



PALOMAR COLLEGE COURSE OUTLINE FOR NON-CREDIT COURSE

Course Number and title:

N GEOG 900 Introduction to Drone Safety and Applications

Number of Semester Hours:

Lab: 0.0
Lecture: 18.0

Catalog Description

A survey of the regulations governing small unmanned aircraft systems (sUAS) operations and safety considerations. Existing and emerging trends of sUAS applications in various industries will also be discussed.

Student Learning Outcomes

There are no course outcomes for this proposal.

Specific Course Objectives

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

1. Identify the Federal Aviation Administration (FAA) regulations governing small unmanned aircraft systems (sUAS) operations;
 2. List the safety considerations when operating a small unmanned aerial vehicle;
 3. Establish a set of "best practices" when operating an sUAS;
 4. List ways to verify that the small UAS is in condition for safe operation;
 5. Identify the effects of weather on small UAS operations;
 6. Discuss existing and emerging trends of sUAS applications in various industries.
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Methods of Instruction

Methods of Instruction may include, but are not limited to, the following

1. Lecture
 2. Videos/Film
 3. Discussion
 4. Learning Modules
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Content in Terms of Specific Body of Knowledge

1. Basic sUAS Safety Principles and Regulations
 - a. Safe, Legal, and Ethical Operation of an sUAS.
 - i. Recreational vs. Commercial Operators
 - ii. Federal, State, and Local Regulations

- iii. Privacy Issues
 - b. Academy of Model Aeronautics (AMA) Safety Code.
 - 2. Crew Resource Management
 - a. Pilot in Command
 - i. Qualifications
 - ii. Responsibilities
 - b. Person Manipulating Controls
 - i. Qualifications
 - ii. Responsibilities
 - c. Visual Observer
 - i. Qualifications
 - ii. Responsibilities
 - 3. First Person View Systems
 - a. Requirements and Limitations.
 - i. Range, Altitude, Weight, Speed.
 - 4. Failsafe, Stabilization, and Autopilot Systems
 - a. Requirements and Limitations.
 - b. Range, Altitude, Weight, Speed.
 - 5. The National Airspace
 - a. Controlled
 - i. Identification
 - ii. Operational Requirements
 - b. Uncontrolled Airspace
 - i. Identification
 - ii. Operational Requirements
 - 6. Pre-Flight Considerations
 - a. Inspection and Recommended Maintenance.
 - b. Loading Considerations.
 - c. The Effects of Weather.
 - 7. Emergency Situations
 - a. Abnormal and Emergency Situations
 - b. Accident Reporting Requirements.
 - 8. Mission Planning: Best Practices
 - 9. Applications
 - a. Surveying.
 - b. Mapping.
 - c. Environmental Monitoring.
 - d. Engineering.
 - e. Precision Agriculture.
 - f. Structural Inspection.
 - g. Photography and Videography.
 - h. Remote Sensing and Image Analysis.
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Textbooks/Resources

Textbooks

1. Farnsworth, Peter. *Drone Safety Field Guide, ed.*. CreateSpace Independent Publishing, 2016.
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Assignments

Required Reading:

Examples of reading materials are case studies of drone applications for individual entrepreneurs, for local governmental agencies, for profit businesses, and for not-for profit organizations.

Required Writing:

Students will turn in a case study analysis (2 - 3 page essay).

Critical Thinking:

Students will analyze multiple flight situations and predict outcomes. This will require them to synthesize lecture and reading information, and challenge their critical, analytical skills.

Outside Assignments:

Outside assignments will include reading texts, review of lecture notes, writing assignments, video assignments, and exam preparation.

Methods of Determining Whether the Stated Objectives have been met by Students

Methods utilized to evaluate the degree of accomplishment of course objectives are:

1. Standardized instrument objectively measuring student knowledge
 2. Competency based written and practical tests which demonstrate the student's ability to apply skills and concepts learned to minimum standards established by the instructor.
 3. Standard instrument measuring student subjective opinion
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Contact Person

Wing H. Cheung

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