MECH - 4395 – UNMANNED AERIAL SYSTEMS (Fall 2018)

Instructor Dr. Mike McGee
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E-mail: mbmcgee2@utep.edu
Office Hours: By appointment

Meeting Times & Location: Mondays/Wednesdays, 0900-1020 hrs, Chemistry Computer Sci Bldg G.0208

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:

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<td>Overview</td>
<td>UAS History</td>
<td>NC Current UAS Use Cases</td>
<td>Aerodynamics 1</td>
<td>Aerodynamics 2</td>
<td>Propulsion 1</td>
<td>Propulsion 2</td>
<td>Common Sensors</td>
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<td>Datalinks 1</td>
<td>Command and Control 1</td>
<td>Future UAS Use Cases</td>
<td>Mid-Term Review</td>
<td>Mid-Term Exam</td>
<td>UAS Regulations</td>
<td>Airspace 1</td>
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Wednesday 31 OCT  Effects of Weather on UAS
Monday 05 NOV  Dynamic Loading
Wednesday 07 NOV  Performance of UAS
Monday 12 NOV  Airport Operations
Wednesday 14 NOV  Radio Communication Procedures
Monday 19 NOV  Emergency Procedures
Wednesday 21 NOV  Crew Resource Management
Monday 26 NOV  Physiological Factors
Wednesday 28 NOV  Aeronautical Decision-Making and Judgment
Monday 03 DEC  Maintenance and Preflight Procedures
Wednesday 05 DEC  Final Exam Review
Monday 10 DEC  Final Exam

**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. For Fall 2018, that extra workload will consist of integrating LIDAR sensors on an existing Intel sUAS and the collecting Simultaneous Location and Mapping data. Further details from Dr McGee.

**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](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/](http://sa.utep.edu/cass/)
Phone: (915) 747-5148 voice or TTY
Fax: (915) 747-8712
E-Mail: cass@utep.edu