MECH - 4395 – UNMANNED AERIAL SYSTEMS (Spring 2019)

Instructor Dr. Mike McGee
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Office Hours: By appointment

Meeting Times & Location: Tues/Thurs, 1500-1620 hrs, LART 107
Description: This class will cover a wide range of engineering and operational aspects of Unmanned Aerial Systems. The first half of the course will cover aerodynamics, propulsion, sensor theory and use cases, datalinks and control, and real-world UAS applications. The second half of the course will cover the knowledge necessary to plan and execute basic UAS missions. Students will have the opportunity to gain their FAA Part 107 UAS license in the process (student cost is $150 if you choose to take the Federal Aviation Administration exam necessary to obtain the license).

Required Reading:
As assigned, no textbook

Course Requirements:
1. Midterm Exam – 25%
2. Final Exam – 50% (you will be exempt from taking final exam if you obtaining Part 107 license before the Final Exam)
3. Class Participation – 25%

Grading: 100-90 (A), 89-80 (B), 79-70 (C), 69-60 (D), 59 & below (F)

Course Schedule:

Tuesday	22 JAN	Overview
Thursday	24 JAN	UAS History
Tuesday	29 JAN	Current UAS Use Cases
Thursday	31 JAN	Aerodynamics 1
Tuesday	05 FEB	Aerodynamics 2
Thursday	07 FEB	Propulsion 1
Tuesday	12 FEB	Propulsion 2
Thursday	14 FEB	Common Sensors
Tuesday	19 FEB	Specialized Sensors
Thursday	21 FEB	Datalinks
Tuesday	26 FEB	Command and Control
Thursday	28 FEB	Future UAS Use Cases
Tuesday	05 MAR	Mid-Term Review
Thursday	07 MAR	Mid-Term Exam in class
Tuesday	12 MAR	UAS Regulations
Thursday	14 MAR	Airspace 1
Tuesday	26 MAR	Airspace 2
Thursday	28 MAR	Airspace 3
Tuesday	02 APR	Aviation Weather
Thursday	04 APR	Effects of Weather on UAS

Tuesday	09 APR	Dynamic Loading
Thursday	11 APR	Performance of UAS
Tuesday	16 APR	Airport Operations
Thursday	18 APR	Radio Communication Procedures
Tuesday	23 APR	Emergency Procedures
Thursday	25 APR	Crew Resource Management
Tuesday	30 APR	Physiological Factors
Thursday	02 MAY	Aeronautical Decision-Making and Judgment
Tuesday	07 MAY	Final Exam Review
Thursday	09 MAY	Final Exam Review
Tuesday	14 DEC	No Class (Instructor office time)
Thursday	16 DEC	Final Exam 1600-1845

Graduate Credit
Graduate students may receive credit for this class based on 1) approval from the Mechanical Engineering Department Chair, and 2) additional workload as assigned by the instructor.

Plagiarism and Academic Dishonesty Statement: Cheating is unethical and not acceptable. Plagiarism is using information or original wording in a paper without giving credit to the source of that information or wording: it is also not acceptable. Do not submit work under your name that you did not do yourself. You may not submit work for this class that you did for another class. If you are found to be cheating or plagiarizing, you will be subject to disciplinary action, per UTEP catalog policy. Refer to http://www.utep.edu/dos/acadintg.htm for further information.

Disabilities Statement:
The course instructor will make any reasonable accommodations for students with limitations due to disabilities, including learning disabilities. Please see me personally before or after class in the first two weeks or make an appointment, to discuss any special needs you might have. If you have a documented disability and require specific accommodations, you will need to contact the Center for Accommodations and Support Services (CASS) in the East Union Bldg., Room 106 within the first two weeks of classes. The CASS Office can also be reached in the following ways:
Website: http://sa.utep.edu/cass/
Phone: (915) 747-5148 voice or TTY
Fax: (915) 747-8712
E-Mail: cass@utep.edu