

CS3892/5892 Unmanned Aircraft Design

- Undergraduate/Graduate Student course
 - One Term
- No Formal Classroom Lectures
 - Class spaces:
 - Laboratory and
 - Conference room
- Modeled on corporate Project design and development



CS3892/5892 Unmanned Aircraft Design

- Intentionally Interdisciplinary
 - Undergraduate students: CS (9), CMPE (5), EE (3), ME (5), ES (1), Physics (1)
 - Graduate students: CS (1), ME (3)
- Intentionally Junior/Senior/Graduate Level
 - Juniors (17), Seniors (7)

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- Final Structure
 - Week 1: Problem definition, Brain storm solutions, Constraint analysis
 - Weeks 2 – 3: Requirements definitions, Determine team structure
 - Weeks 4 – 5: Team-level Requirement refinement, Specification development, Documentation
 - Weeks 6 – 10: Team-level Prototyping, Component Development, Validation
 - Weeks 11 – 15: Refinement, Flight Testing, Documentation

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- Team Structure
 - Payload
 - Mechanism: CS (2), EE (1), ME (4)
 - Sensor: CS (3), CMPE (2)
 - Platform: CS (3), CMPE (1), EE (2), ME (2)
 - Simulation: CS (3),
CMPE (2), ES (1),
ME (1), Physics (1)



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- Challenges
 - Typical real world
 - FAA/University



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- Summer Structure
 - VUSE Summer Research Program: ME
 - ISIS Summer Intern: EE
- Fall Structure
 - Volunteers: CS (2), ME (1)
 - Independent Study: CS (3)



CS3892/5892 Unmanned Aircraft Design

- Casualties
 - Two NUCs
 - Three Propellers
 - Four PixHawks
 - Seven Lithium Ion Batteries
 - Countless 3-D printed parts



Thankfully, no students were harmed during this project!