkbox"/> I Career/Technical Education      |                 |  |                          |   |
|                   | <input type="checkbox"/> J Workforce Preparation Enhanced  |                 |  |                          |   |
|                   | <input type="checkbox"/> K Other non-credit enhanced       |                 |  |                          |   |
|                   | <input type="checkbox"/> Not eligible for enhanced         |                 |  |                          |   |
- \*Additional criteria needed
- 1 One level below transfer  
 2 Two levels below transfer  
 3 Three levels below transfer

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## Institutional Student Learning Outcomes:

**General Education SLOs:**

At the completion of the LMC general education program, a student will:

1. read critically and communicate effectively as a writer and speaker.
2. understand connections among disciplines and apply interdisciplinary approaches to problem solving.
3. think critically and creatively
4. consider the ethical implications inherent in knowledge, decision-making and action.
5. possess a worldview informed by diverse social, multicultural and global perspectives.

None

## Program-Level Student Learning Outcomes (PSLOs): n/a

## Course-Level Student Learning Outcomes (CSLOs):

1. Explain applicable FAA regulations relating to sUAS rating privileges, limitations, and flight operation. (PSLO 1, 2)
2. Demonstrate understanding and knowledge of properly piloting UAS/Drones. (PLSO 3, 4)
3. Predict and demonstrate an understanding of aviation weather sources and effects of weather on sUAS performance. (PSLO 3)

## Assessment Instruments:

	Homework Assignments	Lab Projects	Midterms and Final
CSLO 1	X		X
CSLO 2	X		X
CSLO 3	X		X

### CSLO 1:

**Homework Assignments:** Will be assessed through weekly quizzes demonstrating mastery of the airman knowledge test relating to sUAS rating privileges, limitations, and flight operation.as written in the official FAA Remote Pilot sUAS Study Guide.

**Mid-Term and Final Exam:** FAA Part 107 practice exams will be administered for mid-term and final exams to measure student's knowledge of 1) Airspace, 2) Loading and Performance and 3) Operations relating to commercial drones.

### CSLO 2:

**Homework Assignments:** Will be assessed through short essays demonstrating mastery of aeronautical decision-making and judgement related to properly piloting UAS/Drones

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**Mid-Term and Final Exam:** FAA Part 107 practice exams will be administered for mid-term and final exams to measure student's knowledge of 1) Loading and Performance, 2) Crew resource management, 3) Operations relating to commercial drones.

## **CSLO 3:**

**Homework Assignments:** Will be assessed through weekly quizzes demonstrating mastery of the airman knowledge test related to aviation weather sources and effects of weather on sUAS performance as written in the official FAA Remote Pilot sUAS Study Guide.

**Mid-Term and Final Exam:** FAA Part 107 practice exams will be administered for mid-term and final exams to measure student's knowledge of 1) Aviation weather sources, 2) Effects of weather on small unmanned aircraft performance 3) Emergency procedures. relating to commercial drones.

## **Method of Evaluation/Grading:**

**A (Passing) level student work:** Tests and exams show a coherent and consistent understanding of all systems. The student is able to name the components and the purpose of the common systems. Through both practical hands-on and by exam the student is able to explain and operate major systems. The student is able to clearly communicate verbally and in written form the system design, operation and limitations.

**C (Satisfactory Progress) level student work:** The student demonstrates through exams and practical hands on projects an understanding of most but not all systems. The student can name most of the major systems but cannot name or explain many of the components that make up the different systems. The student can name and adjust the major but does not recognize some of these components and how they work with each other. When writing mission orders, the needed precautions are clear but lacks the details to properly explain why.

Student progress in this course will be evaluated through written examinations covering required text materials, and lab projects required for all students. The evaluation will consist as follows:

1 midterm @ 100 points = 100 points  
1 final exam @ 100 points = 100 points  
10 Quiz's @ 10 points = 100 points  
Total 300 points

## **Course Content:**

### 1. Introduction

A. Overview of FAA regulations

### 2. Applicable regulations

### 3. Airspace classification, operating requirements, and flight restrictions

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- A. Controlled airspace
  - B. Uncontrolled airspace
  - C. Special use airspace
  - D. Air traffic control and the national airspace system
  - E. Visual flight rules, terms and symbols
4. Aviation weather sources
    - A. Surface aviation weather operations
    - B. Aviation weather reports
    - C. Aviation forecasts
    - D. Convective significant meteorological information
5. Effects of weather on small unmanned aircraft performance
    - A. Density altitude
    - B. Performance
    - C. Measurement of atmospheric pressure
    - D. Effect of obstruction on wind
    - E. Low-level wind shear
    - F. Atmospheric stability
    - G. Temperature/dew point relationship
    - H. Clouds
    - I. Fronts
    - J. Mountain flying
    - K. Structural icing
    - L. Thunderstorm life cycle
    - M. Ceiling
    - N. Visibility
6. Small unmanned aircraft loading
    - A. Weight
    - B. Stability
    - C. Load factors
    - D. Weight and Balance
7. Emergency Procedures
  8. Crew resource management
  9. Radio communications procedures
  10. Determining the performance of small unmanned aircraft
    - A. Effect of temperature on density
    - B. Effect of humidity on density
11. Physiological factors affecting pilot performance
    - A. Physiological/medical factors that affect pilot performance

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B. Vision and flight

12. Aeronautical decision-making and judgment

- A. History of ADM
- B. Risk management
- C. Crew resource management and single-pilot resource management
- D. Hazard and risk
- E. Human factors
- F. The decision-making process
- G. Decision-making in a dynamic environment
- H. Situation awareness

13. Airport operations

- A. Types of airports
- B. Sources for airport data
- C. Latitude and longitude
- D. Antenna towers

14. Maintenance and preflight inspections procedures

15. Taking the test

## **Lab By Arrangement Activities (If Applicable): none**

### **Instructional Methods:**

- Lecture
- Lab
- Activity
- Problem-based Learning/Case Studies
- Collaborative Learning/Peer Review
- Demonstration/Modeling
- Role-Playing
- Discussion
- Computer Assisted Instruction
- Other (explain) \_\_\_\_\_

### **Textbooks:**

1. Federal Aviation Administration. Pilot's Handbook of Aeronautical Knowledge, 1st ed. Washington DC: Federal Aviation Administration, 2008 Recommended
2. Rupprecht, Jonathan. Drones: Their Many Civilian Uses and the U.S. Laws Surrounding Them, 2nd ed. CreateSpace Independent Publishing Platform, 2015 Recommended