San Jose State University
Department of Aerospace Engineering

AE 173 – Unmanned Air Vehicle (UAV) Design

Fall 2018

INSTRUCTOR: Dr. Sean Swei
NASA Ames Research Center
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seanswei@gmail.com

TIME/ROOM: MoWe 04:30 – 05:45pm  Eng. 164
OFFICE HOUR: MoWe 05:45 – 06:30pm  Eng. 272

PRE/CO-REQUISITE: Basic knowledge of flight dynamics and controls, and familiarity of simulation tools, such as MATLAB/Simulink.

TEXTBOOK: Class Notes


DESCRIPTION: Introduction of unmanned aircraft systems (UAS) and relevant design and operation considerations. Vehicle dynamics and flight controls. UAS flight path planning and optimization. Computer simulations.
GOALS: The goals of this course are to study:
- Unmanned air vehicle (UAV) design and analysis for flight missions
- UAV models
- Flight control design utilizing successive loop closure
- UAV sensors and actuators
- Advanced UAV configurations

EXPECTATIONS: Students are expected to work on projects of their choice. In addition, they are encouraged to dovetail their own graduate research with the class projects.

GRADING: Grading is based on the following:
- **Homework:** 30% (due before the class, *no late HW!*)
- **Project:** 70%
  - Literature survey: 15%
  - Mid-term review: 15%
  - Final presentation/report: 40%

GRADING SCALE: A+: 100 – 97%; A: 96.9 – 93%; A-: 92.9 – 90%; B+: 89.9 – 87%; B: 86.9 – 83%; B-: 82.9 – 80%; C+: 79.9 – 77%; C: 76.9 – 73%; C-: 72.9 – 70%; D+: 69.9 – 67%; D: 66.9 – 63%; D-: 62.9 – 60%; F: < 59.9%.
TOPICS TO BE COVERED:

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<th>Lecture Topic(s)</th>
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<td>Derivation of equations of motion</td>
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