ASEN 4013 -- Foundations of Propulsion – Fall 2021 – MWF 9:40-10:30 am – Aero 120

Instructor: Prof. Timothy K. Minton
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Office Hours: Mon. 1:30-3:00 pm; Wed. 3:00-4:30 pm; AERO 371

TA: Erin Acuña
TFs: Angel Hoffman, Johnathan Tucker
TA/TF Office Hours: Mondays, 5:30 pm – 7:00 pm, AERO N353
Tuesdays, 9:00 am – 10:30 pm, AERO N353
Thursdays, 11:00 am – 12:30 pm, AERO N353

Web Page: This course uses CANVAS and Slack.

Overview: Basic one-dimensional flows: isentropic; area change; heat addition. Overall performance characteristics of propellers, ramjets, turbojets, turbofans, rockets. Performance analysis of inlets and exhaust nozzles, compressors, burners, and turbines. Rocket flight performance, single and multi-stage chemical rockets, liquid, and solid propellants.

Course Material: Lecture notes and relevant supplementary material will be posted to Canvas. These materials are sufficient for completing all homework assignments and exams. The textbook is an additional, recommended reference.

Recommended Textbook: J. D. Mattingly and K. M. Boyer, *Elements of Propulsion: Gas Turbines and Rockets*, AIAA, 2nd Edition, 2016.

Supplementary Textbooks: topTf2.k

indicates your achievement in the course according to AES Department standards based on experience, interactions with industry, government laboratories, others in academia, and according to the criteria established by the ABET accreditation board.

Problem Sets:

- The purpose of the problem sets is to aid the student in learning by working on problems related to the course material.
- Eight problem sets of equal weights will be assigned. It is anticipated that Problem Sets 7&8 will be due at the same time.
- Students must scan (or photograph) their problem sets and submit them through Canvas by 5:00 pm on their due dates. **Late problem sets will not be accepted.** Insufficiently legible work will not be graded and a score of zero will be recorded. Questions about the problem sets should first be directed to the TA or a TF as soon as the questions arise.
- Problem set solutions will be posted on Canvas.

permitted during the exams. Electronic devices are not permitted during exams and must be turned off and put away during the exam – electronic devices include, but are not limited to: mobile phones, computers, tablets, Kindles, smart watches, and AR headsets. If a sexual orientation, gender identity, gender expression, veteran status, political affiliation, or political philosophy. Those who fail to adhere to behavioral standards may be subject to discipline. For more information, see the policies on classroom behavior and the Student Conduct and Conflict Resolution policies.

Requirements for COVID-19:

- As a matter of public health and safety due to the pandemic, all members of the CU Boulder community and all visitors to campus must follow university, department and building requirements, and all public health orders in place to reduce the risk of spreading infectious disease.

Preferred Student Names and Pronouns:
CU Boulder recognizes that students' legal information doesn't always align with how they identify. Students may update their preferred names and pronouns via the student portal; those preferred names and pronouns are listed on instructors' class rosters. In the absence of such updates, the name that appears on the class roster is the student's legal name.

Honor Code:
All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code (honor@colorado.edu; 303-492-5550). Students who are found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found on the Honor Code website.

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation:

- CU Boulder is committed to fostering a positive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct (including sexualbs[(s)-1 (e)4 (xua)4 (l)-ep7<2 (ts481.2 47c.)]TJ-0.t[(s)-1f.

ASEN 4013 – FALL 2021 SCHEDULE (subject to change with notification)

MONDAY	WEDNESDAY	FRIDAY
Aug. 23	Aug. 25	Aug. 27
Aug. 30	Sept. 1	Sept. 3
Sept. 6 LABOR DAY no class	Sept. 8 **Prob. Set 1 due, 5:00 pm**	Sept. 10
Sept. 13	Sept. 15	Sept. 17
Sept. 20	Sept. 22 **Prob. Set 2 due, 5:00 pm**	Sept. 24
Sept. 27	Sept. 29 **EXAM 1**	Oct. 1
Oct. 4	Oct. 6 **Prob. Set 3 due, 5:00 pm**	Oct. 8
Oct. 11	Oct. 13	Oct. 15
Oct. 18	Oct. 20 **Prob. Set 4 due, 5:00 pm**	Oct. 22
Oct. 25	Oct. 27	